



# Technical Rules Committee

## Final Report

June 2006

## TABLE OF CONTENTS

1.	EXECUTIVE SUMMARY .....	3
2.	INTRODUCTION .....	4
3.	THE COMMITTEE .....	5
3.1	COMMITTEE SCOPE.....	5
3.2	COMMITTEE MEMBERSHIP.....	5
3.3	COMMITTEE PROCESS.....	6
4.	THE RULE APPROVAL PROCESS .....	6
4.1	OBJECTIVES OF THE TECHNICAL RULES .....	6
4.2	APPROVAL OF THE TECHNICAL RULES .....	7
4.3	OVERVIEW OF PROCESS .....	7
4.4	COMMITTEE’S PRELIMINARY REPORT .....	8
5.	DRAFT DECISION OF THE ERA.....	8
5.1	DRAFT DECISION .....	8
5.2	PUBLIC SUBMISSIONS .....	9
6.	COMMITTEE COMMENTS.....	10
6.1	OVERARCHING COMMENTS .....	10
6.2	PRELIMINARY REPORT DEADLOCK ISSUES .....	10
	6.2.1 Frequency Standards.....	10
	6.2.2 Stability Assessment.....	12
	6.2.3 Reactive Power Capabilities.....	13
	6.2.4 Protection Requirements for Small Generating Units .....	14
6.3	PRELIMINARY REPORT RECOMMENDATIONS .....	14
6.4	AUTHORITY MEMORANDUM ISSUES .....	14
7.	COMMITTEE RECOMMENDATIONS.....	16
7.1	SYSTEM STABILITY.....	16
7.2	FREQUENCY STANDARDS .....	16
7.3	REACTIVE POWER CAPABILITIES .....	16
7.4	FURTHER CONSIDERATION OF SMALL GENERATOR REQUIREMENTS .....	16
7.5	DEROGATION AND DISPUTE RESOLUTION PROCESS .....	16
7.6	FURTHER ROLE OF COMMITTEE.....	17
7.7	PROCESS FOR AMENDING THE RULES .....	17
7.8	CONSIDERATION OF VERVE ENERGY SUBMISSION .....	17
APPENDIX A .....		18
COMMITTEE TERMS OF REFERENCE.....		18
APPENDIX B.....		24
COMMITTEE MEMBERS .....		24
APPENDIX C .....		26
WESTERN POWER LETTER TO AUTHORITY RE SMALL GENERATORS .....		26

# 1. EXECUTIVE SUMMARY

This document is the final report to the Economic Regulation Authority (the Authority) of the Technical Rules Committee (the Committee) on the Technical Rules (the Rules) governing the networks owned by Western Power in the South West Interconnected System. The Rules consist of the standards, procedures and planning criteria governing the construction and operation of an electricity network, and are to deal with all the matters listed in Appendix 6 of the Code.

The report recognises that the amended draft Rules published by the Authority on 11 April 2006, as part of its draft decision, have addressed many of the concerns and recommendations raised by the Committee in its preliminary report of 12 December 2005.

The Committee:

- emphasises the importance for Western Power to act in a flexible manner and comply with the reasonableness requirements of the Rules, especially when establishing conditions based on system stability considerations;
- supports Western Power's proposal to amend the requirement for generator operation in the range of 47.0Hz to 47.5Hz to 10 seconds;
- recommends allowing proposals based on providing an equivalent reactive power performance to that of a synchronous generator capable of 0.8 lagging power factor under a range of voltage conditions at the connection point;
- supports Western Power's submission for the Authority to reconvene the Small Generation Working Group, where this group is to provide further advice on potential barriers to the connection of small generators;
- supports Western Power's proposal to develop a "Users Guide to Technical Rules for Small Generators" that would assist the proponents of small generator projects to perform preliminary technical evaluation of the proposed connection with minimal technical assistance;
- recognises that the Rules:
  - are unlikely to cover all circumstances that may arise;
  - should retain some flexibility to allow the parties to negotiate sensible and reasonable solutions for particular circumstances; and
  - will need amendment from time to time;
- strongly recommends that in order to encourage investment, the Authority develop and publish procedures, complete with timeframes, to expeditiously deal with matters such as disputes, derogations and rule changes;
- recommends that Western Power be encouraged to submit to the Authority a review of the Verve Energy detailed submission, with Verve providing a subsequent response; and
- offers to continue to provide advice and commentary to the Authority where it can add value.

## 2. INTRODUCTION

The technical requirements for an electricity network can have significant commercial implications for users and if too onerous can represent a barrier to entry for new participants. While the safe and reliable operation of the electricity network is of paramount importance there is also a natural tendency of the network service provider (the Provider) to adopt a conservative approach when considering departures from historical process and technical parameters.

Creation of technical standards with an appropriate balance between the safe and reliable operation of the electrical system and keeping the cost of compliance as low as practical for users is an essential requirement for a competitive, efficient electricity market. Toward this end, the *Electricity Industry Act 2004* (the Act) provides for the establishment of a Code governing access by third parties to a covered network and formulation of technical rules. The Act requires the Provider to formulate technical rules which are to be approved by the Authority. Therefore, while the Provider will retain responsibility for network operations, the technical parameters under which the network is maintained, operated and enhanced will be the result of a transparent consultation process with independent scrutiny and approval.

