



INDEPENDENT  
MARKET  
OPERATOR

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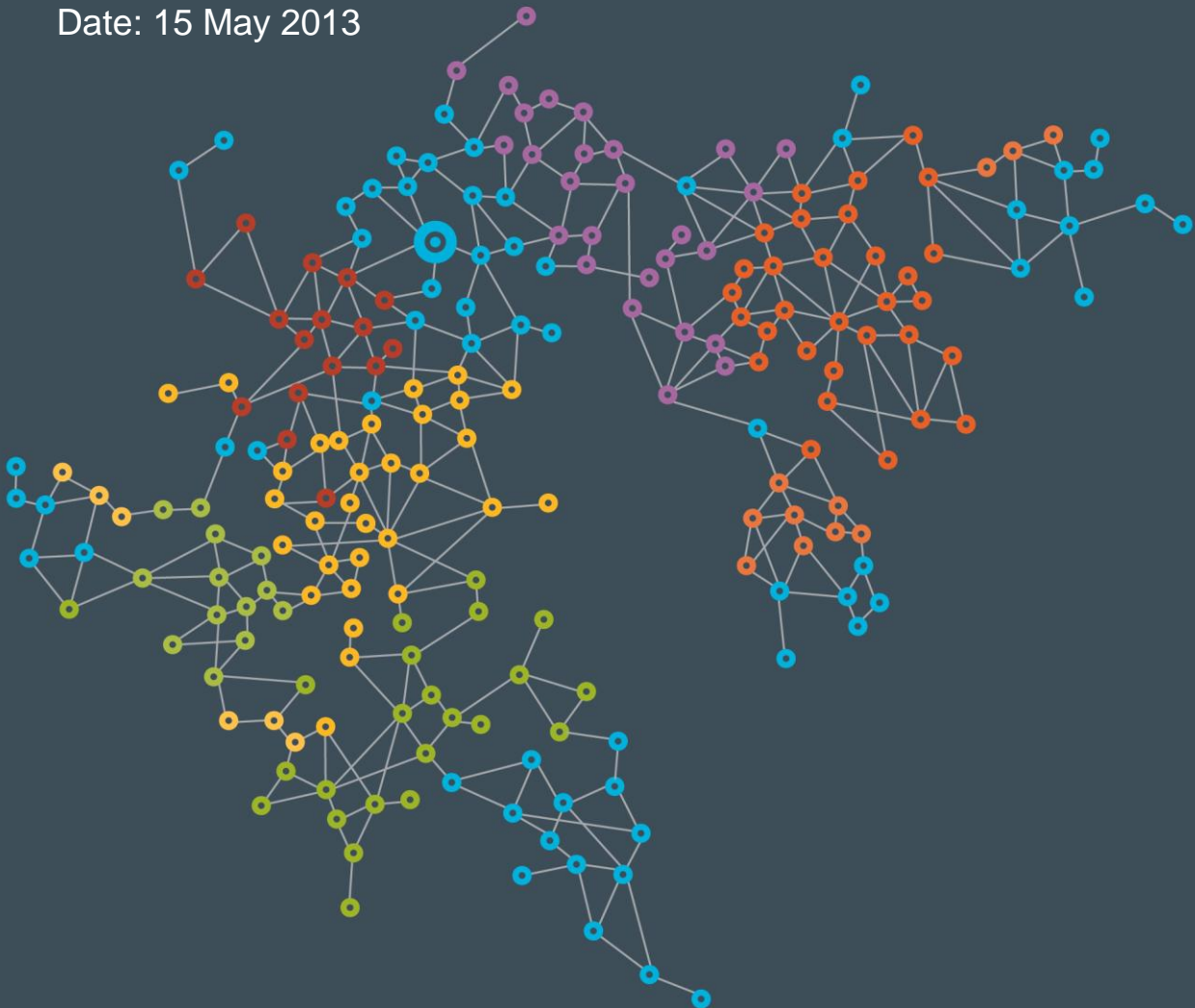
# Final Rule Change Report

## Title: Loss Factor Determination

RC\_2012\_07  
Standard Rule Change Process

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Date: 15 May 2013



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## Executive Summary

### ***Proposed amendments***

Section 2.27 of the Market Rules outlines the requirements for the determination of Loss Factors in the Wholesale Electricity Market (WEM). The IMO has identified a number of discrepancies between section 2.27, the Market Procedure for Determining Loss Factors (Loss Factor Procedure) and the practice that has formed over the past five years in the WEM. The IMO's Rule Change Proposal seeks to resolve these discrepancies in a way that promotes the efficiency and transparency of the Loss Factor determination process.

The IMO proposes to amend the Loss Factor Procedure in conjunction with this Rule Change Proposal. The proposed amendments to the Market Rules and the Loss Factor Procedure are consistent with current practice in the WEM, with the exception of a refinement to the methodology used to calculate the Distribution Loss Factor for the Notional Wholesale Meter and a minor change to the analysis period used for Transmission Loss Factor calculation in the Loss Factor Procedure.

### ***Consultation***

The proposed Amending Rules and the related proposed amendments to the Loss Factor Procedure were developed in consultation with Western Power.

A Pre Rule Change Proposal was discussed by the Market Advisory Committee (MAC) at its 12 September 2012 meeting. During the discussion MAC members requested that the IMO undertake a preliminary impact assessment of the proposed change to the methodology for calculating the Distribution Loss Factor for the Notional Wholesale Meter. Following the presentation of the requested impact assessment at the 14 November 2012 MAC meeting, MAC members supported the progression of the proposal into the formal rule change process.

