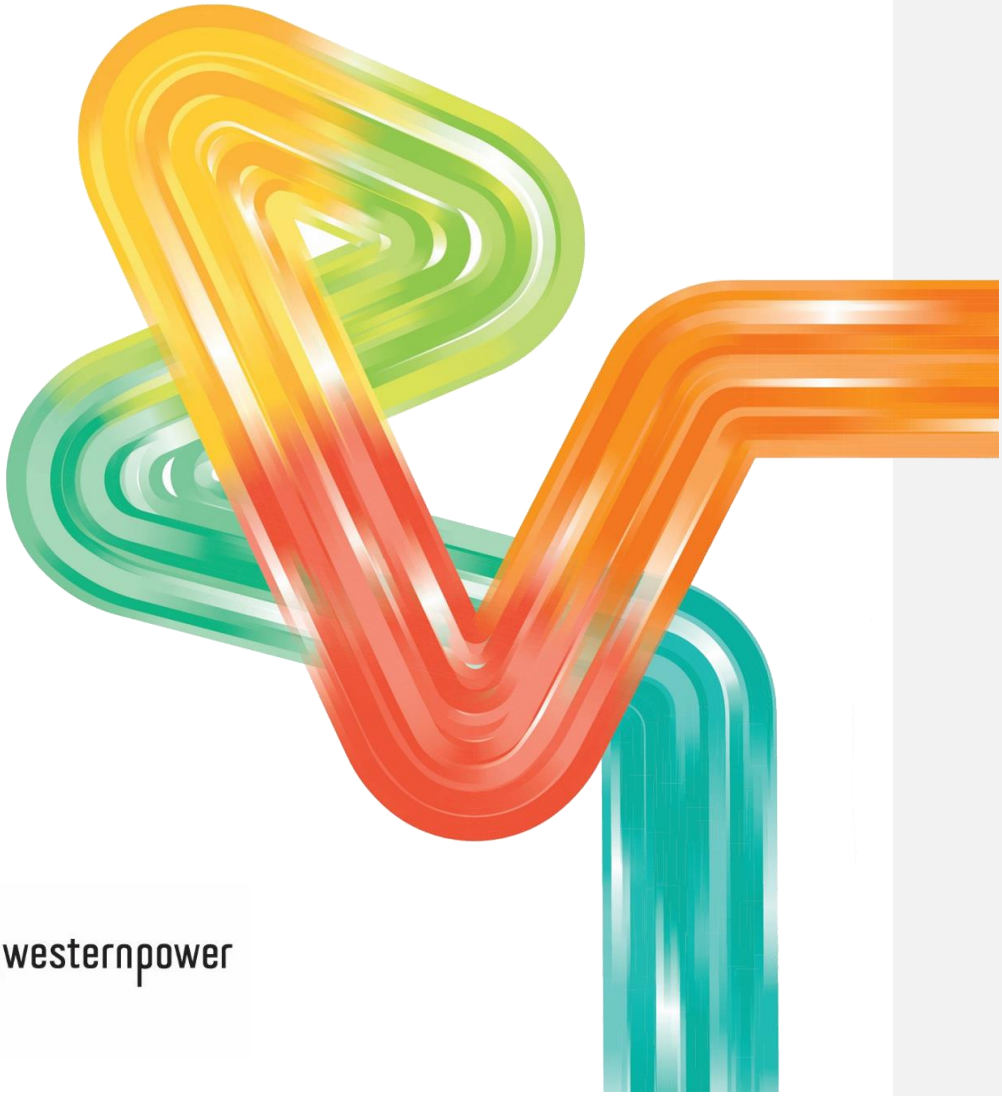
WHOLESALE ELECTRICITY MARKET PROCEDURE

DETERMINING LOSS FACTORS

Version 2.0
11 September 2025



westernpower

ELECTRICITY INDUSTRY ACT 2004

ELECTRICITY INDUSTRY

(WHOLESALE ELECTRICITY MARKET)

REGULATIONS 2004

WHOLESALE ELECTRICITY MARKET RULES

This WEM Procedure took effect from 8:00 AM (WST) on [7 October 2024].

Version Release History

Version	Effective Date	Summary of Changes
1.0	14/08/2023	Changes to transfer version 4.0 of the WEM Procedure: Determining Loss Factors from an AEMO procedure to a Western Power procedure.
2.0	11/09/2025	To reflect the New ESM Rule that commenced on 7 October 2024. The term "Connection Point" will be replaced with "Measurement Point" throughout the WEM Procedure to ensure consistency with clause 2.27 of the ESM Rules. Additionally, Market Participants have indicated that the existing 10-business-day deadline for responding to Western Power regarding DLF calculations under clause 4.5.3 of the WEM Procedure does not provide sufficient time to engage with customers and ensure accuracy. To address this issue, the response timeframe is proposed to be extended to 15 business days, reducing the risk of errors and improving compliance.

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1. INTRODUCTION

1.1 Relationship with the Electricity System and Market Rules (ESM Rules) ~~Wholesale Electricity Market Rules~~

1.1.1 This Wholesale Electricity Market (WEM) Procedure: Determining Loss Factors (Procedure) is made under clause 2.27.17 of the ~~WEM Rules~~ESM Rules.