The *Electricity Network Access Code 2004* (the Code) was established under the Act on 30 November 2004 and in Chapter 12 provides the basis and methodology on which the Rules are to be developed and approved. The Rules are to consist of the standards, procedures and planning criteria governing the construction and operation of an electricity network, and are to deal with all the matters listed in Appendix 6 of the Code. The Code also provides for the Authority to establish the Committee to assist it in this process. The Committee provides an avenue for the Authority to obtain the views of users with some expertise in the technical aspects of the electricity network.

On the commencement of the Code, those parts of the South West Interconnected System (SWIS) that are owned by the Electricity Networks Corporation (Western Power) are covered. Currently there are no other networks covered in Western Australia. The Rules being considered here only apply to the covered parts of the SWIS.

As part of the Government's electricity reform process, the former vertically integrated Western Power Corporation was disaggregated on 1 April 2006 into four separate government owned corporations. The SWIS networks were transferred to the Electricity Networks Corporation, which retains the Western Power trading name. Unless noted otherwise, any reference to Western Power in this report is to the Electricity Networks Corporation.

This is the Committee's final report to the Authority on the proposed Rules for the covered SWIS.

In order to keep this report as concise as possible, there is only limited reproduction and reiteration of material from other documents. The reader is referred to the relevant source document for further information and detail.

## **3. THE COMMITTEE**

### ***3.1 Committee Scope***

The Authority can call on the Committee to fulfil a range of functions set out in section 12.23 of the Code. The Terms of Reference of the Committee are provided at Appendix A.

The Code indicates that this Final Report should set out the Committee's progress in the performance of its duties and advise the Authority on matters that are the subject of deadlock amongst Committee members.

### ***3.2 Committee Membership***

The Authority advised in the Terms of Reference of the Committee that its membership would include:

- (i) A representative of Western Power;
- (ii) Persons representing other service providers of networks interconnected with Western Power's network within the SWIS, comprising a representative of:
  - a) Southern Cross Energy;
  - b) International Power Mitsui Consortium (Kwinana Cogeneration Plant);
- (iii) Persons representing users of the network, comprising a representative of:
  - a) Alinta Limited;
  - b) Perth Energy Pty Ltd;
  - c) Tiwest Pty Ltd;
  - d) Wesfarmers Energy Limited; and
- (iv) A representative of the Coordinator of Energy (Chair). [cf. s. 12.19(a)(i)]

The representative from International Power Mitsui Consortium moved to another employer in 2005 and a replacement was not provided.

On 17 May 2006, the Authority invited representation on the Committee from two of the Western Power Corporation successor entities, the:

- Electricity Generation Corporation (Verve Energy); and
- Electricity Retail Corporation (Synergy).

These organisations are the two largest users of the network.

The names of current Committee members and their affiliation are provided at Appendix B.

Most Committee members have extensive engineering experience in the management of electricity networks and the operation of network-connected facilities and equipment. Several members also have commercial experience in the negotiation of network access contracts and electricity supply agreements.

Whilst the composition of the Committee is appropriate for the purpose of providing technical advice to the Authority, the scope and impact of the Rules is such that legal and economic issues are also likely to affect the final decision by the Authority. The Authority should bear in mind the Committee's advice may not cover all areas necessary to ensure that the Rules best achieve the objectives of the Code.

### **3.3 Committee Process**

The Authority provided to the Committee a preliminary view of its draft decision on 22 March 2006

The Authority's draft decision was provided to Committee members at the time of its public release and comments were requested on:

- the Authority's determination on the 11 deadlock issues from the Preliminary Report;
- other issues arising from the Authority's draft decision; and
- submissions on the draft decision.

Any comments were circulated to Committee members in preparation for discussions held at Meeting 14 on 18 May 2006.

The scope of Meeting 14 was to determine whether the Committee endorsed the Authority's determination on the 11 deadlock issues from the Preliminary Report, and the resolution of any other issues arising from the Authority's draft decision and associated submissions.

As there was insufficient time to address a number of issues at Meeting 14, the Committee agreed to reconvene on 25 May 2006 for further discussions.

In preparation for meeting 15, a number of Committee members undertook a debate by email on the frequency standards issue, the major remaining contentious issue.

This report, which outlines Committee recommendations and any outstanding issues for consideration by the Authority, was endorsed by Committee members on 9 June 2006 for submission to the Authority.

## **4. THE RULE APPROVAL PROCESS**

### **4.1 Objectives of the Technical Rules**

The objective of the Code is to promote the economically efficient:

- a) investment in; and
- b) operation of, and use of,

networks and services of networks in Western Australia in order to promote competition on markets upstream and downstream of the networks.

In approving the Rules, the Authority must be satisfied that they are consistent with the Code objective and Rules objectives specified in section 12.1 of the Code, which are that the Rules:

- a) are reasonable;
- b) do not impose inappropriate barriers to entry to a market;
- c) are consistent with good electricity industry practice; and
- d) are consistent with relevant written laws and statutory instruments.

The Authority must not approve the proposed Rules:

- a) unless it determines that they reasonably accommodate the interconnection of further networks in the future; or
- b) if they require the Provider or another person to engage in an act (or omit to engage in an act) which would contravene a written law or statutory instrument.