The proposed amendments to the Loss Factor Procedure were presented to the IMO Procedure Change and Development Working Group at its 27 November 2012 meeting. In response to feedback from the Working Group the IMO proposed a number of minor enhancements to the Amending Rules, to improve the Loss Factor reassessment process and allow the IMO to request assistance from a Network Operator to undertake a review of the effectiveness of the Loss Factor calculation processes.

The Rule Change Proposal was submitted on 20 November 2012 and the first submission period was held between 21 November 2012 and 25 January 2013. Submissions were received from Community Electricity, Perth Energy, Synergy, System Management, Verve Energy and Western Power. All submitting parties supported the proposal. Synergy, Verve Energy and Western Power suggested some minor amendments to the Amending Rules, which were adopted by the IMO where appropriate.

The Draft Rule Change Report was published on 15 March 2013. No submissions were received during the second submission period, which ended on 16 April 2013.

The related Procedure Change Proposal (PC\_2012\_09) was also published on 15 March 2013. Only one submission, from Community Electricity, was received during the consultation period, which supported the proposed changes to the Loss Factor Procedure.

### ***Assessment against Wholesale Market Objectives***

The IMO considers that the proposed amendments promote Wholesale Market Objective (a) and are consistent with the other Wholesale Market Objectives.

### ***Practicality and Cost of Implementation***

The IMO has identified no significant costs or practicality issues with the Rule Change Proposal.

### ***The IMO's Decision***

The IMO's decision is to accept the Rule Change Proposal as modified following the first submission period.

### ***Next Steps***

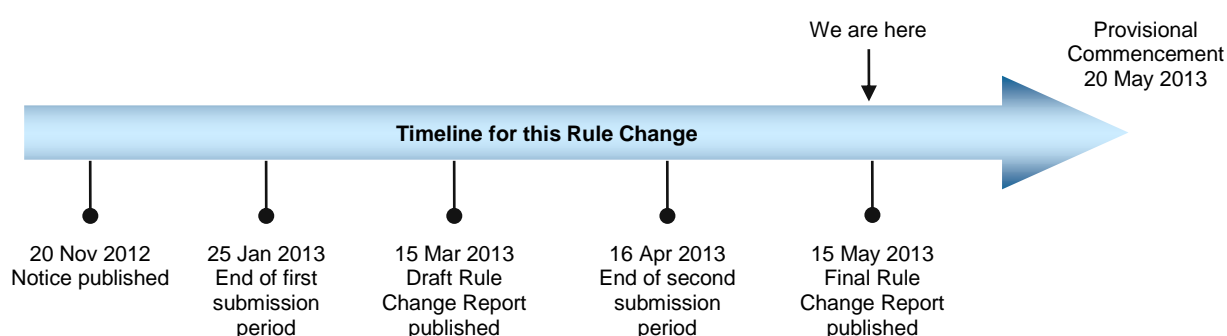
The Amending Rules will provisionally commence at **8.00 AM on 20 May 2013**.

## 1. Rule Change Process and Timetable

On 20 November 2012 the IMO submitted a Rule Change Proposal regarding amendments to section 2.27, clause 9.3.4A and the Glossary of the Wholesale Electricity Market Rules (Market Rules).

This proposal is being processed using the Standard Rule Change Process, described in section 2.7 of the Market Rules. In accordance with clause 2.5.10 of the Market Rules, the IMO decided to extend the timeframes for the first submission period and for the preparation of the Draft Rule Change Report. Further details of the extensions are available on the Market Web Site.

The key dates in processing this Rule Change Proposal, as amended in the extension notices, are:



## 2. Proposed Amendments

### 2.1. The Rule Change Proposal

Section 2.27 of the Market Rules outlines the requirements for the determination of Loss Factors in the Wholesale Electricity Market (WEM). The IMO has identified a number of discrepancies between section 2.27, the Market Procedure for Determining Loss Factors (Loss Factor Procedure) and the practice that has formed over the past five years in the WEM. The IMO's Rule Change Proposal, which was developed in consultation with Western Power, seeks to resolve these discrepancies in a way that promotes the efficiency and transparency of the Loss Factor determination process.

The IMO proposed to amend the Loss Factor Procedure in conjunction with this Rule Change Proposal. The proposed amendments to the Market Rules and the Loss Factor Procedure are consistent with current practice in the WEM, with the exception of a proposed refinement to the methodology used to calculate the Distribution Loss Factor for the Notional Wholesale Meter (to exclude consideration of interval metered connection points) and a minor change to the analysis period used for Transmission Loss Factor calculation in the Loss Factor Procedure.

In summary, the proposed amendments include:

- amendments to clarify how Loss Factors are provided to the IMO and Market Participants and how frequently the Loss Factor for a particular connection point may change;
- the following amendments to the Loss Factor requirements for Non-Dispatchable Loads:

- an increase to the minimum peak consumption level for which a specific Loss Factor must be calculated, from 1000 kVA to 7000 kVA;
- removal of the requirement for all Non-Dispatchable Loads under 1000 kVA peak consumption to have the same Loss Factor;
- clarification that connection points (and in particular Non-Dispatchable Loads) are assigned to Transmission and Distribution Loss Factor Classes according to a classification system prescribed for each Network Operator in the Loss Factor Procedure, and that the classification is based on characteristics indicative of the expected transmission or distribution losses for a connection point;
- clarification of the requirements for the Transmission and Distribution Loss Factors for the Notional Wholesale Meter, where:
  - the Transmission Loss Factor represents system wide average marginal losses over Western Power's transmission system (consistent with current practice); and
  - the Distribution Loss Factor represents the average losses incurred over Western Power's distribution system by Non-Dispatchable Loads not equipped with an interval meter (this seeks to improve on the current practice, where the calculation considers average losses over all connection points, not just the basic and unmetered Loads that are settled as part of the Notional Wholesale Meter);
- removal of the requirement for Network Operators to provide Loss Factors for Non-Dispatchable Loads without interval meters;
- clarification of the differences between Transmission and Distribution Loss Factors;
- clarification that there is only one Notional Wholesale Meter and that Western Power is responsible for determining the Loss Factors to apply to the Notional Wholesale Meter;
- minor amendments to the clause providing the head of power for the Loss Factor Procedure, to amend the procedure name, remove redundant obligations and emphasise the involvement of Network Operators in developing the procedure; and
- a number of minor typographical corrections to improve the integrity of section 2.27.

