



REQUEST FOR AMENDMENTS OR CHANGES TO THE WESM MANUALS

Proposals made only under this prescribed form shall be accepted and considered as submitted:

This request for amendments to the WESM Rules can be submitted to:

PEM Board
Attention: **PEM Committee Secretariat**
Philippine Electricity Market Corporation
18/F Robinsons Equitable Tower
ADB Avenue, Ortigas Center
Pasig City, 1605 Philippines
Email address: rcc@wesm.ph
Fax Number: (+632) 395-2704



I. Proposer's Information

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Designation	President
Company	Philippine Electricity Market Corporation
Company Address	18/F Robinsons Equitable Tower, ADB Avenue
	Ortigas Center, Pasig City 1600
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II. WESM Manual Amendments Information

Title of WESM Manual being commented:
WESM Metering Standards and Procedures

Nature of Request (please indicate with **x**)
 Addition
 Alteration
 Deletion
 Clarification
 Clerical Correction

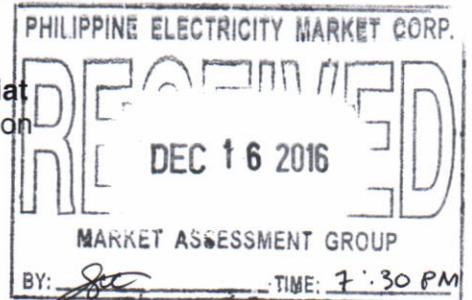


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II. WESM Manual Amendments Information

Title of WESM Manual being commented: <u>WESM Metering Standards and Procedures</u>
Nature of Request (please indicate with x) <input checked="" type="checkbox"/> Addition <input checked="" type="checkbox"/> Alteration <input checked="" type="checkbox"/> Deletion <input checked="" type="checkbox"/> Clarification <input checked="" type="checkbox"/> Clerical Correction

III. Proposed Amendment

Title	Section	Provision	Proposed Amendment	Rationale
WESM Metering Manual	1	1 WESM Metering Manual	1 WESM Metering Manual <u>Introduction</u>	Consistent with the format of Market Manuals
Introduction	1.1	Introduction	Introduction <u>Background</u>	
About this Manual	1.1.1	1.1.1. About this Manual	1.1.1. About this Manual	
About this Manual	1.1.1	This manual consolidates the pertinent metering procedures, flowcharts, policies and standards intended generally for WESM Participants and more particularly for Metering Services Providers (MSP) to be used in the commercial operation of the WESM. These procedures are divided into topics integrated into chapters which formulate detailed guidelines, descriptions of the equipment, the steps involved with its significant periods, and tables, etc. This manual shall form part and parcel of the supplementary requirements on metering for the WESM rules.	This manual <u>Market Manual</u> consolidates the pertinent metering procedures, flowcharts, policies and standards intended generally for WESM Participants and more particularly for Metering Services Providers (MSP) to be used in the commercial operation of the WESM. These procedures are divided into topics integrated into chapters which formulate detailed guidelines, descriptions of the equipment, the steps involved with its significant periods, and tables, etc. This manual <u>Market Manual</u> shall form part and parcel of the supplementary requirements on metering for the WESM rules.	Clerical revisions
		(from 1.1.6 Background) Pursuance to Section 2.3.6. of the WESM rules, any aspiring Metering Services Provider (MSP) who wants to join the WESM shall register with the Market Operator provided it should passed the requirements of section 4.4 of the WESM. In addition, the Trading Participant/MSP should register the desired metering facilities to be declared as WESM participants in accordance to section 4.3.1 (c) of the WESM rules.	Pursuance <u>Pursuant to WESM Rules Clause Section 2.3.6. of the WESM rules</u> , any aspiring Metering Services Provider (MSP) who wants to join the WESM shall register with the Market Operator provided it should passed <u>satisfies</u> the requirements of section <u>WESM Rules Clause 4.4 of the WESM</u> . In addition, the Trading Participant/MSP should register the desired metering facilities to be declared as WESM participants <u>participate in the spot market</u> in accordance to section <u>WESM Rules Clause 4.3.1.1 (c) of the WESM rules</u> .	<ul style="list-style-type: none"> • Updated reference clause • Clerical revisions and moved paragraphs under Section 1.1.6 for clarity

Title	Section	Provision	Proposed Amendment	Rationale
		<p>As stipulated under section 4.8.2 of the WESM rules, Market Operator should create and maintain a metering database which composed of energy (kilowatt) data, reactive (kilovar) energy, etc of Trading Participants that shall be used for settlement and for resolution in cases of disputes.</p> <p>Likewise, said metering data shall undergo the procedural steps of validation and substitution process as per section 4.9 of the WESM rules.</p>	<p>As stipulated under section WESM Rules Clause 4.8.2 of the WESM rules, the Market Operator should create and maintain a metering database which is composed of energy (kilowatt) data, reactive (kilovar) energy, etc among others, of Trading Participants that shall be used for settlement and for resolution in cases of disputes.</p> <p>Likewise, said metering data shall undergo the procedural steps of validation and substitution process as per section WESM Rule Clause 4.9 of the WESM rules.</p>	
Purpose	1.2	<p>The intention of this manual is to :</p> <ol style="list-style-type: none"> a. Provide for the process for the registration of a Metering Services Provider b. Provide for the process of registration of metering installation (MI) of any delivery point which will participate in the WESM. c. Provide for the smooth interfacing of meter data collection process in accordance with WESM Rules. d. Provide for the efficient validation, estimating and editing of meter-settlement ready data. e. Provide for a prompt procedural manner of reporting in cases where Meter Trouble exists. f. Provide for the Metering Standards to augment the harmonized version of the Grid and Distribution Codes and WESM rules. g. Provide the procedures for a unique numbering system for the Site and 	<p>The intention of this manual Market Manual is to provide the following:</p> <ol style="list-style-type: none"> a. Provide for the Process process for the registration of a Metering Services Provider; b. Provide for the Process process of registration of metering installation (MI) of any delivery point which will participate in the WESM-_i; c. Provide for the Smooth smooth interfacing of meter data collection process in accordance with WESM Rules-_i; d. Provide for the Efficient efficient validation, estimating and editing of meter-settlement ready data-_i; e. Provide for a Prompt prompt procedural manner of reporting in cases where Meter Trouble exists-_i; f. Provide for the Metering Standards to augment the harmonized version of the Grid 	Clerical revisions

Title	Section	Provision	Proposed Amendment	Rationale
		Equipment Identification System of the metering facilities.	and Distribution Codes and WESM rules; and g. Provide the Procedures procedures for a unique numbering system for the Site and Equipment Identification System of the metering facilities.	
Scope	1.1.3	This manual covers the procedural steps from the registration of the MSP and the metering installations they serve, to the meter data collection and the Validation, Estimating and Editing (VEE) processes as well as the publishing of meter data into the MO website, up to the maintenance and security aspect of the metering facilities with basis coming from the Metering Installation Standards and the Site Equipment and Identification (SEIN).	This manual Market Manual covers the procedural steps from the registration of the MSP and the metering installations they serve, to the meter data collection and the Validation, Estimating and Editing (VEE) processes as well as the publishing of meter data into the MO market information website, up to the maintenance and security aspect of the metering facilities with basis coming from the Metering Installation Standards and the Site Equipment and Identification (SEIN).	<ul style="list-style-type: none"> • Updated reference to the MO public website that is consistent with the WESM Rules • Clerical revisions
Intended Audience	1.1.4	<p>1.1.4 Intended Audience</p> <p>This manual shall be used as a guide for the Network Service Provider (NSP), the Distribution Utilities, the Metering Services Providers and their respective Trading Participants which in this case are the Generator Companies and End Customers.</p>	<p>1.1.4 Intended Audience</p> <p>This manual shall be used as a guide for the Network Service Provider (NSP), the Distribution Utilities, the Metering Services Providers and their respective Trading Participants which in this case are the Generator Companies and End Customers.</p>	Already a given.
Conventions	1.1.5	<p>1.1.5 Conventions</p> <p>The standard conventions to be followed in this manual are as follows:</p> <ol style="list-style-type: none"> 1. The word 'shall' denotes a mandatory requirement; 2. Terms and acronyms used in this manual including all Parts thereto that are italicized have the meanings ascribed thereto in the 	<p>1.1.5 Conventions</p> <p>The standard conventions to be followed in this manual are as follows:</p> <ol style="list-style-type: none"> 1. The word 'shall' denotes a mandatory requirement; 2. Terms and acronyms used in this manual including all Parts thereto that are italicized have the meanings ascribed thereto in the 	Already provided under Section 1.4, as revised

Title	Section	Provision	Proposed Amendment	Rationale
		WESM Rules, the Grid Code, the Distribution Code and in this manual; 3. Double quotation marks are used to indicate titles of publications, legislation, forms and other documents. 4. Any procedure-specific convention(s) shall be identified within the specific document itself.	WESM Rules, the Grid Code, the Distribution Code and in this manual; 3. Double quotation marks are used to indicate titles of publications, legislation, forms and other documents. 4. Any procedure-specific convention(s) shall be identified within the specific document itself.	
Background	1.1.6	1.1.6 Background xxx	1.1.6 Background xxx	Moved to Section 1.1
Definition of Terms	1.2	1.2 Definition of Terms	1.2 1.4 Definition of Terms <u>1.4.1 Unless otherwise defined or the context implies otherwise, the italicized terms used in this Market Manual shall bear the same meaning as defined in the WESM Rules and other Market Manuals.</u> <u>1.4.2 The following words and phrases as used in this Market Manual shall have the following meaning –</u>	Consistent with the format of Market Manuals
		Accuracy. xxx	<u>a.</u> Accuracy. xxx	Renumbering
		Accuracy class. xxx	<u>b.</u> Accuracy class. xxx	
		Basic Insulation Level (BIL). xxx	<u>c.</u> Basic Insulation Level (BIL). xxx	
		Blondel’s Theorem. xxx	<u>d.</u> Blondel’s Theorem. xxx	
		Bottom-connected. Having a bottom-connected terminal assembly.	Bottom-connected. Having a bottom-connected terminal assembly.	Not used in this Market Manual
		Burden. xxx	<u>e.</u> Burden. xxx	Renumbering
		Business Day: Any day on which is open for business, which is usually 24 hours a day and 7 days a week.	Business Day: Any day on which is open for business, which is usually 24 hours a day and 7 days a week.	Already defined under the WESM Rules
		Channel. xxx	<u>f.</u> Channel. xxx	Renumbering
		Class Designation. The maximum specified continuous load in amperes.	Class Designation. The maximum specified continuous load in amperes.	Not used in this Market Manual
		Commissioning Test. xxx	<u>g.</u> Commissioning Test. Xxx	Renumbering