1.1.2 The purpose of this Procedure is to describe the standards, methodologies, classification systems and procedures to be used by Western Power in determining Loss Factors in accordance with clause 1.34.1 and section 2.27 of the ~~WEM Rules~~ESM Rules. **[clause 2.27.17]**

1.1.3 This Procedure applies to Western Power in its capacity as the Network Operator- in the South West Interconnected System (SWIS).

1.1.4 This Procedure does not apply to other Network Operators, or Western Power in capacities other than as the Network Operator in the SWIS.

1.1.5 In this Procedure where obligations are conferred on a Rule Participant, that Rule Participant must comply with the relevant obligations in accordance with clauses 2.9.7A, 2.9.7B, 2.9.7C, 2.9.7D and 2.9.8 of the ~~WEM Rules~~ESM Rules, as applicable.

1.1.6 Reference to particular ~~WEM Rules~~ESM Rules within this Procedure in bold and square brackets **[clause XX]** are included for convenience only and are not part of this Procedure.

1.2 Definitions and interpretation

1.2.1 The following principles of interpretation apply to this Procedure unless otherwise expressly indicated:

(a) terms that are capitalised, but not defined, have the meaning given in the ~~WEM Rules~~ESM Rules;

(b) to the extent that this Procedure is inconsistent with the ~~WEM Rules~~ESM Rules, the ~~WEM Rules~~ESM Rules prevail;

(c) a reference to the ~~WEM Rules~~ESM Rules or WEM Procedures includes any associated forms required or contemplated by the ~~WEM Rules~~ESM Rules or WEM Procedures; and

(d) words expressed in the singular include the plural and vice versa.

1.2.2 The words, phrases and abbreviations have the meanings set out opposite them in Table 1.1 when used in this Procedure.

Table 1.1: Defined terms and abbreviations

Term	Definition
Access Contract	Has the meaning given to it in the *Electricity Networks Access Code 2004*.

Term	Definition
Applicable Reference Service	A subset of Reference Services available to ~~Connection Point~~Measurement Points with Peak Consumption less than 1,000 kVA as specified in Western Power's annual Loss Factor Report to AEMO. Reference Services are offered by Western Power for the purposes of providing access to the Western Power Network, and documented in Western Power's access arrangement as approved by the Economic Regulation Authority and in effect at the time.
~~Connection Point~~	~~Has the meaning given to it in the *Electricity Networks Access Code 2004*. Typically each Connection Point in the WEM is identified by a National Meter Identifier (NMI), but in some cases Western Power may treat a number of NMIs as a single logical Connection Point in an Access Contract. This means that a Connection Point as defined by Western Power may relate to several Loads in the WEM (each identified by a NMI) or to several Scheduled Facilities, Semi-Scheduled Facilities or Non-Scheduled Facilities (each of which may relate to one or more NMIs).~~
Distribution System	Has the meaning given to it in the *Electricity Networks Access Code 2004*.
DLF	Distribution Loss Factor
DLF Analysis Period	In respect of the annual recalculation of DLFs, the most recent 12 month period, for which the relevant data is available, immediately prior to the 1 June deadline by which the recalculated DLFs must be provided to AEMO.
Entry Point	Has the meaning given to it in the *Electricity Networks Access Code 2004*.
Exit Point	Has the meaning given to it in the *Electricity Networks Access Code 2004*.
Measurement Point	Measurement Point: For a Facility, the point at which the Network Operator measures Injection and Withdrawal using a revenue quality metering device that complies with the Electricity Industry (Metering) Code 2012.
Peak Consumption	The Contracted Maximum Demand (CMD) for an Exit Point declared in an Access Contract, or, where no CMD is declared the peak demand that is likely to occur at an exit point over a 12 month period as determined by Western Power, acting as a reasonable and prudent person.
Pricing Zone	A grouping of several Substations based on their location, as defined in the 'Price List' for the relevant year and documented in Western Power's access arrangement as approved by the Economic Regulation Authority and in effect at the time.
Registered Market Participant	The Market Participant to which a Facility under the clause 2.27.1(a) connected at that ~~Connection Point~~Measurement Point is registered.
Substation	The network equipment at which lines are switched for operational purposes, and which may include one or more transformers so that some connected lines operate at different nominal voltages to others. Substations are identified in the SWIS by a Transmission Node Identifier (TNI).
TLF	Transmission Loss Factor
TLF Analysis Period	In respect of the annual recalculation of TLFs, the most recent 12 month period, for which the relevant data is available, immediately prior to the 1 June deadline by which the recalculated TLFs must be provided to AEMO.
TLF Calculation Program	An appropriate industry standard package used by Western Power to calculate TLFs.

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Term	Definition
Total Losses	The total kWh losses from Western Power's Distribution System over a DLF Analysis Period, used by Western Power in the calculation of DLFs for its ~~Connection Point~~Measurement Points.
Total Sales	The total net kWh consumption from Western Power's Distribution System over a DLF Analysis Period, used by Western Power in the calculation of DLFs for its ~~Connection Point~~Measurement Points.
Transmission SWIN Average TLF Class	The TLF Class defined for the Transmission System as a whole.
Transmission System	Has the meaning given to it in the *Electricity Networks Access Code 2004*.
Transmission Urban Average TLF Class	The TLF Class defined for the group of Substations assigned to the 'Urban' and 'CBD' Pricing Zones.
Zone Substation	A Substation connecting the Transmission and Distribution Systems.