For full details of the Rule Change Proposal please refer to the Market Web Site: [http://www.imowa.com.au/RC\\_2012\\_07](http://www.imowa.com.au/RC_2012_07).

## **2.2. The IMO's Initial Assessment of the Rule Change Proposal**

The IMO decided to progress the Rule Change Proposal on the basis that interested parties should be given an opportunity to provide submissions as part of the rule change process.

### 3. Consultation

#### 3.1. The Market Advisory Committee

The Pre Rule Change Proposal was discussed at the Market Advisory Committee (MAC) at its 12 September 2012 and 14 November 2012 meetings.

##### **12 September 2012 meeting**

The MAC discussed the Pre Rule Change Proposal and a preliminary draft of the proposed amended Loss Factor Procedure. Ms Jenny Laidlaw noted that the IMO also intended to present the Loss Factor Procedure to the IMO Procedure Change and Development Working Group (IMOPWG) for discussion. In response to questions from MAC members, Ms Laidlaw confirmed that:

- the proposed amendments allow changes to a connection point's Loss Factor to be made if the Transmission or Distribution Loss Factor Class to which it is assigned changes during the year, for example due to a change in the relevant network tariff;
- Loss Factors are provided to the IMO by 1 June each year based on historical information for the year ending the previous 31 March - for example, the Loss Factors applicable from 1 July 2012 were calculated using historical information for the period from 1 April 2011 to 31 March 2012 (*note: since this meeting Western Power has advised that the analysis period used for Distribution Loss Factor calculation is the previous calendar year, and has also proposed an analysis period ending in February for the calculation of Transmission Loss Factors*);
- an individual Loss Factor will be determined for a Load with peak consumption greater than 1000 kVA if it is more than 10 km from its substation, and in these cases the Market Participant is not required to pay for the determination; and
- the definition of "interval meter" from the Metering Code had been adopted.

The following points were discussed.

- Mr Stephen MacLean clarified that Synergy has to pay for all Loss Factor determinations that it requests. Ms Laidlaw confirmed that the IMO was proposing to reflect in the Market Rules the requirements currently outlined in the Loss Factor Procedure and noted that to calculate an individual Loss Factor for each load between 1000 kVA and 7000 kVA peak consumption would be inefficient.
- Mr Ben Tan queried whether there is a set cost of determining a Loss Factor for a connection point or whether it varies depending on the connection point. Mr Matt Veryard confirmed that it costs between \$1500 and \$2000 for Western Power to determine an individual Loss Factor.
- Ms Laidlaw noted that the IMO had not yet undertaken an impact assessment of the changes. However, the changes would result in a likely increase to the Loss Factor for the Notional Wholesale Meter which would result in a reduction in its IRCR allocation. Mr Shane Cremin considered that prior to formal submission of PRC\_2012\_07 it would be advisable to undertake the impact assessment to allow the MAC to make an informed



decision on the proposed changes.

- Mr Geoff Gaston queried whether there had been any thought as to whether Synergy would remain being the only Market Customer supplying the Notional Wholesale Meter. Ms Laidlaw confirmed that the settlement arrangements in the Market Rules did not contemplate more than one Notional Wholesale Meter. The Chair stated that much wider changes to other regulatory instruments would be required to accommodate such a change in practice.
- Mr Gaston stated a preference that when preparing revised drafting the IMO maintain “[Blanks]” in the rule book to indicate historical changes. Ms Laidlaw responded that a balance of history and ease of reading was required when modifying the Market Rules and that the IMO considered which drafting approach would be appropriate on a case by case basis.

The IMO agreed to undertake a preliminary impact assessment of PRC\_2012\_07, including considering the impact of the proposed changes on the Statement of Opportunities, and present the results back to the MAC.

### ***14 November 2012 meeting***

Ms Laidlaw presented a preliminary impact assessment for the proposed change to the methodology for calculating the Distribution Loss Factor for the Notional Wholesale Meter. A copy of the presentation is available in Appendix 1.

Ms Laidlaw indicated that the IMO intended to take the Procedure Change Proposal to the IMOPWG meeting scheduled for 27 November 2012. The MAC agreed to the progression of PRC\_2012\_07 into the formal rule change process.

Further details are available in the MAC meeting minutes available on the Market Web Site: <http://www.imowa.com.au/MAC>.

### **3.2. The IMO Procedure Change and Development Working Group**

The IMO’s proposed amendments to the Loss Factor Procedure were discussed by the IMOPWG at its 27 November 2012 meeting. The Working Group agreed for the IMO to make a number of minor changes to the procedure and consider options around some additional changes. Of these changes, the following have an impact on the proposed Amending Rules for RC\_2012\_07.