Title	Section	Provision	Proposed Amendment	Rationale
		Connection Point. xxx	<u>h.</u> Connection Point. xxx	
		Current Transformer. xxx	<u>i.</u> Current Transformer. xxx	
		Customer Alert. A switching output used to indicate events or conditions.	Customer Alert. A switching output used to indicate events or conditions.	Not used in this Market Manual
		Customer. Any person/entity supplied with electric service under a contract with a Distributor or Supplier.	Customer. Any person/entity supplied with electric service under a contract with a Distributor or Supplier.	Already defined under the WESM Rules
		Demand. xxx	<u>j.</u> Demand. xxx	Renumbering
		Demand Interval. xxx	<u>k.</u> Demand Interval. xxx	
		Display. xxx	<u>l.</u> Display. xxx	
		Distribution Code. The set of rules, requirements, procedures, and standards governing Distributor Utilities and Users of Distribution System in the operation, maintenance and development of the Distribution System. It also defines and establishes the relationship of the Distribution System with the facilities or installations of the parties connected thereto.	Distribution Code. The set of rules, requirements, procedures, and standards governing Distributor Utilities and Users of Distribution System in the operation, maintenance and development of the Distribution System. It also defines and establishes the relationship of the Distribution System with the facilities or installations of the parties connected thereto.	Already defined under the WESM Rules
		Distributors. xxx	<u>m.</u> Distributors. xxx	Renumbering
		Double Secondary Current Transformer (Double Core). xxx	<u>n.</u> Double Secondary Current Transformer (Double Core). xxx	
		Double Secondary Potential Transformer (Double Core). xxx	<u>o.</u> Double Secondary Potential Transformer (Double Core). xxx	
		Embedded Generator. A person or entity that generates electricity using a Generating Plant that is connected to a Distribution System of any User and has no direct connection to the Grid.	Embedded Generator. A person or entity that generates electricity using a Generating Plant that is connected to a Distribution System of any User and has no direct connection to the Grid.	Already defined under the WESM Rules
		Emergency Restoration Plan. xxx	<u>p.</u> Emergency Restoration Plan. xxx	Renumbering
		End-User. A person or entity that requires the supply and delivery of electricity for its own use.	End-User. A person or entity that requires the supply and delivery of electricity for its own use.	Already defined under the WESM Rules
		Energy. xxx	<u>q.</u> Energy. xxx	Renumbering
		Flicker. xxx	<u>r.</u> Flicker. xxx	

Title	Section	Provision	Proposed Amendment	Rationale
		Frequency. The value of the frequency on which the requirements of this standard are based.	Frequency. The value of the frequency on which the requirements of this standard are based.	Already defined under the WESM Rules
		Generator. xxx	<u>s.</u> Generator. xxx	Renumbering
		Grid: The high voltage backbone System of interconnected transmission lines, substations, and related facilities for the purpose of conveyance of bulk power. Also known as the Transmission System.	Grid: The high voltage backbone System of interconnected transmission lines, substations, and related facilities for the purpose of conveyance of bulk power. Also known as the Transmission System.	Already defined under the WESM Rules
		Grid Code: The set of rules, requirements, procedures, and standards to ensure the safe, reliable, secured and efficient operation, maintenance, and development of the high voltage backbone Transmission System and its related facilities.	Grid Code: The set of rules, requirements, procedures, and standards to ensure the safe, reliable, secured and efficient operation, maintenance, and development of the high voltage backbone Transmission System and its related facilities.	
		Grid Owner. xxx	<u>t.</u> Grid Owner. xxx	Renumbering
		Grounding. xxx	<u>u.</u> Grounding. xxx	
		Harmonics. xxx	<u>v.</u> Harmonics. xxx	
		Interval Data. xxx	<u>w.</u> Interval Data. xxx	
		Line-loss Compensation. xxx	<u>x.</u> Line-loss Compensation. xxx	
		Low-Voltage Winding of an Instrument Transformer. xxx	<u>y.</u> Low-Voltage Winding of an Instrument Transformer. xxx	
		Market Trading Node: Those nodes at which electricity will either be bought (Load Customer) or sold (Generator) from the spot market and at which energy bought or sold in the market is required to be measured.	Market Trading Node: Those nodes at which electricity will either be bought (Load Customer) or sold (Generator) from the spot market and at which energy bought or sold in the market is required to be measured.	Already defined under the WESM Rules
		Mass Memory. xxx	<u>z.</u> Mass Memory. xxx	Renumbering
		Meter: A device, which measures and records the consumption or production of electricity.	Meter: A device, which measures and records the consumption or production of electricity.	Already defined under the WESM Rules
		Metering Installation: The meter and associated equipment and installations installed or to be installed for the collection of metering data required for settlement purposes.	Metering Installation: The meter and associated equipment and installations installed or to be installed for the collection of metering data required for settlement purposes.	

Title	Section	Provision	Proposed Amendment	Rationale
		Metering Point: The point of physical connection of the device measuring the current in the power conductor.	Metering Point: The point of physical connection of the device measuring the current in the power conductor.	
		Metering Services Provider (MSP): A person or entity authorized by the ERC to provide metering services and registered with the Market Operator in that capacity in accordance with section 2.3.6 of the WESM rules.	Metering Services Provider (MSP): A person or entity authorized by the ERC to provide metering services and registered with the Market Operator in that capacity in accordance with section 2.3.6 of the WESM rules.	
		Multi-Ratio Current Transformer. xxx	aa. Multi-Ratio Current Transformer. xxx	Renumbering
		Negative Sequence Unbalance Factor. xxx	bb. Negative Sequence Unbalance Factor. xxx	
		Optical Port. xxx	cc. Optical Port. xxx	
		Phasor. xxx	dd. Phasor. xxx	
		Philippine Electricity Market Corporation (PEMC): An independent group, with equitable representation from the electric power industry participants, whose task includes the operation and administration of the Wholesale Electricity Spot Market in accordance with the Market Rules.	Philippine Electricity Market Corporation (PEMC): An independent group, with equitable representation from the electric power industry participants, whose task includes the operation and administration of the Wholesale Electricity Spot Market in accordance with the Market Rules.	Already defined under the WESM Rules
		Power Quality. xxx	ee. Power Quality. xxx	Renumbering
		Power, Active (KW). xxx	ff. Power, Active (KW). xxx	
		Power, Apparent (KVA). xxx	gg. Power, Apparent (KVA). xxx	
		Power, Reactive (KVAR). xxx	hh. Power, Reactive (KVAR). xxx	
		Rated Primary Current. xxx	ii. Rated Primary Current. xxx	
		Rated Secondary Current. xxx	jj. Rated Secondary Current. xxx	
		Rated Secondary Voltage. xxx	k. Rated Secondary Voltage. xxx	
		Rating. xxx	ll. Rating. xxx	
		Ratio (Marked). xxx	mm. Ratio (Marked). xxx	
		NEW	<u>nn. Site – Specific Loss Adjustment (SSLA). Procedure developed for determining the amount of electrical losses between the metering point and the market trading node.</u>	
		NEW	<u>oo. Snapshot Quantity. The actual instantaneous injection, withdrawal, or line</u>	Adopted definition from PDM. This will

Title	Section	Provision	Proposed Amendment	Rationale
			<u>flow of power, in MW, at the end of a dispatch interval.</u>	be used in the disaggregation of adjusted active power in the determination of the SSLA
		Stator. xxx	<u>pp.</u> Stator. xxx	Renumbering
		System Operator: The party responsible for generation Dispatch, the provision of Ancillary Services, and operation and control to ensure safety, Power Quality, Stability, Reliability, and Security of the Grid.	System Operator: The party responsible for generation Dispatch, the provision of Ancillary Services, and operation and control to ensure safety, Power Quality, Stability, Reliability, and Security of the Grid.	Already defined under the WESM Rules
		Test Amperes. xxx	<u>qq.</u> Test Amperes. xxx	Renumbering
		Time-of-Use. xxx	<u>rr.</u> Time-of-Use. xxx	
		Totalizing. xxx	<u>ss.</u> Totalizing. xxx	
		TRANSCO: The corporation that assumed the authority and responsibility of planning, maintaining, constructing, and centrally operating the high-voltage Transmission System, including the construction of Grid interconnections and the provision of Ancillary Services.	TRANSCO: The corporation that assumed the authority and responsibility of planning, maintaining, constructing, and centrally operating the high-voltage Transmission System, including the construction of Grid interconnections and the provision of Ancillary Services.	Already defined under the WESM Rules
		Transformer-loss Compensation. xxx	<u>tt.</u> Transformer-loss Compensation. xxx	Renumbering
		User. xxx	<u>uu.</u> User. xxx	
		Voltage Fluctuation. xxx	<u>vv.</u> Voltage Fluctuation. xxx	
		Voltage Transformer. xxx	<u>ww.</u> Voltage Transformer. xxx	
		WESM Participants: All Generation Companies, Distribution Utilities, Suppliers, Aggregators, End-Users, the TRANSCO or its Buyer or Concessionaire, IPP Administrators and other entities authorized by the ERC to participate in the WESM in accordance with the Act.	WESM Participants: All Generation Companies, Distribution Utilities, Suppliers, Aggregators, End-Users, the TRANSCO or its Buyer or Concessionaire, IPP Administrators and other entities authorized by the ERC to participate in the WESM in accordance with the Act.	Already defined under the WESM Rules

Title	Section	Provision	Proposed Amendment	Rationale
		WESM Rules: The rules that govern the administration and operation of the Wholesale Electricity Spot Market.	WESM Rules: The rules that govern the administration and operation of the Wholesale Electricity Spot Market.	
		Zero Sequence Unbalance Factor. xxx	xx. Zero Sequence Unbalance Factor. xxx	Renumbering
		Note: Any other concepts herein found in this metering manual shall also adopt the definitions integrated in the WESM rules, the Grid Code and the Distribution Code.	Note: Any other concepts herein found in this metering manual shall also adopt the definitions integrated in the WESM rules, the Grid Code and the Distribution Code.	Already covered in Section 1.4.1
		NEW	<u>1.5 References</u> <u>This Market Manual shall be read in association with the WESM Rules and other relevant Market Manuals.</u>	Consistent with the format of Market Manuals
		NEW	<u>1.6 Interpretation</u> <u>1.6.1 Any reference to a clause in any section of this Market Manual shall refer to the particular clause of the same section in which the reference is made, unless otherwise specified or the context provides otherwise.</u> <u>1.6.2 Standards and policies appended to, or referenced in, this Market Manual shall provide a supporting framework.</u>	
Responsibilities	1.3	1.3 Responsibilities	1.3 <u>1.7</u> Responsibilities	Renumbering
Responsibilities	1.3.1	1.3.1. The Market Operator shall be responsible for the development, validation, maintenance, publication and revision of this document in coordination with WESM Participants;	1.3.1 <u>1.7.1.</u> The Market Operator shall be responsible for the development, validation, maintenance, publication and revision of this document <u>Market Manual</u> in coordination with WESM Participants;	<ul style="list-style-type: none"> • For clarity • Clerical revisions • Renumbering
Responsibilities	1.3.2	1.3.2. The Metering Services Provider/Trading Participant shall provide the necessary information and references for subsequent revisions and validation of this document;	1.3.2 <u>1.7.2.</u> The Metering Services Provider/Trading Participant shall provide the necessary information and references for <u>the</u>	<ul style="list-style-type: none"> • For clarity • Clerical revisions • Renumbering