## **4.2 Approval of the Technical Rules**

The Authority is required to assess the technical rules proposed by a service provider and determine whether to:

- a) approve the technical rules proposed by the service provider; or
- b) amend the service provider's proposals by drafting its own.

The Authority may amend rules proposed by a service provider only to the extent that those amendments are necessary to ensure the rules comply with the requirements of chapter 12 of the Code.

## **4.3 Overview of Process**

The development process to date for the SWIS Rules proposed by Western Power, as the Provider, is summarised below.

January 2005	The Authority established the Committee.
	The Committee worked with Western Power on Chapters 1 and 4 of the draft Rules and a number of amendments were agreed.
24 August 2005	Western Power Corporation submitted to the Authority its proposed Rules along with its proposed Access Arrangement.
31 August 2005	The Authority published the proposed Rules alongside the proposed Access Arrangement. Public submissions were not requested at the time.
12 December 2005	The Committee submitted its preliminary report to the Authority.
21 March 2006	The Authority released its draft decision on the proposed Access Arrangement.
11 April 2006	The Authority released its draft decision on the Rules and called for comment.
5 May 2006	The period for public comment on the Rules closed.

The Committee is required by the Code to submit its final report within 30 business days before the last day by which the Authority must make its final decision under section 4.17 of the Code. The final date for the final decision is subject to a number of extensions and so was not able to be determined with some certainty.

The Committee took a practical view on this and determined that it had to have sufficient time to undertake its work but also had to allow the Authority sufficient time to consider the final report and consult further where required. It set itself a compromise target date of 9 June 2006 for submitting its final report to the Authority.

#### ***4.4 Committee's Preliminary Report***

In its Preliminary Report, the Committee unanimously, including Western Power, recommended that the Authority not approve Western Power's proposed Rules. The report made ten recommendations and identified eleven deadlock issues where it was unable to reach a consensus.

The report included a conformed version of the Rules, which were recommended as a basis from which the Authority could progress development.

## **5. DRAFT DECISION OF THE ERA**

### ***5.1 Draft Decision***

On 11 April 2006, the Authority released its draft decision not to approve Western Power's proposed Rules on the grounds that they did not satisfy the requirements of chapter 12 of the Code and the Code objective.

As part of its draft decision, and pursuant to section 12.11(c)(ii) of the Code, the Authority has redrafted the proposed Rules to the extent necessary to comply with chapter 12 of the Code and the Code objective. The redrafted rules and an explanatory document "*Decision and Explanatory Memorandum on the Draft Technical Rules for Western Power's South West Interconnected Network*" (the Authority's Memorandum) were published on the Authority's website.

The Authority has worked closely with Western Power, and key transmission and distribution system stakeholders to develop the draft Rules. Certain sections of the proposed Rules were also reviewed and redrafted to eliminate overlap with the *Wholesale Electricity Market Rules* and to ensure that the Rules are expressed with clear obligations, internally consistent and legally correct.

During the development of the draft Rules, a number of issues arose, on which the Authority invited submissions from interested parties through its Memorandum document. These issues pertained to:

- fault levels;
- requirements for connection of energy systems to the low voltage distribution system via inverters;
- ride-through;
- load shedding;
- credible contingency events;



- protection requirements for small generating units;
- service standards;
- distribution system design;
- provision of primary speech requirements;
- computer model;
- overlap with the Market Rules; and
- duplication and clarity.

The Authority's Memorandum also addressed the ten recommendations and eleven deadlock issues in the Committee's Preliminary Report. It is not intended to reiterate the Authority's comments, except where relevant to the Committee's further comments below.

## ***5.2 Public Submissions***

On publishing its draft decision on the Technical Rules on 11 April 2006, the Authority asked for public submissions by 5 May 2006. The following submissions were received in response:

- Verve Energy - general submission;
- Verve Energy - small generators submission;
- Synergy;
- Western Power; and
- Energy Safety (not a public submission).

The Verve Energy general submission provided detailed comments on the draft Rules.

Both the Verve Energy small generators submission and the Synergy submission provided the view that there remained a number of issues for small generators and that the Rules as they stood represented a potential barrier to entry for small generators.

The Western Power submission provided further comment and clarification on the matters raised in the Authority's Memorandum.

The Energy Safety submission, though not publicly released, was made available to the Committee for its consideration. The submission made suggestions on:

- amendments that could enhance safety outcomes;
- alignment with the requirements of the Electricity (Supply Standards and System Safety) Regulations 2001; and
- the involvement of Energy Safety in notification of incidents.

## 6. COMMITTEE COMMENTS

### 6.1 *Overarching Comments*

There was general acceptance from the Committee that specifying the rules was often not a clear cut matter and involved a trade off between competing requirements and that the final position was a matter of judgement and compromise. Therefore although some of the Committee members may not be entirely happy with the resolution on an issue, unless noted otherwise, it was something they were prepared to accept for the moment.

It was also recognised that despite the best endeavours of all parties and with the best of intentions, it is unlikely that the approved Rules will meet all user's needs and expectations in all circumstances into the future and so there was a recognition that the Rules would need to be amended in the future.

