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Mr Lyndon Rowe
Chairman
Economic Regulation Authority
Level 6, Governor Stirling Tower
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Dear Lyndon

**PROPOSED ACCESS ARRANGEMENT REVISIONS
WESTERN POWER FINAL SUBMISSION ON ERA DRAFT DECISION**

I am pleased to provide the final submission by Western Power on the Authority's Draft Decision.

The previous submissions, dated 13 August 2009 and 10 September 2009, provided Western Power's responses to 45 of the Authority's required amendments. This third submission provides Western Power's response to required amendment 1.

I confirm that these documents and this letter are suitable for publication.

I trust that this submission will assist the Authority in the timely publication of its Final Decision. Western Power intends to submit its revised proposed Access Arrangement revisions in response to the Final Decision.

Yours sincerely

**DOUG ABERLE
MANAGING DIRECTOR**



DPMP 6505285

ATTACHMENT Q

Western Power's detailed response to Required Amendment 1

1. Introduction

Western Power accepts Required Amendment 1, which states:

Required Amendment 1

The proposed access arrangement revisions should be amended such that one or more reference services provide for single connection points to function both as entry points and exit points. This revision will cater for the requirements for network services that arise where small-scale renewable energy systems connect to the network and where electricity consumers participate in the Renewable Energy Buyback Scheme.

Section 2 sets out Western Power's approach to responding to Required Amendment 1. In light of this discussion, Section 3 presents Western Power's proposed reference service, reference tariff definitions and other consequential amendments.

Appendix Q-1 sets out Network Advisory Services (NAS) Final report. The NAS report provides the detailed justification for the reference service and reference tariff definitions in sections 3.1 and 3.2.

2. Western Power's approach to responding to required amendment 1

Western Power engaged Network Advisory Services (NAS) to provide expert advice on the structure of the reference service and reference tariff that would meet the needs of required amendment 1.

2.1 Western Power's approach included public consultation

The required amendment requires a change to Western Power's reference services. Under the Code and Western Power's access arrangement, reference services are available to any user in accordance with the electricity transfer access contract. In formulating its response to this required amendment, Western Power undertook public consultation to ensure that the proposed reference service and tariff meets the needs of both current and future users (and satisfies the requirements of section 5.2 of the Code).

Western Power undertook the public consultation between 14 September 2009 and 25 September 2009, and included the draft recommendations made by NAS.

The invitation for submissions was widely advertised, including an advertisement in The West Australian¹, Western Power's website², the ERA's website³ and a Notice circulated by the ERA to the register of interested persons⁴.

¹ 14 September 2009, The West Australian, page 23

Western Power received 33 written submissions. Appendix Q-2 details all of the submission made to Western Power as a result of the public consultation. Western Power's proposed reference service and tariff, which are set out in sections 3.1 and 3.2, seek to balance the different views received in the submissions with the requirements of the Code. It is noted that in some instances submissions raised matters beyond those contemplated by the Required Amendment (including, for example, the impact of the proposed reference tariff on retail tariffs).

2.2 Summary of the NAS Final Report

Following the public consultation NAS completed the Final Report (see Appendix Q-1).

The NAS Final Report details the background, analysis, evaluation and recommendations for a new reference service and reference tariff for distribution users with bi-directional energy flows due to small scale embedded generation, for inclusion in Western Power's Access Arrangement. NAS found the reference service to be well defined, but that a number of options could be considered for the reference tariff.

Four options were determined for the associated reference tariffs to apply at the customer's bi-directional point:

1. The status quo – being the assignment of existing network tariffs to new customers at bi-directional points on the same basis as is currently carried out by Western Power;
2. To design and apply a seasonal demand tariff to customers at bi-directional points;
3. To design and apply a variation to RT3, being a time of use tariff, to customers at bi-directional points; or
4. To design and apply a variation of RT1, being a usage based charge, to customers at bi-directional points where the difference between the new tariff and RT1 was that the new tariff would be at a higher rate to compensate for the reduced network electricity consumption.

Following a review of the options against a set of criteria (see section 3.2.1) – and having regard to the Code, the Electricity Industry Metering Code 2005, Western Power's pricing principles, existing tariff design process, existing reference tariffs, sustainability policy, and metering and tariff modelling capabilities – NAS formed a view that Option 3, the time of use network tariff, is the most suitable of the options. Further, NAS considered that the adoption of a variation to the time of use tariff that defines three tariff periods – on-peak, off-peak and shoulder – allows greater cost reflectivity and additional scope for the customer to change consumption patterns to achieve further cost savings.

2

http://www.westernpower.com.au/mainContent/connectionsUpgrades/systemTariffs/Small_scale_renewable_system_tariffs.html

³ http://www.era.wa.gov.au/cproot_download/7905/43451/20090914%20Notice%20-%20Western%20Power%20Invites%20Submissions%20on%20its%20Proposed%20Reference%20Service%20and%20Reference%20Tariff%20for%20Bi-directional%20Connection%20Points.pdf

⁴ Email from James Emmerson, 14/09/2009, Subject: ERA Notice - Western Power Invites Submissions on its Proposed Reference Service and Reference Tariff for Bi-directional Connection Points

3. Western Power's proposal to give effect to Required Amendment 1

Western Power accepts the required amendment. The following sections set out the amendments that are required to Western Power's existing access arrangement for the South West Interconnected Network. These amendments have been developed with regard to the Code and the public submissions received by Western Power.

3.1 C1 Reference Service

Western Power proposes to adopt the recommended reference service as set out in the Network Advisory Services (NAS) Final report (Appendix Q-1).

The C1 reference service will be available to new and existing users with bidirectional energy flows due to small scale embedded generator (inverter connected), in preference to the currently available reference services:

- Reference Service A1 – Anytime Energy (Residential) Exit Service
- Reference Service A3 – Time of Use Energy (Residential) Exit Service

set out in Western Power's proposed revisions to the access arrangement for the South West Interconnected Network.

Western Power will give effect to required amendment 1 by including the following reference service definition within Access Arrangement Appendix 8 – Western Power's Reference Services.

Reference Service Name:	Reference Service C1 – Time of Use (Residential) – Bidirectional Service
Reference Service Description:	A bidirectional service combined with a connection service and a standard meter service at a bidirectional point on the low voltage (415 volts or less) distribution system.
Eligibility Criteria:	<i>Users are eligible to use this service if:</i> <ol style="list-style-type: none">1. The bidirectional point is located at a residential premise;2. The <i>consumer's facilities and equipment</i> include a small scale embedded generation system connected via an inverter system that is rated up to 10 kVA for single phase connections and 30 kVA for three phase connections;3. The consumer's inverter system must comply with the requirements of AS 4777 and the Technical Rules;4. An interval meter having capability for import and export channels and five register information collection is installed at the bi-directional point; and5. The <i>consumer's facilities and equipment</i> comply with the Technical Rules, the WA Electrical Requirements and AS 3000.
Applicable Reference Tariff:	"RT12" in the <i>Price List</i> published in Appendix 5 of the <i>Access Arrangement</i> (Note: See discussion below for proposed tariff)
Applicable Standard Access Contract:	"Electricity Transfer Access Contract" published in Appendix 4 of the <i>Access Arrangement</i>
Applicable Service Standard Benchmarks:	Refer to Section 3.18 and 3.19 of the <i>Access Arrangement</i>

3.2 RT12 Reference Tariff

Western Power proposes to adopt the recommended reference tariff set out as option 3 in the Network Advisory Services (NAS) Final report (Appendix Q-1).

3.2.1 Overview

The RT12 reference tariff will include fixed and variable use of system components as well as fixed and variable metering components. The RT12 reference tariff is a time of use tariff with on peak, shoulder and off peak components.

In recommending the RT12 reference tariff structure NAS has assessed the tariff against the following criteria:

1. Ensure that the tariff reflects network costs;
2. Limit cross subsidies between customer classes;
3. Administrative simplicity to Western Power, retailers and customers;
4. Barriers to entry; and
5. Compatibility with Renewable Energy Buyback Scheme (REBS).

Appendix Q-1 details the complete assessment of the proposed reference tariff structure against the criteria.

3.2.2 Reference tariff application guide

Western Power will give effect to required amendment 1 by including a new reference tariff within Western Power's Price List. The structure of the new reference tariff is set out below.

Reference tariff RT12 consists of:

- (a) A fixed use of system charge which is payable each day;
- (b) An on-peak use of system variable charge calculated by multiplying the on-peak energy price by the quantity of on-peak electricity transferred out of the network at the bi-directional point (expressed in kWh);
- (c) An off-peak use of system variable charge calculated by multiplying the off-peak energy price by the quantity of off-peak electricity transferred out of the network at the bi-directional point (expressed in kWh);
- (d) A shoulder use of system variable charge calculated by multiplying the shoulder energy price by the quantity of shoulder electricity transferred out of the network at the bi-directional point (expressed in kWh);
- (e) A fixed metering charge which is payable each day;
- (f) An on-peak variable metering charge calculated by multiplying the on-peak variable price by the quantity of on-peak electricity transferred out of the network at the bi-directional point (expressed in kWh);
- (g) An off-peak variable metering charge calculated by multiplying the off-peak variable price by the quantity of off-peak electricity transferred out of the network at the bi-directional point (expressed in kWh); and
- (h) A shoulder variable metering charge calculated by multiplying the shoulder variable price by the quantity of shoulder electricity transferred out of the network at the bi-directional point (expressed in kWh).

For the avoidance of doubt, the RT12 tariff only applies to the quantity of energy that is transferred out of the network. Under the RT12 tariff, energy that is transferred into the network does not provide a credit to, or impose a charge on, the user.

3.2.3 On peak, shoulder and off peak times

The on peak, shoulder and off peak times are set out below.

Monday – Friday (excludes public holidays)				
Off-peak	Shoulder	On-Peak	Shoulder	Off-Peak
12:00am – 7:00am	7:00am - 2:00pm	2:00pm – 8:00pm	8:00pm - 10:00pm	10:00pm – 12:00am

Saturday - Sunday (includes public holidays)		
Off-peak	Shoulder	Off-Peak
12:00am – 7:00am	7:00am - 10:00pm	10:00pm – 12:00am

3.2.4 Prices

Western Power does not wish to pre-empt the ERA's final decision or unreasonably set users' expectations by publishing prices for the RT12 tariff at this time. Western Power will calculate prices for the various components of the RT12 tariff once Western Power's cost base has been finalised. Western Power expects this to be following the ERA's Final Decision.

In general terms Western Power anticipates that the prices for the RT12 tariff will be determined as follows:

- the fixed use of system charge will be equivalent to the RT3 fixed use of system charge;
- the variable use of system charges will be determined on an similar basis to the RT3 variable use of system charges. Currently the RT3 tariff collects approximately 70% of the allocated costs during the on-peak period and 30% of the allocated costs during the off-peak period⁵. The RT12 tariff includes an additional shoulder component. Western Power will allocate the costs across the on-peak, shoulder and off-peak periods consistent with the approach employed by other utilities⁶;
- the fixed metering charge will be equivalent to the RT3 fixed metering charge; and
- the variable metering charges will be equivalent to the RT3 variable metering charges.

Western Power recognises that RT12 structure and rates will be closely aligned, but not identical, to the existing RT3 tariff. Therefore, a customer moving to RT12 may experience some change in network charges depending on the customer's pattern of usage. Western Power considers that the benefit of introducing a fully cost reflective network tariff for the new service outweighs any concerns regarding the likely modest change in network charges.

Similarly, Western Power also recognises that customers currently allocated to the RT1 tariff may experience a more significant change in network charges as a result of moving to the RT12 tariff. Whilst a theoretical argument could be made that such a change in

⁵ Western Power, October 2008, Price List Information, pg 39 & 42, Available online: <http://www.era.wa.gov.au/cproot/6972/2/20081008%20AA%20-%20Appendix%206%20-%202009-10%20Price%20List%20Information.pdf>

⁶ For example, Energy Australia set their network tariffs to collected 58% of the allocated costs during on-peak, 34% of the allocated costs during the shoulder period and 8% of the allocated costs during the off-peak period. (Energy Australia, May 2009, Network Pricing Proposal (Revised), Available online: [http://www.energyaustralia.com.au/energy/ea.nsf/AttachmentsByTitle/FY2010+Network+Pricing+Proposal/\\$FILE/2010+Pricing+Proposal.pdf](http://www.energyaustralia.com.au/energy/ea.nsf/AttachmentsByTitle/FY2010+Network+Pricing+Proposal/$FILE/2010+Pricing+Proposal.pdf))

network charges is not warranted, Western Power believes that the metering changes required to enable the customer to benefit from exporting embedded generation provide an appropriate opportunity to introduce more cost reflective network charges. On this basis, Western Power considers that the proposed RT12 charging structure is appropriate.

3.3 Consequential changes to AQP

The inclusion of a bidirectional reference service requires a number of changes to the AQP.

The following table sets out the required definitional changes:

Type	Definition
New definition	"bidirectional point" means a single, indivisible (except as allowed under this <i>applications and queuing policy</i>) point, that for purposes under the <i>access arrangement</i> involving the transfer of electricity, is deemed to consist of a single <i>attachment point</i> , <i>connected</i> or to be <i>connected</i> to a <i>user's connection point</i> , with a single <i>meter</i> (regardless of the actual configuration of <i>network assets</i> making up the <i>bidirectional point</i>), at which electricity is to be transferred into and out of the <i>network</i> .
New definition	"bidirectional service" means a <i>covered service</i> provided by Western Power at a <i>connection point</i> under which the <i>user</i> may transfer electricity into and out of the <i>network</i> at the <i>connection point</i> .
Amended definition	"connection point" means: (a) an exit point; or (b) an entry point; or (c) <u>a bidirectional point</u> ; identified or to be identified as such in an electricity transfer access contract.
Amended definition	"covered service" means a <i>covered service</i> (as defined in the Code) provided by Western Power under the <i>access arrangement</i> , including: (a) an exit service; or (b) an <i>entry service</i> ; or (c) <u>a bidirectional service</u> ; or (d) a service to facilitate an <i>exit service</i> or <i>entry service</i> or <u>bidirectional service</u> , including by the performance of <i>works</i> .
Amended definition	"electricity transfer application" means an application lodged with Western Power under this applications and queuing policy seeking to obtain or modify an <i>entry service</i> or an <i>exit service</i> or <u>a bidirectional service</u> , and includes any additional information provided by the <i>applicant</i> in regard to the application.
Amended definition	"electricity transfer access contract" means a type of access contract that provides the <i>user</i> with an <i>entry service</i> or <i>exit service</i> , or <i>bidirectional service</i> , or <u>any combination of all three</u> both , at a <i>connection point</i> or <i>connection points</i> .

In addition to the definitional changes identified above, a number of minor amendments are required throughout the AQP to support the bidirectional service.

Clauses 3.3, 3.4(a), 7.2(a) and 14.1(f) must be amended to include the bidirectional service where it makes reference to "exit service or entry service".

3.4 Consequential changes to ETAC

The inclusion of a bidirectional reference service requires a number of changes to the ETAC.

The following table sets out the required definitional changes:

Type	Definition
New definition	"bidirectional point" has the meaning given to 'bidirectional point' in the Applications and Queuing Policy*..
New definition	"bidirectional service" means a Covered Service* provided by Western Power* at a Connection Point* under which the User* may transfer electricity into and out of the Network* at the Connection Point*.
Amended definition	"connection point" means a point on the Network* identified, or to be identified, as an Exit Point* or Entry Point* <u>or Bidirectional Point*</u> in the Contract Database*.
Amended definition	"covered service" has the meaning given to 'covered service' in the Code* <u>and includes a Bidirectional Service*</u> .
Amended definition	"Service" means an Entry Service* or an Exit Service* <u>or a Bidirectional Service*</u> to be provided under this Contract* in respect of a Connection Point* as specified in the Contract Database*

In addition to the definitional changes identified above, clauses 3.1 (b) and 6.2 (g) (ii) of the ETAC must be amended to support the bidirectional reference service:

Clause	Wording
3.1 (b) (i)	transfer electricity out of the Network* at a Connection Point* unless it has an Exit Service* <u>or Bidirectional Service*</u> for that Connection Point*; and
3.1 (b) (ii)	transfer electricity into the Network* at a Connection Point* unless it has an Entry Service* <u>or Bidirectional Service*</u> for that Connection Point*.
6.2 (g) (ii) (C)	<u>the obligations in issue do not relate to an Bidirectional Point* where Generating Plant* with installed capacity exceeding 30 kVA is connected at the Bidirectional Point*.</u>

3.5 Consequential changes to Transfer and Relocation Policy

The inclusion of a bidirectional reference service requires a number of changes to the Transfer and Relocation Policy

The following table sets out the required definitional changes:

Type	Definition
New definition	"bidirectional point" has the meaning given to it in the <i>applications and queuing policy</i> .
Amended definition	"connection point" means an <i>exit point</i> or an <i>entry point</i> <u>or bidirectional point</u> identified or to be identified as such in an <i>access contract</i> .

3.6 Consequential changes to Capital Contribution Policy

The inclusion of a bidirectional reference service requires a number of changes to the Transfer and Relocation Policy

The following table sets out the required definitional changes:

Type	Definition
New definition	"bidirectional point" has the meaning given to it in the <i>applications and queuing policy</i> .
Amended definition	"connection point" means an <i>exit point</i> or an <i>entry point</i> <u>or bidirectional point</u> identified or to be identified as such in an <i>access contract</i> .
Amended definition	"covered service" has the meaning given to it in the <i>Code</i> <u>and includes a bidirectional service</u> .

In addition to the definitional changes identified above, clauses 4.3 (a) & 4.3 (c) must be amended to include the bidirectional service where it makes reference to “exit service or entry service”.