Title	Section	Provision	Proposed Amendment	Rationale
			implementation and subsequent revisions and validation of this document Market Manual. ;	
Responsibilities	1.3.3	1.3.3. The Philippine Electricity Market Board shall be responsible for the approval of this document and subsequent revisions and issuances;	1.3.3. The Philippine Electricity Market Board shall be responsible for the approval of this document and subsequent revisions and issuances;	Approval and revision of this Market Manual is provided in the proposed Section 11 (Amendment, Publication, and Effectivity)
Responsibilities	1.3.4	1.3.4. The Enforcement and Compliance Officer shall be responsible for the investigations on any infractions of the Trading Participants/Metering Services Provider or in cases where disputes which may arise involving meter data or tampering of any metering facilities that is detrimental to the integrity of the meter data;	1.3.4 1.7.3. The Enforcement and Compliance Officer shall be responsible for the investigations on any infractions of the Trading Participants/Metering Services Providers or in cases where disputes which may arise involving meter data or tampering of any metering facilities that is detrimental to the integrity of the meter data;	Clerical revision and renumbering
Responsibilities	1.3.5	1.3.5. And any other responsibilities of technical or legal committees or groups as stated in the WESM rules, the Grid Code or the Distribution Code which may affect the relevant provision of this manual.	1.3.5 1.7.4. And any other responsibilities of technical or legal committees or groups as stated in the WESM rules, the Grid Code or the Distribution Code which may affect the relevant provision of this manual Market Manual.	Clerical revision
Metering Installation Standards	2			
Introduction	2.1	These standards pertain to all metering facilities, such as devices and miscellaneous equipment, etc of a metering installation (MI) among and between all Grid Users like the Grid Owner (TRANSCO), System Operator, Market Operator, Generators, Distributors, Suppliers, Customers and any entity who will participate in the WESM. xxx	These standards pertain to all metering facilities, such as devices and miscellaneous equipment, etc of a metering installation (MI) among and between all Grid Users like the Grid Owner (TRANSCO), System Operator, Market Operator, Generators, Distributors, Suppliers, Customers and any entity who will participate in the WESM. xxx	Clerical revision

Title	Section	Provision	Proposed Amendment	Rationale
Requirements for Grid Revenue Meters	2.4.1.	Billing Function: The meter shall be capable of measuring and recording the following electrical parameters per billing interval: xxx	Billing Function: The meter shall be capable of measuring and recording the following electrical parameters per billing <u>dispatch</u> interval: Xxx	Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval
Proof of Accuracy Compliance	2.5.4.3.	Proof of compliance with Section 4.4 shall be provided in the form of factory test cards complete with serial numbers.	Proof of compliance with Section 4.4 5.3.2 shall be provided in the form of factory test cards complete with serial numbers.	Correction in the reference cited
Location/ Arrangement of Instrument Transformers	2.6.5.	With respect to the physical arrangement of the instrument transformers, the current transformer shall be located at the load side based on the normal flow of current. Refer to Figure 3.	With respect to the physical arrangement of the instrument transformers, the current transformer shall be located at the load side based on the normal flow of current. Refer to Figure 3 2 .	
Distances, clearances between Instrument Transformers	2.6.6.	The distances between instrument transformers and the prescribed clearances were shown in Table 6 and Figure 4.	The distances between instrument transformers and the prescribed clearances were shown in Table 6 and Figure 4 3 .	
Conduit Systems	2.9.1.2.	All wiring from the instrument transformers' secondary terminal box to the meter installation enclosure (meter box) shall be placed in a conduit which is compliant with environmental requirements to ensure that the connections to cabling is secure, tamper proof and compliant with the MO requirements. Conduit joints (elbow, T-connector) shall be properly sealed and secured. No secondary cabling shall be exposed and accessible to unauthorized personnel. See Figure 5.	All wiring from the instrument transformers' secondary terminal box to the meter installation enclosure (meter box) shall be placed in a conduit which is compliant with environmental requirements to ensure that the connections to cabling is secure, tamper proof and compliant with the MO requirements. Conduit joints (elbow, T-connector) shall be properly sealed and secured. No secondary cabling shall be exposed and accessible to unauthorized personnel. See Figure 5 4 .	

Title	Section	Provision	Proposed Amendment	Rationale
Metering Installation – Existing	2.11	<p>A metering installation installed and commissioned before the WESM comes into effect, and that does not comply with the requirement of this standard will be permitted by the Market Operator to remain in service subject to the following condition:</p> <p>2.11.1. The meter shall have a mass memory capable of recording 15-minute demand interval and have communication ports for remote and manual data retrieval,</p> <p style="text-align: center;">xxx</p>	<p>A metering installation installed and commissioned before the WESM comes into effect, and that does not comply with the requirement of this standard will be permitted by the Market Operator to remain in service subject to the following condition:</p> <p>2.11.1. The meter shall have a mass memory capable of recording 155-minute demand interval and have communication ports for remote and manual data retrieval,</p> <p style="text-align: center;">xxx</p>	Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval
Metering Installation Registration	5			
Registrations and Submittals	5.3.2	<p>5.3.2. Pertinent Documents to be submitted by the Trading Participant in coordination with its MSP:</p> <p>5.3.2.1. Accomplished Metering Installation Form;</p> <p>5.3.2.2. Metering installation specifications;</p> <p>5.3.2.3. Load profile (forecast, historical data, including maximum and minimum hourly demand)</p> <p style="text-align: center;">xxx</p>	<p>5.3.2. Pertinent Documents to be submitted by the Trading Participant in coordination with its MSP:</p> <p>5.3.2.1. Accomplished Metering Installation Form;</p> <p>5.3.2.2. Metering installation specifications;</p> <p>5.3.2.3. Load profile (forecast, historical data, including maximum and minimum hourly demand)</p> <p style="text-align: center;">xxx</p>	Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval
Workflow and Procedural Steps	5.4	The following diagram represents the work flow and information between the interfacing of the MO and the MSP in registering the metering installation. Also featured in this manual are the procedural steps to be followed by the Metering Services Provider in registering the metering installation/facilities.	The following diagram represents the work flow and information between the interfacing of the MO and the MSP in registering the metering installation. Also featured in this manual Market Manual are the procedural steps to be followed by the Metering Services Provider in registering the metering installation/facilities.	Clerical revisions
Workflow for Registration of	5.4.1	MI.10	MI.10	Updated reference to the public website of

Title	Section	Provision	Proposed Amendment	Rationale
Metering Installation		MO to issue certification of compliance to the new MI upon payment of registration fee and Update MO registry & publish at MO web site	MO to issue certification of compliance to the new MI upon payment of registration fee and Update MO registry & publish at MO web site market participant website.	the MO, which is defined under the WESM Rules
Procedural Steps for Registration of Metering Installations	5.5	<p>MI.10</p> <p>Task Name - Updating of the MO's registry and Publishing it at MO's Web site</p> <p>Task Details - MO to issue a certificate of compliance to the new metering installation upon payment of registration fee and Update its registry and published the new metering installation of the MSP at MO's Web site</p>	<p>MI.10</p> <p>Task Name - Updating of the MO's registry and Publishing it at the market participant website MO's Web site</p> <p>Task Details - MO to issue a certificate of compliance to the new metering installation upon payment of registration fee and Update its registry and published the new metering installation of the MSP at the market participant website MO's Web site</p>	
Metering Data Collection	6			
Introduction	6.1.	<p>The Metering Services Provider (MSP) is primarily responsible for and in behalf of the Trading Participant (TP) to collect and deliver metering data to the Market Management System (MMS) of the Market Operator (MO). Revenue meters and/or data collection system of the MSP must be capable of electronic, remote communication with the MO's meter Interrogation System to transfer metering data. The MO will publish on its web site the metering data for the time period covered by the settlement process in accordance to section 4.8 of the WESM rules. If remote acquisition of metering data becomes unavailable, the MO will contact the metered TP or MSP to arrange an alternate means of transferring the data.</p>	<p>The Metering Services Provider (MSP) is primarily responsible for and in behalf of the Trading Participant (TP) to collect and deliver metering data to the Market Management System (MMS) metering database of the Market Operator (MO). Revenue meters and/or data collection system of the MSP must be capable of electronic, remote communication with the MO's meter Interrogation System to transfer metering data. The MO will publish on its web site the metering data for the time period covered by the settlement process in accordance to section 4.8 of the WESM rules. If remote acquisition of metering data becomes unavailable, the MO will contact the metered TP or MSP to arrange an alternate means of transferring the data.</p>	Updated reference to the system to be used by the MO for metering data collection.

Title	Section	Provision	Proposed Amendment	Rationale
Data Collection	6.2.	<p>The meter data collection process shall be done in the following manner:</p> <p>6.2.1. The registered MSP shall collect meter data the previous day (for the 24 hour period) from each metering points of their respective TPs (Generators or Customers) including meters which are remotely connected by means of their meter data retrieval systems starting at 12 midnight. Then all configured data shall be transmitted to the MMS every 4 AM the succeeding day. However, the MSP shall not make, cause or allow any alteration to the original stored meter data as retrieved in the metering installation; and</p>	<p>The meter data collection process shall be done in the following manner:</p> <p>6.2.1. The registered MSP shall collect meter data the previous day (for the 24 hour period) from each metering points of their respective TPs (Generators or Customers) including meters which are remotely connected by means of their meter data retrieval systems starting at 12 midnight. Then all configured data shall be transmitted to the MMS <u>metering database</u> every 4 AM the succeeding day. However, the MSP shall not make, cause or allow any alteration to the original stored meter data as retrieved in the metering installation; and</p>	<ul style="list-style-type: none"> • Updated reference to the system to be used by the MO for metering data collection. • Clerical revision
Data Collection	6.2.	<p>6.2.2. In case of remote communication failure, with prior notice to MO, the MSP shall manually retrieve the meter data and transmit or deliver it to the MMS.</p>	<p>6.2.2. In case of remote communication failure, with prior notice to MO, the MSP shall manually retrieve the meter data and transmit or deliver it to the MMS <u>metering database</u>.</p>	
Data Collection	6.2.	<p>6.2.3. However, MO may opt to perform remote data collection on the affected meters using its own MMS's data collection system with prior notice to the MSP.</p> <p>All meter data delivery/transmittal shall be in accordance with established procedures.</p> <p>All meter clocks shall be synchronized by the MSP with the Philippine Standard Time (PST) to ensure accuracy of settlements as per section 4.5.8 of the WESM rules.</p>	<p>6.2.3. However, MO may opt to perform remote data collection on the affected meters using its own MMS's data collection system <u>of the metering database</u> with prior notice to the MSP.</p> <p>All meter data delivery/transmittal shall be in accordance with established procedures.</p> <p>All meter clocks shall be synchronized by the MSP with the Philippine Standard Time (PST) to ensure accuracy of settlements as per section <u>WESM Rules Clause 4.5.8 of the WESM rules</u>.</p>	