1.3 Related documents

1.3.1 The following WEM Procedure (available on the WEM Website[1]) provides background information to this Procedure:

(a) WEM Procedure: Notices and Communications.

2. OVERVIEW OF LOSS FACTORS

2.1.1 Western Power must calculate and provide to AEMO Loss Factors for:

(a) each ~~Connection Point~~Measurement Point on its Network identified under clause 2.27.1(a) of the ~~WEM Rules~~ESM Rules; and

(b) the Notional Wholesale Meter. **[clause 2.27.1]**

2.1.2 Western Power's Loss Factors must reflect transmission and distribution losses, and each Loss Factor must be expressed as the product of a TLF and a DLF. **[clause 2.27.3]**

[1] http://aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Procedures

2.1.3 To meet these requirements, Western Power must:

(a) develop new Loss Factor Classes to implement the classification system prescribed by AEMO (section 3 of this Procedure); **[clause 2.27.10]**

(b) determine or re-determine the TLF Class and DLF Class for each ~~Connection Point~~Measurement Point on its Network, where:

(i) each ~~Connection Point~~Measurement Points on its Network identified under clause 2.27.1(a) of the ~~WEM Rules~~ESM Rules must be assigned to a TLF Class and a DLF Class in accordance with the classification system prescribed by AEMO **[clauses 2.27.12 and 2.27.13]**; and

(ii) every other ~~Connection Point~~Measurement Point on its Network must be attributed to the Notional Wholesale Meter to which the Transmission SWIN Average TLF Class and the Notional Wholesale Meter DLF Class apply **[clause 2.27.5(e)]** (section 4 of this Procedure);

(c) calculate or recalculate Loss Factors for the Loss Factor Classes in accordance with the principles in clause 2.27.5 of the ~~WEM Rules~~ESM Rules and the relevant processes outlined in sections 4, 5 and 6 of this Procedure **[clauses 2.27.6, 2.27.10(a) and 2.27.13]**; and

(d) provide information pertaining to Loss Factors on its Network to AEMO and Registered Market Participants as required under section 2.27 of the ~~WEM Rules~~ESM Rules and the relevant processes outlined in sections 4, 5 and 6 of this Procedure.

2.1.4 AEMO must publish all information related to Loss Factors as required in section 2.27 of the ~~WEM Rules~~ESM Rules.

3. LOSS FACTOR CLASSIFICATION SYSTEM

The following section is Section 3 in AEMO's Procedure. As the content was re-ordered, the resulting track changes were accepted to enable tracking of any subsequent changes.

3.1 Determining a Loss Factor classification system

3.1.1 AEMO must, in consultation with Western Power, develop a classification system to assign each ~~Connection Point~~Measurement Point on the Western Power Network identified under clause 2.27.1(a) of the WEM to a TLF Class and DLF Class, where:

(a) the assignment of a ~~Connection Point~~Measurement Point to a Loss Factor Class is based on characteristics indicative of the expected Transmission or Distribution System losses (as applicable) for the ~~Connection Point~~Measurement Point;

(b) each ~~Connection Point~~Measurement Point in a Loss Factor Class is assigned the same TLF or DLF (as applicable); and

(c) ~~Connection Point~~Measurement Points on the Transmission System are assigned to a DLF Class with a DLF equal to one. **[clause 2.27.4]**

3.1.2 Where requested by AEMO, Western Power must provide the necessary input into the development of a classification system to assign each ~~Connection Point~~Measurement Point on its Network identified under clause 2.27.1(a) of the WEM to a TLF Class and DLF Class.

3.1.3 Western Power must use the Loss Factor classification system developed by AEMO and documented in sections 3.2 and 3.3 of this Procedure to determine or re-determine TLF and DLF Classes.

3.2 TLF Classes

3.2.1 Western Power must define a unique TLF Class for:

(a) subject to step 3.2.2 of this Procedure, each ~~Connection Point~~Measurement Point on its Transmission System at which a Facility under clause 2.27.1(a) is connected;

(b) each Zone Substation on its Network;

(c) its Transmission System as a whole as the Transmission SWIN Average TLF Class; and

(d) the group of Substations assigned to the Transmission Urban Average TLF Class.

3.2.2 Where multiple physical transmission connections at a Substation are identified as a single ~~Connection Point~~Measurement Point by Western Power in an Access Contract, Western Power may define a single TLF Class to apply to each Facility under clause 2.27.1(a) connected at that ~~Connection Point~~Measurement Point.

3.2.3 Western Power must assign each ~~Connection Point~~Measurement Point associated with Facilities under clause 2.27.1(a) on its Network to a TLF Class in accordance with the following:

(a) if the ~~Connection Point~~Measurement Point is on the Transmission System, it must be assigned to the specific TLF Class for the ~~Connection Point~~Measurement Point prescribed in step 3.2.1(a) of this Procedure; or

(b) if the ~~Connection Point~~Measurement Point:

(i) is contracted on an Applicable Reference Service; or

(ii) has Peak Consumption less than 1,000 kVA,

it must be assigned to the Transmission SWIN Average TLF Class prescribed in step 3.2.1(c) of this Procedure; or

(c) if the ~~Connection Point~~Measurement Point has Peak Consumption greater than or equal to 1,000 kVA and:

(i) the associated Substation identified in an Access Contract; or

(ii) the electrically closest Substation (if a Substation is not identified in the Access Contract) is in the 'Urban' or 'CBD' Pricing Zones,

it must be assigned to the Transmission Urban Average TLF Class prescribed in step 3.2.1(d) of this Procedure; or

(d) if a specific Substation is identified in the Access Contract for the ~~Connection Point~~Measurement Point, the ~~Connection Point~~Measurement Point must be assigned to the TLF Class prescribed in step 3.2.1(b) of this Procedure for that Substation; or

(e) the ~~Connection Point~~Measurement Point must be assigned to the TLF Class prescribed in step 3.2.1(b) of this Procedure for the electrically closest Substation.