Appendix Q -1 : NAS Final Report



Western Power

Bi-directional Reference Service and Associated Tariff

*October 2009
This report contains 61 pages*

Contents

1	Executive Summary	2
2	Introduction	7
3	Western Australian Arrangements for Bi-Directional Supply	9
4	Options for Designing Remaining Aspects of the Reference Service	25
5	Evaluation of Options	38
6	Public Consultation	46
7	Conclusions and Next Steps	51

1 Executive Summary

Network Advisory Services (NAS) has been engaged by Western Power to define a new reference service and reference tariff for distribution users with bi-directional energy flows due to small scale embedded generation, for inclusion in Western Power's Access Arrangement. This report:

- Sets out the background to, and analysis of, various options relating to the provision of a bi-directional service by Western Power; and
- Recommends a reference service for Western Power to consider in lodging its revised Access Arrangement, which takes into account operational factors specific to Western Power.

Western Power's South West Interconnected Network (SWIN) in the South West Interconnected System (SWIS) is regulated by the Economic Regulation Authority (ERA) in accordance with the *Electricity Networks Access Code 2004* (the Code). In accordance with the Code, Western Power lodged proposed revisions and a revised Access Arrangement Information for the SWIS with the ERA on 1 October 2008.

The ERA undertook public consultation in late 2008 in relation to Western Power's proposed revisions to the Access Arrangement. A submission from Synergy to the ERA, dated 17 December 2008, stated that there was a need for Western Power to "provide a reference service at a connection point where electricity is 'likely to be transferred' both into and out of the network". Synergy submitted that such a reference service was required for the use of small scale renewable energy systems and that in this regard Western Power's proposed revisions to the Access Arrangement did not meet the requirements of the Code.

The ERA released its Draft Decision on Western Power's proposed revisions to the Access Arrangement for the SWIS in July 2009. In its Draft Decision, the ERA recommended that the proposed Access Arrangement be amended such that one or more reference services provide for single connection points to function both as entry points and exit points, i.e. a bi-directional reference service.

In undertaking this task, NAS considered:

- The current arrangements in Western Australia for bi-directional supply;
- The requirements of the Code;
- Western Power's Technical Rules;
- The current reference services and feed-in-tariffs on offer in the SWIN (primarily the renewable energy buy-back scheme (REBS) currently offered by retailer Synergy);
- Western Power's proposed Access Arrangement;

- Synergy's submission to the ERA regarding Western Power's reference services;
- The requirements of the ERA's required draft decision amendment;
- The likely impact on the REBS; and
- Western Power's current bi-directional services.

Following discussions with Western Power, the following technical aspects of the reference service have been agreed to be that:

- The service will be titled "*Energy (Residential) - Bidirectional Service*";
- The description of the service will be "*A bidirectional service combined with a connection service and a standard meter service at a bidirectional point on the low voltage (415 volts or less) distribution system*"; and
- Customer's will be eligible to receive the service if:
 - The bi-directional point that the service was being sought at is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections;
 - The customer's inverter system complies with the requirements of AS 4777 and the Technical Rules;
 - The customer's facilities and equipment comply with the Technical Rules, the WA Electrical Requirements and AS3000; and
 - The metering equipment installed is capable, as determined by Western Power, of meeting the bi-directional service criteria.

Having agreed on the technical aspects of the reference service and following further discussions with Western Power, four Options were determined for the associated reference tariffs to apply at the customer's bi-directional point:

1. The status quo – being the assignment of existing network tariffs to new customers at bi-directional points on the same basis as is currently carried out by Western Power. Existing customers who install small scale embedded generators at bi-directional points would retain the same network tariff they were paying before they installed the embedded generator at that connection point. In almost all cases, given that customers of the REBS are residential customers, this would be either RT1 or RT3 as set out in Western Power's tariff schedule;
2. To design and apply a seasonal demand tariff to customers at bi-directional points;

3. To design and apply a variation to RT3, being a time of use tariff, to customers at bi-directional points; or
4. To design and apply a variation of RT1, being a usage based charge, to customers at bi-directional points where the difference between the new tariff and RT1 was that the new tariff would be at a higher rate to compensate for the reduced network electricity consumption.

These Options are discussed in detail in section 4.2 of this Report.

Western Power requested that NAS consider the network tariff options against the following criteria. Ensuring:

- That the tariff is cost reflective for both the transmission and distribution networks, as required by Chapter 7 of the Code;
- There are no cross subsidies between customers with and without embedded generation, as required by Chapter 7 of the Code;
- There is administrative simplicity;
- Reference service design does not set up any unreasonable barriers to entry such as high up-front cost; and
- Compatibility with the REBS.

The assessment criteria are discussed in detail in section 4.3 of the Report.

Following a review of the Options against the criteria – and having regard to the Code, the *Electricity Industry Metering Code 2005* and Western Power's pricing principles, existing tariff design process, existing reference tariffs, sustainability policy, and metering and tariff modelling capabilities – NAS formed a view that Option 3, the time of use network tariff, is the most suitable of the Options, in that:

- Depending on the design of the tariff, it is more reflective of the cost imposed on the network by the customer than both Option 1 and Option 4, although being consumption based it is still less cost reflective than the demand based tariff of Option 2. Further, the differentiation between on-peak rates and off-peak rates provides an incentive to the customer to alter consumption patterns to achieve cost savings;
- Depending on the design of the tariff, Option 3 may reduce or limit cross subsidisation.
- The tariff involves no change to the existing practices in the approval of the connection application and no changes to the metering and meter data collection processes. Although Option 3 is more administratively complex than

maintaining the status quo it is less complex than implementing the demand based tariff of Option 2;

- No additional barriers to entry or up-front costs are imposed on the customer by the implementation of the tariff; and
- The tariff is technically compatible with the REBS, although changes to the retail tariff offering may need to be made.

Further, NAS considers that the adoption of a variation to the time of use tariff that defines three tariff periods – on-peak, off-peak and shoulder – as detailed in section 4.2.3, allows greater cost reflectivity and additional scope for the customer to change consumption patterns to achieve further cost savings.

The form of the recommended reference service is therefore:

- Reference Service Name: Reference Service C1 – Time of Use (Residential) – Bidirectional Service;
- Reference Service Description: A *bidirectional service* combined with a *connection service* and a *standard meter service* at a *bidirectional point* on the low voltage (415 volts or less) *distribution system*;
- Technical Eligibility Criteria: *Users* are eligible to use this service if:
 - The bidirectional point is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections;
 - The consumer's inverter system must comply with the requirements of AS 4777 and the Technical Rules; and
 - The consumer's facilities and equipment comply with the Technical Rules, the WA Electrical Requirements and AS 3000;
- Metering Criteria: Installation at the bi-directional point of an interval meter approved by Western Power having capability for import and export channels and five register information collection;
- Applicable Reference Tariff: The applicable reference tariff is RT12 which is a new time of use tariff;
- Applicable Standard Access Contract: "Electricity Transfer Access Contract" published in Appendix 4 of the Access Arrangement; and

- Applicable Service Standard Benchmarks: As set out in Section 3.18 and 3.19 of the Access Arrangement.

NAS gratefully acknowledges the cooperation and assistance of Western Power, its management and staff, in the preparation of this Report.

2 Introduction

2.1 Background

Western Power's South West Interconnected Network (SWIN) in the South West Interconnected System (SWIS) is regulated by the Economic Regulation Authority (ERA) in accordance with the *Electricity Networks Access Code 2004* (the Code). In accordance with the Code, Western Power lodged proposed revisions and a revised Access Arrangement Information for the SWIS with the ERA on 1 October 2008.

The ERA undertook public consultation in late 2008 in relation to Western Power's proposed revisions to the Access Arrangement. A submission from Synergy to the ERA, dated 17 December 2008, stated that there was a need for Western Power to "provide a reference service at a connection point where electricity is 'likely to be transferred' both into and out of the network".¹ Synergy submitted that such a reference service was required for the use of small scale renewable energy systems and that in this regard the proposed revisions to the Access Arrangement did not meet the requirements of the Code.²

The ERA released its Draft Decision on Western Power's proposed revisions to the Access Arrangement for the SWIS in July 2009. In its Draft Decision, the ERA recommended that the proposed Access Arrangement be amended such that one or more reference services provide for single connection points to function both as entry points and exit points, i.e. a bi-directional reference service.

2.2 Purpose and Structure of this Report

Western Power engaged Network Advisory Services (NAS) to define a reference service and associated reference tariff for distribution users with bi-directional energy flows due to small scale embedded generation, for inclusion in Western Power's Access Arrangement.³

This Report sets out recommendations with regard to the reference services and the associated reference tariffs.

The Purpose of this Report is therefore to:

¹ Synergy, 'Western Power's Proposed Revised Access Arrangement – Submissions on Reference Services', 17 December 2008.

² Synergy noted that it currently had 1800 customers with small scale renewable energy systems connected to the network and that this number was expected to increase significantly with the proposed introduction of the Western Australian Government's feed-in tariff scheme for small scale renewable energy.

³ Applies to small scale embedded generation connected via inverter systems rated up to 10 kVA for single phase connections and 30 kVA for three phase connections.

- Set out the background to, and analysis of, various options relating to the provision of a bi-directional service by Western Power; and
- Recommend a reference service for Western Power to consider in lodging its revised Access Arrangement, which takes into account operational factors specific to Western Power and submissions received during public consultation.

The remainder of this report is structured as follows:

- Section 3 sets out existing Western Australian arrangements for bi-directional supply;
- Section 4 sets out the Options for designing remaining (tariff) aspects of the reference service;
- Section 5 evaluates the Options against criteria established by Western Power;
- Section 6 sets out the issues raised during the round of public consultation undertaken by Western Power on an earlier draft of this Report;
- Section 7 sets out the conclusions and next steps.

2.3 Disclaimer

This Report has been prepared for Western Power to meet the Terms of Reference. The contents of this report pertain solely to the facts, circumstances and assumptions which were sourced by Network Advisory Services during the desktop review and discussions with Western Power. The conclusions drawn in this Report may not be valid if there is any change in the facts, circumstances or assumptions that have been made available to Network Advisory Services. Accordingly, while we believe that the statements made in this Report are accurate, no warranty of accuracy or reliability is given.

Neither Network Advisory Services nor any employee of Network Advisory Services takes responsibility arising in any way whatsoever to any person (other than Western Power) in respect of this advice, for any errors or omissions herein, arising through negligence or otherwise however caused. This document is not to be used for any purpose other than those specified herein.

3 Western Australian Arrangements for Bi-Directional Supply

3.1 Electricity Network Access Code

The Electricity Industry Act 2004 provides the legal framework for the Western Australian electricity industry, including the development of an Electricity Networks Access Code ('the Code').

The Code establishes a framework for third party access to electricity transmission and distribution networks in Western Australia. The objective, as stated in section 2.1 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 in markets upstream and downstream of the networks.*

Section 5 of the Code defines the required content of an Access Arrangement. In particular, section 5.1 of the Code requires that an Access Arrangement must:

- (a) specify one or more reference services under section 5.2; and*
 - (b) include a standard access contract under sections 5.3 to 5.5 for each reference service; and*
- {Note: An access arrangement may contain a single standard access contract in which the majority of terms and conditions apply to all reference services and the other terms and conditions apply only to specified reference services.}*
- (c) include service standard benchmarks under section 5.6 for each reference service;*

A reference service is defined in the Code as "a covered service designated as a reference service in an access arrangement under section 5.1(a) for which there is a reference tariff, a standard access contract and service standard benchmarks." While a covered service is defined in the Code as "a service in relation to the transportation of electricity provided by means of a covered network, including:

- (a) a connection service; or*
- (b) an entry service or exit service; or*
- (c) a network use of system service; or*

- (d) *a common service; or*
- (e) *a service ancillary to a service listed in paragraphs (a) to (d) above, but does not include an excluded service.*

{Note: This Code uses the expression covered service to describe what is sometimes called a 'regulated service'. It can be distinguished from an excluded service.

Covered services subdivide into reference services and non-reference services.}"

Section 3.1 of the Code defines a "covered network" with regard to Western Power as:

The portions of the SWIS which are owned by Western Power Corporation are a covered network from the Code commencement date, unless coverage has subsequently been revoked under section 3.30.

Section 5.2 of the Code sets out the requirements of an Access Arrangement with respect to the provision of reference services, namely that an Access Arrangement must:

- (a) *specify at least one reference service; and*
- (b) *specify a reference service for each covered service that is likely to be sought by either or both of:*
 - (i) *a significant number of users and applicants; or*
 - (ii) *a substantial proportion of the market for services in the covered network; and*
- (c) *to the extent reasonably practicable, specify reference services in such a manner that a user or applicant is able to acquire by way of one or more reference services only those elements of a covered service that the user or applicant wishes to acquire; and*
- (d) *for the covered network that is covered under section 3.1 specify one or more reference services such that there is both:*
 - (i) *a reference service which enables a user or applicant to acquire an entry service at a connection point without a need to acquire a corresponding exit service at another connection point; and*

- (ii) a reference service which enables a user or applicant to acquire an exit service at a connection point without a need to acquire a corresponding entry service at another connection point.⁴*

Section 5.3 of the Code requires that for each reference service a standard access contract must be:

- (a) reasonable; and*
- (b) sufficiently detailed and complete to:*
 - (i) form the basis of a commercially workable access contract; and*
 - (ii) enable a user or applicant to determine the value represented by the reference service at the reference tariff.*

Section 5.4 of the Code states that a standard access contract may:

- (a) be based in whole or in part upon the model standard access contract, in which case, to the extent that it is based on the model standard access contract, any matter which in the model standard access contract is left to be completed in the access arrangement, must be completed in a manner consistent with:*
 - (i) any instructions in relation to the matter contained in the model standard access contract; and*
 - (ii) section 5.3;*
 - (iii) the Code objective; and*
- (b) be formulated without any reference to the model standard access contract and is not required to reproduce, in whole or in part, the model standard access contract.*

{Note: The intention of this section 5.4(b) is to ensure that the service provider is free to formulate its own standard access contract which

⁴ The Code defines an entry service as a “covered service provided by a service provider at an entry point under which the user may transfer electricity into the network at the entry point.” An entry point is defined in the Code as “a point on a covered network identified as such in an access contract at which, subject to the access contract, electricity is more likely to be transferred into the network than transferred out of the network.”

The Code defines an exit service as a “covered service provided by a service provider at an exit point under which the user may transfer electricity out of the network at the exit point.” An exit point is defined in the Code as “a point on a covered network identified as such in an access contract at which, subject to the access contract, electricity is more likely to be transferred out of the network than transferred into the network.”

complies with section 5.3 but is not based on the model standard access contract.}

Section 5.6 of the Code requires that a service standard benchmark for a reference service must be:

- (a) reasonable; and*
- (b) sufficiently detailed and complete to enable a user or applicant to determine the value represented by the reference service at the reference tariff.*

Additionally, Chapter 12 of the Code defines the authority of the Technical Rules that govern the construction and operation of Western Power's SWIN. Section 12.1 of the Code requires that the Technical Rules:

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

Section 12.4 of the Code states that “*subject to any exemptions granted under sections 12.34 and 12.41, the service provider and users of a network must comply with the technical rules*”.

Further, section 12.6 of the Code states that, subject to this Chapter 12, the following networks must have technical rules:

- (a) a covered network; and*
- (b) a non-covered network that is part of an interconnected system which contains one or more covered networks.*

The requirements of Western Power's Technical Rules are detailed in section 3.2 below.

3.2 Technical Rules

Chapter 12 of the Code requires Western Power to publish Technical Rules to govern the SWIN six months prior to the commencement of its next Access Arrangement.

In accordance with the Code, Western Power first submitted its proposed Technical Rules for the SWIN on the 24 August 2005, as part of its Access Arrangement and Access Arrangement Information for the 2007-09 period. The ERA then approved

and published Western Power's Technical Rules on 26 April 2007, to become effective from 1 July 2007.

On 1 October 2008, in accordance with the Code, Western Power submitted its revised Technical Rules to the ERA for assessment as part of the current Access Arrangement review.

The 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 to be addressed by the Technical Rules listed in Appendix 6 of the Code. This includes, amongst other things:

- Performance standards in respect of service standard parameters;
- The technical requirements that apply to the design and operation of facilities and equipment connected to the network;
- The standards which apply to the operation of the network, including in emergency situations;
- Obligations to test facilities and equipment in order to demonstrate compliance with the technical rules;
- Procedures that apply if the service provider believes that any part of facilities and equipment does not comply with the technical rules; and
- Procedures that apply to the inspection of facilities and equipment connected to the network;
- The standards which apply to control and protection settings for facilities and equipment connected to the network;
- Procedures that apply to the commissioning and testing of new facilities and equipment connected to the network; and
- Procedures that apply to the disconnection of facilities and equipment from the network; and
- The information that a user must provide to the service provider in relation to the operation of facilities and equipment connected to the network.

The Technical Rules apply to:

- (1) *The Network Service Provider in its role as the owner and operator of the transmission and distribution systems;*
- (2) *System Management in its role as operator of the power system;*

(3) *Users of the transmission or distribution system who, for the purposes of these Rules include:*

(a) every person who seeks access to spare capacity or new capacity on the transmission or distribution system or makes an access application under the Access Code in order to establish a connection point or modify an existing connection;

(b) every person to whom access to transmission and distribution capacity is made available (including every person with whom the Network Service Provider has entered into an access contract or connection agreement).

Section 3 of the Technical Rules sets out the technical requirements which users must satisfy as a condition of connection of any equipment to the transmission and distribution systems (including embedded generating units), except where granted an exemption by the Network Service Provider in accordance with the Code.

Clause 3.7 of the Technical Rules details the requirements for the connection of energy systems to the low voltage (LV) distribution system via inverters. The scope of this clause is stated in clause 3.7.1, namely:

(a) This clause 3.7 addresses the particular requirements for the connection of energy systems to the Network Service Provider's low voltage distribution system via inverters. It covers installations rated up to 10 kVA single phase and 30 kVA three phase. For similarly rated non-inverter connected energy systems, the requirements of clause 0 apply.