Title	Section	Provision	Proposed Amendment	Rationale
Interface and Data Flow	6.4.	Pursuant to Section 4.6 of the WESM Rules, the data that comes in from the data collection system shall be subjected to Validation, Estimation and Editing (VEE) processes to ensure integrity of the metered data for settlement purposes. This MMS process involves various interfaces which comprises the following:	Pursuant to Section WESM Rules Clause 4.6 of the WESM Rules , the data that comes in from the data collection system shall be subjected to Validation, Estimation and Editing (VEE) processes to ensure integrity of the metered data for settlement purposes. This MMS process involves various interfaces which comprises the following:	Clerical revision
Interface and Data Flow	6.4.1.	The MSP will collect daily the 24-hour metered data of the previous day and shall transmit/deliver it to the MMS of the MO within the 4th hour of the succeeding day.	The MSP will collect daily the 24-hour metered data of the previous day and shall transmit/deliver it to the MMS of the MO within the 4th hour of the succeeding day.	<ul style="list-style-type: none"> • Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval • Clerical revisions
Interface and Data Flow	6.4.2.	<p>The following contents from shall be needed by the MMS from the metered data:</p> <p>6.4.2.1. Date and time (time series) of meter readings received for each meter and the meter data exchange format.</p> <p>6.4.2.2. The meter data in kwh (Energy) with assigned channel number.</p> <p>6.4.2.3. Site Equipment Identification Number (SEIN) or Recorder ID of Meter (RevMeterID/Meter Point).</p> <p>6.4.2.4. Meter Serial Number</p> <p>6.4.2.5. Substation (market node)</p> <p>6.4.2.6. Substation voltages</p> <p>6.4.2.7. Resolution (every 15 minute)</p> <p>6.4.2.8. Minimum and maximum value of meter data</p>	<p>The following are contents from shall be needed by the MMS from the metered data:</p> <p>6.4.2.1 a. Date and time (time series) of meter readings received for each meter and the meter data exchange format.</p> <p>6.4.2.2 b. The meter data in kwh (Energy) with assigned channel number.</p> <p>6.4.2.3 c. Site Equipment Identification Number (SEIN) or Recorder ID of Meter (RevMeterID/Meter Point).</p> <p>6.4.2.4 d. Meter Serial Number</p> <p>6.4.2.5 e. Substation (market trading node)</p> <p>6.4.2.6 f. Substation voltages</p> <p>6.4.2.7 g. Resolution (every 15 5 minutes)</p> <p>6.4.2.8 h. Minimum and maximum value of meter data</p>	
Metering Data Collection Process	6.6.	DC.01 Frequency/Method: Continuous, 15-minute interval	DC.01 Frequency/Method: Continuous, 15 5 -minute interval	

Title	Section	Provision	Proposed Amendment	Rationale
Meter Data Retrieval System (MDRS) of MSP to Meter Data Collection System (MDCS) of MO	6.7.1.1	<p>Meter Meter stores data every 15 minutes</p> <p style="text-align: center;">xxx</p> <p>MSP's MDRS retrieves the 15-minute raw Meter data of the previous day (00:00H to 24:00H) through Digital Telephone System (DTS)/PLDT (landline) or any communication that will suit the MDRS.</p>	<p>Meter Meter stores data every 15 <u>5</u> minutes</p> <p style="text-align: center;">xxx</p> <p>MSP's MDRS retrieves the 15 <u>5</u>-minute raw Meter data of the previous day (00:00H to 24:00H) through Digital Telephone System (DTS)/PLDT (landline) or any communication that will suit the MDRS.</p>	
Meter Data Flatfile to Meter Data Collection System of MO:	6.7.1.2	<p>Meter Meter stores data every 15 minutes</p> <p style="text-align: center;">xxx</p> <p>MSP uses a Meter reader handheld device/laptop computer to directly download the 15-minute raw data from the registered Meter using a communication cable to link the registered Meter and the Meter reader handheld device/laptop. The registered Meter is uniquely identified by its Recorder ID (SEIN) and Device ID (Serial number).</p> <p style="text-align: center;">xxx</p>	<p>Meter Meter stores data every 15 <u>5</u> minutes</p> <p style="text-align: center;">xxx</p> <p>MSP uses a Meter reader handheld device/laptop computer to directly download the 15 <u>5</u>-minute raw data from the registered Meter using a communication cable to link the registered Meter and the Meter reader handheld device/laptop. The registered Meter is uniquely identified by its Recorder ID (SEIN) and Device ID (Serial number).</p> <p style="text-align: center;">xxx</p>	Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval
Meter to Meter Data Retrieval/Collection System of MO	6.7.1.3	<p>Meter Meter stores data every 15 minutes</p> <p style="text-align: center;">xxx</p> <p>MO's MDRS retrieves the 15-minute raw meter data of the previous day (00:00H to 24:00H) from the registered Meter through the Digital Telephone System (DTS)/PLDT (landline) or any communication that suit the MDRS.</p>	<p>Meter Meter stores data every 15 <u>5</u> minutes</p> <p style="text-align: center;">xxx</p> <p>MO's MDRS retrieves the 15 <u>5</u>-minute raw meter data of the previous day (00:00H to 24:00H) from the registered Meter through the Digital Telephone System (DTS)/PLDT (landline) or any communication that suit the MDRS.</p>	

Title	Section	Provision	Proposed Amendment	Rationale
		xxx	xxx	
MSP's Meter Data Retrieval System to Meter Data Collection System of MO	6.8.1.	Ref 1 Requirement: Meter reads and stores data Frequency/Method: Continuous, 15-minute interval	Ref 1 Requirement: Meter reads and stores data Frequency/Method: Continuous, 15 <u>5</u> -minute interval	Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval
Meter Data Flat File to Meter Data Collection of MO (In case of communication failure)	6.8.2.	Ref 1 Requirement: Meter reads and stores data Frequency/Method: Continuous, 15-minute interval	Ref 1 Requirement: Meter reads and stores data Frequency/Method: Continuous, 15 <u>5</u> -minute interval	
Meter to Meter Data Retrieval System of MO	6.8.3.	Ref 1 Requirement: Meter reads and stores data Frequency/Method: Continuous, 15-minute interval	Ref 1 Requirement: Meter reads and stores data Frequency/Method: Continuous, 15 <u>5</u> -minute interval	
Data Validation, Estimation, and Editing	7			
Introduction	7.1.	The Metering data collected by the Market Operator (MO) shall be reviewed using the Validation, Estimation, and Editing (VEE) process. The VEE process operates according to established schedule that ensures the integrity of the metered data suitable for settlement purposes as per Section 4.9 of the WESM rules.	The Metering data collected by the Market Operator (MO) shall be reviewed using the Validation, Estimation, and Editing (VEE) process. The VEE process operates according to established schedule that ensures the integrity of the metered data suitable for settlement purposes as per Section WESM Rules Clause 4.9 of the WESM rules.	Clerical revision
The VEE Perspective	7.2.1.	At the time the metered data were received by the Market Management System (MMS), it shall be evaluated using criteria as agreed among Trading Participants, Metering Services	At the time the metered data were received by the Market Management System (MMS)-MO , it shall be evaluated using criteria as agreed among Trading Participants, Metering Services	Updated reference to the system to be used by the MO for

Title	Section	Provision	Proposed Amendment	Rationale
		Provider (MSP) and the MO. Whether the metered data contains missing values, uncertain values or exceeds the max/min values, such data shall undergo validation, estimation and editing wherein substitutions of metered data should follow the establish policy using historical data or the best available information. In cases where metered data fails in the VEE process, MO will then issue trouble report and give instruction to the concerned MSP who should investigate the trouble and provide report to MO later.	Provider (MSP) and the MO. Whether the metered data contains missing values, uncertain values or exceeds the max/min values, such data shall undergo validation, estimation and editing wherein substitutions of metered data should follow the establish policy using historical data or the best available information. In cases where metered data fails in the VEE process, MO will then issue trouble report and give instruction to the concerned MSP who should investigate the trouble and provide report to MO later.	metering data collection.
Custodian of Metering Database	7.2.2.	MO shall establish and maintains a database containing metered data transferred from each registered wholesale meter to the MMS in accordance with section 4.8.2 of the WESM rules. The metering database includes original energy readings, substitutions, estimations, and calculated values for all WESM complaint meters.	MO shall establish and maintains a database containing metered data transferred from each registered wholesale meter to the MMS MO in accordance with section WESM Rules Clause 4.8.2 of the WESM rules . The metering database includes original energy readings, substitutions, estimations, and calculated values for all WESM complaint meters.	<ul style="list-style-type: none"> • Used general provision on the system to be used by the MO for metering data storage. • Clerical revision
Meter Value Validation	7.3.1.	When the metered data is received by the MMS, several checks will be performed. The time series that fails the test will be reported according to four error categories: xxx	When the metered data is received by the MMS MO , several checks will be performed. The time series that fails the test will be reported according to four error categories: xxx	Used general provision on the validation of meter data by the MO.
Checks to be performed for the Meter Data	7.3.2	The following checks will be performed for the above values: 7.3.2.1 xxx xxx 7.3.2.4 Review the historical meter readings which fall outside defined parameters max/min of the historical data. The historical data used for reasonability check is limited to: a. Same value as last week	The following checks will be performed for the above values: 7.3.2.1 xxx xxx 7.3.2.4 Review the historical meter readings which fall outside defined parameters max/min of the historical data. The historical data used for reasonability check is limited to: a. Same value as last week	Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading

Title	Section	Provision	Proposed Amendment	Rationale
		<p>b. Same value as the same hour during the previous day of the same type (i.e. weekday or weekend)</p> <p style="text-align: center;">xxx</p>	<p>b. Same value as the same hour dispatch interval during the previous day of the same type (i.e. weekday or weekend)</p> <p style="text-align: center;">xxx</p>	<p>amounts per dispatch interval</p>
<p>Check against Check Meter (if necessary)</p>	<p>7.3.3.2.</p>	<p>The verification of values of the check meter is recorded in the MMS and the parameters to be checked should follow the same period.</p>	<p>The verification of values of the check meter is recorded in the MMS metering database and the parameters to be checked should follow the same period.</p>	<p>Used general provision on the system to be used by the MO for this process</p>
<p>Meter Value Estimation</p>	<p>7.3.5.</p>	<p>Meter values that are missing will be estimated and substituted for settlement purposes. This estimate shall be based on the following items:</p> <p>7.3.5.1. Same value as last week;</p> <p>7.3.5.2. Same value as the same hour during the previous day of the same day type (i.e. weekday or weekend);</p> <p>7.3.5.3. If the meter value for one interval is missing, estimation based on Interpolation between values;</p> <p>7.3.5.4. If the meter values for two or more intervals are missing, meter data from the alternate meter;</p> <p>7.3.5.5. In the absence of an alternate meter, historical data previously gathered from the main meter;</p> <p>7.3.5.6. For generators without alternate meters or historical, the real time ex-post (RTX) information.</p>	<p>Meter values that are missing will be estimated and substituted for settlement purposes. This estimate shall be based on the following items:</p> <p>7.3.5.1. Same value as last week;</p> <p>7.3.5.2. Same value as the same hour dispatch interval during the previous day of the same day type (i.e. weekday or weekend);</p> <p>7.3.5.3. If the meter value for one to three succeeding interval/s is missing, estimation based on Interpolation between values;</p> <p>7.3.5.4. If the meter values for two four or more succeeding intervals are missing, meter data from the alternate meter;</p> <p>7.3.5.5. In the absence of an alternate meter, historical data previously gathered from the main meter; and</p> <p>7.3.5.6. For generators without alternate meters or historical, the real time ex-post (RTX)</p>	<ul style="list-style-type: none"> • Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval • Estimation for missing meter data is adjusted to consider the 5-minute dispatch interval

Title	Section	Provision	Proposed Amendment	Rationale
Additional Tests Required for Main/Alternate/Check Meter Combination	7.4.2.1.	<p>a. Energy Comparison</p> <p>For each dispatch interval (1 hour), the kWh delivered of the main meter shall be compared with the kWh delivered of the alternate/check meter. If the difference exceeds a predefined limit, Validation fails and a trouble call shall be issued. The process shall be repeated for kVArh delivered, kWh received and kVArh received of the main.</p> <p>Note:</p> <ul style="list-style-type: none"> • The assignment of channel numbers in the main and alternate/check meter must be the same. • The predefined limit shall be associated with the main meter data. <p>b. Demand Comparison</p> <p>For each dispatch interval (1 hour), the active and reactive power demand values of the main meter shall be compared with the active and reactive power demand of to alternate/check meter.</p>	<p>information snapshot quantity, converted to its equivalent energy.</p> <p>a. Energy Comparison</p> <p>For each dispatch interval (1 hour), the kWh delivered of the main meter shall be compared with the kWh delivered of the alternate/check meter. If the difference exceeds a predefined limit, Validation fails and a trouble call shall be issued. The process shall be repeated for kVArh delivered, kWh received and kVArh received of the main.</p> <p>Note:</p> <ul style="list-style-type: none"> • The assignment of channel numbers in the main and alternate/check meter must be the same. • The predefined limit shall be associated with the main meter data. <p>b. Demand Comparison</p> <p>For each dispatch interval (1 hour), the active and reactive power demand values of the main meter shall be compared with the active and reactive power demand of to alternate/check meter.</p>	Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval
Stand-Alone Metering	7.4.3.2.	<p>7.4.3.2. Stand-Alone Metering</p> <p>For stand-alone metering, estimating shall be based on historical load pattern since no other data is available. Estimation methods is in accordance with Sections 3.1 to 3.5.</p> <p>7.4.3.3 xxx</p>	<p>7.4.3.2. Stand-Alone Metering</p> <p>For stand-alone metering, estimating shall be based on historical load pattern since no other data is available. Estimation methods is in accordance with Sections 3.1 to 3.5.</p> <p>7.4.3.3 xxx</p>	Moved to Section 7.4.3.5, as revised.