- The IMO was requested to confirm what (if any) market information, for example Standing Data or Standing STEM Submissions, a Market Participant might need to update to reflect changes to its Facilities’ Loss Factors, and to update step 2.2.2(c) of the procedure accordingly. Any update would also need to be reflected in the related clause 2.27.9 of the Market Rules.
- The IMO was requested to consider an enhancement to the process for a Market Participant seeking a reassessment of a Transmission or Distribution Loss Factor. The suggested change places an obligation on the IMO to provide the Market Participant with an indication of the costs of an audit and obtain the Market Participant’s agreement before proceeding with the audit.



- The Working Group agreed to the inclusion of provisions allowing the IMO to undertake a review of a Network Operator's models, internal procedures and business processes for calculating Loss Factors. The IMO was requested to consider whether any further amendments to the proposed Amending Rules for RC\_2012\_07 would be required to support this.

Further details are available in the MAC meeting minutes available on the Market Web Site: <http://www.imowa.com.au/IMO-Procedures-Working-Group>.

### 3.3. Submissions received during the first submission period

The first submission period for this Rule Change Proposal was between 21 November 2012 and 25 January 2013. Submissions were received from Community Electricity, Perth Energy, Synergy, System Management, Verve Energy and Western Power.

All submitting parties supported the Rule Change Proposal. Community Electricity and Perth Energy expressed specific support for the alignment of the Market Rules with current practice, with Perth Energy further recommending that a page turn review of the Market Rules be undertaken to identify any other remaining discrepancies between the Market Rules, Market Procedures and "common practice". Perth Energy and Synergy expressed specific support for the proposed changes to the calculation of the Distribution Loss Factor for the Notional Wholesale Meter.

System Management sought clarification on some aspects of the Loss Factor processes, while Synergy and Verve Energy suggested a number of minor amendments to the drafting of the proposed Amending Rules. Western Power noted its involvement in the development of the Rule Change Proposal and suggested an additional minor enhancement to the drafting, to clarify the methodology for determination of the Transmission Loss Factor for the Notional Wholesale Meter.

The assessment by submitting parties as to whether the proposal would better achieve the Wholesale Market Objectives is summarised below:

Submitter	Wholesale Market Objective Assessment
Community Electricity	Consistent with all the Wholesale Market Objectives and improves the integrity of the Market Rules.
Perth Energy	A positive impact on the economic efficiency component of Wholesale Market Objective (a). No impacts on the other Wholesale Market Objectives identified.
Synergy	Will better achieve Wholesale Market Objective (a).
System Management	Believes that the Rule Change Proposal assertion that Wholesale Market Objective (a) is better achieved is reasonable.
Verve Energy	Promotes Wholesale Market Objective (a) and may promote Wholesale Market Objective (d); consistent with the remaining Wholesale Market Objectives.
Western Power	Consistent with all of the Wholesale Market Objectives and improves the clarity and integrity of

Submitter	Wholesale Market Objective Assessment
	the Market Rules.

A copy of all submissions in full received during the first submission period is available on the Market Web Site: [http://www.imowa.com.au/RC\\_2012\\_07](http://www.imowa.com.au/RC_2012_07).

### 3.4. The IMO's response to submissions received during the first submission period

The IMO's response to each of the issues identified during the first submission period is detailed in Appendix 2 of the Draft Rule Change Report available on the Market Web Site: [http://www.imowa.com.au/RC\\_2012\\_07](http://www.imowa.com.au/RC_2012_07).

### 3.5. Second submission period

Following publication of the Draft Rule Change Report on the Market Web Site, the second submission period was held between 18 March 2013 and 16 April 2013.

The IMO did not receive any submissions during the second submission period.

### 3.6. Public Forums and Workshops

No public forums or workshops were held in regard to this Rule Change Proposal.

## 4. The IMO's Draft Assessment

The IMO's draft assessment, against clauses 2.4.2 and 2.4.3 of the Market Rules, and analysis of the Rule Change Proposal can be viewed in the Draft Rule Change Report available on the Market Web Site: [http://www.imowa.com.au/RC\\_2012\\_07](http://www.imowa.com.au/RC_2012_07).

## 5. The IMO's Proposed Decision

The IMO's proposed decision was to accept the Rule Change Proposal as modified following the first submission period. The wording of the relevant Amending Rules was presented in section 7 of the Draft Rule Change Report.

The IMO made its proposed decision on the basis that the Amending Rules:

- will allow the Market Rules to better achieve Wholesale Market Objective (a);
- are consistent with the remaining Wholesale Market Objectives;
- promote consistency between the Market Rules and the Loss Factor Procedure;
- have the support of the MAC; and
- were supported by all the submissions received during the first submission period.

## 6. The IMO's Final Assessment

In preparing its Final Rule Change Report, the IMO must assess the Rule Change Proposal in light of clauses 2.4.2 and 2.4.3 of the Market Rules.

Clause 2.4.2 outlines that the IMO *“must not make Amending Rules unless it is satisfied that the Market Rules, as proposed to be amended or replaced, are consistent with the Wholesale Market Objectives”*. Additionally, clause 2.4.3 states, when deciding whether to make Amending Rules, the IMO must have regard to the following:

- any applicable policy direction from the Minister regarding the development of the market;
- the practicality and cost of implementing the proposal;
- the views expressed in submissions and by the MAC; and
- any technical studies that the IMO considers necessary to assist in assessing the Rule Change Proposal.

The IMO notes that there has not been any applicable policy direction from the Minister or any technical studies commissioned in respect of this Rule Change Proposal. A summary of the views expressed in submissions and by the MAC is available in section 3 of this Final Rule Change Report.

The IMO's assessment is outlined in the following sub-sections.