(b) The scope of this clause 3.7 is limited to technical conditions of connection. The Network Service Provider is not able to enter an energy buyback agreement directly. A User wishing to enter into such an agreement must apply to a participating retailer. It should also be noted that whereas this clause 3.7 covers connection issues for generators up to 30 kVA, the maximum generator capacity for which a retailer may be prepared to enter into an energy buyback agreement may be less than this amount.

Clause 3.7.2 of the Technical Rules states that the nominal network voltages and maximum energy system capacities for which these requirements apply are:

- 240 V single phase 10 kVA; and
- 415 V three phase 30 kVA.

It is assumed that the full rated capacity of the inverter is capable of being exported to the distribution system.

Clause 3.7.3 of the Technical Rules details the relevant technical standards that apply to the connection of energy systems to the LV distribution system via inverters, whereby:

- (a) The installation of primary energy systems must comply with the relevant Australian Standards and international standards.*
- (b) Inverter systems must satisfy the requirements of Australian Standard 4777 "Grid connection of energy systems via inverters" as published and revised. The following parts of this standard apply:
 - (1) AS 4777.1 – 2005 Part 1 Installation requirements.*
 - (2) AS 4777.2 – 2005 Part 2 Inverter requirements.*
 - (3) AS 4777.3 – 2005 Part 3 Grid protection requirements.**
- (c) The term 'inverter energy system' in these Rules has the same meaning as in AS 4777.*
- (d) A type-test report or type-test certificate from an independent and recognised certification body showing compliance of inverter plant with AS 4777.2 (2005) must be supplied to the Network Service Provider.*
- (e) Should it be necessary to change any parameter of the equipment as installed and contracted, approval must be sought from Network Service Provider. Subsequently, the Network Service Provider will determine whether a revised application is required.*

Clause 3.7.4 of the Technical Rules states the requirements associated with installing the meter, namely that:

The User must make provision for both an import and export meter. Should an additional meter be required for the export power meter, the User may need to install an additional meter box or rearrange the existing meter box to accommodate a second meter.

Clause 3.7.5 of the Technical Rules details the safety requirements, whereby:

- Installations must comply with the relevant Australian Standards and all statutory requirements including AS/NZS 3000, AS/NZS 5033 and the WA Electrical Requirements.*
- All electrical installation, commissioning and maintenance work wherever required must be carried out by an electrical contractor licensed under the Electricity (Licensing) Regulations, 1991.*

The remainder of clause 3.7 of the Technical Rules, clauses 3.7.6 to 3.7.9, covers the technical requirements associated with:

- Circuit Arrangements;
- Protection;
- Commissioning and Testing; and
- Signage Guide.

3.3 Reference Services and Feed-In Tariffs in Western Australia

3.3.1 Background

There is currently no mandated Feed in Tariff (FiT) scheme in Western Australia. The only scheme is one which is operated by Synergy which offers a renewable energy buy-back scheme (REBS). The scheme applies to eligible customers, as defined under the *Electricity Industry (Licence Conditions) Regulations 2005*, with small renewable energy systems, namely:⁵

- Residential customers with energy consumption of less than 50 MWh per annum;⁶
- Schools, universities or other educational institutions; and
- Non-profit making organisations.

The Scheme is available to customers only after they have installed a renewable energy installation at their premises. Once they have done this, they may enter into one of two retail services and tariff options, the A1 Tariff or SmartPower rates for electricity purchases from Synergy.⁷ Customers are offered renewable energy

⁵ The *Electricity Industry (Licence Conditions) Regulations 2005* defines a small renewable energy system as: a system of photovoltaic arrays; a system of wind turbines; a hydro power system; or another system for the generation of electricity from a renewable energy source, that has a generating capacity exceeding 500 W but not exceeding 5 kW.

⁶ For multi-residential premises, each premise must be connected to the renewable energy system of a size equivalent to more than 500 watts up to 5 kilowatts to be eligible. Synergy may also require changes to metering arrangements in order to allow eligible customers at multi-residential premises to participate. The Scheme may not be available for shared systems (such as tenants in an apartment complex) due to metering constraints.

⁷ The SmartPower tariff is only available to residential customers. For other eligible customers only the buyback rate equivalent to the applicable tariff (less the GST component) is available. If the customer is registered for GST, Synergy will pay the applicable tariff rate without deducting the GST component.

buyback rates equal to the A1 Tariff or SmartPower electricity purchase rates, less the GST component.⁸

3.4 Western Power's Proposed Access Arrangement

Western Power lodged proposed revisions and a revised Access Arrangement Information for the SWIS with the ERA on 1 October 2008.

Section 3 of Western Power's proposed revisions to the Access Arrangement (the revisions) relate to the offered Reference Services, Non-Reference Services and Service Standard Benchmarks.

Western Power offers 11 reference services at network exit points:

1. Anytime Energy (Residential) Exit Service A1;
2. Anytime Energy (Business) Exit Service A2;
3. Time of Use Energy (Residential) Exit Service A3;
4. Time of Use Energy (Business) Exit Service A4;
5. High Voltage Metered Demand Exit Service A5;
6. Low Voltage Metered Demand Exit Service A6;
7. High Voltage Contract Maximum Demand Exit Service A7;
8. Low Voltage Contract Maximum Demand Exit Service A8;
9. Streetlighting Exit Service A9;
10. Un-Metered Supplies Exit Service A10; and
11. Transmission Exit Service A11.

Western Power offers two entry services as reference services:

1. Distribution Entry Service B1; and
2. Transmission Entry Service B2.

⁸ Customers who also take up Synergy's Natural Power or Earth Friendly energy options, which allows their electricity to be sourced from renewable energy options in the case of Natural Power, or through a carbon neutral mix of sources in the case of Earth Friendly, will continue to pay the additional rates for these policies over the A1 Tariff and SmartPower electricity purchase rates.

Appendix 7 of the proposed Access Arrangement provides details of each reference service, being:

- A “description” of the reference service, for example, the description of the Anytime Energy (Residential) Exit Service A1 is as follows:

An exit service combined with a connection service and a standard meter service at an exit point on the low voltage (415 volts or less) distribution system.

- The “eligibility criteria”, indicating:
 - The type of user that the reference services is applicable to;
 - The type of meter required; and
 - The regulations that apply to the connection;

The eligibility criterion for the Anytime Energy (Residential) Exit Service A1 is detailed as follows:

Users are eligible to use this service if:

- 1. The exit point is located at a residential premise or a premise occupied by a voluntary/charitable organisation;*
- 2. A single register accumulation meter is installed at the exit point; and*
- 3. The consumer’s facilities and equipment comply with the Technical Rules, the WA Electrical Requirements and AS 3000;*

- The “reference tariff” associated with the reference service is detailed with reference to Western Power’s price list, published in Appendix 5 of the proposed Access Arrangement, for example the reference tariff associated with the A1 exit service is “RT1”;
- The “standard access contract” – for all reference services it is the Electricity Transfer Access Contract (ETAC), published in Appendix 4 of the proposed Access Arrangement; and
- The “service standard benchmark” that applies, namely:
 - For reference services A1 to A10 and B1, the SAIDI and SAIFI service standard benchmarks (SWIN total, CBD, urban, rural short, rural long) detailed in sections 3.18 and 3.19 of the proposed Access Arrangement, respectively, apply;

- Additionally, for reference service A9 ("Streetlighting Exit Service"), where Western Power is responsible for the repair of faulty streetlights, a service standard benchmark applies in relation to repair times for reported faults, as detailed in section 3.23 of the proposed Access Arrangement;
- The service standard benchmarks for the reference services A11 and B2 available to users directly connected to the transmission network are detailed in section 3.22 of the proposed Access Arrangement and includes:
 - Circuit Availability (% of total time);
 - System Minutes Interrupted (meshed network); and
 - System Minutes Interrupted (radial network).

In accordance with section 3.4 of the proposed Access Arrangement, reference services are to be provided to users under the terms and conditions of the ETAC. The ETAC sets the common contractual provisions and the provisions for the transfer of electricity and technical compliance for a user connecting to Western Power's SWIN.

Section 3.1 of the ETAC states the provision and use of services as:

- (a) *For each Connection Point, on and from the Start Date and up to and including the End Date, subject to and under this Contract:*
 - (i) *Western Power must provide the Services, up to the Contracted Capacity; and*
 - (ii) *the User must pay the Charges for, and may use, the Services.*
- (b) *The User must not:*
 - (i) *transfer electricity out of the Network at a Connection Point unless it has an Exit Service for that Connection Point; and*
 - (ii) *transfer electricity into the Network at a Connection Point unless it has an Entry Service for that Connection Point.*
- (c) *For each Service at each Connection Point, the User must endeavour, as a Reasonable and Prudent Person, to ensure that the rate at which electricity is transferred into or out of the Network by or on behalf of the User does not exceed the Contracted Capacity for that Service.*⁹

⁹ A Service is defined in the ETAC as an Entry Service or an Exit Service to be provided under this Contract in respect of a Connection Point as specified in Part 1 of Schedule 3.

3.5 Synergy's Submission

Synergy made a submission to the ERA on 17 December 2008 in relation to Western Power's reference services. In its submission, Synergy stated that:

- There is a need for Western Power to provide a dedicated reference service, in accordance with sections 5.2(d)(i) and (ii) of the Code, that enables a user or applicant to acquire an exit or entry service at a connection point without a need to acquire a corresponding entry or exit service at another connection point, i.e. a reference service at a connection point where electricity is "likely to be transferred" both into and out of the network;
- The reference services in the proposed Access Arrangement do not adequately provide a service for use of small renewable energy systems and consequently does not meet the requirements of section 5.2(b) of the Code;
- Synergy has over 1,800 customers who utilise small renewable energy systems which are connected to the network.¹⁰ Synergy anticipates that the rate of growth of these customers will increase significantly with the proposed introduction of a feed-in tariff for small renewable energy systems;
- The standard access contract and reference service (clause 3.1(b) of the ETAC) restrict the use of a connection point as both an entry point and exit point, despite the requirements of section 5.2(d)(i) and (ii) of the Code;
- The proposed Access Arrangement does not demonstrate how Western Power has determined that the proposed reference services meets the requirements of 5.2(b) of the Code;
- It is important that the proposed Access Arrangement contains a mechanism, by which Western Power, within an access arrangement period, consults with users of the Western Power's network on the scope and requirements of reference services. This mechanism should also include a requirement to advertise and request submissions from consumers supplied using this network;
- In order to support the significant portion of the market that has small renewable energy systems connected to the network, the proposed revisions to the Access Arrangement should:

In accordance with sections 5.2(d)(i) and (ii) of the [Code], contain an appropriate reference service that enable a user or applicant to acquire an

¹⁰ Synergy states that currently Western Power deems customers who utilise small renewable energy systems to be operating exclusively on an exit service, at an exit point. Synergy also notes that under the current framework any request for a service by a user or applicant of a small renewable energy system will be treated as a request for a non-reference service.

exit or entry service at a connection point without a need to acquire a corresponding entry or exit service at another connection point;

- *Contain a reference service that provides a basis and gives users the flexibility and choice to implement mechanisms for monitoring and settling the energy that is exported and imported to and from the network; and*
 - *Contain a reference service that is sufficiently detailed and complete to form that basis of a commercially workable access contract and enable a user or applicant to determine the value represented by the reference service, in accordance with section 5.3 of the [Code]. This also includes the requirement to define the metering eligibility criteria.*
- Western Power should be required to provide a reference service or a covered service for a bidirectional connection point, the application and queuing policy, the reference services, the Code and the pricing list should be amended to address the following:
 - *how an applicant applies for a bidirectional connection point and the associated capacity for transferring electricity into and out of the network;*
 - *the rules for determining, assigning and tracking these connection points on the network;*
 - *the rules for determining the charges associated with transferring electricity into and out of the network;*
 - *the duration or period that a bidirectional point can operate for;*
 - *how bidirectional connection points are managed under the [Electricity Transfer Access Contracts], including how the maximum extent of any liability will be determined; and*
 - *how a bidirectional connection point will be transferred between [Electricity Transfer Access Contracts] in accordance with the Customer Transfer Code.*

3.6 ERA's Draft Decision Amendment

The ERA's Draft Decision on Western Power's proposed revisions to the Access Arrangement for the SWIS was released in July 2009.

In the Draft Decision, the ERA accepted Synergy's submission that the range of reference services, under Western Power's proposed Access Arrangement revisions did not provide a service for a connection point that may variously function as either an entry or exit point. The ERA also considered that, under clause 5.2(b)(i) of the

Code, Western Power is required to specify a reference service for each covered service that is likely to be sought by a significant number of users and applicants and that this was likely to be the case with regard to the number of connection points for bi-directional services required by Synergy (and potentially others). Consequently, the ERA recommended the following required amendment (Required Amendment 1):

*The proposed access arrangement revisions should be amended such that one or more reference services provide for single connection points to function both as entry points and exit points. This revision will cater for the requirements for network services that arise where small-scale renewable energy systems connect to the network and where electricity consumers participate in the Renewable Energy Buyback Scheme.*¹¹

3.7 Western Power's Current Bi-Directional Service

Western Power does not currently provide an explicit bi-directional *reference service* to support the REBS. However, it does provide a service to customers of the REBS, which could form the basis of a reference service.

Western Power's current service has the following features.

Firstly, Western Power must approve a customer's application for the installation of a renewable energy installation and its connection to the network. This approval is facilitated in accordance with the Technical Rules, the various relevant Australian Standards and the consequential requirements of Western Power.

A customer may apply itself, or have its installer complete an "Application to Connect Small Scale Renewable Energy Systems to the Western Power Network"¹², which is then considered by Western Power against a list of pre-approved inverters. Once the application has been approved, the customer may then agree to enter the REBS.

Once a customer signs up to the REBS, Synergy requests that Western Power upgrade the meter at the customer's connection point. Western Power's standard meter is generally either a single channel five register manually read electronic meter, or an accumulation meter, neither of which allow for the import and export of electricity through the meter or the collection of interval data. The request by Synergy is therefore to install a two channel meter at the premises, which would provide an import and export channel with five registers (peak, off-peak, high shoulder, low shoulder and anytime).

¹¹ ERA, 'Draft Decision on Proposed Revisions to the Access Arrangement for the South West Interconnected Network', 16 July 2009, p.27.

¹² <http://www.westernpower.com.au/documents/forms/smallrenewableenergysystems.pdf>

When the meter data is collected by Western Power and provided to Synergy:

- The customer export channels provide the basis by which Synergy purchases energy from the customer; and
- The customer import channel provides the basis by which Synergy is charged network tariffs by Western Power for the customer's residual energy requirement.

3.8 Agreed Aspects of the Future Bi-Directional Reference Service

Western Power has advised NAS that its current service, while not currently defined as a Reference Service, is sufficiently developed to be a *bi-directional reference service* that can be specified in the Access Arrangement. The applicable Standard Access Contract would be the "*Electricity Transfer Access Contract*" published in Appendix 4 of the Access Arrangement.

Western Power has also advised that there will be no charge for entry services provided to customers at bi-directional points, i.e. customers will not be charged for feeding energy into the network.

The technical aspects of Western Power's current service as a reference service would be that:

- The service will be titled "*Energy (Residential) - Bidirectional Service*";
- The description of the service will be "*A bidirectional service combined with a connection service and a standard meter service at a bidirectional point on the low voltage (415 volts or less) distribution system*";
- Customer's will be eligible to receive the service if:
 - The bi-directional point that the service was being sought at is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections. This would allow the operation of the REBS and also allow for future possible expansion of the REBS at the discretion of Synergy or other retailers;
 - The customer's inverter system complies with the requirements of AS 4777 and the Technical Rules;
 - The customer's facilities and equipment comply with the Technical Rules, the WA Electrical Requirements and AS3000; and
 - The metering equipment installed is capable, as determined by Western Power, of meeting the bi-directional service criteria.

There is however, one further issue that remains unresolved in the design of the reference service, being the manner by which Western Power will charge customers for their usage of the bi-directional service.¹³ A discussion of the reference tariff options for customers at bi-directional points is detailed in section 4.

¹³ The current practice is for customers to be charged the same network tariff as those customers which are not at a bi-directional point.

4 Options for Designing Remaining Aspects of the Reference Service

4.1 Purpose of this Section

As noted in section 3.8, the technical aspects of Western Power's bi-directional reference service are already established. The remaining issue to be resolved is the manner by which Western Power will charge customers for electricity consumption at their bi-directional points.

Accordingly, this section sets out:

- The options for charging customers for the electricity that they import from Western Power's network;
- The criteria by which these options will be assessed; and
- The characteristics of the options in relation to the criteria (where required).

4.2 Options for Reference Tariffs

Four options have been developed for the network tariff to apply at the customer's bi-directional point, being:

1. The status quo – being the assignment of existing network tariffs to new customers at bi-directional points on the same basis as is currently carried out by Western Power¹⁴. Existing customers who install small scale embedded generators at bi-directional points would retain the same network tariff they were paying before they installed the embedded generator at that connection point. In almost all cases, given that customers of the REBS are residential customers, this would be either RT1 or RT3 as set out in Western Power's tariff schedule. This is the tariff which would be paid by the customer for all electricity that is imported from the network into the customer's connection point;
2. To design and apply a seasonal demand tariff to customers at bi-directional points, which would be paid by the customer for all electricity that is imported from the network into the customer's connection point;
3. To design and apply a variation to RT3, being a time of use tariff, to customers at bi-directional points, which would be paid by the customer for all electricity that is imported from the network into the customer's connection point; and

¹⁴ Assignment of customers to network tariffs is currently carried out on the basis of customer type, customer size, voltage requirements and metering capability.

4. To design and apply a variation of RT1, being a usage based charge, to customers at bi-directional points where the difference between the new tariff and RT1 was that the new tariff would be at a higher rate to compensate for the reduced network electricity consumption.

There are no options where Western Power would charge customers to export electricity from their connection point into the network.