Title	Section	Provision	Proposed Amendment	Rationale
Use of Meter Register Reading in VEE	7.4.3.4.	<p>7.4.3.4. Use of Meter Register Reading in VEE</p> <p style="text-align: center;">xxx</p> <p>The meter register readings shall be treated by the MO in the following manner:</p> <p>a. The hourly equivalent meter data shall be computed proportionately according to the load shape obtained from available RTU data corresponding to metering point for the time covered by the register readings, or to the load shape obtained from the historical load profile data for a similar day and time.</p> <p>b. The hourly equivalent meter data shall undergo site – specific loss adjustment for any equipment between the market trading node and the meter.</p> <p style="text-align: center;">xxx</p> <p>7.4.3.5. xxx</p>	<p>7.4.3.4 7.4.3.3. Use of Meter Register Reading in VEE</p> <p style="text-align: center;">xxx</p> <p>The meter register readings shall be treated by the MO in the following manner:</p> <p>a. The hourly hourly equivalent meter data shall be computed proportionately according to the load shape obtained from available RTU data corresponding to metering point for the time covered by the register readings, or to the load shape obtained from the historical load profile data for a similar day and time.</p> <p>b. The hourly hourly equivalent meter data shall undergo site – specific loss adjustment for any equipment between the market trading node and the meter.</p> <p style="text-align: center;">xxx</p> <p>7.4.3.5 7.4.3.4. xxx</p>	<ul style="list-style-type: none"> • Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval • Renumbering • Clerical revision
		NEW (from Section 7.4.3.2)	<p>7.4.3.5. Stand-Alone Metering</p> <p><u>For stand-alone metering, estimating shall be based on historical load pattern since no other data is available. Estimation methods is in accordance with Sections 7.4.3.1 to 7.4.3.4.</u></p>	Moved section 7.4.3.2, for clarity.
Procedural Steps for Validation, Estimation and Editing Process	7.6.	<p>Ref VEE 02</p> <p>Task Name: Receiving the meter data</p> <p>Task Detail: MO’s MDCS receives meter data in agreed format</p>	<p>Ref VEE 02</p> <p>Task Name: Receiving the meter data</p> <p>Task Detail: MO’s MDCS receives meter data in agreed format</p>	Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts

Title	Section	Provision	Proposed Amendment	Rationale
		When: After meter data has been sent by the MSP Resulting Information: Meter data is in 15min interval by 24 hours with kWh and kVarh data. Meter ID is recognized by MDCS Masterfile	When: After meter data has been sent by the MSP Resulting Information: Meter data is in 15 5 min interval by 24 hours with kWh and kVarh data. Meter ID is recognized by MDCS Masterfile	every settlement interval from the aggregate of trading amounts per dispatch interval
Site-Specific Loss Adjustment	9			
Definition	9.2	9.2 Definition The Site – Specific Loss Adjustment (SSLA) is a procedure developed for determining the amount of electrical losses between the Metering Point and the MTN.	9.2 Definition – The Site – Specific Loss Adjustment (SSLA) is a procedure developed for determining the amount of electrical losses between the Metering Point and the MTN.	Moved to Section 1.4 (Definitions)
Purpose	9.3	9.3 Purpose xxx	9.3 9.2 Purpose xxx	Renumbering
Loss Factor	9.4	9.4 Loss Factor There shall be a Site – Specific Loss Factor (SSLF) distinct for every metering point, and dynamic for every Trading interval, which represents the adjusted meter data of a metering point. The SSLF is a unit-less number that shall be multiplied to the original meter data of its corresponding Trading interval. The end-product of the SSLF and the original meter data is the adjusted power or energy of the Trading Participant as seen from the MTN.	9.4 9.3 Loss Factor There shall be a Site – Specific Loss Factor (SSLF) distinct for every metering point, and dynamic for every Trading dispatch interval, which represents the adjusted meter data of a metering point. The SSLF is a unit-less number that shall be multiplied to the original meter data of its corresponding Trading dispatch interval. The end-product of the SSLF and the original meter data is the adjusted power or energy of the Trading Participant as seen from the MTN.	<ul style="list-style-type: none"> Consistent with the implementation of 5-minute dispatch interval and the determination of trading amounts every settlement interval from the aggregate of trading amounts per dispatch interval Renumbering
Scope	9.5	9.5 Scope xxx	9.5 9.4 Scope xxx	Renumbering

Title	Section	Provision	Proposed Amendment	Rationale
WESM Members Involved in Performing SSLA	9.6	9.6. WESM Members Involved in Performing SSLA 9.6.1. Network Service Provider in coordination with Trading Participants 9.6.2. Metering Services Provider (MSP) 9.6.3. Market Operator (MO)	9.6 9.5. WESM Members Involved in Performing SSLA 9.6.1 a. Network Service Provider in coordination with Trading Participants 9.6.2 b. Metering Services Provider (MSP) 9.6.3 c. Market Operator (MO)	
Roles and Responsibilities	9.7.	9.7. Roles and Responsibilities xxx 9.7.1. Network Service Provider: 9.7.1.1. xxx 9.7.1.1.1. Conductor Data a. xxx b. xxx c. xxx d. xxx 9.7.1.1.2. Power Transformer Data a. xxx b. xxx c. xxx d. xxx e. xxx f. xxx g. xxx h. xxx i. xxx j. xxx k. xxx 9.7.1.2 xxx 9.7.2. Metering Services Provider: 9.7.2.1. xxx	9.7 9.6. Roles and Responsibilities xxx 9.7.1 9.6.1. Network Service Provider: 9.7.1.1 a. xxx 9.7.1.1.1 i. Conductor Data a 1. xxx b 2. xxx c 3. xxx d 4. xxx 9.7.1.1.2 ii. Power Transformer Data a 1. xxx b 2. xxx c 3. xxx d 4. xxx e 5. xxx f 6. xxx g 7. xxx h 8. xxx i 9. xxx j 10. xxx k 11. xxx 9.7.1.2 b. xxx 9.7.2 9.6.2. Metering Services Provider: 9.7.2.1 xxx	<ul style="list-style-type: none"> • Renumbering

Title	Section	Provision	Proposed Amendment	Rationale
		<p>9.7.3. Trading Participant: 9.7.3.1. The Trading Participant, in coordination with the Network Service Provider, shall submit to the Market Operator all significant conductor and power transformer data between its metering point and the market trading node upon its registration in the WESM, and as often as it notices significant changes in the actual physical configuration of the conductor and power transformer between its metering point and the market trading node. The Trading Participant shall submit the same type of data stated in Sub-sections 9.7.1.1.1 and 9.7.1.1.2.</p> <p>9.7.4. Market Operator: 9.7.4.1. xxx 9.7.4.2. xxx 9.7.4.3. xxx</p>	<p>9.7.3 9.6.3. Trading Participant: 9.7.3.1. The Trading Participant, in coordination with the Network Service Provider, shall submit to the Market Operator all significant conductor and power transformer data between its metering point and the market trading node upon its registration in the WESM, and as often as it notices significant changes in the actual physical configuration of the conductor and power transformer between its metering point and the market trading node. The Trading Participant shall submit the same type of data stated in Section 9.6.1.a Sub-sections 9.7.1.1.1 and 9.7.1.1.2.</p> <p>9.7.4 9.6.3. Market Operator: 9.7.4.1 a. xxx 9.7.4.2. Calculate the loss adjustment in accordance with this procedure using Microsoft Excel. 9.7.4.3 b. xxx</p>	<ul style="list-style-type: none"> • Updated reference • Deleted provision on the use of MS Excel to facilitate use of other software applications • Renumbering
Loss Calculation	9.8	<p>9.8 Loss Calculation</p> <p>9.8.1 Load Customer Cases:</p> <p>9.8.1.1. Case 1: Single Market Trading Node: A metering point is connected to only one MTN.</p> <p>i. Case 1 – A: only one metering point is presently connected to the MTN (figure 1).</p> <p>Figure 1</p>	<p>9.8 9.7 Loss Calculation</p> <p>9.8.1 9.7.1 Load Customer Cases:</p> <p>9.8.1.1 a. Case 1: Single Market Trading Node: A metering point is connected to only one MTN.</p> <p>i. Case 1 – A: only one metering point is presently connected to the MTN (figure L1-A).</p> <p>Figure L1-A</p>	<ul style="list-style-type: none"> • Updated the figure labels to avoid duplication • Renumbering

Title	Section	Provision	Proposed Amendment	Rationale
		<p>ii. Case 1 – B: numerous metering points connected to, or are sharing the same MTN (figure 2).</p> <p>Figure 2</p> <p>9.8.1.2. Case 2: Multiple Market Trading Nodes: A metering point is connected to two or more MTNs during normal condition (figure 3).</p> <p>Figure 3</p> <p>9.8.1.3. Case 3: Alternate Market Trading Node: A metering point is connected to another MTN for alternate source of power during emergency condition or pre-arranged shutdown.</p> <p>i. Case 3 – A: a metering point is connected to another transformer for alternate source of power during emergency or pre-arranged shutdown. Usual setting for alternate source of power from the same substation (figure 4).</p> <p>Figure 4</p> <p>ii. Case 3 – B: a metering point is connected to another line for alternate source of power during emergency or pre-arranged shutdown. This is the usual setting for alternate source of power from another substation (figure 5).</p> <p>Figure 5</p> <p>9.8.1.4. Case 4: Lagging MTN: A metering point is located before the MTN. The meter is</p>	<p>ii. Case 1 – B: numerous metering points connected to, or are sharing the same MTN (figure <u>L1-B 2</u>).</p> <p>Figure 2 <u>L1-B</u></p> <p>9.8.1.2 <u>b</u>. Case 2: Multiple Market Trading Nodes: A metering point is connected to two or more MTNs during normal condition (figure <u>3L2</u>).</p> <p>Figure 3 <u>L2</u></p> <p>9.8.1.3 <u>c</u>. Case 3: Alternate Market Trading Node: A metering point is connected to another MTN for alternate source of power during emergency condition or pre-arranged shutdown.</p> <p>i. Case 3 – A: a metering point is connected to another transformer for alternate source of power during emergency or pre-arranged shutdown. Usual setting for alternate source of power from the same substation (figure 4 <u>L3-A</u>).</p> <p>Figure 4 <u>L3-A</u></p> <p>ii. Case 3 – B: a metering point is connected to another line for alternate source of power during emergency or pre-arranged shutdown. This is the usual setting for alternate source of power from another substation (figure 5 <u>L3-B</u>).</p> <p>Figure 5 <u>L3-B</u></p>	