3.2.4 Western Power must assign the Notional Wholesale Meter to the Transmission SWIN Average TLF Class prescribed in step 3.2.1(c) of this Procedure.

3.3 DLF Classes

3.3.1 Western Power must define a unique DLF Class for:

(a) ~~Connection Point~~Measurement Points on the Transmission System ("Transmission Connected");

(b) ~~Connection Point~~Measurement Points connected to the Network at the distribution busbar of a Zone Substation ("Zone Substation Connected");

(c) each ~~Connection Point~~Measurement Point on the Distribution System for which Western Power determines under step 3.3.3 of this Procedure that a specific DLF Class is required;

(d) each of the Applicable Reference Services; and

(e) the Notional Wholesale Meter.

3.3.2 Where a site supplied by multiple distribution feeders is identified as a single ~~Connection Point~~Measurement Point by Western Power in an Access Contract and Western Power defines a specific DLF Class for the ~~Connection Point~~Measurement Point, that DLF Class will be assigned to each National Metering Identifier (NMI) associated with the ~~Connection Point~~Measurement Point.

3.3.3 Western Power must assign each ~~Connection Point~~Measurement Point associated with Facilities under clause 2.27.1(a) on its Network to a DLF Class in accordance with the following:

(a) if the ~~Connection Point~~Measurement Point is on the Transmission System, it must be assigned to the Transmission Connected DLF Class prescribed in step 3.3.1(a) of this Procedure; or

(b) if the ~~Connection Point~~Measurement Point is connected to the Network at the distribution busbar of a Zone Substation, it must be assigned to the Zone Substation Connected DLF Class prescribed in step 3.3.1(b) of this Procedure; or

(c) if a Scheduled Facility, Semi-Scheduled Facility or Non-Scheduled Facility is connected through the ~~Connection Point~~Measurement Point on the Distribution System, the ~~Connection Point~~Measurement Point must be assigned to a specific DLF Class defined for it in step 3.3.1(c) of this Procedure; or

(d) if the ~~Connection Point~~Measurement Point is on an Applicable Reference Service, it must be assigned to the DLF Class prescribed for that Applicable Reference Service in step 3.3.1(d) of this Procedure; or

(e) if the ~~Connection Point~~Measurement Point:

(i) has Peak Consumption greater than 7,000 kVA; or

(ii) is an Entry Point,

it must be assigned to a specific DLF Class defined for it in step 3.3.1(c) of this Procedure; or

(f) if the ~~Connection Point~~Measurement Point has Peak Consumption less than 1,000 kVA then:

(i) if the ~~Connection Point~~Measurement Point is connected to the Distribution System at low voltage (nominally 415 volts or less) and is located at a residential premise or a premise occupied by a voluntary/charitable organisation, it must be assigned to the Anytime Energy (Residential) Exit Service DLF Class; or

(ii) if the ~~Connection Point~~Measurement Point is connected to the Distribution System at low voltage (nominally 415 volts or less) and is located at a commercial premise, it must be assigned to the Anytime Energy (Business) Exit Service DLF Class; or

(iii) if the ~~Connection Point~~Measurement Point is connected to the Distribution System at high voltage (nominally greater than 415 volts), it must be assigned to the High Voltage Metered Demand Exit Service DLF Class; or

(g) if the ~~Connection Point~~Measurement Point is located greater than 10 km from:

(i) the associated Substation identified in an Access Contract; or

(ii) the electrically closest Substation (if a Substation is not identified in the Access Contract),

it must be assigned to a specific DLF Class defined for it in step 3.3.1(c) of this Procedure; or

(h) if the Registered Market Participant has requested Western Power to calculate a specific DLF for the ~~Connection Point~~Measurement Point at the Market Participant's expense in step 4.5.1 or step 4.5.3 of this Procedure, the ~~Connection Point~~Measurement Point must be assigned to a specific DLF Class defined for it in step 3.3.1(c);

(i) if the ~~Connection Point~~Measurement Point is connected to the Distribution System at high voltage (nominally greater than 415 volts) it must be assigned to the High Voltage Metered Demand Exit Service DLF Class; or

(j) the ~~Connection Point~~Measurement Point must be assigned to the Low Voltage Metered Demand Exit Service DLF Class.

3.3.4 Western Power must assign the Notional Wholesale Meter to the Notional Wholesale Meter DLF Class prescribed in step 3.3.1(e) of this Procedure.

As the content has been re-ordered, the following deleted clauses are now part of Section 5.5 of Western Power's Procedure.