These options are discussed in more detail below.

4.2.1 Option 1 – The Status Quo

As noted in section 3.7, Western Power currently considers and approves the connection of the embedded generator to its network, installs an upgraded two channel, five register interval meter at the connection point to facilitate import and export channels, and provides meter reading services.

The current practice is then for Western Power to invoice Synergy following the two monthly manual meter reading cycle for the total amount of electricity which has been exported from the network to the customer's connection point (or imported into the connection point from the network depending on the perspective taken).

Customers that already have an existing compatible single phase, or three phase meter (generally an EM1000 meter, or an EM3330 meter, respectively) need to have their meter reprogrammed for import/export measurement by Western Power at a cost of \$49.50¹⁵ exclusive of GST. For other customers, Western Power's standard single and three-phase direct connect interval meter is installed at a cost of approximately \$115.50 or \$203.50, exclusive of GST and travel costs, respectively.¹⁶ The metering installation costs are invoiced to Synergy and then passed on, through a gazetted charge, to customers.

Western Power does not currently reclassify a customer to a different network tariff once an embedded generator has been connected. As a result, the previous exit tariff continues to apply.

Where a new customer connects to the network – and therefore where no previous tariff arrangement was in place – Western Power assigns that new customer to a network tariff on the same basis as if there was no embedded generator installed.

¹⁵ Western Power's standard three phase interval meters are configured with two channels for import only measurement (kWh and kVAh), although they have the capability for four channels with import/export measurement.

¹⁶ Western Power, 'Metering Code Model Service Level Agreement', Approved by the ERA on 30 March 2006. All costs are exclusive of GST.

(http://www.wpcorp.com.au/documents/METERING_SERVICES_GENERIC_SLA_WITH_WA_RETAILERS.pdf)

4.2.2 Option 2 – Seasonal Demand Tariff for Bi-Directional Customers

Option 2 would involve assigning new customers and potentially re-assigning existing customers to a new network tariff once the connection point has been classified as a bi-directional point (i.e. once the embedded generator has been installed).

The new tariff would be demand based, such as \$/kVA, which would be charged to the customer based on its maximum demand over an appropriate time interval. For example, based on Western Power's existing low voltage metered demand tariff, RT6, the new network tariff design may consist of:

- A fixed metered demand charge which is payable each day;
- A variable metered demand charge calculated by multiplying the demand price (\$/kVA) by a rolling seasonal monthly maximum half hourly demand at the bi-directional connection point; and
- A fixed metering charge which is payable each day.

Western Power has advised that Option 2 would require either the installation of multi-channel interval meters with the capability of recording kVA data, or the installation of multi-channel interval meters, with the kVA demand mathematically derived from the kWh and kVAh channels.¹⁷

Currently, kVA demand can be derived from Western Power's standard EM3330 (0350) three phase interval meter, but not from its standard single phase EM1000 (0200) interval meter, which is only capable of measuring kWh usage.¹⁸ Western Power does not have a single phase meter capable of measuring, or deriving kVA demand.

The simplest solution under Option 2 would be for Western Power to source and install a single phase interval meter with both kWh and kVAh measurement functionality to complement its existing standard three phase interval meter. The cost associated with the new single phase meter would likely be materially higher than the cost of the current EM1000 meter and closer in quantum to that of the three phase meter.¹⁹

The process for approving the installation of a new single phase interval meter with the additional functionality may involve, amongst other things:

¹⁷ Using the formula, $KVA = \text{SQRT}(kW^2 + kVAR^2)$.

¹⁸ It is not a requirement of the *Electricity Industry Metering Code 2005* (the Metering Code) for type 5 and type 6 meters to provide reactive power measurement, refer to Table 3 of Appendix 1 of the Metering Code.

¹⁹ An example of a single phase meter with kWh and kVAh functionality is the Echelon EM-1021 Single Phase IEC Residential Electricity Meter (Model 8332 or 83861), or alternatively a Smart Meter would have the necessary functionality.

- Testing and evaluation of the new meter by Western Power;
- Commercial justification of the new meter;
- Determining who would pay for the additional cost associated with the new meter;
- Discussing with Synergy on the impact on the existing REBS of installing the new meter; and
- Demonstrating the customer's willingness to pay.

Where a compatible three phase meter currently exists, namely the 0350 meter type, no additional cost would be incurred, otherwise a three phase meter installation cost of \$203.50²⁰, exclusive of GST and travel costs, would apply.²¹ Under this scenario, Western Power could continue to manually download the data using hand held units. The metering installation costs would be paid by the customer when the embedded generator was installed at the customer's premise.

4.2.3 Option 3 – Time of Use Tariff for Bi-Directional Customers

Option 3 involves assigning new customers, and potentially re-assigning existing customers, to a new network tariff once the connection point has been classified as a bi-directional point (i.e. once the embedded generator has been installed).

The new tariff would be the existing time of use tariff, RT3, or a new variation of RT3. The tariff would be designed with a higher price during the on-peak residential demand time period than the off-peak time period.²² Western Power's existing time of use network tariff, RT3, consists of:

- A fixed use of system charge which is payable each day;
- An on-peak use of system variable charge calculated by multiplying the on-peak energy price by the quantity of on-peak electricity consumed at the bi-directional connection point (expressed in kWh);
- An off-peak use of system variable charge calculated by multiplying the off-peak energy price by the quantity of off-peak electricity consumed at the bi-directional connection point (expressed in kWh);

²⁰ Under the Metering Service Level Agreement the cost of a three phase interval meter is \$704 (excluding GST) but the EM3330 (0350) is a three-phase meter that is capable of recording import and export kWh and kVarh and is interval data capable.

²¹ Refer to footnote 16.

²² On-peak periods for the existing time of use tariffs, RT3 and RT4, are defined in Western Power's Price List as being between 8am and 10pm during weekdays (including public holidays), while off-peak periods are all other times (including weekends).

- A fixed metering charge which is payable each day;
- An on-peak variable metering charge calculated by multiplying the on-peak variable price by the quantity of on-peak electricity consumed at the bi-directional connection point (expressed in kWh); and
- An off-peak variable metering charge calculated by multiplying the off-peak variable price by the quantity of off-peak electricity consumed at the bi-directional point (expressed in kWh).

An alternative to the existing RT3, on-peak and off-peak, network tariff is a time of use tariff broken down into three different time periods – on-peak, shoulder and off-peak. Such a network tariff design would be similar to that employed by EnergyAustralia in New South Wales with its PowerSmart Home Rates²³ where the time periods are defined as follows:

- Off-peak is from 10pm to 7am everyday;
- Shoulder is from 7am to 2pm and 8pm to 10pm during working weekdays and from 7am to 10pm on weekends and public holidays; and
- On-peak is from 2pm to 8pm on working weekdays.

Designing the tariff in this manner would provide greater cost reflectivity by more narrowly defining the on-peak period to capture the likely peak residential demand and would provide a greater incentive to the customer to alter consumption patterns to reduce cost.²⁴

Option 3 would have the same metering requirements as the status quo, as the existing interval meters installed at bi-directional points record import and export channels, with the five registers on each channel recording usage at peak, off-peak, high shoulder, low shoulder and anytime periods. The existing EM1000 and the EM3330 meters are capable of recording interval data, and the interval data can be manually downloaded using a hand held probing unit. Western Power has advised that additional resources and changes on the meter reading routes would be required if this was pursued. The cost of installing metering for the customer would be the same as under Option 1, which could continue to be invoiced to Synergy and then passed on, through a gazetted charge, to customers.

4.2.4 Option 4 – Higher Rate Usage Tariff for Bi-Directional Customers

Option 4 involves assigning new customers and potentially re-assigning existing customers to a new network tariff once the connection point has been classified as a bi-directional point (i.e. once the embedded generator has been installed).

²³ <http://www.energyaustralia.com.au/energy/ea.nsf/Content/NSW+TOU+Res+Home>

²⁴ For representative examples of summer and winter residential customer demand within Western Power's SWIN, refer to attachment A and attachment B of this report, respectively.

The new tariff would be a variation of the existing tariff, for example RT1a instead of RT1, which would charge the customer at a higher rate. The design of the new network tariff would be as follows:

- A fixed use of system charge which is payable each day;
- A variable use of system charge calculated by multiplying the energy price by the quantity of electricity consumed at a bi-directional connection point (expressed in kWh);
- A fixed metering charge per revenue meter which is payable each day; and
- A variable metering charge calculated by multiplying the variable price by the quantity of electricity consumed at a bi-directional connection point (expressed in kWh).

Option 4 would have the same metering requirements and associated costs as the status quo, Option 1, as the basis of charging the customer would remain the same as if the customer did not have an embedded generator installed. The cost of installing meters could continue to be invoiced to Synergy and then passed on, through a gazetted charge, to customers.

4.3 Criteria for Assessment of Options

Western Power has requested that NAS assess the Options for the network tariff to apply at the customer's bi-directional point against the following criteria:

1. Ensuring that the tariff is cost reflective with respect to both the transmission and distribution networks, as required by Chapter 7 of the Code;
2. Ensuring there are no cross subsidies between customers with and without embedded generation, as required by Chapter 7 of the Code;
3. Administrative simplicity;
4. Ensuring reference service design does not set up any unreasonable barriers to entry such as high up-front cost; and
5. Compatibility with the REBS.

These criteria are discussed further below.

4.3.1 Criteria 1 – Ensuring that Tariffs Reflect Cost

Criteria 1 is important to consider because the Options imply different reference tariff designs and therefore different relationships between the cost of supply and the tariff revenue collected.

Cost reflectivity of tariffs has been considered at length by Western Power and by the ERA as part of previous Access Arrangement approval processes. This is because section 7.3 of the Code requires that Western Power's proposed pricing methods must ensure that tariffs recover the forward looking efficient costs of providing the reference services.

For this reason, Western Power's Price List Information sets out a justification of how reference tariffs have been structured in order to reflect cost, and an interpretation of this relationship. Section 2.3 of the Price List Information provides that:

It is essential to separate the two processes of "determining cost of supply" and "setting reference tariffs" to recover those costs. In the ideal world the costs of supply can be clearly allocated to particular customer groups and the reference tariffs are set to exactly recover those costs. In addition, the costs are separated into fixed and variable components and the reference tariffs are similarly split so that fixed costs are recovered by fixed charges and variable costs by variable charges.

It is recognised that the determination of the cost of supply for users and respective reference tariffs is not a completely definitive process. A number of simplifying assumptions are required, for example, the categorising of users into a small number of customer groups or classes. These assumptions may introduce errors that are considered to not be significant and there is considerable historical precedence in deriving the network cost of supply that supports the approach.

Demand is the best measurement of capacity but as the vast majority of users have energy only metering that does not record demand; energy is used as a proxy for demand. The limitations on the metering information available will introduce minor non-deterministic errors that cannot be avoided or quantified.

Western Power currently ensures that tariffs reflect cost via a process of distributed cost allocation set out in the Price List Information, and approved by the ERA. Essentially, it involves two stages, being:

- Determination of the target revenue and the reference service revenue for Western Power; and
- Allocation of the revenue components to different cost pools for various customer groups, based on factors such as supply voltage, location and load characteristics.

Western Power sets reference tariffs from the cost of supply determination – therefore the reference tariffs do not directly relate to the customer groups. Section 2.3.3 of the Price List Information notes that this:

is because a number of the customer groups are based on derived user demands whereas the reference tariffs are based on the user and metering data that is actually available. The users within the customer groups are linked to reference tariffs so that cost of supply can then be derived for each reference tariff. The cost of supply is in terms of fixed and variable costs and price settings are then simply established to recover the cost pools from the users.

In order to assess whether a particular option reflects costs, it is necessary to understand what is the cost of a customer on the network. In general, the cost associated with providing network services to a customer differs according to the shape of the customer's load profile, which is reflective of the nature of the customer (i.e. domestic or business), the voltage required and the total electricity use of the customer. The load shape affects the cost of service provision because the network is primarily built to meet peak load requirements rather than energy consumption. This has been confirmed by various distribution network service providers. For example:

- Integral Energy has stated that *"Growth in peak demand is a primary driver of network capital investment"*;²⁵
- Country Energy has stated that *"Peak demand, particularly summer peak demand, is a principal driver of growth related capital expenditure"*²⁶
- AGL Electricity (now known as Jemena Electricity Networks) has stated that *"Forecasts of network demand and customer connections drive much of the need for investment in the network"*,²⁷ and
- ActewAGL has stated that *"The zone substation demand forecasts are key drivers of the capital expenditure program"*.²⁸

Customers with peakier load profiles that correspond with the network peaks generally require greater network capacity, and therefore have higher costs to serve per unit of energy delivered compared to customers with a relatively flat load profile.

It should also be noted that there is a relationship between the number of new embedded generator connections and the costs of planning and building the network. If peak demand can be reduced by increasing numbers of embedded generation systems then reductions in capital expenditure may be achievable in some areas of the network. However, large numbers of these systems, located in

²⁵ Integral Energy, 'Regulatory Proposal to the Australian Energy Regulator 2009 to 2014', 2 June 2008, p.27.

²⁶ Country Energy, 'Electricity Network Regulatory Proposal 2009-2014', 2 June 2008, p.84.

²⁷ AGL Electricity, '2006 Electricity Distribution Price Review – Submission by AGL Electricity Limited', October 2004, p.29.

²⁸ ActewAGL, 'ActewAGL Distribution Determination 2009-14 – Regulatory Proposal to the Australian Energy Regulator 2009 to 2014', June 2008, p.92.

areas where load is low, may lead to the amount of electricity being imported into the system exceeding that which is being used by the area – thus feeding electricity back up into the system and into transformers which may require substantial network redesign to accommodate.

However, the relationship of renewable energy systems, such as solar PV systems, with network cost is complicated by the fact that the generation output may not be coincidental with peak demand and that there is a lack of certainty, or firmness, associated with the reliability of renewable generator systems. In Western Power's SWIN, the residential peak demand tends to occur between approximately 5:30pm and 8pm during summer and between 6:15pm and 8:30pm during winter,²⁹ whereas solar PV output tends to peak between 10am and 2pm, when the sun is strongest. The difference in peak solar PV output and residential peak demand needs to be taken into consideration in assessing the cost reflectivity of the Options and is addressed in section 5 of this Report.

On balance, there is sufficient evidence to suggest that the best way to reflect a customer's cost on the network is to allocate costs based on that customer's demand.

Each of the Options results in tariffs which reflect costs in different ways:

- Option 1 ensures that customers with embedded generation will pay less than those customers which, all other things being equal, do not have an embedded generator installed. This is because customers are being charged on a consumption basis and the embedded generator will cover a proportion of the customer's electricity consumption. To the extent that the embedded generator does not materially reduce the customer's peak demand, the network tariff will not be reflective of the real cost of that customer;
- Option 2, being a demand based tariff, is reflective of the costs imposed on the network by the customer. Under this option, all other things being equal, a customer with an embedded generator installed will only pay less in total network charges than a customer without an embedded generator installed, where the embedded generator reduces peak demand, or the customer changes their behaviour to lower their peak demand;
- Option 3 is a hybrid between a demand charge and a usage charge, which can be used to signal a need to alter usage to times where the customer's demand might have been at its peak. Thus, the customer is provided with a cost incentive to shift its peak through a usage based charge. Under this option, all other things being equal, a customer on the existing network tariff RT3 with an embedded generator installed will pay less in total network charges than a customer on the same tariff without an embedded generator installed due to the reduction in network electricity consumption that will occur. However, a

²⁹ For representative examples of summer and winter residential customer demand within Western Power's SWIN, refer to attachment A and attachment B of this report, respectively.

new variation of network tariff RT3 could be designed for customers with embedded generators installed at bi-directional points where higher on-peak rates apply, therefore compensating for the reduction in network electricity consumption. In this case, a customer with an embedded generator installed will only pay less than a customer without an embedded generator installed where the customer uses the embedded generator (or changes their behaviour) to further reduce their electricity consumption or shift their usage of electricity to off-peak times. Such a scheme could be refined further to reflect the costs of the customer on the network by defining a third tariff period, as detailed in section 4.2.3. This tariff is similar to Option 2 in intention, however the method of charging remains based on electricity consumption, not demand;

- Option 4 is the same tariff structure as Option 1 but at a higher level. The customer receives a blunt signal that if they connect an embedded generator, then the customer will pay the same amount to Western Power regardless of any decision they might make to shift or reduce their peak demand or their times of consumption. While it achieves the objective of cost recovery, it could be argued that such a tariff would not “reflect” costs of that customer.

The assessment of each of the Options under this criterion is set out in section 5.

4.3.2 Criteria 2 – Limiting Cross Subsidies

A cross subsidy is essentially a payment made by one class of customers to another class of customers, despite there being no economic basis for such a payment.

The extent of cross subsidisation present will be relative to the degree of cost reflectivity achieved in the tariff design. It is generally accepted that cross subsidies are minimised where the cost of providing a service exceeds the incremental cost, or marginal cost, of that service. This is also reflected in section 7.3(b)(i) of the Code where it is a requirement that the reference tariff applying to a user:

“at the lower bound, is equal to, or exceeds, the incremental cost of service provision”

Further, given the fact that the output from renewable embedded generation systems, such as solar PV systems, may not be coincidental with peak demand and that there is a lack of certainty, or firmness, associated with the reliability of renewable generator systems, as discussed in section 4.3.1, it could be assumed, all other things being equal, that the cost to the network of a customer with a small scale embedded generator installed will be approximately the same as a customer without an embedded generator installed.

Given the above assumption, the level of cross subsidisation can be illustrated by considering two separate hypothetical customers (Customer A and Customer B) with the same electricity consumption and an identical peak demand with both assigned to each of the tariff Options. For example, both Customer A and Customer

B consume 8 MWh of electricity per annum and have a peak demand of 2 kW at 6pm. Customer A has an embedded generator which generates electricity between 10am and 5pm but nothing after 5pm (producing a total of 2 MWh per annum) and Customer B does not have an embedded generator installed. Both customers therefore have the same peak demand but Customer A uses less energy as a consequence of the self-generation between 10am and 5pm.