Title	Section	Provision	Proposed Amendment	Rationale
		<p>installed at a voltage level higher or equal to the voltage level of the MTN (figure 6).</p> <p>Figure 6</p>	<p>9.8.1.4 d. Case 4: Lagging MTN: A metering point is located before the MTN. The meter is installed at a voltage level higher or equal to the voltage level of the MTN (figure 6 L4).</p> <p>Figure 6 L4</p>	
	9.8	<p>9.8.2. Generator Cases:</p> <p>9.8.2.1. Case 1: One Metering Point – One Market Trading Node: A metering point measures the dispatch of only one generating unit (figure 7).</p> <p>Figure 7</p> <p>9.8.2.2. Case 2: One Metering Point – Multiple Market Trading Nodes: A metering point measures the aggregate dispatch of a group or block of generating units (figure 8).</p> <p>Figure 8</p> <p>9.8.2.3. Case 3: Multiple Metering Points – Multiple Market Trading Nodes: A group of metering points measures the aggregate dispatch of a group or block of generating units (figure 9).</p> <p>Figure 9</p>	<p>9.8.2-9.7.2. Generator Cases:</p> <p>9.8.2.1 a. Case 1: One Metering Point – One Market Trading Node: A metering point measures the dispatch of only one generating unit (figure 7 G1).</p> <p>Figure 7 G1</p> <p>9.8.2.2 b. Case 2: One Metering Point – Multiple Market Trading Nodes: A metering point measures the aggregate dispatch of a group or block of generating units (figure 8 G2).</p> <p>Figure 8 G2</p> <p>9.8.2.3 c. Case 3: Multiple Metering Points – Multiple Market Trading Nodes: A group of metering points measures the aggregate dispatch of a group or block of generating units (figure 9 G3).</p> <p>Figure 9 G3</p>	<ul style="list-style-type: none"> • Updated the figure labels to avoid duplication • Renumbering
	9.8	<p>9.8.3 General Equations:</p> <p>The following are the equations to be used for calculating the SSLF:</p>	<p>9.8.3-9.7.3 General Equations:</p> <p>The following are the equations to be used for calculating the SSLF:</p>	<ul style="list-style-type: none"> • Updated the equations to provide the conversion of meter data from

Title	Section	Provision	Proposed Amendment	Rationale
		$kW_{\text{Meter}} = (kWh_{\text{Meter-15min}} + kWh_{\text{Meter-30min}} + kWh_{\text{Meter-45min}} + kWh_{\text{Meter-00min}}) \div 1h$ $kVar_{\text{Meter}} = (kVarh_{\text{Meter-15min}} + kVarh_{\text{Meter-30min}} + kVarh_{\text{Meter-45min}} + kVarh_{\text{Meter-00min}}) \div 1h$ <p style="text-align: center;">xxx</p> <p>Where:</p> <p>$kWh_{\text{Meter-XXMin}}$: 15-minute interval active energy meter registration</p> <p>$kVarh_{\text{Meter-XXMin}}$: 15-minute interval reactive energy meter registration</p> <p style="text-align: center;">xxx</p>	 $kW_{\text{Meter}} = (kWh_{\text{Meter-15min}} + kWh_{\text{Meter-30min}} + kWh_{\text{Meter-45min}} + kWh_{\text{Meter-00min}}) \div 1h$ $kVar_{\text{Meter}} = (kVarh_{\text{Meter-15min}} + kVarh_{\text{Meter-30min}} + kVarh_{\text{Meter-45min}} + kVarh_{\text{Meter-00min}}) \div 1h$ <p style="text-align: center;">xxx</p> <p><u>Adjusted_{kWh} = Adjusted_{kW} * t</u></p> <p>Where:</p> <p>$kWh_{\text{Meter,i-XXMin}}$: 15-minute dispatch interval active energy meter registration</p> <p>$kVarh_{\text{Meter,i-XXMin}}$: 15-minute dispatch interval reactive energy meter registration</p> <p style="text-align: center;">xxx</p> <p><u>Adjusted_{kWh} : adjusted kwh active energy</u> <u>t : dispatch interval time (in hours)</u> <u>i : dispatch interval</u></p>	<p>energy to power, and vice versa</p> <ul style="list-style-type: none"> Consistent with the implementation of 5-minute dispatch interval Renumbering
		<p>9.8.4. Detailed Loss Calculation:</p> <p>The detailed example loss calculations for every case are included in the Appendix of this Manual under “Site – Specific Loss Adjustment”.</p> <p>9.9. Procedural Steps for SSLA</p> <p style="text-align: center;">xxx</p>	<p>9.8.4 9.7.4. Detailed Loss Calculation:</p> <p>The detailed example loss calculations for every case are included in the Appendix of this Market Manual under “Site – Specific Loss Adjustment”.</p> <p>9.9 9.8. Procedural Steps for SSLA</p> <p style="text-align: center;">xxx</p>	<ul style="list-style-type: none"> Clerical revision Renumbering

Title	Section	Provision	Proposed Amendment	Rationale
		NEW	<u>11 Amendments, Publication and Effectivity</u>	Consistent with the format of Market Manuals
			<u>11.1 Amendments</u> <u>11.1.1 The Market Operator shall review and update this Market Manual on rules change process.</u> <u>11.1.2 Any amendment or revision to this Market Manual shall be approved in accordance with Chapter 8 of the WESM Rules and corresponding Market Manual on rules change process.</u>	Consistent with the revised process of rules change review/approval.
			<u>11.2 Publication and Effectivity</u> <u>The publication and effectivity of this Market Manual shall take be in accordance with Chapter 8 of the WESM Rules and corresponding Market Manual on rules change process.</u>	
Appendix				
Governing Provisions of the WESM Rules		Section 4.5.1 Metering Installation Components A Metering Installation shall: xxx e. Have electronic data recording facilities such that all metering data can be measured and recorded in trading intervals; xxx	Section 4.5.1 Metering Installation Components A Metering Installation shall: xxx e. Have electronic data recording facilities such that all metering data can be measured and recorded <u>in accordance with the relevant Market Manual</u> trading intervals; xxx	Consistent with the revised WESM Rules Clause 4.5.1, as amended by DOE DC 2016-010-0014

Title	Section	Provision	Proposed Amendment	Rationale
Site-Specific Loss Adjustment		<p>Customer</p> <p>Case 1: Single Settlement Point</p> <p>A metering point is connected to only one MTN:</p> <p>a. Case 1 – A: only one metering point is presently connected to the MTN (figure 1)</p> <p>Figure 1</p> $kW_{Mi} = (kWh_{Mi-15min} + kWh_{Mi-30min} + kWh_{Mi-45min} + kWh_{Mi-00min}) \div 1h$ $kVar_{Mi} = (kVarh_{Mi-15min} + kVarh_{Mi-30min} + kVarh_{Mi-45min} + kVarh_{Mi-00min}) \div 1h$ <p style="text-align: center;">xxx</p> <p>b. Case 1 – B: numerous metering points connected to, or are sharing the same MTN (figure 2)</p> <p>Figure 2</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ $kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$	<p>Customer</p> <p>Case 1: Single Settlement Point</p> <p>A metering point is connected to only one MTN:</p> <p>a. Case 1 – A: only one metering point is presently connected to the MTN (figure 1 L1-A)</p> <p>Figure 1 L1-A</p> $kW_{Mi} = (kWh_{Mi,1-15min} + kWh_{Mi-30min} + kWh_{Mi-45min} + kWh_{Mi-00min}) \div 1h \underline{t}$ $kVar_{Mi} = (kVarh_{Mi,1-15min} + kVarh_{Mi-30min} + kVarh_{Mi-45min} + kVarh_{Mi-00min}) \div 1h \underline{t}$ <p style="text-align: center;">xxx</p> <p>Adjusted_{kWh} = Adjusted_{kW} * t</p> <p>b. Case 1 – B: numerous metering points connected to, or are sharing the same MTN (figure 2 L1-B)</p> <p>Figure 2 L1-B</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1,1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h \underline{t}$ $kVar_{M1} = (kVarh_{M1,1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h \underline{t}$ $kW_{M2} = (kWh_{M2,1-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h \underline{t}$	<p>Consistent with the revised general equations under Section 9.7.3, as amended</p>

Title	Section	Provision	Proposed Amendment	Rationale
		$kW_{M3} = (kWh_{M3-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">XXX</p> <p>In the event that Meter 4 reading becomes zero (0), see figure 3:</p> <p>Figure 3</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$	$kVar_{M2} = (kVarh_{M2,1-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3,1-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3,1-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4,1-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4,1-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">XXX</p> $\underline{\text{Adjusted}_{kWh-M1}} = \underline{\text{Adjusted}_{kW-M1}} * t$ $\underline{\text{Adjusted}_{kWh-M2}} = \underline{\text{Adjusted}_{kW-M2}} * t$ $\underline{\text{Adjusted}_{kWh-M3}} = \underline{\text{Adjusted}_{kW-M3}} * t$ $\underline{\text{Adjusted}_{kWh-M4}} = \underline{\text{Adjusted}_{kW-M4}} * t$ <p>In the event that Meter 4 reading becomes zero (0), see figure 3 L1-B1:</p> <p>Figure 3 L1-B1</p> $kW_{M1} = (kWh_{M1,1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1,1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2,1-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$	

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		$kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ <p style="text-align: center;">XXX</p> <p>Case 2: Multiple Settlement Points</p> <p>A metering point is connected to two or more MTNs during normal condition (figure 4)</p> <p>Figure 4</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$	 $kVar_{M2} = (kVarh_{M2,1-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3,1-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3,1-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ <p style="text-align: center;">XXX</p> $\underline{\text{Adjusted}_{kWh-M1}} = \underline{\text{Adjusted}_{kW-M1}} * t$ $\underline{\text{Adjusted}_{kWh-M2}} = \underline{\text{Adjusted}_{kW-M2}} * t$ $\underline{\text{Adjusted}_{kWh-M3}} = \underline{\text{Adjusted}_{kW-M3}} * t$ $\underline{\text{Adjusted}_{kWh-M4}} = \underline{\text{Adjusted}_{kW-M4}} * t$ <p style="text-align: center;">XXX</p> <p>Case 2: Multiple Settlement Points</p> <p>A metering point is connected to two or more MTNs during normal condition (figure 4 L2)</p> <p>Figure 4 L2</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1,1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1,1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2,1-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ 	

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		$kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">XXX</p> <p>Case 3: Alternate Settlement Points:</p> <p>A metering point is connected to another MTN for alternate source of power during emergency condition or pre-arranged shutdown</p> <p>a. Case 3 – A: a metering point is connected to another transformer for alternate source of power during emergency or pre-arranged</p>	 $kVar_{M2} = (kVarh_{M2,1-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3,1-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3,1-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4,1-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4,1-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">XXX</p> Adjusted_{kWh-M1} = Adjusted_{kW-M1} * t Adjusted_{kWh-M2} = Adjusted_{kW-M2} * t Adjusted_{kWh-M3} = Adjusted_{kW-M3} * t Adjusted_{kWh-M4} = Adjusted_{kW-M4} * t <p style="text-align: center;">XXX</p> <p>Case 3: Alternate Settlement Points:</p> <p>A metering point is connected to another MTN for alternate source of power during emergency condition or pre-arranged shutdown</p> <p>a. Case 3 – A: a metering point is connected to another transformer for alternate source of power during emergency or pre-arranged shutdown. Usual setting for alternate source of power from the same substation (figure 5 <u>L3-A</u>).</p>	