The corollary to the above was that the Rules should not be overly prescriptive so as to remove the flexibility to accommodate particular circumstances. This emphasises the importance of establishing efficient, fair and expeditious procedures for resolving conflict, allocating derogations and amending the Rules.

### 6.2 *Preliminary Report Deadlock Issues*

Of the eleven deadlock issues identified in the Preliminary Report, the only significant issues remaining related to:

- generator frequency standards;
- stability requirements;
- reactive power requirements;
- small generators; and
- fault clearance times.

The generator frequency standards took up most of the time at the two final meetings and a spirited email debate was also conducted. Although adequate time was allowed for other matters, this issue attracted the most attention from members.

#### 6.2.1 *Frequency Standards*

##### *Issue*

In the Preliminary Report, concerns were raised by some Committee members about the frequency standards specified in Table 2.1, rule 3.3.4.3(b) and Table 3.4 of the proposed Rules. It was argued that:

- these standards could present a barrier to entry, especially for gas turbines; and
- gas turbine manufacturers would not warrant their machines when exposed to low frequencies, even for short periods.

This issue is related to the issue dealing with the ability of generators to ride through system disturbances.

### *Authority Determination*

The Authority's view was that the frequency range proposed by Western Power is appropriate and reflective of similar networks, given the need to operate under the current instantaneous reserves policy for the SWIS.

During the Authority's consideration of this issue, a second issue arose relevant to the consistency of the target recovery time in Table 2.1 with the Market Rules. The Authority discussed this issue with Western Power and it was agreed to amend Table 2.1 to be consistent with the Market Rules.

The Authority's view on this issue is that the frequency range in Table 2.1 of the proposed Rules should not be amended, but the recovery time from disturbances should be reduced to a maximum of 15 minutes.

### *Committee Response*

Despite Western Power's advice that the frequency requirements are consistent with the relevant Australian and international power turbine and generator design standards, members were still concerned about rule 3.3.4.3(b) and associated Figure 3.4. These require generating plant to operate for significant periods away from the nominal 50Hz frequency - below 47.5Hz for at least 20 seconds and above 52 Hz for at least 6 seconds. The concern was that the blades of gas turbines can be subject to damaging vibration at these frequencies, especially the more likely lower frequencies and that this damage is cumulative. There was doubt that manufacturer's warranties would apply in these circumstances.

It was recognised that gas turbines are designed and built for a world market and that while ancillaries and alternators can be modified to cater for local Western Australian conditions, there was little that could be done to amend the fundamental vibration response characteristics of gas turbine blades.

There was concern that a requirement that was too onerous or inflexible would also prevent the use of lower cost second hand machines in Western Australia.

One member provided information of a recent derogation sought by his gas turbine supplier based on this consideration. The member noted that he believed two other manufacturers were seeking derogations and that this represented three of the four manufacturers of large gas turbines in the world. He considered this should be interpreted as an indication that this is a significant issue requiring further consideration by the Authority.

Significant generators are relied on to provide system support during system disturbances, while the system operator attempts to restore the frequency to normal levels. However while the frequency standards are taken from the existing UK standards which have been applied in eastern Australia and New Zealand, the impact of the particular standard on users is determined by the characteristics of the electricity system and its reserves policies.

Therefore if the frequency standards were determined to conflict with the standards to which the majority of large gas turbines were built, any consideration of revising the

standards or alternative remedies would have to consider the impact on the system reserves policies and the resultant overall costs and benefits of any amendment.

A copy of the email debate amongst members on this issue has been provided to the Authority.

In response to these concerns, Western Power reviewed all known derogation applications in relation to this issue that have occurred over the last few years. It advised that a change to a time limit of 10 seconds for operation in the range 47.0Hz to 47.5Hz would avoid the need for any derogations and that it is likely the NEM may move to this standard. On this basis, Western Power has proposed, and the Committee has endorsed, that the Technical Rules be amended to the new time of 10 seconds.

### *6.2.2 Stability Assessment*

#### *Issue*

Some users on the Committee contended that Western Power's deterministic stability assessment approach was too conservative, thereby restraining power transfer capacity for users.

The users argued that combining critical contingencies with worst case system operating conditions results in the acceptable stability envelope being determined by scenarios that are highly unlikely to occur.

The users also argued that stability scenarios, used to determine the power system's acceptable operating envelope, should be selected using a higher probability threshold.

According to Western Power, credible trigger events often escalate, making a conservative approach for the specification of an acceptable operating envelope more prudent. Western Power further argued that applying probability criteria would be difficult, as it requires vast amounts of data.

Western Power also noted that, notwithstanding their very low probability of occurrence, stability related events are high in impact.

#### *Authority Determination*

The Authority understands that the use of a less conservative operating policy could increase the capacity of the network. However, the consequences following an extreme trigger event may be more serious as a result. System studies would be needed to quantify these impacts, but the overall benefits to generators could be marginal, given the structural nature of the problems resulting from the existing operating policy and transmission system topography.

The Authority's view on this issue is that no change should be made to the planning criteria for stability assessment proposed by Western Power.

#### *Committee Response*

It has been noted that on an operational level, a more flexible approach has recently been taken by Western Power and some Committee members observed that it would

be helpful if the wording of the Rules could be amended to encourage such an approach.