Under Option 1, Customer A would pay for 6MWh at RT1 while Customer B would pay for 8MWh at RT1. If it is accepted that the appropriate means of determining cost is the 2KW of peak capacity “reserved” for both customers, then Customer B is bearing more of the cost of reserving that capacity than Customer A. Customer A is therefore being cross-subsidised by Customer B.

Under Option 2, both Customer A and Customer B would pay for 2kW of reserved capacity on the network. If it is accepted that the appropriate means of determining cost is the 2KW of peak capacity “reserved” for both customers, then both customers are paying a tariff which is reflective of their cost. There are therefore no cross-subsidies between Customer A and Customer B.

Under Option 3, the tariff would be designed so that a higher rate is charged in the on-peak period than the off-peak. The amount paid by Customer A depends on the way in which the time of use tariff was constructed. While ultimately Customer A is importing less energy from the network than Customer B (6 MWh instead of 8MWh per annum), an efficiently set time of use tariff would try to ensure that a customer with embedded generation installed would pay more for the energy used during the peak period than a customer without an embedded generator installed, on the basis that peak demand would remain unchanged, to compensate for the difference. A more refined time of use tariff that utilised three tariff periods would then allow Customer A to benefit from any reduction that may occur from a reduction in peak demand from the use of the embedded generator and provide greater incentive to change consumption patterns to achieve cost savings.

Under Option 3, therefore, the design of the tariff would be the most significant factor in determining whether a cross subsidy was achieved.

Under Option 4, Customer A would pay a price for its 6MWh which ensured that the total revenue collected from Customer A was equal to that collected from Customer B for 8MWh. While there would be no cross subsidy between Customers A and B, there would be few positive signals sent to either Customer under this Option and it is possible it could act as a negative incentive to pursue the connection of an embedded generator by Customer A.

4.3.3 Criteria 3 – Administrative simplicity to Western Power, Retailers and Customers

Western Power forecasts that it will have around 10,000 embedded generation systems in its network in the next 12 months. For this reason, it is necessary to design a reference service and a reference tariff that:

- Requires as little administrative amendments to Western Power's current practices as possible;
- Requires as little up-front complexity to customers and retailers as possible; and
- Avoids, to the greatest extent possible, customers with embedded generation systems being on different tariffs.

Option 1 would involve no change to the current practice of installing a two channel meter once an embedded generator has been installed and no change to meter data collection processes. It would also involve no changes to the existing tariff arrangements paid by customers with embedded generation installed and all new customers would be on the same tariff as these customers. There would therefore be no need to transition existing customers to a new tariff.

Option 2 involves no change to existing practices in the approval of the connection application but does require the approval and sourcing of a new single phase interval meter with kWh and kVAh measurement functionality, the subsequent derivation of kVAh and the design and implementation of new tariff arrangements. The approval process may include, amongst other things: testing and evaluation of the new meter by Western Power; commercial justification for the new meter; determining who will pay for the additional costs involved (including customer willingness to pay); and discussing with Synergy any impact on the REBS. Western Power would need to make a decision on whether to retain customers currently registered on the REBS on the existing tariff arrangements or transition these customers to the new arrangements. If it elected to transition these customers – therefore declaring the status quo redundant – then there would be a cost impost for customers requiring single phase metering equivalent to the installation cost of the new meter, which would need to be paid by either Western Power or the customer at the point of transition. If it elected not to transition these customers, then there would be two classes of customers – those existing as at the date that the existing arrangement was declared obsolete, and new customers – receiving a bidirectional service.

Option 3 involves no change to existing practices in the approval of the connection application, and no changes to metering and meter data collection processes. This is because the two channel meters currently installed when a customer connects an embedded generator are capable of recording 5 channels of information suitable for time of use tariffs. Western Power would however need to make a decision on whether to retain customers currently registered on the REBS on the existing tariff arrangements or transition these customers to the new arrangements. If it elected to transition these customers – therefore declaring the status quo redundant – then there would be no cost impost on customers for metering. If it elected not to transition these customers, then there would be two classes of customers – those existing as at the date that the existing arrangement was declared obsolete, and new customers – receiving a bidirectional service.

Option 4 involves no change to existing practices in the approval of the connection application, and no changes to metering and meter data collection processes. This is because the basis of the tariff would be unchanged – only the rate would increase. As with the previous Options, Western Power would however need to make a decision on whether to retain the current customers registered on the REBS on the existing tariff arrangements or transition these customers to the new arrangements.

4.3.4 Criteria 4 – Barriers to Entry

In assessing the reference service and associated tariff design there is a need to consider whether any additional and unreasonable barriers to entry will be imposed on prospective customers, these include any additional up-front costs and reduced financial incentives.

4.3.5 Criteria 5 – Compatibility with the REBS

Western Power recognises that any Option that it chooses must be compatible with the REBS. This is because the REBS is currently operating in the market, is understood by customers, and has led to the request for the reference service to be established.

Western Power does not consider that any of the Options would be incompatible with the REBS.

5 Evaluation of Options

5.1 Option 1 – The Status Quo

5.1.1 Background to Option

As noted in section 4.2.1, the status quo would involve no change to Western Power's existing practices upon receiving an application from a customer seeking to install an embedded generator and to access the REBS offered by Synergy. The characteristics of the service would be as set out in the following table.

Characteristics	Option 1 Details
Reference Service Name:	Reference Service C1 – Anytime Energy (Residential) – Bidirectional Service
Reference Service Description:	A <i>bidirectional service</i> combined with a <i>connection service</i> and a standard meter service at a <i>bidirectional point</i> on the low voltage (415 volts or less) <i>distribution system</i>
Technical Eligibility Criteria:	<p><i>Users</i> are eligible to use this <i>service</i> if:</p> <ul style="list-style-type: none"> The <i>bidirectional point</i> is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections; The consumer's inverter system complies with the requirements of AS 4777 and the Technical Rules; and The <i>consumer's facilities and equipment</i> comply with the Technical Rules, the WA Electrical Requirements and AS 3000.
Metering Criteria:	Installation at the bi-directional point of an interval meter supplied or provided by Western Power having capability for import and export channels and five register information collection.
Applicable Reference Tariff:	The applicable reference tariff is that which would otherwise be assigned to the connection point if it were an exit point and not a bi-directional point.
Applicable Standard Access Contract:	"Electricity Transfer Access Contract" published in Appendix 4 of the Access Arrangement
Applicable Service Standard Benchmarks:	As set out in Section 3.18 and 3.19 of the Access Arrangement

5.1.2 Assessment of Option 1 against the Criteria

Our assessment of this option against the criteria appears below.

Criteria	Assessment of Option Against the Criteria
Criteria 1 – Ensuring that Tariffs Reflect Cost	<p>Option 1 has a weaker relationship with cost – as determined by the customer's reserved capacity on the network – than the other Options.</p> <p>Under Option 1 the customer with an embedded generator installed will pay less than a customer without an embedded generator installed due to the fact that customers are being charged on a consumption basis and the embedded generator will cover a proportion of the customer's electricity consumption. To the extent that the embedded generator does not materially reduce the customer's peak demand, the network tariff will not be reflective of the real cost of that customer.</p>
Criteria 2 – Limiting Cross Subsidies	Option 1 involves the greatest cross subsidisation of all of the Options. It would involve those customers with embedded generation installed being subsidised by customers which do not have embedded generation installed. This is because the tariffs are measured on a consumption basis and do not reflect demand usage of the network.
Criteria 3 – Administrative simplicity to Western Power, Retailers and Customers	Option 1 is the most administratively simple of the options in that it involves no change to the current practice of installing a two channel meter for small scale embedded generators and no change to meter data collection processes. It would also involve no changes to the existing tariff arrangements paid by customers with embedded generation installed and all new customers would be on the same tariff as these customers. There would therefore be no need to transition existing customers to a new tariff.
Criteria 4 – Barriers to Entry	Option 1 does not present any additional barriers to entry for customers wanting to install embedded generators at bi-directional points.
Criteria 5 – Compatibility with the REBS	Option 1 is compatible with the REBS.

5.2 Option 2 - Seasonal Demand Tariff for Bi-Directional Customers

5.2.1 Background to Option

As noted in section 4.2.2, Option 2 involves a new demand based tariff. The characteristics of the service would be as set out in the following table.

Characteristics	Option 2 Details
Reference Service Name:	Reference Service C1 – Seasonal Anytime Maximum Demand (Residential) – Bidirectional Service
Reference Service Description:	A <i>bidirectional</i> service combined with a <i>connection</i> service and a standard meter service at a <i>bidirectional point</i> on the low voltage (415 volts or less) <i>distribution system</i>
Technical Eligibility Criteria:	<i>Users</i> are eligible to use this <i>service</i> if:

	<ul style="list-style-type: none"> The <i>bidirectional point</i> is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections; The consumer's inverter system must comply with the requirements of AS 4777 and the Technical Rules; and The <i>consumer's facilities and equipment</i> comply with the Technical Rules, the WA Electrical Requirements and AS 3000.
Metering Criteria:	Installation at the bi-directional point of an interval meter supplied or provided by Western Power having capability for import and export channels and kWh and kVAh information collection.
Applicable Reference Tariff:	The applicable reference tariff would be RT12 (a new seasonal anytime maximum demand tariff).
Applicable Standard Access Contract:	"Electricity Transfer Access Contract" published in Appendix 4 of the Access Arrangement
Applicable Service Standard Benchmarks:	As set out in Section 3.18 and 3.19 of the Access Arrangement

5.2.2 Assessment of Option 2 against the Criteria

Our assessment of this option against the criteria is as follows:

Criteria	Assessment of Option Against the Criteria
Criteria 1 – Ensuring that Tariffs Reflect Cost	Option 2 has a stronger relationship with cost – as determined by the customer's reserved capacity on the network – than the other Options. This is because Option 2 is based on demand, not consumption, and therefore is reflective of the costs imposed on the network by the customer. Under this option, all other things being equal, a customer with an embedded generator installed will only pay less in total network charges than a customer without an embedded generator installed, where the embedded generator reduces peak demand, or the customer changes its behaviour to lower its peak demand;
Criteria 2 – Limiting Cross Subsidies	Option 2 involves the least cross subsidisation of all of the Options. This is because the tariff reflects the demand requirements placed on the network.
Criteria 3 – Administrative simplicity to Western Power, Retailers and Customers	<p>Option 2 is the most administratively complex of the options for Western Power as suitable new single phase interval meters with kVAh measurement functionality would need to be approved, sourced and installed with the kVA demand subsequently derived.</p> <p>The approval process may include, amongst other things: testing and evaluation of the new meter by Western Power; commercial justification for the new meter; determining who will pay for the additional costs involved (including customer willingness to pay); and discussing with Synergy any impact on the REBS.</p>

	The new distribution tariff would need to be designed and implemented and a decision would need to be made on whether to transition existing REBS customers to the new arrangements. If Western Power elected to transition these customers – therefore declaring the status quo redundant – then there would be a cost impost for customers requiring single phase metering equivalent to the installation cost of the new meter. This would need to be paid for by either Western Power or the customer at the point of transition. If Western Power elected not to transition these customers, then there would be two classes of customers – those existing as at the date that the existing arrangement was declared obsolete, and new customers – receiving a bidirectional service.
Criteria 4 – Barriers to Entry	Option 2 presents an increased cost to customers requiring new single phase meters, while the application of this tariff may remove some of the financial incentive for customers to install embedded generators compared with under the status quo.
Criteria 5 – Compatibility with the REBS	Option 2 involves the installation of a new single phase meter in addition to a new tariff structure. Adjustment to the REBS would need to be discussed with Synergy.

5.3 Option 3 – Time of Use Tariff for Bi-Directional Customers

5.3.1 Background to Option

As noted in section 4.2.3, Option 3 involves a new demand based tariff. The characteristics of the service would be as set out in the following table.

Characteristics	Option 3 Details
Reference Service Name:	Reference Service C1 – Time of Use (Residential) – Bidirectional Service
Reference Service Description:	<i>A bidirectional service combined with a connection service and a standard meter service at a bidirectional point on the low voltage (415 volts or less) distribution system</i>
Technical Eligibility Criteria:	<p><i>Users are eligible to use this service if:</i></p> <ul style="list-style-type: none"> • The <i>bidirectional point</i> is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections; • The consumer's inverter system must comply with the requirements of AS 4777 and the Technical Rules; and • The <i>consumer's facilities and equipment</i> comply with the Technical Rules, the WA Electrical Requirements and AS 3000.
Metering Criteria:	Installation at the bi-directional point of an interval meter supplied or provided by Western Power having capability for import and export channels and five register information collection.

Applicable Reference Tariff:	The applicable reference tariff is RT12 (a new time of use tariff).
Applicable Standard Access Contract:	"Electricity Transfer Access Contract" published in Appendix 4 of the Access Arrangement
Applicable Service Standard Benchmarks:	As set out in Section 3.18 and 3.19 of the Access Arrangement

5.3.2 Assessment of Option 3 against the Criteria

Our assessment of this option against the criteria is as follows:

Criteria	Assessment of Option Against the Criteria
Criteria 1 – Ensuring that Tariffs Reflect Cost	Option 3, depending on its design will have a stronger relationship with cost than the status quo, particularly so under the three period design variation, with the higher peak demand charge operating as an incentive to reduce or shift consumption patterns. Option 3 would not be as cost reflective as Option 2, due to the method of charging being based on electricity consumption rather than demand, but the tariff could be refined further to reflect the costs of the customer on the network by defining a third shoulder tariff period, as detailed in section 4.2.3.
Criteria 2 – Limiting Cross Subsidies	Option 3 may reduce or limit cross subsidisation depending on the way in which the time of use tariff was designed. Generally, a customer with an embedded generator would pay less than a customer without an embedded generator installed on the same tariff as the embedded generator would cover a proportion of the customer's electricity consumption. However, the tariff could be designed with a higher peak rate to compensate for any difference that would otherwise occur. A more refined time of use tariff that utilised three tariff periods would then allow the embedded generator customer to benefit from any reduction that may occur from a reduction in peak demand from the use of the embedded generator and provide greater incentive to change consumption patterns to achieve cost savings.
Criteria 3 – Administrative simplicity to Western Power, Retailers and Customers	Option 3 involves no change to existing practices in the approval of the connection application, and no changes to metering and meter data collection processes. This is because the two channel meters currently installed when a customer connects an embedded generator are capable of recording 5 channels of information suitable for time of use tariffs. The new distribution tariff would need to be designed and implemented and a decision would need to be made on whether to transition existing REBS customers to the new arrangements. If Western Power elected to transition these customers – therefore declaring the status quo redundant – then there would be no cost impost on customers for metering but the extent of tariff increases would need to be assessed in the context of allowable side constraints. If Western Power elected not to transition these customers, then there would be two classes of customers – those existing as at the date that the existing arrangement was declared obsolete, and new customers – receiving a bidirectional service.
Criteria 4 – Barriers to	The metering requirements and metering costs associated with Option 3 are the same as what currently exists and hence do not present any

Entry	additional barriers to entry for customers wanting to install embedded generators at bi-directional points. However, the associated tariff, depending on its design, may remove some of the existing financial incentive for customers to install embedded generators.
Criteria 5 – Compatibility with the REBS	Option 3 is technically compatible with the REBS, although an adjustment may need to be made to the current retail tariff offering.

5.4 Option 4 – Higher Rate Usage Tariff for Bi-Directional Customers

5.4.1 Background to Option

As noted in section 4.2.4, Option 4 involves a new demand based tariff. The characteristics of the service would be as set out in the following table.

<i>Characteristics</i>	<i>Option 4 Details</i>
Reference Service Name:	Reference Service C1 – Seasonal Anytime Maximum Demand (Residential) – Bidirectional Service
Reference Service Description:	<i>A bidirectional service combined with a connection service and a standard meter service at a bidirectional point on the low voltage (415 volts or less) distribution system</i>
Technical Eligibility Criteria:	<p><i>Users are eligible to use this service if:</i></p> <ul style="list-style-type: none"> • The <i>bidirectional point</i> is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections; • The consumer's inverter system must comply with the requirements of AS 4777 and the Technical Rules; and • The <i>consumer's facilities and equipment</i> comply with the Technical Rules, the WA Electrical Requirements and AS 3000.
Metering Criteria:	Installation at the bi-directional point of an interval meter supplied or provided by Western Power having capability for import and export channels and five register information collection.
Applicable Reference Tariff:	The applicable reference tariff is RT12 (new anytime energy tariff).
Applicable Standard Access Contract:	"Electricity Transfer Access Contract" published in Appendix 4 of the Access Arrangement
Applicable Service Standard Benchmarks:	As set out in Section 3.18 and 3.19 of the Access Arrangement

5.4.2 Assessment of Option 4 against the Criteria

Our assessment of this option against the criteria is as follows:

Criteria	Assessment of Option Against the Criteria
Criteria 1 – Ensuring that Tariffs Reflect Cost	Option 4 maintains cost recovery parity on a per customer basis with customers without embedded generators installed who are on the RT1 tariff, but may not be reflective of the true costs of the customer, given the weaker relationship with demand. Under Option 4 the customer receives a blunt signal that if they connect an embedded generator, then the customer will pay the same amount to Western Power regardless of any decision they might make to shift or reduce their peak demand or their times of consumption.
Criteria 2 – Limiting Cross Subsidies	Option 4 minimises any cross subsidisation by maintaining cost recovery parity with customers without embedded generators installed who are on the RT1 tariff. However, while there would be no cross subsidies, there would be few positive signals sent to either Customer under this Option.
Criteria 3 – Administrative simplicity to Western Power, Retailers and Customers	Option 4 involves no change to existing practices in the approval of the connection application, and no changes to metering and meter data collection processes. This is because the basis of the tariff would be unchanged – only the rate would increase. However, the new distribution tariff would need to be designed and implemented and a decision would need to be made on whether to transition existing REBS customers to the new arrangements.
Criteria 4 – Barriers to Entry	The metering requirements and metering costs associated with Option 4 are the same as what currently exists and hence do not present any additional barriers to entry for customers wanting to install embedded generators at bi-directional points. However, the higher tariff rate will remove some of the existing financial incentive for customers to install embedded generators.
Criteria 5 – Compatibility with the REBS	Option 4 is compatible with the REBS, although an adjustment may need to be made to the current retail tariff offering.