Title	Section	Provision	Proposed Amendment	Rationale
		<p>shutdown. Usual setting for alternate source of power from the same substation (figure 5).</p> <p>Figure 5</p> <p>At normal condition (figure 5), SSLF of the meters connected to each defined point of sale can be computed separately treated the same as Case 1 – A (for T₁) and Case 1 – B (for T₂).</p> <p>At Normal Condition for T1:</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ <p style="text-align: center;">xxx</p> <p>At Normal Condition for T2:</p> <p>Active and Reactive Power:</p> $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ $kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$	<p>Figure 5 <u>L3-A</u></p> <p>At normal condition (figure 5 <u>L3-A</u>), SSLF of the meters connected to each defined point of sale can be computed separately treated the same as Case 1 – A (for T₁) and Case 1 – B (for T₂).</p> <p>At Normal Condition for T1:</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1,1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h \underline{t}$ $kVar_{M1} = (kVarh_{M1,1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h \underline{t}$ <p style="text-align: center;">xxx</p> <p>Adjusted$_{kW-M1}$ = Adjusted$_{kW-M1} * t$</p> <p style="text-align: center;">xxx</p> <p>At Normal Condition for T2:</p> <p>Active and Reactive Power:</p> $kW_{M2} = (kWh_{M2,1-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h \underline{t}$ $kVar_{M2} = (kVarh_{M2,1-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h \underline{t}$ $kW_{M3} = (kWh_{M3,1-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h \underline{t}$	

Title	Section	Provision	Proposed Amendment	Rationale
		$kW_{M3} = (kWh_{M3-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">XXX</p> <p>Maintenance or emergency on one of the transformers would close the Normally Open switch to deliver continuous power supply to the load of the transformer that went off. If Transformer 1 remains on-line while Transformer 2 is shutdown (figure 6):</p> <p>Figure 6</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$	 $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">XXX</p> $\underline{\text{Adjusted}_{kWh-M2}} = \underline{\text{Adjusted}_{kW-M2}} * t$ $\underline{\text{Adjusted}_{kWh-M3}} = \underline{\text{Adjusted}_{kW-M3}} * t$ $\underline{\text{Adjusted}_{kWh-M4}} = \underline{\text{Adjusted}_{kW-M4}} * t$ <p style="text-align: center;">XXX</p> <p>Maintenance or emergency on one of the transformers would close the Normally Open switch to deliver continuous power supply to the load of the transformer that went off. If Transformer 1 remains on-line while Transformer 2 is shutdown (figure 6 L3-A1):</p> <p>Figure 6 L3-A1</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ 	

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		$kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ $kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">XXX</p> <p>If Transformer 1 is shutdown while Transformer 2 remains on-line (figure 7), the manner of computation is the same, only, it is the core loss and full-load copper loss of Transformer 2 that would be distributed.</p> <p>Figure 7</p> <p>b. Case 3 – B: a metering point is connected to another line for alternate source of power</p>	 $kVar_{M2} = (kVarh_{M2,1-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3,1-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3,1-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4,1-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4,1-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">XXX</p> $\underline{\text{Adjusted}_{kWh-M1}} = \underline{\text{Adjusted}_{kW-M1}} * t$ $\underline{\text{Adjusted}_{kWh-M2}} = \underline{\text{Adjusted}_{kW-M2}} * t$ $\underline{\text{Adjusted}_{kWh-M3}} = \underline{\text{Adjusted}_{kW-M3}} * t$ $\underline{\text{Adjusted}_{kWh-M4}} = \underline{\text{Adjusted}_{kW-M4}} * t$ <p style="text-align: center;">XXX</p> <p>If Transformer 1 is shutdown while Transformer 2 remains on-line (figure 7 L3-A2), the manner of computation is the same, only, it is the core loss and full-load copper loss of Transformer 2 that would be distributed.</p> <p>Figure 7 L3-A2</p> <p>b. Case 3 – B: a metering point is connected to another line for alternate source of power during emergency or pre-arranged shutdown.</p>	

Title	Section	Provision	Proposed Amendment	Rationale
		<p>during emergency or pre-arranged shutdown. This is the usual setting for alternate source of power from another substation (figure 8).</p> <p>Figure 8</p> <p>At normal condition (figure 8), SSLF of the meters connected to each MTN can be computed separately treated the same as in Case 1 – A (for T₂) and Case 1 – B (for T₁).</p> <p>At Normal Condition for T₁:</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ $kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">xxx</p>	<p>This is the usual setting for alternate source of power from another substation (figure 8 L3-B).</p> <p>Figure 8 L3-B</p> <p>At normal condition (figure 8 L3-B), SSLF of the meters connected to each MTN can be computed separately treated the same as in Case 1 – A (for T₂) and Case 1 – B (for T₁).</p> <p>At Normal Condition for T₁:</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1,i-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1,i-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2,i-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ $kVar_{M2} = (kVarh_{M2,i-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3,i-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3,i-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4,i-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4,i-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ <p style="text-align: center;">xxx</p>	

Title	Section	Provision	Proposed Amendment	Rationale
		<p>At Normal Condition for T₂:</p> <p>Active and Reactive Power:</p> $kW_{M5} = (kWh_{M5-15min} + kWh_{M5-30min} + kWh_{M5-45min} + kWh_{M5-00min}) \div 1h$ $kVar_{M5} = (kVarh_{M5-15min} + kVarh_{M5-30min} + kVarh_{M5-45min} + kVarh_{M5-00min}) \div 1h$ <p style="text-align: center;">XXX</p> <p>Maintenance or emergency on the line would close the Normally Open switch to deliver continuous power supply to the load of the line that went off. If Transformer 1 remains on-line while Transformer 2 is shutdown (figure 9):</p> <p>Figure 9</p> <p>Active and Reactive Power:</p>	Adjusted_{kWh-M1} = Adjusted_{kW-M1} * t Adjusted_{kWh-M2} = Adjusted_{kW-M2} * t Adjusted_{kWh-M3} = Adjusted_{kW-M3} * t Adjusted_{kWh-M4} = Adjusted_{kW-M4} * t <p style="text-align: center;">XXX</p> <p>At Normal Condition for T₂:</p> <p>Active and Reactive Power:</p> $kW_{M5} = (kWh_{M5-15min} + kWh_{M5-30min} + kWh_{M5-45min} + kWh_{M5-00min}) \div 1h$ $kVar_{M5} = (kVarh_{M5-15min} + kVarh_{M5-30min} + kVarh_{M5-45min} + kVarh_{M5-00min}) \div 1h$ <p style="text-align: center;">XXX</p> Adjusted_{kWh-M5} = Adjusted_{kW-M5} * t <p style="text-align: center;">XXX</p> <p>Maintenance or emergency on the line would close the Normally Open switch to deliver continuous power supply to the load of the line that went off. If Transformer 1 remains on-line while Transformer 2 is shutdown (figure 9 <u>L3-B1</u>):</p> <p>Figure 9 <u>L3-B1</u></p> <p>Active and Reactive Power:</p>	

Title	Section	Provision	Proposed Amendment	Rationale
		$kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ $kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ $kW_{M4} = (kWh_{M4-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h$ $kVar_{M4} = (kVarh_{M4-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h$ $kW_{M5} = (kWh_{M5-15min} + kWh_{M5-30min} + kWh_{M5-45min} + kWh_{M5-00min}) \div 1h$ $kVar_{M5} = (kVarh_{M5-15min} + kVarh_{M5-30min} + kVarh_{M5-45min} + kVarh_{M5-00min}) \div 1h$	$kW_{M1} = (kWh_{M1,i-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h \underline{t}$ $kVar_{M1} = (kVarh_{M1,i-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h \underline{t}$ $kW_{M2} = (kWh_{M2,i-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h \underline{t}$ $kVar_{M2} = (kVarh_{M2,i-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h \underline{t}$ $kW_{M3} = (kWh_{M3,i-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h \underline{t}$ $kVar_{M3} = (kVarh_{M3,i-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h \underline{t}$ $kW_{M4} = (kWh_{M4,i-15min} + kWh_{M4-30min} + kWh_{M4-45min} + kWh_{M4-00min}) \div 1h \underline{t}$ $kVar_{M4} = (kVarh_{M4,i-15min} + kVarh_{M4-30min} + kVarh_{M4-45min} + kVarh_{M4-00min}) \div 1h \underline{t}$ $kW_{M5} = (kWh_{M5,i-15min} + kWh_{M5-30min} + kWh_{M5-45min} + kWh_{M5-00min}) \div 1h \underline{t}$ $kVar_{M5} = (kVarh_{M5,i-15min} + kVarh_{M5-30min} + kVarh_{M5-45min} + kVarh_{M5-00min}) \div 1h \underline{t}$	
		xxx	xxx	
			$\underline{\text{Adjusted}_{kWh-M1}} = \underline{\text{Adjusted}_{kW-M1}} * \underline{t}$	
			$\underline{\text{Adjusted}_{kWh-M2}} = \underline{\text{Adjusted}_{kW-M2}} * \underline{t}$	
			$\underline{\text{Adjusted}_{kWh-M3}} = \underline{\text{Adjusted}_{kW-M3}} * \underline{t}$	
			$\underline{\text{Adjusted}_{kWh-M4}} = \underline{\text{Adjusted}_{kW-M4}} * \underline{t}$	
			$\underline{\text{Adjusted}_{kWh-M5}} = \underline{\text{Adjusted}_{kW-M5}} * \underline{t}$	

Title	Section	Provision	Proposed Amendment	Rationale
		<p>Case 4: Lagging MTN: A metering point is located before the MTN. The meter is installed at a voltage level higher or equal to the voltage level of the MTN (figure 10).</p> <p>Figure 10</p> <p>Simplifying Figure 10:</p> <p>Figure 11</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ $kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ $kW_{M3} = (kWh_{M3-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h$ $kVar_{M3} = (kVarh_{M3-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h$ <p style="text-align: center;">XXX</p>	<p style="text-align: center;">XXX</p> <p>Case 4: Lagging MTN: A metering point is located before the MTN. The meter is installed at a voltage level higher or equal to the voltage level of the MTN (figure 10 L-4).</p> <p>Figure 10 L4</p> <p>Simplifying Figure 10 L4:</p> <p>Figure 11 L4-1</p> <p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1,i-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h \underline{t}$ $kVar_{M1} = (kVarh_{M1,i-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h \underline{t}$ $kW_{M2} = (kWh_{M2,i-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h \underline{t}$ $kVar_{M2} = (kVarh_{M2,i-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h \underline{t}$ $kW_{M3} = (kWh_{M3,i-15min} + kWh_{M3-30min} + kWh_{M3-45min} + kWh_{M3-00min}) \div 1h \underline{t}$ $kVar_{M3} = (kVarh_{M3,i-15min} + kVarh_{M3-30min} + kVarh_{M3-45min} + kVarh_{M3-00min}) \div 1h \underline{t}$ <p style="text-align: center;">XXX</p> $\underline{\text{Adjusted}_{kW-M1}} = \underline{\text{Adjusted}_{kW-M1}} * \underline{t}$ $\underline{\text{Adjusted}_{kW-M2}} = \underline{\text{Adjusted}_{kW-M2}} * \underline{t}$	