It was recognised, however, that it would be difficult to achieve the desired outcome through wording that was not unduly prescriptive. Therefore primary reliance has to be placed on the overriding requirement in the Rules for the parties involved to act reasonably to deliver an appropriate solution. There remains the option for a user to submit a grievance to the Authority about inappropriate application of the Rules by Western Power and for the matter to be dealt with through an appeal mechanism.

### 6.2.3 *Reactive Power Capabilities*

#### *Issue*

Concerns were raised by a user on the Committee that operating at a power factor of 0.8 lagging was an excessive requirement for synchronous generators. The user suggested that the power factor performance capability be specified by the network service provider as being from 0.9 lag to 0.9 lead.

According to Western Power the specified range is consistent with capability of synchronous generators connected to the network. Western Power further argued that the capability is:

- needed given the increased demand for reactive support on the network; and
- provided for in the relevant Australian and international standards, unless otherwise specified.

#### *Authority Determination*

The Authority is satisfied that the need for reactive power generation on the network is high. Given the topography of the network and the existing policy in relation to the scheduling of spinning reserve, the Authority has concluded that the requirement for reasonably high levels of reactive power capability from new synchronous generators in the draft Rules is reasonable.

The Authority's view on this issue is that no change should be made to the reactive power requirements proposed by Western Power. However, it recognises that these requirements may vary across the transmission and distribution systems and encourages proponents affected by this requirement of the Rules to discuss the likely reactive power requirement for particular generator locations with Western Power.

#### *Committee Response*

After consideration of this issue, the Committee has agreed that a degree of flexibility should be introduced to address this issue and that alternative methods of achieving the equivalent reactive power capability at the connection point should be considered. For example, the proponent for a new synchronous generator should be allowed to propose the inclusion of other mechanisms for meeting the reactive power requirements, rather than relying solely on the characteristics of the generator.

Western Power requested the basis for negotiation be defined as the responsibility of the proponent to provide an equivalent reactive performance (MVar output) to that of a synchronous generator capable of 0.8 power factor over a range of voltages at the connection point. In that respect, Western Power suggested no change to clause 3.3.4.1 other than an explanatory note in a box stating the above basis for negotiation.

#### **6.2.4 Protection Requirements for Small Generating Units**

##### *Issue*

The protection requirements for small generating units are contained in section 3.6 of the draft Rules. Table 3.6 sets out a detailed summary of those protection requirements, which are significantly more prescriptive than the requirements in clause 3.5.2 for the connection of large generators to the transmission system.

Western Power accepts that the requirement in clause 3.6 are more prescriptive than other requirements in the draft Rules, but notes the particular problems it faces in connecting embedded generation to a distribution feeder.

##### *Authority Determination*

The Authority has invited comment from interested parties on whether clause 3.6 in the draft Rules, and in particular, the detailed protection requirements specified in Table 3.6, are appropriate.

##### *Committee Response*

The Committee noted the submissions from Synergy and Verve Energy supporting a further investigation into how the standards for small generators can be amended to encourage this sector. The Committee believes that due to time constraints and the need to focus initially on the larger generators, which provide most of the capacity on the system, that the needs of small generators have not been adequately considered.

Consequently, Western Power, at its own suggestion and with the support of the Committee, wrote to the Authority:

- requesting that the Small Generation Working Group be reconvened and it work with the Committee and the Authority to identify acceptable Rule amendments to support the connection of small generators; and
- advising that it was prepared to develop a simplified user's guide to make it easier for small generators with limited access to technical expertise to understand the Rules, how they apply to them and to facilitate preliminary project feasibility studies.

A copy of the letter is provided in Appendix C.

### **6.3 Preliminary Report Recommendations**

In general the Committee considers that all of the recommendations, apart from those identified above, have been addressed to an acceptable degree by the Authority in its draft decision.

### **6.4 Authority Memorandum Issues**

The Authority raises a number of issues in its Memorandum. Apart from those dealt with above, such as ride through and small generation requirements, the Committee did not form any firm views with the following exception.

The issue with increasing fault levels and who was to pay for any costs of upgrading equipment was significant. A member raised the more specific question of where a new generator caused local fault levels to increase, how much of the cost of upgrading equipment was a shared system cost and how much was to be carried by the generator? There was recognition that this was not an easy matter to resolve, but it was stressed that reasonableness needed to prevail.

## **7. COMMITTEE RECOMMENDATIONS**

### ***7.1 System Stability***

In order that investment and competition are encouraged, the Committee emphasises the importance of Western Power adopting a flexible and reasonable approach when considering requirements based on system stability considerations. The reasonableness and dispute resolution provisions of the Technical Rules should support this objective.

### ***7.2 Frequency Standards***

Based on advice from Western Power on analysis of generator derogation applications over the past few years and the likely new NEM standard, the Committee supports the proposal by Western Power that the Technical Rules be amended to require generator operation in the range of 47.0Hz to 47.5Hz for at least 10 seconds, rather than the previously specified 20 seconds.

### ***7.3 Reactive Power Capabilities***

The Rules are to allow generation proposals to be based on providing an equivalent reactive power performance (MVAR output) to that of a synchronous generator capable of 0.8 power factor over a range of voltage conditions at the connection point.