5.5 Summary Assessment

A summary of the assessments is set out below.

<i>Evaluation criteria</i>	<i>Options</i>			
	Option 1 – Status Quo	Option 2 – Demand Tariff	Option 3 – Seasonal TOU	Option 4 – Higher Rate Energy Based Tariff
Criteria 1 – Ensuring that Tariffs Reflect Cost	Weakest relationship with cost.	Strongest relationship with cost imposed on network.	Depending on design, potentially a stronger cost relationship than Option 1 and Option 4.	Maintains cost recovery parity but may not be reflective of true costs.
Criteria 2 – Limiting Cross Subsidies	Greatest degree of cross subsidisation.	Least degree of cross subsidisation.	Depending on design - minimises cross subsidisation.	No additional cross subsidisation.
Criteria 3 – Administrative Simplicity by Western Power, Retailers and Customers	Most administratively simple of the Options.	Most administratively complex of the Options.	Second most administratively complex Option.	Second least administratively complex of the Options.
Criteria 4 – Barriers to Entry	No additional barriers to entry.	Highest up-front costs of the Options and potentially weaker financial incentive than status quo.	No additional up-front costs, although potentially weaker financial incentive than status quo.	No additional up-front costs, although weaker financial incentive than status quo.
Criteria 5 – Compatibility with the REBS	Compatible with the REBS.	Involves installation of new single phase meter and new tariff structure. Adjustment to REBS would need to be discussed with Synergy.	Technically compatible with the REBS, although may require retail tariff adjustment.	Compatible with the REBS, although may require retail tariff adjustment.
Summary	Not recommended	Not recommended at present – future investigation required	Recommended for further examination	Not recommended

6 Public Consultation

On 14 September 2009, Western Power invited feedback and comments from interested stakeholders on the recommendations set out in a draft version of this Report, through public consultation. The public and stakeholders were requested to respond in relation to:

1. Whether the proposed reference service meets the requirements of users;
2. The proposed reference tariff structure;
3. The proposed onpeak, off-peak and shoulder times for the proposed reference tariff; and
4. Whether the proposed reference service and reference tariff were, in the opinion of stakeholders, compatible with the REBS.

Western Power received submissions from a number of end-use residential customers with rooftop solar PV installations. These submissions, and our views in relation to each of these submissions, are discussed below.

6.1 Issue 1: Whether the proposed reference service meets the requirements of users

Submissions stated that:

- The proposed reference service might unfairly penalise users with small scale renewable energy systems (in the absence of similar time of use incentives for customers without small scale renewable energy systems);
- The proposed tariff might be better applied to all users, not just residential customers with small scale renewable energy systems. Stakeholders also suggested that customers with small scale renewable energy systems might be given a choice of entering onto either the proposed new tariff or the existing standard tariff rather than assigned to the former;
- That customers with small scale renewable energy systems might need to install new meters at those customers' expense as a consequence of the proposed reference tariff;
- That the proposed tariffs might drive customers to disconnect from the grid, thus breaching the arrangements whereby they had accepted Commonwealth benefits for connection. As a condition of receiving the Commonwealth Government's \$8,000 solar panel rebate, users are required to remain connected to the grid for five years. A decision by a user to disconnect from the grid might therefore result in a need to repay the \$8,000. One submission

suggested that existing customers be maintained on existing tariff arrangements and that any changes impact only on new customers; and

- That the proposed tariff could act as a disincentive to those considering installation of a small scale renewable energy system. Users suggested that the removal of the \$8,000 government rebate and the prospect of higher network tariffs might create a barrier to installing small scale renewable energy systems.

Analysis of Stakeholder Views

The majority of submissions did not address the issue of how the reference service might meet the requirements of users, instead focussing on the tariff options presented in the Report and the role of Western Power in promoting non-network solutions such as solar roof-top installations. Accordingly, many of the issues raised are of little relevance in designing of reference service or the tariff.

The suggestion that time of use and demand based network tariffs might be applicable to customers more broadly might provide a useful addition to the reference service and this has been incorporated into a revised series of recommendations. This suggestion has been adopted on the basis that:

:

- Designing reference tariffs for residential load users to have a similar structure to the proposed bi-directional reference tariff structure would ensure that all customers are provided with an identical incentive to alter consumption patterns to achieve cost savings;
- A customer with a small scale renewable energy system should achieve greater cost savings than an equivalent customer without such facilities, by virtue of the additional energy generated by their small scale renewable energy system; and

It would remove any disincentive inherent in the network tariffs, such that customers with and without these installations faced the same tariffs. Despite one particular submission making this point clearly, it is not clear that customers with an existing small scale renewable energy system need fund the cost of new metering under the proposals set out in this Report. As set out in section 4.2.3, existing interval meters installed at bi-directional points record import and export channels, with the five registers on each channel recording usage at peak, off-peak, high shoulder, low shoulder and anytime periods. Customers with an existing small scale renewable energy system should not need to have a new meter installed for time of use tariffs.

The issue of dealing with current and new customers has been dealt with in this Report, and is a matter for Western Power. Accordingly, it has not been reflected into the recommendations.

6.2 Issue 2: Reference Tariff Structures

End-users raised a number of issues with the proposed time of use network tariff structure for bi-directional points, in particular that:

- It is complex and confusing;
- It may act as a disincentive for environmentally conscious customers to take up small scale renewable energy systems;
- there should be no a variable meter charge based on energy consumption or time of use; and
- The proposal to structure the tariff such that customers with small scale renewable energy systems are charged for the use of the system (based on the amount of power consumed) as well as a metering charge is 'double dipping'.

Analysis of Stakeholder Views

The submissions from stakeholders did not address the level or structure of the proposed reference tariff in any detail.

In relation to specific matters raised:

- The variable meter charge was not considered unique on the basis that the existing RT3 tariff also contains a variable metering charge, and that it would be desirable for the new tariff to align with existing structures where appropriate. This has therefore been retained; and
- There is little evidence to support the contention that charging customers with small scale renewable energy systems for the use of the system and a metering charge is 'double dipping'. Metering charges are intended to recover metering costs, which are separate from the cost of designing, constructing and maintaining the shared network and recovered through the use of system charges.

6.3 Issue 3: Proposed On-Peak, Off-Peak and Shoulder Times for the proposed Time of Use Tariff

A number of end-users raised concerns that the proposed on-peak, off-peak and shoulder times do not align with the SmartPower time of use periods, suggesting that there is merit in aligning the on peak, off peak and shoulder times. Other end-users proposed alternative time periods for consideration.

Analysis of Stakeholder Views

Consideration was given to the appropriateness of aligning the proposed on peak, off peak and shoulder times for the proposed tariff with the SmartPower time periods. The SmartPower on peak, off peak and shoulder times are as follows:

Summer:

- Off-peak is from 9pm to 7am everyday;
- Shoulder is from 7am to 11am to 9pm during working weekdays and from 7am to 9pm on weekends and public holidays; and
- On-peak is from 11am to 5pm on working weekdays.

Winter:

- Off-peak is from 9pm to 7am everyday;
- Shoulder is from 11am to 5pm on working weekdays and from 7am to 9pm on weekends and public holidays; and
- On-Peak is from 7am to 11am and 5pm to 9pm on working weekdays.

While these SmartPower time periods are well established and accepted by end-users, we do not consider that the proposed on peak, off peak and shoulder times for the proposed tariff should be aligned with these SmartPower time periods. This is because:

- The SmartPower times do not reflect the peak usage times of the network. Aligning the proposed on peak, off peak and shoulder times for the proposed tariff with the SmartPower time periods would send a signal to residential users to use the network in the evening, which is when the local distribution system is reaching its peak usage. This would ultimately lead to further distribution feeder upgrades, upgrading of distribution transformers and potentially upgrades to zone substations;
- The SmartPower time periods are specific to Synergy and do not reflect the costs associated with the network. The EnergyAustralia PowerSmart time periods better reflect the usage of the local distribution system, as evidenced in the representative examples of summer and winter residential customer demand within Western Power's SWIN overlaid with the proposed time periods in attachment A and attachment B of this report, respectively;
- While the end-user pays the retail tariff, the credits received by end-users under the REBS may or may not be impacted by the proposed network tariff, as this is a matter for Synergy to determine.

We consider that the time periods recommended reflect the usage of the local distribution system and include the time of the peak transmission system usage as well. These time periods have the potential to encourage behavioural change that will ultimately lead to reduced demand on the network at peak time. Furthermore, this approach is consistent with that set out in section 4.1 of EnergyAustralia's Network Pricing Proposal, in that network prices should provide incentives for customers to utilise network capacity as efficiently as possible³⁰.

6.4 Whether the proposed reference service and reference tariff are compatible with the REBS

Most end-users did not address this question specifically, however those that did suggested that the proposed reference service and reference tariff are incompatible with the REBS and could act as a disincentive for customers to invest in sustainable energy alternatives.

Analysis of Stakeholder Views

It is difficult to see how the proposed reference service or tariff are incompatible with the REBS once the time periods have been aligned as above. The reference service is a formalisation of the current connection and tariff arrangements and the only significant diversion from current arrangements relates to the nature of the network tariff charged. There are no changes to the REBS scheme sought by Western Power or required on the part of Synergy.

The amendments to the time of use periods for the proposed tariff set out in section 6.3 better align the proposed reference service and reference tariff with the REBS and have been considered adequate in dealing with the views of stakeholders raised in the submissions.

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[http://www.energy.com.au/energy/ea.nsf/AttachmentsByTitle/FY2010+Network+Pricing+Proposal/\\$FILE/2010+Pricing+Proposal.pdf](http://www.energy.com.au/energy/ea.nsf/AttachmentsByTitle/FY2010+Network+Pricing+Proposal/$FILE/2010+Pricing+Proposal.pdf)

7 Conclusions and Next Steps

NAS has examined the background to the ERA's required Draft Decision amendment to Western Power's proposed Access Arrangement revisions (Required Amendment 1), including the requirements of the Code, the Technical Rules, the current reference services and FiTs on offer in the SWIN, Western Power's proposed Access Arrangement and Synergy's submission to the ERA with regard to Western Power's reference services. NAS has also examined the ERA's required draft decision amendment, the impact on the REBS and has discussed with Western Power its current bi-directional services. In addition, NAS has considered the submissions received from interested parties following public consultation.

On this basis, NAS agreed the following technical aspects of the reference service with Western Power:

- The service will be titled "*Energy (Residential) - Bidirectional Service*";
- The description of the service will be "*A bidirectional service combined with a connection service and a standard meter service at a bidirectional point on the low voltage (415 volts or less) distribution system*"; and
- Customer's will be eligible to receive the service if:
 - The bi-directional point that the service was being sought at is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections;
 - The customer's inverter system complies with the requirements of AS 4777 and the Technical Rules;
 - The customer's facilities and equipment comply with the Technical Rules, the WA Electrical Requirements and AS3000; and
 - The metering equipment installed is capable, as determined by Western Power, of meeting the bi-directional service criteria.

Having agreed on the technical aspects of the reference service and following further discussions with Western Power, NAS has:

- Identified four reference tariff options: the status quo; a seasonal demand tariff; a time of use tariff; and a higher rate variation of existing tariff RT1;
- Assessed each option against five criteria: ensuring that tariffs reflect costs; limiting cross subsidies; providing administrative simplicity to Western Power, retailers and customers; minimising barriers to entry; and maintaining compatibility with the REBS; and

- Had regard to the requirements of the Code, the Metering Code and Western Power's pricing principles, existing tariff design process, existing reference tariffs, sustainability policy, and metering and tariff modelling capabilities.

NAS considers that Option 3, the time of use network tariff, is the most suitable of the Options, in that:

- Depending on the design of the tariff, it is more reflective of the cost imposed on the network by the customer than both Option 1 and Option 4, although being consumption based it is still less cost reflective than the demand based tariff of Option 2. Further, the differentiation between on-peak rates and off-peak rates provides an incentive to the customer to alter consumption patterns to achieve cost savings;
- Depending on the design of the tariff, Option 3 may reduce or limit cross subsidisation.
- The tariff involves no change to the existing practices in the approval of the connection application and no changes to the metering and meter data collection processes. Although Option 3 is more administratively complex than maintaining the status quo it is less complex than implementing the demand based tariff of Option 2;
- No additional barriers to entry or up-front costs are imposed on the customer by the implementation of the tariff; and
- The tariff is technically compatible with the REBS, although changes to the retail tariff offering may need to be made.

Further, NAS considers that the adoption of a variation to the time of use tariff that defines three tariff periods – on-peak, off-peak and shoulder – as detailed in section 4.2.3, allows greater cost reflectivity and additional scope for the customer to change consumption patterns to achieve further cost savings. The time periods are as follows:

- Off-peak is from 10pm to 7am everyday;
- Shoulder is from 7am to 2pm and 8pm to 10pm during working weekdays and from 7am to 10pm on weekends and public holidays; and
- On-peak is from 2pm to 8pm on working weekdays.

NAS recognises that the demand tariff of Option 2 provides the most cost reflective solution and involves the least degree of cross subsidisation. However, there are several matters that Western Power would need to resolve before this option could be implemented, being that:

- Western Power does not currently have an existing standard single phase meter with reactive power measurement functionality;

- There would be an increased cost associated with installing such a meter relative to the current standard meter; and
- The new meter would need to undergo a process of internal assessment and approval to ensure that it could be commercially and technically justified prior to installation.

If Western Power is able to address these matters then Option 2 might become the best long-term solution.

The form of the recommended reference service is therefore:

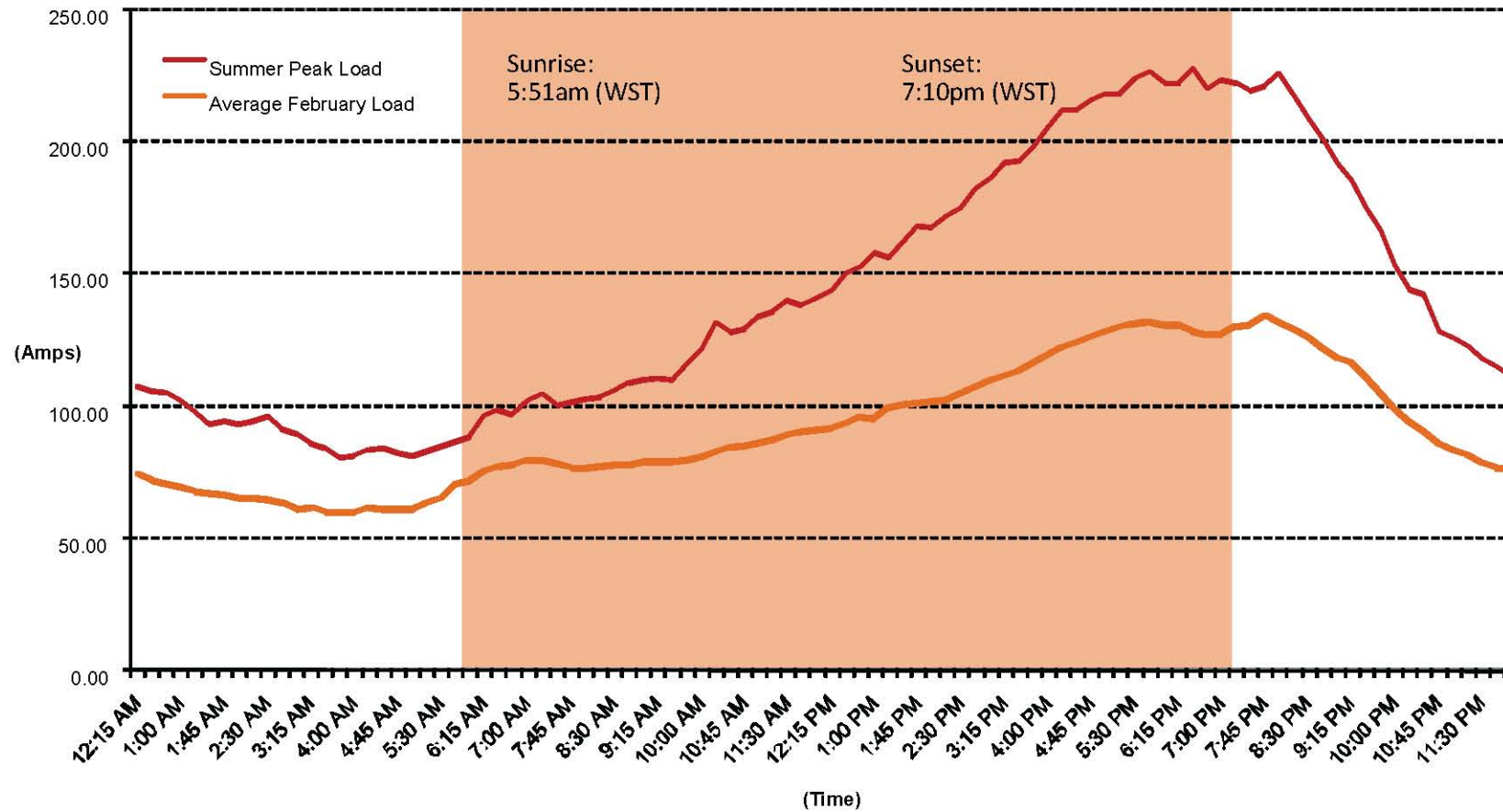
- Reference Service Name: Reference Service C1 – Time of Use (Residential) – Bidirectional Service;
- Reference Service Description: A *bidirectional service* combined with a *connection service* and a *standard meter service* at a *bidirectional point* on the low voltage (415 volts or less) *distribution system*;
- Technical Eligibility Criteria: *Users* are eligible to use this service if:
 - The bidirectional point is located at a residential premise with an inverter system rated up to 10 kVA for single phase connections and 30 kVA for three phase connections;
 - The consumer's inverter system must comply with the requirements of AS 4777 and the Technical Rules; and
 - The consumer's facilities and equipment comply with the Technical Rules, the WA Electrical Requirements and AS 3000;
- Metering Criteria: Installation at the bi-directional point of an interval meter approved by Western Power having capability for import and export channels and five register information collection;
- Applicable Reference Tariff: The applicable reference tariff is RT12 which is a new time of use tariff;
- Applicable Standard Access Contract: "Electricity Transfer Access Contract" published in Appendix 4 of the Access Arrangement; and
- Applicable Service Standard Benchmarks: As set out in Section 3.18 and 3.19 of the Access Arrangement.