### 6.1. Additional Amendments to the Amending Rules

Following the first public submission period the IMO made some additional changes to the proposed Amending Rules to:

- reflect suggestions received during the first submission period;
- incorporate a number of minor and typographical amendments to improve the overall integrity of the Amending Rules;
- clarify (in clause 2.27.9) that the data that may require review when Loss Factors are updated includes a number of submissions, standing submissions and forecasts provided by both Market Participants and System Management;
- enhance the reassessment process outlined in clause 2.27.15 as requested by the IMOPWG, so that the IMO must provide a Market Participant seeking a reassessment of a Loss Factor with an indication of the costs of an audit and obtain the Market Participant's agreement before proceeding with the audit;
- defer some of the administrative detail around the reassessment process to the Loss Factor Procedure;
- specify who is required to pay for the costs of an audit, consistent with the arrangements detailed in the current Loss Factor Procedure; and

- allow the IMO at any time to review the effectiveness of the processes used by a Network Operator for Loss Factor calculation in meeting the Wholesale Market Objectives, and require Network Operators to assist the IMO with such a review by providing any relevant information requested. This provision was included following discussion of the Loss Factor Procedure by the IMOPWG, and is intended to replace the excessive documentation obligations on Network Operators in the current Loss Factor Procedure with a less onerous and more appropriately targeted requirement.

The changes the IMO made to the Amending Rules presented in the Rule Change Proposal are outlined in detail in Appendix 3 of the Draft Rule Change Report.

The IMO made no changes to the proposed Amending Rules following the second public submission period.

## **6.2. Wholesale Market Objectives**

The IMO considers that the Market Rules as a whole, if amended as presented in section 8, will not only be consistent with the Wholesale Market Objectives but also allow the Market Rules to better achieve Wholesale Market Objective (a).

The IMO's assessment is presented below:

*(a) to promote the economically efficient, safe and reliable production and supply of electricity and electricity related services in the South West interconnected system:*

The IMO considers that the proposed amendments will support a more accurate allocation of system losses, firstly by allowing multiple Loss Factor Classes to be defined for Non-Dispatchable Loads with less than 1000 kVA peak consumption, and secondly by refining the requirements for the Notional Wholesale Meter's Distribution Loss Factor.

The amendments also reduce unnecessary demands on Network Operators, by removing the requirement to determine Loss Factors for each non-interval metered Load and to calculate a specific Loss Factor for each Non-Dispatchable Load between 1000 kVA and 7000 kVA peak consumption, and by replacing the current excessive requirements relating to the provision of documentation in the Loss Factor Procedure with a less onerous and more appropriately targeted requirement.

As such the IMO considers that the proposed amendments promote the economically efficient production and supply of electricity in the South West interconnected system.

## **6.3. Practicality and Cost of Implementation**

### **6.3.1. Cost:**

No additional IMO costs to implement the proposed changes have been identified. As mentioned previously, the IMO is proposing to amend the Loss Factor Procedure in conjunction with this Rule Change Proposal, and will also need to amend its internal Loss Factor procedure. However, the costs of these changes fall within the IMO's normal operating budget.

In its submission, Western Power noted that with the exception of the change to the methodology for calculating the Distribution Loss Factor for the Notional Wholesale Meter it will not need any

significant changes to existing systems or processes or incur any significant costs to implement this Rule Change. Western Power considered that the change to the calculation of the Notional Wholesale Meter is relatively straightforward and can be readily implemented in the existing model.

No costs associated with implementing the proposed changes were identified by other Rule Participants.

### **6.3.2. Practicality:**

No issues have been identified with the practicality of implementation of the proposed changes.

The IMO notes that the proposed Amending Rules will broaden the obligations of a Network Operator under clause 2.27.1, which is currently a Category A civil penalty provision in the Electricity Industry (Wholesale Electricity Market) Regulations 2004 (Regulations). The IMO is assisting the Public Utilities Office (PUO) in its consideration of the impact of the Amending Rules on the Regulations, and at the PUO's request issued an invitation for submissions from interested parties as to whether all of, or which of, the clauses contained within section 2.27 (as proposed to be amended by this Rule Change Proposal) should be subject to category A civil penalties.

The IMO does not consider that this investigation should have any impact on the proposed commencement date for the Amending Rules, which will allow the proposed enhancements to the Loss Factor calculation methodology to be applied to the calculations for the 2013/14 Financial Year.

## **7. The IMO's Decision**

The IMO's decision is to accept the Rule Change Proposal as modified following the first submission period.

### **7.1. Reasons for the decision**

The IMO has made its decision on the basis that the Amending Rules:

- will allow the Market Rules to better achieve Wholesale Market Objective (a);
- are consistent with the remaining Wholesale Market Objectives;
- promote consistency between the Market Rules and the Loss Factor Procedure;
- have the support of the MAC; and
- are supported by all the submissions received during the first and second submission periods.

Additional detail outlining the analysis behind the IMO decision is outlined in section 6 of this Final Rule Change Report.

## 8. Amending Rules

### 8.1. Commencement

The amendments to the Market Rules resulting from this Rule Change Proposal will provisionally commence at **8.00 AM on 20 May 2013**.