### ***7.4 Further Consideration of Small Generator Requirements***

The Committee supports the submission by Western Power for the Authority to reconvene the Small Generation Working Group. This group would provide further advice to the Committee and the Authority on potential barriers to the connection of small generators and practical Rule amendments to address those barriers.

In its submission, Western Power also proposed to develop a “Users Guide to Technical Rules for Small Generators” that would help the proponents of small generator projects to perform preliminary technical evaluation of the proposed connection with minimal technical assistance. Such an initiative is seen to be a very positive step and is strongly supported by the Committee.

### ***7.5 Derogation and Dispute Resolution Process***

It is recognised that the Rules are unlikely to adequately apply to all circumstances but it is undesirable that they become too prescriptive in an attempt to cover all situations. It is far more flexible and robust to have adequate procedures to deal with those circumstances where the Rules are inadequate.

Situations are expected to arise where resolution of disputes and derogations applications need to occur. In order that resolution of these matters do not present a barrier to entry or a disincentive to invest, it is important the matters need to be resolved in an efficient, timely and transparent manner. Toward this end it is strongly recommended that the Authority develop and publish procedures to expeditiously deal with these matters. The procedures are to include timeframes.



The Committee noted that the National Electricity Market appeared to have a system for dealing with such situations and that perhaps Western Australia could learn from this.

### ***7.6 Further Role of Committee***

The Committee members have offered to continue to provide advice and commentary to the Authority. Areas where the Committee or individual members can possibly add value are in considering:

- proposed resolutions for outstanding matters;
- the methodology for arriving at a final decision on the Rules;
- drafts of the final decision on the Rules; and
- the recommendations of the Small Generation Working Group.

### ***7.7 Process for Amending the Rules***

Again recognising that the Rules are unlikely to be perfect and that situations may change to require Rule amendments, the Authority, as the body responsible, should develop and publish procedures by which the Rules are to be amended.

### ***7.8 Consideration of Verve Energy Submission***

The Verve Energy general submission contained detailed comments on the Rules. Western Power has expressed the view that many of the Verve comments may be due to a misunderstanding or inappropriate interpretation of the Rules. However, it was recognised that if Verve Energy, with the level of technical expertise at its disposal, was misinterpreting the Rules, then perhaps the Rules needed further clarification.

Western Power was encouraged to submit to the Authority a review of the Verve Energy submission, with the Authority requesting Verve to respond to this review. It was expected that this interchange would allow any clarification of the Rules to be identified and that the views of Verve Energy would be very useful in this exercise.

The Committee would appreciate being included in the circulation of documentation and comments.

# **APPENDIX A**

## **COMMITTEE TERMS OF REFERENCE**



Western Australia

# *Economic Regulation Authority*

## TECHNICAL RULES COMMITTEE

### TERMS OF REFERENCE

This Terms of Reference provides guidance to the Technical Rules Committee (**Committee**), established pursuant to chapter 12 of the *Electricity Networks Access Code 2004 (Access Code)* for the parts of the South West Interconnected System (**SWIS**) owned by Western Power Corporation (**Western Power**).

Technical Rules consist of the standards, procedures and planning criteria governing the construction and operation of an electricity network, and deal with all the matters listed in Appendix 6 of the Access Code. The objectives for Technical Rules are set out in section 12.1 of the Access Code.

- Section 12.6(a) of the Access Code requires the Service Provider of a covered network to submit proposed Technical Rules for that network at the time it submits a proposed Access Arrangement
- Section 12.11 of the Access Code provides the Economic Regulation Authority (**Authority**) with the power to approve the proposed Technical Rules. The assessment process for the Technical Rules, to the extent possible, is to be conducted concurrent with the assessment process for a proposed Access Arrangement by the Authority.
- Section 12.17 requires the Authority to establish a Committee for the first Technical Rules for a covered network which is part of an interconnected system, to provide specialist knowledge and advice to assist the Authority in the performance of its technical regulatory functions.
- Section 12.28 of the Access Code requires the Authority to have regard to advice provided by the Committee in deciding whether to approve proposed Technical Rules for a network.

As the Western Power network in the SWIS is interconnected with another network, namely Southern Cross Energy's 132kV transmission network between Boulder and Kambalda, Western Power is required to have Technical Rules for its network within the SWIS. The Authority is obligated to establish a Committee to provide advice on the first Technical Rules proposed for Western Power's network within the SWIS.

Section 12.27(a) of the Access Code allows for the Authority to provide directions to a Committee in relation to the procedures it must follow, and the manner in which it must perform its functions. Accordingly, the following represents the Terms of Reference for the Committee established pursuant to chapter 12 of the Access Code for the parts of the SWIS owned by Western Power.

This Terms of Reference is to be read subject to the provisions of the Access Code.



### **1. Purpose of the Committee**

- (a) The Committee is established for the purpose of providing specialist knowledge and advising the Authority on the approval of proposed Technical Rules relating to the parts of the SWIS owned by Western Power.
- (b) The Committee:
  - (i) may develop model Technical Rules;
  - (ii) must advise the Authority on the approval of proposed Technical Rules;
  - (iii) must, when requested by the Authority, advise the Authority on any matter connected with Technical Rules; and
  - (iv) must, when requested by the Authority, conduct a review of the operation of:
    - a. Technical Rules or a part of Technical Rules; or
    - b. chapter 12 of the Access Code, or a part of chapter 12,and advise the Authority on the outcome of the review. [*cf. s.12.23*]
- (c) The Committee is to provide the Authority with a preliminary report and final report on the proposed Technical Rules, in accordance with the reporting timeframe outlined in clause 7 of this Terms of Reference.