NAS considers that the proposed tariff structure (amended as per section 6.3) could be applied to tariffs for exit services only (i.e. for customers that do not have small scale renewable energy systems). Furthermore, NAS considers that there is merit in designing similar bi-directional reference tariffs for other customer segments, such

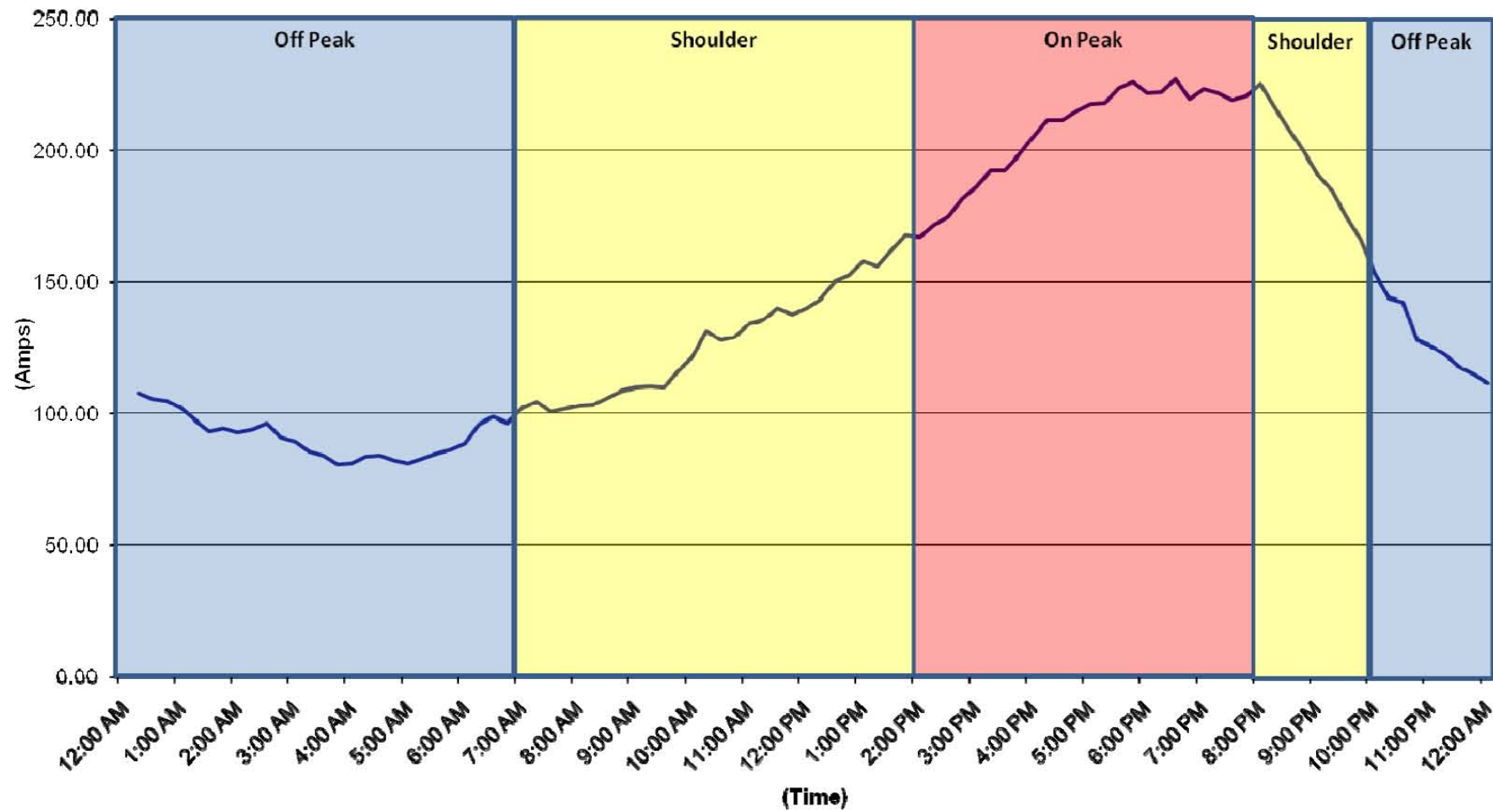
as charitable organisations, schools and small businesses. These are, however, ultimately decisions for Western Power.

A. Summer Load Profiles

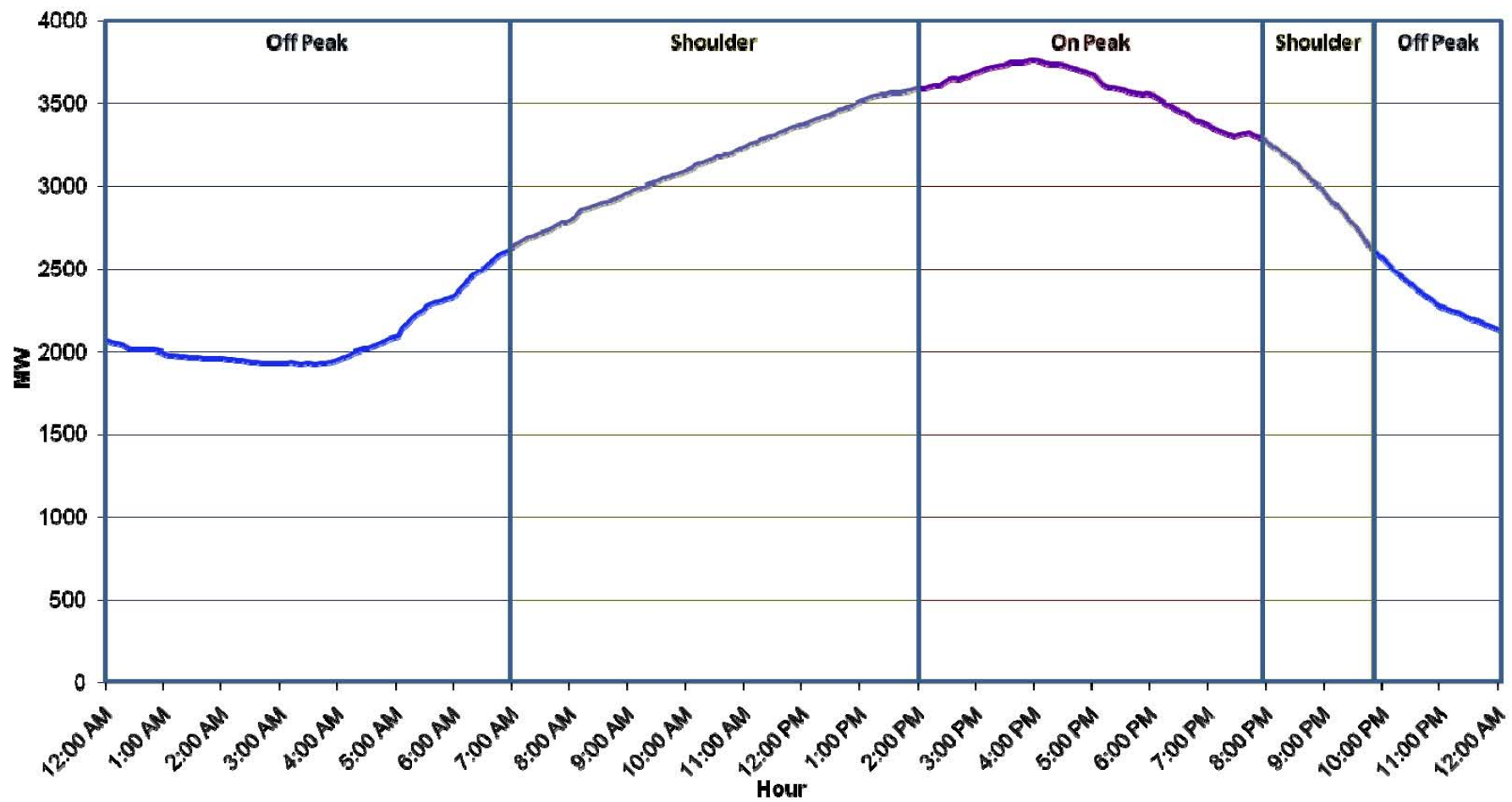
Summer Load Profile on Residential Feeder WD 210 - 11/2/2009