### 8.2. Amending Rules

The IMO has decided to implement the following Amending Rules (~~deleted text~~, added text):

- 2.27.1. ~~By 1 June of each year~~ Network Operators must, in accordance with this section 2.27, calculate and provide to the IMO Loss Factors for:
- (a) each connection point in their Networks at which any of the following is connected:
    - i. a Scheduled Generator;
    - ii. a Non-Scheduled Generator;
    - iii. an Interruptible Load;
    - iv. a Dispatchable Load; or
    - v. a Non-Dispatchable Load equipped with an interval meter; and
  - (b) in the case of Western Power, the Notional Wholesale Meter.
- ~~(a) — a Scheduled Generator;~~  
~~(b) — a Non-Scheduled Generator;~~  
~~(c) — a Non-Dispatchable Load;~~  
~~(d) — an Interruptible Load; or~~  
~~(e) — [Blank]~~  
~~(f) — a Dispatchable Load.~~
- 2.27.24A. A Market Participant may request, during the process of obtaining a relevant Arrangement for Access, that the relevant Network Operator determine and provide to the IMO; Loss Factors to apply to a ~~facility or a Non-Dispatchable Load~~ Facility where there are no Loss Factors applying to the connection point at which the ~~facility or the Non-Dispatchable Load~~ Facility will be connected.
- 2.27.3. Loss Factors must reflect transmission and distribution losses and each Loss Factor must be expressed as the product of a Transmission Loss Factor and a Distribution Loss Factor.
- 2.27.4. Subject to clause 2.27.5(d), for each Network Operator the IMO must, in consultation with that Network Operator, develop a classification system to assign each of the

connection points in the Network Operator's Network identified under clause 2.27.1(a) to a Transmission Loss Factor Class and a Distribution Loss Factor Class, where:

- (a) the assignment of a connection 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;
- (b) each connection point in a Loss Factor Class is assigned the same Transmission Loss Factor or Distribution Loss Factor (as applicable); and
- (c) connection points on the transmission system are assigned to a Distribution Loss Factor Class with a Distribution Loss Factor equal to one.

2.27.52. In calculating Loss Factors, Network Operators must apply the following principles:

- ~~(a) Loss Factors are static and apply to each connection point until new Loss Factors are calculated in accordance with clause 2.27.1 or 2.27.4(d);~~
- (ba) Transmission Loss Factors must notionally represent the marginal transmission system losses for a connection point relative to the Reference Node, averaged over all Trading Intervals in a year, weighted by the absolute value of the net demand at that connection point during the Trading Interval;
- (b) Distribution Loss Factors must notionally represent the average distribution system losses for a connection point over a year;
- (c) Loss Factors must be calculated using:
  - i. generation and load meter data from the preceding 12 months; or
  - ~~ii. for a new facility or a Non-Dispatchable Load Facility, any other relevant data provided to the Network Operator by the Market Participant and as agreed with the Network Operator and the IMO;~~
  - iii. for Transmission Loss Factors, an appropriate network load flow software package; and
- ~~(d) Loss Factors must include transmission and distribution losses;~~
- (ed) a specific Loss Factor must be calculated for each:
  - i. Scheduled Generator;
  - ii. Non-Scheduled Generator;
  - ~~iii. [Blank]~~
  - ~~iv. Interruptible Load;~~
  - iv. Dispatchable Load; and
  - vi. Non-Dispatchable Load above ~~4000kVA~~ 7000 kVA peak consumption;



- (fe) the same Loss Factor will apply to all Non-Dispatchable Loads less than 1000kVA peak consumption, and will be determined on an averaged basis. Western Power must assign the Notional Wholesale Meter to:
  - i. a Transmission Loss Factor Class that represents system wide average marginal losses over Western Power's transmission system; and
  - ii. a Distribution Loss Factor Class that represents the average losses incurred over Western Power's distribution system by Non-Dispatchable Loads not equipped with an interval meter; and
- (f) the Transmission Loss Factors calculated for each Transmission Loss Factor Class and the Distribution Loss Factors calculated for each Distribution Loss Factor Class are static, and apply to each connection point in the relevant Loss Factor Class until the time published by the IMO under clause 2.27.8 for the application of an updated Transmission Loss Factor or Distribution Loss Factor to that Loss Factor Class.

~~2.27.2A6.~~ For the purpose of these Market Rules, where a Loss Factor must be applied to a Notional Wholesale Meter value then the loss factor described in clause 2.27.2(f) is to apply. Each year by 1 June each Network Operator must, in accordance with the Market Procedure for Determining Loss Factors, recalculate the Loss Factors for its connection points and provide the IMO with updated Transmission Loss Factors and Distribution Loss Factors (as applicable) for each Loss Factor Class in the Network Operator's classification system.

~~2.27.37.~~ The IMO must publish the Loss Factors Transmission Loss Factors and Distribution Loss Factors provided by a Network Operator in accordance with clause 2.27.6 within two Business Days as soon as practicable after receiving them from all Network Operators.

~~2.27.3A8.~~ Once all When Transmission Loss Factors and Distribution Loss Factors are published in accordance with clause ~~2.27.3~~ 2.27.7 or where one or more Transmission Loss Factors or Distribution Loss Factors are changed in accordance with clauses ~~2.27.4(e)~~ 2.27.15(e) or ~~2.27.5~~ 2.27.16 the IMO must publish the time from which the Loss Factor or new Transmission Loss Factors or Distribution Loss Factors will apply, where this must be from the commencement of a Trading Day.

~~2.27.3B9.~~ In setting the time from which a Transmission Loss Factor or Distribution Loss Factor or Loss Factors will apply in accordance with clause ~~2.27.3A~~ 2.27.8 the IMO must allow sufficient time for Market Rule Participants to identify and update Standing Data any submission or forecast data that is dependent on Loss Factors.