4. DETERMINATION AND PROVISION OF LOSS FACTORS

4.1 Assignment of ~~Connection Point~~Measurement Points to Loss Factor Classes

4.1.1 When Western Power becomes aware of a new ~~Connection Point~~Measurement Point on its Network (including a ~~Connection Point~~Measurement Point for a Non-Dispatchable Load that is upgraded from basic to interval metering), it must, as soon as practicable but before the information is required for use in calculations under the ~~WEM Rules~~ESM Rules:

(a) determine the TLF Class and DLF Class for the ~~Connection Point~~Measurement Point in accordance with the classification system prescribed by AEMO and documented in section 3 of this Procedure **[clause 2.27.12]**; and

(b) provide to AEMO and the Registered Market Participant:

(i) the Loss Factor Classes for the ~~Connection Point~~Measurement Point; and

(ii) the Trading Day from which the Loss Factor Classes will have effect. **[clause 2.27.14]**

4.1.2 When a change occurs to a ~~Connection Point~~Measurement Point that might alter its applicable Loss Factor Classes, Western Power must, as soon as practicable but before the information is required for use in calculations under the ~~WEM Rules~~ESM Rules:

(a) re-determine the Loss Factor Classes for the ~~Connection Point~~Measurement Point in accordance with the classification system prescribed by AEMO and documented in section 3 of this Procedure **[clause 2.27.13]**; and

(b) if the re-determination results in a change to the TLF Class or DLF Class, provide to AEMO and the Registered Market Participant:

(i) the new TLF Class or DLF Class (as applicable) for the ~~Connection Point~~Measurement Point; and

(ii) the Trading Day from which the new Loss Factor Class will have effect, which must as far as practicable reflect the time of the change that triggered the re-determination. **[clause 2.27.14]**

4.2 Annual recalculation of Loss Factors

4.2.1 Each year by 1 June, Western Power must:

(a) identify and document any changes to the list of Applicable Reference Services together with the associated Loss Factor Class as applicable;

(b) recalculate the Loss Factors for its ~~Connection Point~~Measurement Points, in accordance with the methodology prescribed in section 5 of this Procedure; and

(c) provide by email to AEMO:

(i) updated TLFs and DLFs as applicable for each Loss Factor Class in the prescribed classification system **[clause 2.27.6]**; and

(ii) a written explanation of any change of more than 0.025 between an updated TLF or DLF and the previous value assigned to that Loss Factor Class.

4.3 Creation of new Loss Factor Classes

4.3.1 If Western Power is required to develop a new Loss Factor Class to comply with its prescribed classification system, it must, as soon as practicable but before a ~~Connection Point~~Measurement Point is assigned to the new Loss Factor Class:

(a) calculate the initial TLF or DLF for the new Loss Factor Class in accordance with the methodology prescribed in section 5 of this Procedure; and

(b) provide by email to AEMO the details of the new Loss Factor Class, including its initial TLF or DLF (as applicable). **[clause 2.27.10]**

4.4 Reassessment of Loss Factors [clause 2.27.15]

4.4.1 Where a Market Participant with a Scheduled Facility, Semi-Scheduled Facility, Non-Scheduled Facility or Non-Dispatchable Load registered to that Market Participant believes that:

(a) the TLF for a TLF Class has been calculated incorrectly;

(b) the DLF for a DLF Class has been calculated incorrectly; or

(c) a ~~Connection Point~~Measurement Point has been assigned to the wrong TLF Class or DLF Class,

the Market Participant may apply to AEMO for reassessment in accordance with clause 2.27.15 of the ~~WEM Rules~~ESM Rules and this Procedure and AEMO must process an application in accordance with this Procedure.

4.4.2 To seek a reassessment the Market Participant must apply by email to AEMO within 15 Business Days of the Market Participant receiving notification of the TLF or DLF it believes to be in error. The application must outline:

(a) the TLF or DLF believed to be in error; and

(b) the Market Participant's reasons for believing the TLF or DLF should be a different value.

4.4.3 AEMO must acknowledge receipt of an application for reassessment by email within one Business Day.

4.4.4 Within two Business Days after receiving an application for reassessment, AEMO must provide by email to Western Power a notification which includes:

(a) details of the Market Participant's application; and

(b) the levels of audit that AEMO considers it will be required to undertake, which may include any one or more of the following:

(i) Level 1 - reviewing the reasons provided by the Market Participant for believing the TLF or DLF should be a different value and any reasons provided by Western Power for the TLF or DLF value as calculated;

(ii) Level 2 - reviewing or analysing the data used to calculate the TLF or DLF; and

(iii) Level 3 - reviewing, replicating or rerunning the models or calculation processes used to calculate the TLF or DLF.

4.4.5 Within two Business Days after receiving a notification under step 4.4.4, Western Power must undertake an initial review and advise AEMO by email:

(a) whether or not it agrees that the relevant TLF or DLF is in error; and

(b) if it does not consider the TLF or DLF is in error, its estimate of the reasonable costs it would expect to incur assisting AEMO with an audit.

4.4.6 If Western Power advises AEMO under step 4.4.5(a) that it agrees the TLF or DLF is in error, AEMO must within one Business Day notify the Market Participant by email of Western Power's agreement.

4.4.7 If Western Power advises AEMO under step 4.4.5(a) that it does not consider the relevant TLF or DLF to be in error, AEMO must within two Business Days provide by email to the Market Participant an indicative estimate of the likely costs of an audit, which must include:

(a) the estimated costs provided by Western Power under step 4.4.5(b) of this Procedure; and

(b) any reasonable costs, not otherwise included in AEMO's budget, that AEMO expects to incur in conducting an audit.

4.4.8 Within five Business Days after receiving an estimate of audit costs the Market Participant must confirm by email to AEMO whether or not it requires AEMO to proceed with the audit.