### **2. Commencement of the Committee**

- (a) The Committee is established under section 12.17(a) of the Access Code and by this Terms of Reference.
- (b) The Committee shall be convened by way of written invitation from the Authority or its delegate.
- (c) The Committee shall meet as frequently as the Chair, or the Authority or its delegate, determines.

### **3. Membership of the Committee**

- (a) Upon commencement, the members of the Committee are:
    - (i) a representative of Western Power (the service provider);
    - (ii) persons representing other service providers of networks interconnected with Western Power's network within the SWIS, comprising:
      - a. a representative of Southern Cross Energy; and
      - b. a representative of International Power Mitsui Consortium (Kwinana Cogeneration Plant);
- [*clause 3(a)(ii) revised 19 April 2005*]

- (iii) persons representing users of the network, comprising:
  - a. a representative of Alinta Limited;
  - b. a representative of Perth Energy Pty Ltd;
  - c. a representative of Tiwest Pty Ltd;
  - d. a representative of Wesfarmers Energy Limited; and
- (iv) a representative of the Coordinator of Energy. [*cf. s.12.19(a)(i)*]
- (b) The representative of the Coordinator of Energy will Chair the Committee. [*cf. s.12.20*]
- (c) The Committee may, if considered necessary, recommend to the Authority the appointment of any other person as a representative of users of the network, or any other person that the Committee considers appropriate. This clause does not limit the Authority in appointing any other party to the Committee.
- (d) The Authority may appoint a representative to observe any aspect of the operation of the Committee, including attending meetings of the Committee. [*cf. s.12.30*]
- (i) The representative of the Authority must not participate in any decision making process of the Committee. [*cf. s.12.31*]

#### **4. Duration of Membership**

- (a) The Authority will review the Committee's membership, operation and procedures (including the continuation of the Committee) after the first Technical Rules have been approved.
- (b) The Authority may, by writing to members of the Committee, dissolve the Committee after the first Technical Rules have been approved. [*cf. s.12.27(b)*]

#### **5. Funding and Resources of the Committee**

- (a) Each member organisation shall be responsible for their individual participation costs on the Committee.
- (b) The Chair is responsible for providing secretariat services to the Committee, including minuting the activities of the Committee.

#### **6. Meeting Governance**

- (a) A quorum shall comprise:
  - (i) the member representing the Coordinator of Energy (Chair);
  - (ii) the member representing Western Power (the service provider);
  - (iii) the members representing Southern Cross Energy and International Power Mitsui Consortium (Kwinana Cogeneration Plant) (the other service providers)



of networks interconnected with Western Power's network within the SWIS);  
and

*[clause 6(a)(iii) revised 19 April 2005]*

- (iv) at least one member representing users of the networks.
- (b) The Committee's recommendations to the Authority are to be formulated on the basis of consensus.
  - (i) In the event of deadlock the Chair of the Committee must advise the Authority of the details of the deadlock and the position held by each member of the Committee on the matter the subject of the deadlock. *[cf. s.12.25]*
  - (ii) The Authority must form a view on the matter the subject of the deadlock and advise the Committee of its view. The Committee is required to proceed on the basis of the view advised to it. *[cf. s.12.36]*
- (c) Apart from that which is provided for within the Access Code, this Terms of Reference or any other direction provided by the Authority under section 12.27(a) of the Access Code, the Committee is to determine the policies of, control the affairs of, and otherwise perform the functions of, the Committee.

## **7. Reporting**

- (a) Any communication to the Authority from the Committee must be provided to the Authority by the Chair and not by any other member. *[cf. s.12.21]*
  - (i) This does not preclude a person who is a member of the Committee from making submissions to the Authority in relation to proposed Technical Rules in any capacity other than as a member of the Committee. *[cf. s.12.22]*
- (b) The Committee is required to provide a preliminary report on the proposed Technical Rules to the Authority within 20 business days of the last day by which the Authority is required to make its draft decision on the Access Arrangement under section 4.12 of the Access Code. *[cf. s.12.11(b)(i)]*
- (c) The Committee is required to provide a final report on the proposed Technical Rules to the Authority within 30 business days of the last day by which the Authority is required to make its final decision on the Access Arrangement under section 4.17 of the Access Code. *[cf. s.12.11(b)(ii)]*

## **8. Procedures for undertaking review of the operation of Technical Rules and/or chapter 12 of the Access Code**

- (a) If requested by the Authority the Committee must conduct a review of the operation of the Technical Rules (or part thereof) or chapter 12 of the Access Code (or part thereof), and advise the Authority of the outcome of the review, including any recommendations for amendment of the Technical Rules and/or chapter 12 of the Access Code. *[cf. s.12.23(d)]*

- (b) The purpose of any such review is to determine whether the Technical Rules and/or chapter 12 of the Access Code continue to efficiently and effectively deliver the objectives of the Committee, the Technical Rules and/or the Access Code.
- (c) Following a request from the Authority, the Committee must undertake a review that is consistent with the timeframes and objectives set out within the Access Code.
- (d) This clause does not limit the Authority in the performance of its review role under sections 12.56, 12.57 and 12.58 of the Access Code.