2.27.10. A Network Operator must develop new Loss Factor Classes if required to implement the classification system prescribed by the IMO for that Network Operator. If a Network Operator develops a new Loss Factor Class then it must:

- (a) calculate the initial Transmission Loss Factor or Distribution Loss Factor (as applicable) for the new Loss Factor Class in accordance with the Market Procedure for Determining Loss Factors; and
- (b) provide to the IMO details of the new Loss Factor Class and its initial Transmission Loss Factor or Distribution Loss Factor as soon as practicable but before a connection point is assigned to the new Loss Factor Class.

2.27.11. The IMO must publish a new Transmission Loss Factor or Distribution Loss Factor provided by a Network Operator in accordance with clause 2.27.10(b) within two Business Days after receiving it from the Network Operator.

2.27.12. A Network Operator must determine the Transmission Loss Factor Class and Distribution Loss Factor Class for each new connection point in its Network identified under clause 2.27.1(a), in accordance with the classification system prescribed by the IMO for that Network Operator.

2.27.13. A Network Operator must re-determine the Loss Factor Classes for a connection point in its Network identified under clause 2.27.1(a) if a change occurs to the connection point that might alter its applicable Loss Factor Classes under the classification system prescribed by the IMO for that Network Operator.

2.27.14. When a Network Operator determines a Loss Factor Class for a connection point under clause 2.27.12 or changes a Loss Factor Class for a connection point under clause 2.27.13, the Network Operator must provide to both the IMO and the relevant Market Participant the new Loss Factor Class for the connection point and the Trading Day from which it takes effect, as soon as practicable but before the information is required for use in calculations under the Market Rules.

2.27.154. A Market Participant may apply to the IMO for a ~~re-assessment~~ reassessment of any Transmission Loss Factor or Distribution Loss Factor applying to a Scheduled Generator, Non-Scheduled Generator, Interruptible Load, Dispatchable Load or Non-Dispatchable Load registered to that Market Participant. ~~The following process will apply to every application:~~ The following requirements apply to each application for reassessment.

- (a) ~~the The~~ The Market Participant must apply to the IMO in writing within 15 Business Days of receiving the notification of the Loss Factors, stating the Loss Factors that it believes to be in error and its reasons for believing that the Loss Factors should take some other value; apply for reassessment in accordance with the Market Procedure for Determining Loss Factors.
- (b) ~~upon receiving such an application, the IMO must:~~ The IMO must process an application for reassessment and where required conduct an audit of the relevant Loss Factor calculation in accordance with the Market Procedure for Determining Loss Factors.

- ~~i. within two Business Days notify the relevant Network Operator that the IMO intends to carry out an audit of the Loss Factor calculation; and~~
  - ~~ii. within 25 Business Days audit the Loss Factor calculation.~~
- (c) ~~the~~ The relevant Network Operator must cooperate with the an audit of the Loss Factor calculation conducted by the IMO under clause 2.27.15(b) by providing reasonable access to the data and calculations used in producing the Loss Factor.
- (d) ~~Where the an audit reveals an error in the Loss Factor calculation of a~~ Transmission Loss Factor or Distribution Loss Factor for a Loss Factor Class, the IMO must direct the Network Operator to recalculate the Transmission Loss Factor or Distribution Loss Factor, and may instruct the Network Operator to recalculate other Transmission Loss Factors or Distribution Loss Factors provided by that Network Operator.
- (e) ~~Where the IMO directs the Network Operator to recalculate a~~ Transmission Loss Factor or Distribution Loss Factor for a Loss Factor Class, then the Network Operator must do so, and must provide the recalculated Transmission Loss Factor or Distribution Loss Factor to the IMO. The recalculated Transmission Loss Factor or Distribution Loss Factor is substituted for the value previously applied with effect from the time published by the IMO in accordance with clause 2.27.3A 2.27.8.
- ~~(f) Where an audit reveals an error in the assignment of a connection point to a Loss Factor Class, the IMO must direct the relevant Network Operator to correct the error and re-determine the Loss Factor Class for the connection point in accordance with the classification system prescribed by the IMO for that Network Operator.~~
- ~~(g) Where the IMO directs a Network Operator to re-determine a Loss Factor Class for a connection point, then the Network Operator must do so, and must as soon as reasonably practicable provide to the IMO and the relevant Market Participant the revised Loss Factor Class and the Trading Day from which it should apply.~~
- ~~(h) The costs of an audit conducted by the IMO in response to an application for reassessment, including any costs incurred by the Network Operator and any costs, not otherwise included in the IMO's budget, incurred by the IMO, are payable by the Market Participant who made the application for reassessment, unless the audit reveals:~~
  - ~~i. an error of more than 0.0025 in the calculation of a Transmission Loss Factor or Distribution Loss Factor; or~~
  - ~~ii. an incorrect assignment of a Connection Point to a Loss Factor Class, in which case all costs are payable by the relevant Network Operator.~~

2.27.516. Where a Network Operator fails to provide the IMO with a Transmission Loss Factor or Distribution Loss Factor in accordance with clause ~~2.27.4~~ 2.27.6 or ~~2.27.4(d)~~ 2.27.15(d), the IMO must continue to use the equivalent Transmission Loss Factor or Distribution Loss Factor from the previous year until such time as the Network Operator has provided the IMO with the new Transmission Loss Factor or Distribution Loss Factor and that Transmission Loss Factor or Distribution Loss Factor has taken effect. The recalculated Transmission Loss Factor or Distribution Loss Factor is substituted for the value previously applied with effect from the time published by the IMO in accordance with clause ~~2.27.3A~~ 2.27.8.

2.27.617. The IMO must, with the assistance of Network Operators, document the standards, methodologies, classification systems and procedures to be used in determining the Loss Factors in the Market Operations Procedure for Determining Loss Factors and Network Operators must follow that documented Market Procedure when determining the Loss Factors.