4.4.9 If AEMO receives confirmation from the Market Participant that it is required to proceed with an audit, AEMO must within two Business Days provide Western Power with:

(a) details of the Market Participant's application for reassessment;

(b) a request for access to the relevant data and calculations used in producing the TLF or DLF for the Loss Factor Class, or determining the Loss Factor Class for the ~~Connection Point~~Measurement Point (as applicable), which may include:

(i) provision of written information to AEMO by Western Power; and

(ii) access to Western Power's premises, systems and personnel for AEMO to review relevant data and calculations, including Western Power providing a demonstration of any systems and processes used to calculate Loss Factors or replication of the process used to calculate the Loss Factors in dispute; and

(c) a date by which Western Power must comply with the request, which must be at least five Business Days from the date of AEMO's notification.

4.4.10 AEMO may, at its discretion, aggregate its audit of Loss Factor calculations that are the subject of Market Participant applications for reassessment under section 4.4 of this Procedure, provided AEMO adheres to the timing parameters outlined in this Procedure for each individual Market Participant's application for reassessment.

4.4.11 Western Power must comply with a request received under step 4.4.9(b) by the date set out in step 4.4.9(c) of this Procedure.

4.4.12 Within 20 Business Days after receiving confirmation to proceed with an audit under step 4.4.8 of this Procedure, AEMO must:

(a) conduct the audit; and

(b) notify Western Power and the Registered Market Participant, by email, of the findings of the audit.

4.4.13 Where an error in the calculation of a TLF or DLF for a Loss Factor Class is confirmed by Western Power under step 4.4.5(a) of this Procedure, or notified by AEMO under step 4.4.12(b) of this Procedure, Western Power must recalculate the relevant TLF or DLF and provide it to AEMO as soon as practicable.

4.4.14 Within two Business Days after receiving a recalculated TLF or DLF from Western Power under step 4.4.13 of this Procedure, AEMO must publish on the WEM Website:

(a) the recalculated TLF or DLF; and

(b) the Trading Day from which the recalculated TLF or DLF will apply, which must allow sufficient time for Rule Participants to identify and update any forecast or submission data that is dependent on Loss Factors.

4.4.15 Where an error in the assignment of a ~~Connection Point~~Measurement Point to a Loss Factor Class is confirmed by Western Power under step 4.4.5(a) of this Procedure, or notified by AEMO under step 4.4.12(b)of this Procedure, Western Power must, as soon as practicable:

(a) correct the error which caused the incorrect assignment;

(b) re-determine the Loss Factor Class for the ~~Connection Point~~Measurement Point; and

(c) provide to AEMO and the Registered Market Participant, by email:

(i) the new TLF Class or DLF Class (as applicable) for the ~~Connection Point~~Measurement Point; and

(ii) the Trading Day from which the new Loss Factor Class will apply.

4.4.16 The Market Participant requesting the reassessment must pay the costs incurred by Western Power and AEMO (where these are not otherwise included in AEMO's budget) unless the audit finds:

(a) an error of more than 0.0025 in the calculation of a TLF or DLF; or

(b) an incorrect assignment of a ~~Connection Point~~Measurement Point to a Loss Factor Class,

in which case all costs are payable by Western Power. **[clause 2.27.15(h)]**

4.5 Requests for individual DLF calculations for eligible ~~Connection Point~~Measurement Points

The following clauses are clauses 3.2.5 to 3.2.7 in AEMO's Procedure. As the content was re-ordered, the resulting track changes were accepted to enable tracking of any subsequent changes.

4.5.1 If a ~~Connection Point~~Measurement Point on the Western Power Network:

(a) has Peak Consumption between 1,000 kVA and 7,000 kVA inclusive; and

(b) is located 10 km or less from:

(i) the associated Substation identified in an Access Contract; or

(ii) the electrically closest Substation (if a Substation is not identified in the Access Contract),

the Registered Market Participant may request Western Power to calculate a specific DLF for the ~~Connection Point~~Measurement Point at the Market Participant's expense, by notifying the Western Power account manager assigned to the Market Participant, by email.

4.5.2 Before recalculating its DLFs each year under step 4.2.1 of this Procedure Western Power must:

(a) identify those ~~Connection Point~~Measurement Points that are eligible to have an individual DLF calculated at the Registered Market Participant's expense; and

(b) provide each affected Market Participant, through the Western Power account manager assigned to the Market Participant, with a list of its eligible ~~Connection Point~~Measurement Points and request that the Market Participant confirm for which of these ~~Connection Point~~Measurement Points an individual DLF is required.

4.5.3 If a Registered Market Participant receives a notification under step 4.5.2(b) of this Procedure, it must within ~~10~~15 Business Days notify the Western Power account manager assigned to the Market Participant, by email, for which of its eligible ~~Connection Point~~Measurement Points it requires the calculation of an individual DLF.

4.6 Requests for proposed connections

4.6.1 As part of the process for obtaining a connection to the Western Power Network, a Market Participant may request Western Power to determine and provide to AEMO the Loss Factors to apply to that Facility where there are not already Loss Factors applying to the ~~Connection Point~~Measurement Point. **[clause 2.27.2]**

4.6.2 Upon receiving a request under step 4.6.1, Western Power must use best endeavours to provide the Loss Factors relevant to that Facility using the methodologies in section 5 of this Procedure as applicable.