#### **9. Procedures for recommending an amendment to Technical Rules**

- (a) In addition to clause 8 above, the Committee, through the Chair, may recommend to the Authority an amendment to the Technical Rules at any time. [*cf. s.12.50*]
- (b) The Authority is to consider any such proposed amendment in accordance with the procedures set out in sections 12.50, 12.51, 12.52, 12.53 and 12.54 of the Access Code.
- (c) This clause does not limit the Authority in the performance of its Technical Rules amendment functions under the aforementioned sections of the Access Code.

#### **10. Jurisdictional consistency**

- (a) The Committee shall keep informed of developments in other Australian states with respect to technical standards, procedures and planning criteria governing the construction and operation of an electricity network.
- (b) The Committee will, when appropriate, liaise with other relevant Australian state organisations responsible for technical matters in order to achieve a national consistency of approach, wherever practicable, taking into account the circumstances of Western Australia.

#### **Notes:**

17 January 2005: Terms of Reference issued

19 April 2005: First revision [*clauses 3(a)(ii) and 6(a)(iii) amended*]

# **APPENDIX B**

## **COMMITTEE MEMBERS**



## APPENDIX B:

### MEMBERSHIP OF THE TECHNICAL RULES COMMITTEE

Name	First Name	Position	Company	TRC Role
Bitney	Dave	Manager - WA Power Plant Operations	Alinta	Member
D'Souza	Jeremy	Strategy, Risk and Reform Manager	Synergy	Member
Fernandez	Harry	Manager Engineering	TransAlta	Member
Fyrst	Valentin	Project Officer	OOE	Executive Officer
Gould	Steve	Director	Perth Energy Pty Ltd	Member
Hawken	Peter	A/Senior Manager Regulatory Policy	OOE	Chair
Knox	Matt	Legal Counsel	ERA	Observer
Liddelow	Neil	Manager Commercial & Logistics Services	Tiwest Joint Venture	Member
McGill	Kevan	Consultant	ERA	Observer
Southwell	Phil	General Manager Strategy and Corporate Affairs	Western Power	Member
Wearmouth	Andy	Manager Tactical Asset Management	Verve Energy	Member
York	Colin	Manager Projects	enGen	Member

## **APPENDIX C**

### **WESTERN POWER LETTER TO AUTHORITY RE SMALL GENERATORS**

23<sup>rd</sup> May 2006

Mr Robert Pullella  
Executive Director  
Economic Regulation Authority  
6th Floor, Governor Stirling Tower  
197 St Georges Terrace  
Perth, Western Australia 6000

Dear Rob

Public submissions to ERA Decision and Explanatory Memorandum on the Draft Technical Rules dated 11 April 2006 for Western Power's South West Interconnected Network

We have noted the published submissions to the draft Technical Rules and wish to propose a way to address comments by Synergy and Verve Energy (2<sup>nd</sup> submission).

These two submissions are focused on small generators. The main concerns appear to be:

- The complexity of the requirements for small generators, including the need for the proponents with limited technical expertise to consider the complete set of Technical Rules.
- The perceived onerous technical obligation on small generators.

As you may be aware, the Technical Rules Committee formed a Small Generators Working Group (SGWG) to discuss this particular subject. The Committee consisted of an expanded group of stakeholders with interest in small generators and a meeting was held on 20 October 2005.

To address the issues raised at that meeting, Western Power engaged an expert consultant, who was one of the more vocal members of the stakeholders and who has extensive experience working in this area. The consultant brief was to re-write the section on small generators and address the issues raised at the meeting. Due to the short time available subsequent consultation and feedback from stakeholders was very limited. However, we are surprised that there still appears to be a large number of concerns raised by two stakeholders and believe that some of the issues may be the result of misinterpretation of the document.

To address the issues raised in the latest submissions, we suggest that the Authority re-convene the SGWG and expand membership of the Technical Rules Committee to include representatives from Synergy and Verve Energy as soon as

possible. We propose to work through the comments with the SGWG to see what changes to the Rules can be accommodated.

In addition, Western Power intends to develop a 'Users Guide to Technical Rules for Small Generators', a document targeted at the proponents of small generators that would help them prepare submissions and perform preliminary technical self-evaluation of the intended connection with minimum technical assistance.

I understand the tight timeframe that the ERA has to finalise its determination and recognise the above process may take several weeks. Rather than hold up the determination process, a suggested way forward would be to complete the approval of the Technical Rules but note the review process underway for the small generator section, with say a deadline of three months to resolve and report back to the ERA. In this way the rules affecting small generation could be amended soon after the Technical Rules are approved, if considered necessary.

The Technical Rules Committee endorsed the proposal, as presented above, at its meeting on Thursday May 18 2006. Western Power believes that the collaborative process followed in developing the draft Technical Rules has been valuable and the further extension of this should deliver an improved outcome more acceptable to key stakeholders.

Yours sincerely

PHIL SOUTHWELL  
GENERAL MANAGER  
STRATEGY AND CORPORATE AFFAIRS DIVISION