2.27.18. The IMO may at any time review the effectiveness of the processes used by a Network Operator for Loss Factor calculation in meeting the Wholesale Market Objectives.

2.27.19. The IMO may request, and a Network Operator must provide, any information relating to the methodologies, models, software, data sources and internal procedures used by the Network Operator for Loss Factor calculation that the IMO considers relevant to a review conducted under clause 2.27.18.

9.3.4A. The IMO must determine a single Metered Schedule for a Trading Interval for those Non-Dispatchable Loads without interval meters or with meters not read as interval meters that are served by Synergy where:

- (a) the Metered Schedule equals the Notional Wholesale Meter value for that Trading Interval;
- (b) the Notional Wholesale Meter value for a Trading Interval equals negative one multiplied by:
  - i. the sum of the Metered Schedules with positive quantities for that Trading Interval; plus
  - ii. the sum of the Metered Schedules with negative quantities for that Trading Interval;

where the Metered Schedules referred to in clauses 9.3.4A(b)(i) and 9.3.4A(b)(ii) exclude the Metered Schedule for the Notional Wholesale Meter.

**Notional Wholesale Meter:** ~~A notional interval meter quantity associated with a Market Customer's aggregate consumption not metered by Trading Interval. This value will be an estimate produced by the IMO.~~ representing Non-Dispatchable Loads without interval meters that are served by Synergy.

**Distribution Loss Factor:** A factor representing the average electrical losses incurred when electricity is transmitted through a distribution network.

**Distribution Loss Factor Class:** A group of one or more connection points with common characteristics assigned a common Distribution Loss Factor.

**Loss Factor: Means:**

(a) Aa factor representing network losses defining the annual average marginal network loss between any given node and the Reference Node where the Loss Factor at the Reference Node is 1, expressed as the product of a Transmsion Loss Factor and a Distribution Loss Factor and determined in accordance with clause 2.27.2 2.27.5, and includes the Portfolio Loss Factor.; and

(b) in relation to the Verve Energy Balancing Portfolio, the Portfolio Loss Factor.

**Loss Factor Class:** A Transmission Loss Factor Class or a Distribution Loss Factor Class.

**Transmission Loss Factor:** A factor representing the average marginal electrical losses incurred when electricity is transmitted through a transmission network.

**Transmission Loss Factor Class:** A group of one or more connection points with common characteristics assigned a common Transmission Loss Factor.

## Appendix 1. Impacts of proposed change to Notional Wholesale Meter DLF

*(Presentation to MAC on 14 November 2012)*

The Pre Rule Change Proposal: Loss Factor Determination (PRC\_2012\_07) was developed by the IMO in consultation with Western Power and presented to the MAC at its September 2012 meeting. The proposed changes include a refinement to the methodology used to determine the Distribution Loss Factor (DLF) for the Notional Wholesale Meter (NWM), to exclude consideration of the average losses of interval metered connection points.

The IMO noted during its presentation that while the proposed changes to the NWM DLF would have no impact on Metered Schedules for the NWM, they would cause a small reduction in Synergy's Individual Reserve Capacity Requirement (IRCR) and a corresponding small increase in the IRCRs of other Market Participants. The MAC requested the IMO to undertake a preliminary assessment of PRC\_2012\_07, including considering the impact on the Statement of Opportunities, and present the results to the MAC.

To assist with this analysis, Western Power provided the IMO with an estimate of the NWM's DLF for the 2012/13 Financial Year, calculated using the proposed methodology. It should be noted that this value is a preliminary estimate only, as the changes to Western Power's modelling processes are yet to be formally tested and audited. However, the estimated value of 1.063 lies in the expected range, between the current value of 1.0522 and the DLF associated with small residential network tariffs (1.075).

The IMO used the estimated DLF to recalculate the IRCRs and associated TDL\_Ratio values for the Trading Months from October 2011 to November 2012 inclusive. Note the changes have no impact on NTDL\_Ratio or Total\_Ratio values. The reduction in Synergy's IRCR varies but is well under 10 MW in all cases, with the reduction for the 2012/13 Capacity Year about half that for the 2011/12 Capacity Year, due to the FY2011/12 NWM Loss Factor being larger than the FY2010/11 NWM Loss Factor. The impact on the TDL\_Ratio is shown in the following table.

Trading Month	TDL_Ratio (Current DLF)	TDL_Ratio (Proposed DLF)
October 2011	1.5781	1.5883
November 2011	1.5631	1.5733
December 2011	1.5667	1.5770
January 2012	1.5646	1.5748
February 2012	1.5678	1.5781
March 2012	1.5708	1.5811
April 2012	1.5753	1.5856
May 2012	1.5765	1.5869

Trading Month	TDL_Ratio (Current DLF)	TDL_Ratio (Proposed DLF)
June 2012	1.5776	1.5879
July 2012	1.5782	1.5886
August 2012	1.5758	1.5861
September 2012	1.5783	1.5887
October 2012	1.6488	1.6531
November 2012	1.6470	1.6512

If the proposed changes were to commence in time for the 2013/14 Loss Factor review then there would be some impact from October 2013 (due to changes to the NWM values for the 4 Peak Trading Intervals used in IRCR calculations), with the full impact starting from October 2014 (due to the changes to the NWM values for the Hot Season 12 Peak Trading Intervals).

The proposed changes would have no impact on the Statement of Opportunities, and in particular on the calculation of the Reserve Capacity Target. This is because the IMO's demand forecasts are developed from historical sent out generation and Demand Side Programme curtailment data, and not from Load data.