4.7 Failure to provide Loss Factors

4.7.1 In the event Western Power fails to provide AEMO with a TLF or a DLF in accordance with this Procedure or the ~~WEM Rules~~ESM Rules, AEMO must use the equivalent TLF or DLF from the previous year until such time as Western Power has provided AEMO with a new TLF or DLF and that TLF or DLF as appropriate has taken effect. **[clause 2.27.16]**

4.7.2 Where Western Power subsequently provides an updated TLF or DLF, the previous year's TLF or DLF will continue to apply until the commencement of the applicable Trading Day published by AEMO for the updated value in accordance with clause 2.27.8 of the ~~WEM Rules~~ESM Rules.

5. LOSS FACTOR CALCULATION METHODOLOGIES

5.1 TLF Methodology

Annual recalculation of TLFs

5.1.1 Western Power must select an appropriate industry standard program as its TLF Calculation Program.

5.1.2 Western Power must compile schedules of historical network load (exit) and generation (entry) energy quantities for each Trading Interval in the TLF Analysis Period, for each physical transmission connection on the boundary of its Transmission System for which this information is available.

5.1.3 Where a physical transmission connection is used for both entry and exit, Western Power must compile separate schedules for each (i.e. entry and exit quantities must not be netted against one another).

5.1.4 Western Power must allocate each physical transmission connection on the boundary of its Transmission System to a TLF Class as follows:

(a) if the physical transmission connection is identified as part or all of a ~~Connection Point~~Measurement Point by Western Power in an Access Contract, it must be assigned to the TLF Class defined for that ~~Connection Point~~Measurement Point in step 3.2.1(a) of this Procedure; or

(b) if the physical ~~Connection Point~~Measurement Point provides a connection to the Distribution System, it must be assigned to the TLF Class defined for the relevant Zone Substation in step 3.2.1(b) of this Procedure.

5.1.5 Where a single physical transmission connection is allocated to a TLF Class, Western Power must allocate the schedules of exit data and/or entry data (as applicable) for the physical transmission connection to that TLF Class.

5.1.6 Where multiple physical transmission connections are allocated to a TLF Class, Western Power must summate the schedules of exit and/or entry data (as applicable) compiled in step 5.1.2 of this Procedure for the physical transmission connection to produce single schedules of exit data and/or entry data (as applicable) for that TLF Class.

5.1.7 For any Trading Interval in the TLF Analysis Period, if total generation (as measured by the sum of the entry schedules identified in step 5.1.2 of this Procedure) does not equal total load (as measured by the sum of the exit schedules identified in step 5.1.2) +/- 10%, Western Power must exclude the data for that Trading Interval from the schedules determined for each TLF Class in steps 5.1.5 and 5.1.6 of this Procedure.

5.1.8 Western Power must compile network topology information that reflects the actual system configuration, impedance and state, using its TLF Calculation Program. The base load flow case must include commissioned equipment as at 1 March in the relevant year and be representative of the typical system operating state consistent with the Western Power Drawing No TS1 (Transmission System Diagram).

5.1.9 Western Power must load the schedules described in steps 5.1.5 and 5.1.6 of this Procedure, and amended as appropriate in step 5.1.7 into its TLF Calculation Program.

5.1.10 Western Power must have processes:

(a) to examine the information files for errors, including missing or erroneous data; and

(b) for reloading the correct information and recalculating data, as required, including a process to check that any error or changes required have been fixed.

5.1.11 Western Power must use its TLF Calculation Program to calculate static average marginal Loss Factors for each modelled Exit Point and Entry Point. The calculation must involve the following steps:

(a) a load flow is solved for each Trading Interval in the TLF Analysis Period (except for Trading Intervals excluded in step 5.1.7 of this Procedure) using the energy schedules compiled for each modelled Entry Point and Exit Point;

(b) a marginal Loss Factor is calculated for each modelled Entry Point and Exit Point for each Trading Interval with respect to the Reference Node; and

(c) the static average marginal Loss Factor for each modelled Entry Point or Exit Point is calculated as the energy weighted average of the marginal Loss Factors calculated for that ~~Connection Point~~Measurement Point.

5.1.12 If either an Entry Point or an Exit Point (but not both) was modelled for a TLF Class in step 5.1.11 of this Procedure, Western Power must determine the TLF for that TLF Class to be the static average marginal Loss Factor calculated for that Entry Point or Exit Point (as applicable) in step 5.1.11(c) of this Procedure.

5.1.13 If both an Entry Point and an Exit Point were modelled for a TLF Class in step 5.1.11 of this Procedure, Western Power must determine the TLF for that TLF Class to be the energy weighted average of the static average marginal Loss Factors calculated for the Entry Point and the Exit Point in step 5.1.11(c) of this Procedure.

5.1.14 Western Power must calculate the TLF for the Transmission SWIN Average TLF Class as the energy weighted average of all the static average marginal Loss Factors calculated for Exit Points in step 5.1.11(c) of this Procedure.

5.1.15 Western Power must calculate the TLF for the Transmission Urban Average TLF Class as the energy weighted average of all the static average marginal Loss Factors calculated for Exit Points for TLF Classes defined for Substations in the 'Urban' and 'CBD' Pricing Zones.