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			Adjusted_{kWh-M3} = Adjusted_{kW-M3} * t	
		<p>Generators</p> <p>Case 1: One Metering Point – One Market Trading Node: A metering point measures the dispatch of only one generating unit (figure 12).</p> <p>Figure 12</p> $kW_{Mi} = (kWh_{Mi-15min} + kWh_{Mi-30min} + kWh_{Mi-45min} + kWh_{Mi-00min}) \div 1h$ $kVar_{Mi} = (kVarh_{Mi-15min} + kVarh_{Mi-30min} + kVarh_{Mi-45min} + kVarh_{Mi-00min}) \div 1h$ <p style="text-align: center;">xxx</p> <p>Case 2: One Metering Point – Multiple Market Trading Nodes: A metering point measures the aggregate dispatch of a group or block of generating units (figure 13)</p> <p>Figure 13</p> $kW_{Mi} = (kWh_{Mi-15min} + kWh_{Mi-30min} + kWh_{Mi-45min} + kWh_{Mi-00min}) \div 1h$ $kVar_{Mi} = (kVarh_{Mi-15min} + kVarh_{Mi-30min} + kVarh_{Mi-45min} + kVarh_{Mi-00min}) \div 1h$	<p>Generators</p> <p>Case 1: One Metering Point – One Market Trading Node: A metering point measures the dispatch of only one generating unit (figure 12 G1).</p> <p>Figure 12 G1</p> $kW_{Mi} = (kWh_{Mi,i-15min} + kWh_{Mi-30min} + kWh_{Mi-45min} + kWh_{Mi-00min}) \div 1h$ $kVar_{Mi} = (kVarh_{Mi,i-15min} + kVarh_{Mi-30min} + kVarh_{Mi-45min} + kVarh_{Mi-00min}) \div 1h$ <p style="text-align: center;">xxx</p> <p>Adjusted_{kWh} = Adjusted_{kW} * t</p> <p>Case 2: One Metering Point – Multiple Market Trading Nodes: A metering point measures the aggregate dispatch of a group or block of generating units (figure 13 G2)</p> <p>Figure 13 G2</p> $kW_{Mi} = (kWh_{Mi,i-15min} + kWh_{Mi-30min} + kWh_{Mi-45min} + kWh_{Mi-00min}) \div 1h$ $kVar_{Mi} = (kVarh_{Mi,i-15min} + kVarh_{Mi-30min} + kVarh_{Mi-45min} + kVarh_{Mi-00min}) \div 1h$ 	<ul style="list-style-type: none"> Consistent with the revised general equations under Section 9.7.3, as amended

Title	Section	Provision	Proposed Amendment	Rationale
		<p style="text-align: center;">XXX</p> <p>Disaggregation of Adjusted Active Power:</p> $MTN_{1-Meter-Equivalent} = Adjusted_{kW} * (EPQ_{MTN1} \div \sum_{i=1}^n EPQ_{MTN1})$ $MTN_{2-Meter-Equivalent} = Adjusted_{kW} * (EPQ_{MTN2} \div \sum_{i=1}^n EPQ_{MTN1})$ $MTN_{3-Meter-Equivalent} = Adjusted_{kW} * (EPQ_{MTN3} \div \sum_{i=1}^n EPQ_{MTN1})$ <p>Where:</p> <p>EPQ_{MTN} = Real Time Ex-Post Quantity of the generator</p> <p>Case 3: Multiple Metering Points – Multiple Market Trading Nodes: A group of metering points measures the aggregate dispatch of a group or block of generating units (figure 14).</p> <p>Figure 14</p> <p>Simplifying Figure 14:</p> <p>Figure 15</p>	<p style="text-align: center;">XXX</p> <p><u>Adjusted_{kWh} = Adjusted_{kW} * t</u></p> <p>Disaggregation of Adjusted Active Power:</p> $MTN_{1-Meter-Equivalent} = Adjusted_{kW} * (EPSQ_{MTN1} \div \sum_{i=1}^n EPSQ_{MTN1})$ $MTN_{2-Meter-Equivalent} = Adjusted_{kW} * (EPSQ_{MTN2} \div \sum_{i=1}^n EPSQ_{MTN1})$ $MTN_{3-Meter-Equivalent} = Adjusted_{kW} * (EPSQ_{MTN3} \div \sum_{i=1}^n EPSQ_{MTN1})$ <p>Where:</p> <p>$EPSQ_{MTN}$ = Real Time Ex-Post Snapshot Quantity of the generator</p> <p>Case 3: Multiple Metering Points – Multiple Market Trading Nodes: A group of metering points measures the aggregate dispatch of a group or block of generating units (figure 14 <u>G3</u>).</p> <p>Figure 14 <u>G3</u></p> <p>Simplifying Figure 14 <u>G3</u>:</p> <p>Figure 15 <u>G3-1</u></p>	<ul style="list-style-type: none"> Amended the disaggregation formula to consider that there will be no more ex-post market runs. The snapshot quantity is used instead of the ex-post quantity.

Title	Section	Provision	Proposed Amendment	Rationale
		<p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1-15min} + kWh_{M1-30min} + kWh_{M1-45min} + kWh_{M1-00min}) \div 1h$ $kVar_{M1} = (kVarh_{M1-15min} + kVarh_{M1-30min} + kVarh_{M1-45min} + kVarh_{M1-00min}) \div 1h$ $kW_{M2} = (kWh_{M2-15min} + kWh_{M2-30min} + kWh_{M2-45min} + kWh_{M2-00min}) \div 1h$ $kVar_{M2} = (kVarh_{M2-15min} + kVarh_{M2-30min} + kVarh_{M2-45min} + kVarh_{M2-00min}) \div 1h$ <p style="text-align: center;">XXX</p> <p>Disaggregation of Adjusted Meter Data:</p> $MTN_{1-Meter-Equivalent} = \frac{Adjusted_{kW-M1} * EPQ_{MTN1}}{\sum_{i=1}^n EPQ_{MTNi}} + \frac{Adjusted_{kW-M2} * EPQ_{MTN1}}{\sum_{i=1}^n EPQ_{MTNi}}$ $= \frac{Adjusted_{kW-M1} + Adjusted_{kW-M2} * (EPQ_{MTN1} \div \sum_{i=1}^n EPQ_{MTNi})}{\sum_{i=1}^n EPQ_{MTNi}}$ $MTN_{2-Meter-Equivalent} = \frac{Adjusted_{kW-M1} * EPQ_{MTN2}}{\sum_{i=1}^n EPQ_{MTNi}} + \frac{Adjusted_{kW-M2} * EPQ_{MTN2}}{\sum_{i=1}^n EPQ_{MTNi}}$ $= \frac{Adjusted_{kW-M1} + Adjusted_{kW-M2} * (EPQ_{MTN2} \div \sum_{i=1}^n EPQ_{MTNi})}{\sum_{i=1}^n EPQ_{MTNi}}$	<p>Active and Reactive Power:</p> $kW_{M1} = (kWh_{M1,1-15min} + kWh_{M1,1-30min} + kWh_{M1,1-45min} + kWh_{M1,1-00min}) \div 1h \underline{t}$ $kVar_{M1} = (kVarh_{M1,1-15min} + kVarh_{M1,1-30min} + kVarh_{M1,1-45min} + kVarh_{M1,1-00min}) \div 1h \underline{t}$ $kW_{M2} = (kWh_{M2,1-15min} + kWh_{M2,1-30min} + kWh_{M2,1-45min} + kWh_{M2,1-00min}) \div 1h \underline{t}$ $kVar_{M2} = (kVarh_{M2,1-15min} + kVarh_{M2,1-30min} + kVarh_{M2,1-45min} + kVarh_{M2,1-00min}) \div 1h \underline{t}$ <p style="text-align: center;">XXX</p> $\underline{Adjusted_{kWh-M1}} = \underline{Adjusted_{kW-M1}} * \underline{t}$ $\underline{Adjusted_{kWh-M2}} = \underline{Adjusted_{kW-M2}} * \underline{t}$ <p>Disaggregation of Adjusted Meter Data:</p> $MTN_{1-Meter-Equivalent} = \frac{Adjusted_{kW-M1} * \underline{EPSQ}_{MTN1}}{\sum_{i=1}^n \underline{EPSQ}_{MTNi}} + \frac{Adjusted_{kW-M2} * \underline{EPSQ}_{MTN1}}{\sum_{i=1}^n \underline{EPSQ}_{MTNi}}$ $= \frac{Adjusted_{kW-M1} + Adjusted_{kW-M2} * (\underline{EPSQ}_{MTN1} \div \sum_{i=1}^n \underline{EPSQ}_{MTNi})}{\sum_{i=1}^n \underline{EPSQ}_{MTNi}}$ $MTN_{2-Meter-Equivalent} = \frac{Adjusted_{kW-M1} * \underline{EPSQ}_{MTN2}}{\sum_{i=1}^n \underline{EPSQ}_{MTNi}} + \frac{Adjusted_{kW-M2} * \underline{EPSQ}_{MTN2}}{\sum_{i=1}^n \underline{EPSQ}_{MTNi}}$ $= \frac{Adjusted_{kW-M1} + Adjusted_{kW-M2} * (\underline{EPSQ}_{MTN2} \div \sum_{i=1}^n \underline{EPSQ}_{MTNi})}{\sum_{i=1}^n \underline{EPSQ}_{MTNi}}$	

Title	Section	Provision	Proposed Amendment	Rationale
References		References xxx	References xxx	For easier reference, transferred list of reference documents from the Appendix to the table of Reference Documents in the introductory part of the Market Manual.

Note: For convenience, please underline and put in bold letters the proposed changes to the WESM Manual.

IV. Proposed Scheme to Monitor the Effectiveness of the Proposed Changes to the WESM Manual

V. Referral

MAG Date Received: DEC 16 2016  7:30 PM

Proposed Amendment: Urgent Minor General

A. For Urgent Amendment (For the use of PEMC President only)

Date Referred to PEMC President	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Certifies as urgent	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Convene the RCC within 48 hrs.		
Remarks:		

B. For Minor and General Amendment (For the use of RCC only)

Date Referred to RCC:	
Remarks:	
Action taken:	
Request for comments:	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Request written comments from: <input type="checkbox"/> DRG <input type="checkbox"/> MSC <input type="checkbox"/> PA <input type="checkbox"/> MO <input type="checkbox"/> ECO <input type="checkbox"/> RCC <input type="checkbox"/> TC <input type="checkbox"/> Other PEM Board Committees <input type="checkbox"/> Other Interested Parties
For further review of the Technical Sub-Committee:	<input type="checkbox"/> Yes Assigned to: <input type="checkbox"/> SO Sub-Committee <input type="checkbox"/> MO Sub-Committee <input type="checkbox"/> Metering Sub-Committee <input type="checkbox"/> Billing and Settlement Sub-Committee <input type="checkbox"/> Legal and Regulatory Sub-Committee <input type="checkbox"/> No
For public consultation:	<input type="checkbox"/> Yes <input type="checkbox"/> No
RCC Resolution:	<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved
RCC Resolution No.:	
Date of Resolution:	
RCC Meeting No.	
Date of endorsement to the PEM Board:	