Calculation of a TLF for a new TLF Class

5.1.16 If a new Substation is commissioned, Western Power must assign the TLF of the electrically nearest Substation to any new TLF Classes defined for the new Substation or its ~~Connection Point~~Measurement Points in steps 3.2.1(a) or 3.2.1(b) of this Procedure, until specific TLFs are determined for these TLF Classes in the next annual recalculation of Loss Factors.

5.1.17 If a new ~~Connection Point~~Measurement Point is connected to an existing Substation, Western Power must assign the TLF for that Substation to the new TLF Class defined for the ~~Connection Point~~Measurement Point in step 3.2.1(a) of this Procedure, until a specific TLF is determined for this TLF Class in the next annual recalculation of Loss Factors.

5.2 DLF Methodology

Annual recalculation of DLFs

5.2.1 Western Power must determine from its information systems:

(a) the total net kWh consumption from its Distribution System over the DLF Analysis Period ("Total Sales"); and

(b) the total kWh distribution losses over the DLF Analysis Period ("Total Losses").

5.2.2 Western Power must assign a DLF to the Zone Substation Connected DLF Class that reflects typical Zone Substation transformer losses incurred by a ~~Connection Point~~Measurement Point connected to the Network at the distribution busbar of a Zone Substation.

5.2.3 Western Power must identify each ~~Connection Point~~Measurement Point on its Distribution System for which:

(a) the calculation of an individual DLF is required under steps 3.3.3(c), 3.3.3(e) or 3.3.3(g) of this Procedure; or

(b) the Registered Market Participant has confirmed that an individually calculated DLF is required in section 4.5 of this Procedure.

5.2.4 For each ~~Connection Point~~Measurement Point identified in step 5.2.3, Western Power must:

(a) compile details of the ~~Connection Point~~Measurement Point's maximum demand or Declared Sent Out Capacity (as applicable), network configuration and feeder peak demand, where these details may be sourced from historical data in Western Power's information systems or from forecasted values if Western Power considers these to be more appropriate;

(b) use an appropriate industry software package to calculate an individual DLF for the ~~Connection Point~~Measurement Point using the formula and methodology detailed in Schedule 4 of the *Electricity Distribution Regulations 1997*; and

(c) assign the calculated DLF to the DLF Class defined for that ~~Connection Point~~Measurement Point.

5.2.5 Where an individual DLF must be determined for a site supplied by multiple distribution feeders but identified as a single ~~Connection Point~~Measurement Point by Western Power in an Access Contract, Western Power must determine DLFs for each feeder as described in step 5.2.4(b) of this Procedure, and then calculate the DLF for the DLF Class as the average of the calculated DLFs.

5.2.6 Western Power must determine the DLFs for the High Voltage Metered Demand Exit Service DLF Class and the Low Voltage Metered Demand Exit Service DLF Class using appropriate assumptions with regard to losses on high voltage lines and in distribution transformers.

5.2.7 Western Power must apply the DLFs calculated in steps 5.2.2, 5.2.4 and 5.2.6 of this Procedure to the total net kWh consumption ("sales") for the applicable ~~Connection Point~~Measurement Points to calculate the losses attributable to these ~~Connection Point~~Measurement Points over the DLF Analysis Period.

5.2.8 Western Power must allocate the remaining losses (i.e. Total Losses minus losses calculated in step 5.2.7 of this Procedure) amongst the remaining ~~Connection Point~~Measurement Points on the Distribution System according to their contracted Applicable Reference Service, based on the estimated relative contribution to peak load losses of typical customers on each of the relevant Applicable Reference Services.

5.2.9 Western Power must use the losses assigned to each Applicable Reference Service in step 5.2.8 of this Procedure and the sales for each of these Applicable Reference Services over the DLF Analysis Period to calculate DLFs for each of the DLF Classes for the Applicable Reference Services determined in step 3.2.3(b)(i) of this Procedure.

5.2.10 Western Power must apply the DLFs calculated in step 5.2.9 of this Procedure to the sales for the applicable (interval metered) ~~Connection Point~~Measurement Points to calculate the losses attributable to these ~~Connection Point~~Measurement Points over the DLF Analysis Period.

5.2.11 Western Power must calculate the DLF for the Notional Wholesale Meter DLF Class as one plus the ratio of the remaining losses (i.e. Total Losses minus losses calculated in steps 5.2.7 and 5.2.10 of this Procedure) to the remaining sales (i.e. Total Sales minus sales for the ~~Connection Point~~Measurement Points whose losses were calculated in steps 5.2.7 and 5.2.10 of this Procedure).

5.2.12 Western Power must assign a DLF of one to the Transmission Connected DLF Class.

Calculation of a DLF for a new DLF Class

5.2.13 If a Market Participant requests Western Power to calculate an individual DLF for a ~~Connection Point~~Measurement Point in step 4.5.1 of this Procedure, Western Power must calculate the individual DLF using the methodology outlined in step 5.2.4 of this Procedure.

6. DOCUMENTATION REQUIREMENTS

6.1.1 Western Power must have in place internal procedures for calculating Loss Factors.

6.1.2 Western Power must sufficiently document all of its methodologies, models, software, data sources and internal procedures used for Loss Factor calculation to allow for these to be reviewed should the Loss Factor calculations become subject to an AEMO audit under step 4.4.12(a) of this Procedure.

6.1.3 If requested by AEMO, Western Power must assist AEMO in responding to a query raised by or on behalf of a Rule Participant about the processes used by Western Power to calculate Loss Factors.