Summer Load Profile on WD 210 - 11/2/2009 With Time of Use Overlay

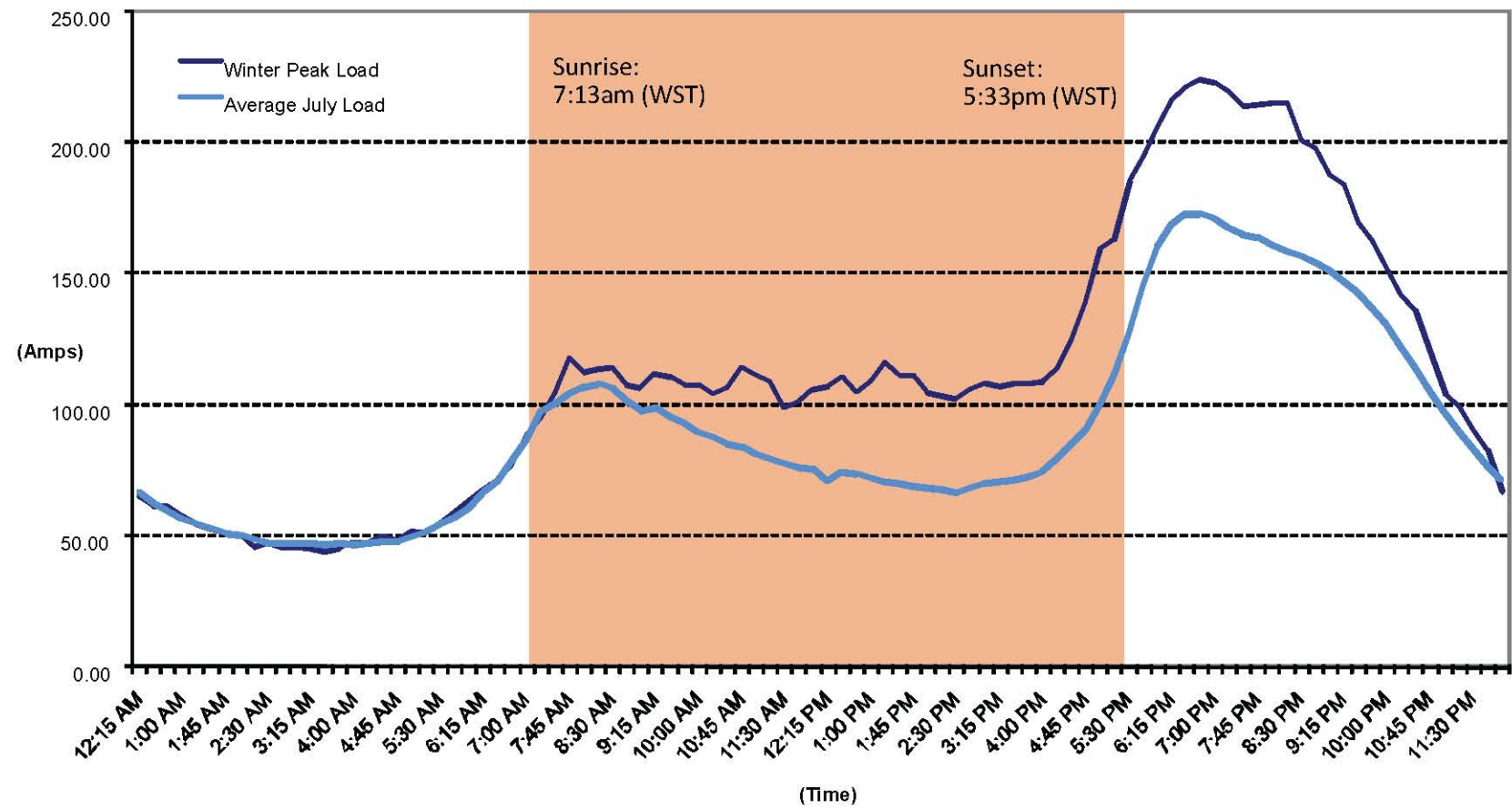


SWIS Network System Peak Day (11/2/2009) With Time of Use Overlay

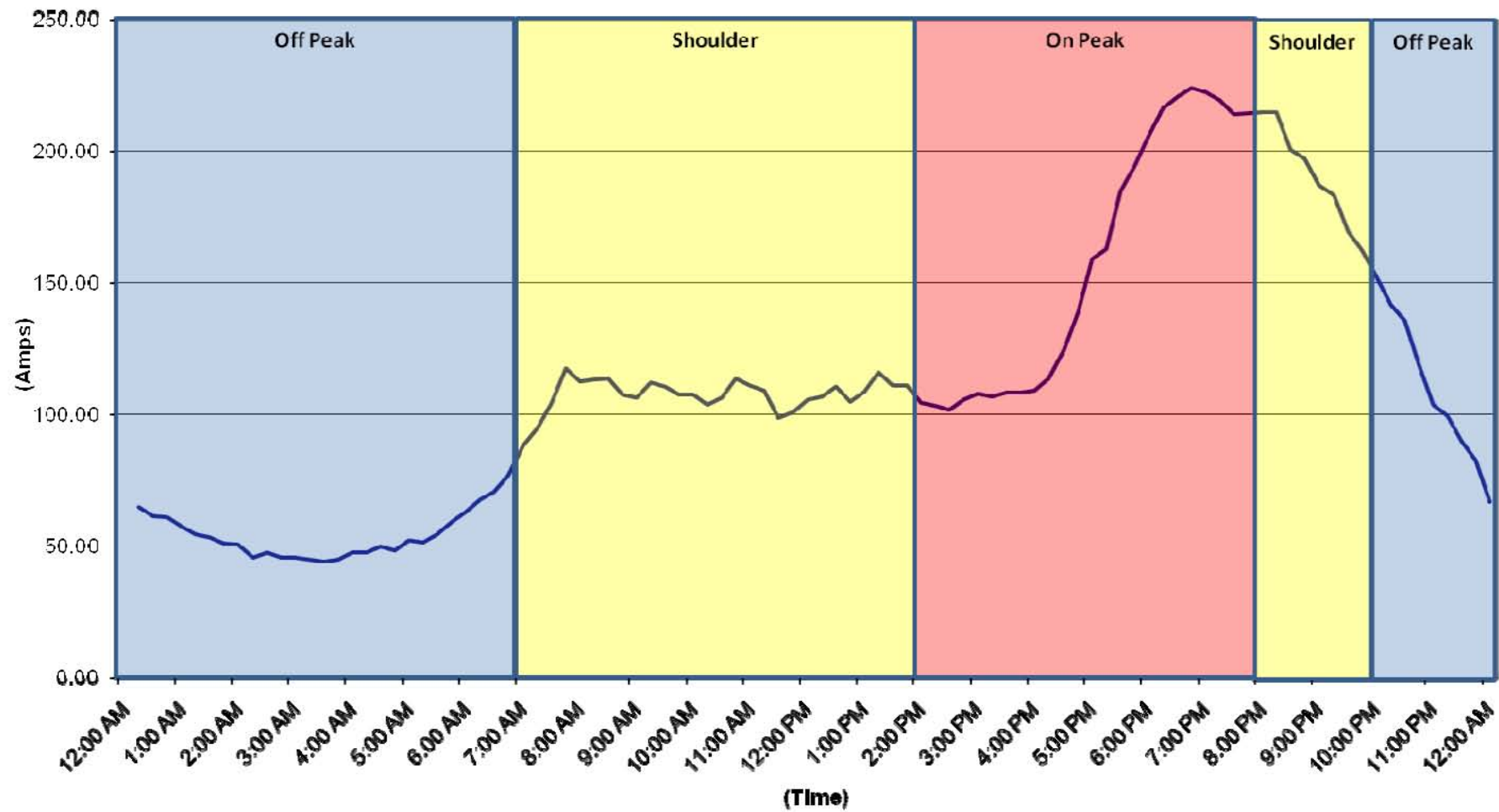


B. Winter Load Profiles

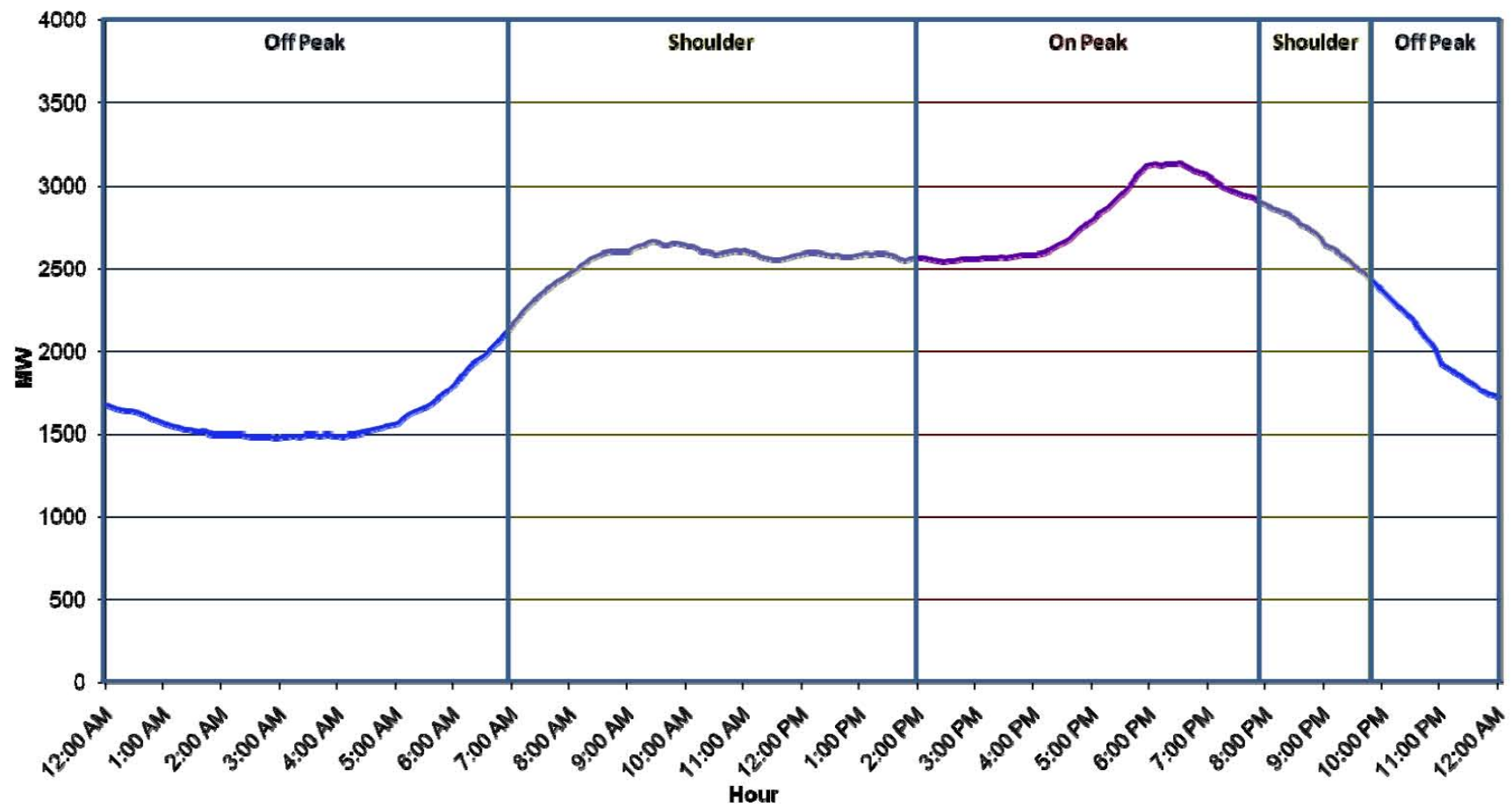
Winter Load Profile on Residential Feeder WD 210 - 20/7/2009



Winter Load Profile on WD 210 - 20/7/2009 With Time of User Overlay



SWIS Network System Peak Day (20/7/2009) With Time of Use Overlay



Appendix Q -2 : Public Submissions received by Western Power



24 September 2009

Landfill Gas and Power

Manager
Regulation, Pricing and Access Development
Western Power
GPO Box L921
Perth WA 6842

By email: communitycomment@westernpower.com.au

Dear Sir / Madam

SUBMISSION ON PROPOSED REFERENCE SERVICE AND REFERENCE TARIFF FOR BI-DIRECTIONAL CONNECTION POINTS

Thank you for the opportunity to make a submission on proposed reference service and reference tariff for bi-directional connection points.

LGP welcomes Western Power's initiative to respond to the requirement of the ERA to develop a bi-directional reference tariff.

We note that the proposed tariff applies primarily to non-contestable customers that LGP is not permitted to supply. However, we support the concept of facilitating community involvement in renewable energy and are well qualified to contribute to this process of tariff development. On this basis, we comment as follows:

1. We note that the Renewable Energy Buyback Scheme (REBS) and prospective Feed-in-Tariff are administered by the Electricity Retail Corporation (Synergy) and support the emphasis on making the reference tariff compatible with these products.
2. We note that the proposed tariff contains peak, shoulder and off peak periods akin to the concept employed in Synergy's SmartPower tariff. Further, Synergy makes payments under the REBS based on either the A1 or SmartPower tariff as applies to the consumption at the connection. However, the proposed reference tariff periods appear to be based on time periods that are used in a particular context in the eastern states, which differ substantially from those used in SmartPower. While LGP has no direct experience of serving domestic customers, this seems to be a material and potentially adverse inconsistency which, as presented, we do not support. We propose that this be reviewed and that the reference tariff periods be reconciled to the SmartPower periods.

We further note that the Feeder Load Profiles at Appendix A are unintelligible. While we take on trust the analysis of these and the claims that they are evening peaking in both winter and summer, we note that the summertime system load is afternoon peaking and that residential load contributes significantly to this.

3. Further to point 2, we note that the purpose of the peak, shoulder and off peak periods is to motivate load shifting of the consumption at the connection. However, we perceive that it will be Synergy that pays the network tariff, thereby insulating the end-consumer from the consequences of its behaviour. We perceive, therefore, that the three-period time-of-use periods only have relevance insofar as they can be passed through to the

customer. This supports integrating them with the SmartPower periods. We further note that Western Power has elsewhere (paragraph 63 of the ERA's Draft Decision on the Access Arrangement) sought to integrate its two-period time-of-use tariffs with Synergy's products and we would encourage Western Power to extend this approach to include this instance.

4. We support the concept of simplifying the administration of the bidirectional tariff commensurate with proper cost recovery and providing meaningful price signals. On this basis, we consider that the transparency of the variable metering charges resolved into the three time periods is unnecessarily complex. We propose instead that this cost be either incorporated into the three-period energy charges or included as part of the fixed charge. As proposed, the metering charge can be avoided through load shifting. While we support the concept of time-of-use signals, we note that if the prices are weighted so as to recover more revenue per kWh from RE users, conversely, these users can also potentially save disproportionately more through load shifting.
5. We note the references to the Australian Standards AS 4777 and AS 300 outside the Technical Rules. We propose that insofar as these standards are relevant, the Technical Rules should be modified to include them. Otherwise, we would question the appropriateness of Western Power being able to arbitrarily add new requirements (referred to as the "consequential requirements of Western Power") in addition to the Technical Rules and without review.
6. Further to point 5, we note that the discussion of the Technical Rules at section 3.2 of the report considers the current version of the rules. We recommend review against the revised version recently submitted to the ERA for approval. In particular, the protection of solar facilities was discussed in detail by the Technical Rules Committee and its Small Generators sub-committee.
7. We note that the proposal accepts as axiomatic that it is not appropriate to charge end-users for supplying electricity into the network and that charges are to be assessed on consumption only. While we consider integration with SmartPower to be a principal issue in designing the tariff, we would like to see in the review consideration of the fact that Western Power already provides for non-residential bidirectional connections by charging the connection the higher of the charge applying as a load and as a generator. In this regard, whereas the energy consumption is proposed to be used as a proxy for the actual cost of supply (instead of maximum power demand), facility size could also be used. In particular, a 30kVA export would dwarf the stated 2kW residential maximum demand.
8. Regarding the assessment of the appropriateness of Option 2 (maximum kVA) we note that by analogy to the IRCR in the Market Rules, the maximum demand coincident with the appropriate network peak would seem to be more appropriate.

If you require further information, please contact Dr Steve Gould on 0412 508 291.

Yours faithfully


 **GRAEME ALFORD**
CHIEF EXECUTIVE OFFICER

**Submission on Western Power's proposed
Bi-directional Reference Service and Reference Tariff
Noel Schubert 23 Sept 2009**

I commend Western Power and NAS on the work done to date to develop this proposed bi-directional reference service and tariff. It is a valuable improvement to the existing two-rate time-of-use (RT3 & RT4) reference tariffs because it should be structurally more cost-reflective and indirectly help to encourage better customer demand response, providing that the corresponding retail tariffs eventually reflect the better structure and price signals of the new reference tariff once its design is finalised.

I have the following comments on the proposal.

From the analysis presented in the NAS report, I agree that Option 3 appears to be the best choice, subject to the following:

1. Choice of the most appropriate start and finish times for the various consumption time periods (Peak, Shoulder, Off-peak).

- a) It is important and necessary, for meter reading and data management purposes, that the relevant time period "start" and "finish" times are the same for the proposed network reference tariff as for the corresponding retail tariff(s) for each customer.
- b) The proposed times appear to have been chosen based on the summer and winter demand profiles of typical residential network feeders alone, as given in the appendices to the NAS report.

However properly designed retail tariff structures and rates – eg SmartPower, as used for the REBS – are typically based on the aggregated demand profiles at various times of the year of all customers in the SWIN, not just residential customers and not just network feeder residential demand profiles.

Retail tariffs are rightly designed to aggregate generation, network and retail costs, with generation costs usually being the largest component.

Even the network component of retail tariffs should include allowances for aggregated network demand as is met by substations and transmission lines, not just residential feeder demand which is likely to have a different demand profile.

Aggregated generation load (demand) and aggregated transmission system demand drive most of the capital expenditure on plant, lines and equipment required to meet that aggregated demand each year at the time of the annual SWIN peak. Therefore the retail charges

and time periods should correctly be based on the aggregated SWIN demand profiles.

- c) Proper choice of retail tariff time period start and finish times, based on aggregated SWIN demand should take priority in determining the most appropriate start and finish times. Network tariffs should therefore match correctly designed retail tariff time periods and not the other way around as is suggested in the NAS report - *“The tariff is technically compatible with the REBS, although changes to the retail tariff offering may need to be made.”*
- d) The proposed bi-directional reference tariff time periods do not match the SmartPower (REBS) time periods, so some rationalisation of the two needs to be agreed with Synergy.

The SmartPower tariff is a well-structured tariff incorporating seasonality as well as three rates in the day for weekdays. It is a good balance between cost-reflectivity and simplicity for the SWIN demand profile, with its “opposite” summer versus winter weekday daytime demand profiles (afternoon summer peak versus morning and evening winter peaks respectively). See the attached article on SmartPower’s original design and rates.

2. The proposed charging components of the bi-directional reference tariff include **variable metering charges** for each time period, calculated by multiplying the proposed price by the customer’s energy consumption in the respective time period.

I am not aware of a sound justification for having a variable metering charge based on energy consumption. Metering costs (installation, maintenance, reading and data processing, billing etc) do not vary with an individual customer’s electricity consumption. They are essentially independent of consumption and so should not be charged as variable charges based on consumption.

Charging a variable metering charge causes a distortion to the structural cost-reflectivity of the tariff and would introduce cross-subsidies of metering costs between customers with different consumption levels.

I recommend that metering costs should be fully recovered through the fixed metering charge (payable daily) being set at the appropriate level to properly cover the costs.

Other Questions and Comments

3. **Why only for residential customers?** The proposed bi-directional reference service and reference tariff are proposed to be restricted to residential customers.

Why should they be only available to residential customers?

Other customer types like schools, charitable organisation facilities, small businesses etc could all have bi-directional connection points if they install embedded generation and have the particular level of generation capacity compared to their demand that allow them to export to the network at times.

Why restrict this bi-directional service and tariff unnecessarily, instead of allowing it to apply to any customers being offered a compatible retail tariff by any retailer, for export to the network and supply from the network?

The proposed reference tariff is a structurally better tariff, and it would be better to allow its take-up by more customers so that its advantages are available more widely, rather than restrict it unnecessarily.

4. **Why not allow it to apply to network exit points as well?** As a further extension to the questions in 3. above, why can't this reference service and tariff be allowed to be taken up by ordinary "consumption only" (network exit point) customers without embedded generators who are on compatible retail tariffs? Why should it be restricted to only bi-directional connection point customers, since it is only charging for consumption (supply) from the network like a normal network exit point reference tariff does for consumption-only customers?

Again, if it is a structurally better tariff, why not allow its use as widely as is practical and cost-reflective?

5. **Payments for network support.** At present there is no network charge, or network payment applied for electricity exported by a customer into the network, and yet widespread embedded generators exporting into the network at the time of the SWIN-wide network annual peak (at around 4:15 – 4:30pm on the hottest weekday) will reduce the network annual peak demand and therefore the network capacity needed.

The savings resulting from the reduction in required network capacity due to embedded generators from year to year should really be passed back to the embedded generators in a cost-reflective way to incentivise generation (export to the grid) at the time of annual peak network demand and to reward them for the network capital cost savings.

It would be possible to apply appropriate time-of-export network reference tariff payments to the exported electricity to encourage such network support.

In fact by treating exported energy as negative consumption (as measured by the electronic meters already being used) and applying the proposed reference tariff rates to that exported energy, customers would be paid for their network support, although the tariff rates may be higher than cost (benefit) reflective rates.

Customers exporting to the network (generating) at peak times should be rewarded for unloading or freeing up network capacity, just as consuming customers' (loads) are rewarded under the reference tariffs if they reduce their load (demand) during peak periods.

6. **Demand-based tariff based on kW rather than kVA allowing use of the present meters?** For Option 2 in the NAS report, it was stated that a meter capable of measuring kVAh would be required to allow calculation of kVA (for determining demand) from the kWh and kVAh readings.

Another option is to base the Option 2 demand-based reference tariff on real power demand (kW) rather than apparent power demand (kVA). Although kVA demand better reflects the network capacity, for customers with reasonable power factors real power (kW) demand is probably a suitably good de-facto measure of demand for a demand-based reference tariff.

Would the meters currently being installed by Western Power be suitable for an Option 2 demand-based reference tariff if it were based on kW rather than requiring new meters to allow a kVA-based demand tariff? The kW demand can be calculated from the kWh consumption recorded over a time interval, such as half-an-hour, or longer if necessary.

If so, can the currently-used meters be programmed to record the maximum kWh over say a half hour period in the peak period to allow recording of the "maximum on-peak half-hourly kW demand" to use as the basis for charging a demand-based network tariff which would be even more structurally cost-reflective than Option 3?

I ask that you consider the above comments and questions to improve on the proposal where possible.

I would be pleased to further discuss any of the above comments and questions if you wish.

Noel Schubert
Senior Renewable Energy Engineer
Formerly Demand Management Technical Coordinator for Western Power.



Western Power introduces SmartPower

Western Power recently launched "SmartPower", an innovative time-of-use pricing system for residential customers.

The SmartPower concept is unique in Australia with its seasonal pricing structure and four energy rates. It offers off-peak and shoulder rates during low demand periods, and peak rates which match the periods of high demand.

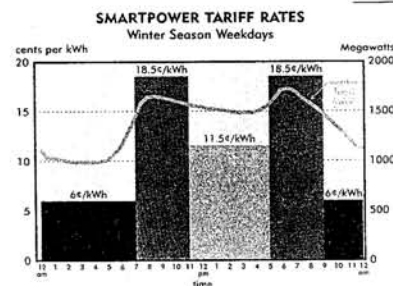
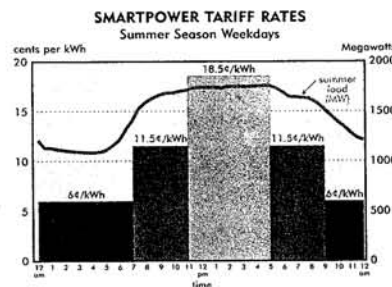
Customers are now provided with greater choice, being able to control their power bills by changing their household appliance electricity use to take advantage of cheaper off-peak rates. Appliances such as electric storage hot water systems, pool pumps, reticulation pumps, dishwashers and washing machines can be easily set to operate during shoulder and off-peak periods, thus providing significant cost savings of up to 30 percent.

The SmartPower rates reflect more accurately Western Power's cost of supplying electricity to customers. The cost of providing electricity to meet peak period demands is high because of the need to invest in plant capacity and the higher usage of premium fuels, whereas the cost of providing electricity during periods of lower demand is mainly fuel related.

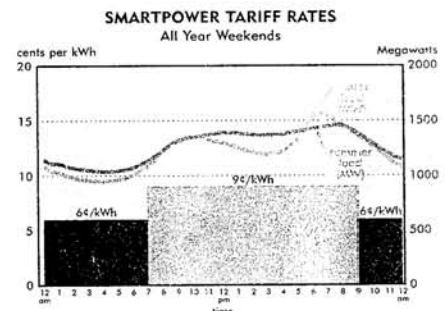
SmartPower's seasonal pricing structure reflects the change in the peak electricity demands between summer and winter weekdays (midday peak versus morning and evening peaks) and differentiates the lower load periods during weekends and overnight.

SmartPower's cost-reflective rates are expected to encourage two demand management impacts. First, customers are expected to shift a proportion of their existing electricity consumption from high to low periods of demand. Customers will also have greater incentive to focus on energy efficiency options which reduce consumption during peak periods. The second anticipated impact is a refocussing of building and appliance design on peak period energy efficiency and storage options together with increased development of smart-timer-based appliances.

The anticipated moderation of peak loads and increased off-peak usage has



The SmartPower rates reflect more accurately Western Power's cost of supplying electricity to customers.



the potential to reduce Western Power's costs and increase its competitiveness through:

- delaying the requirement for additional generation, transmission and distribution plant through improved system utilisation; and
- reducing the operation of high-cost peaking plant and reducing peak line losses

Western Power has contributed to the design and the development of the SmartPower meter, manufactured by Email. A special timed circuit for off-peak appliances is incorporated into the meter, with future options including remote communications and prepayment capability available.



Western Power

The SmartPower concept is unique in Australia with its seasonal pricing structure and four energy rates.

SmartPower provides customers with an innovative and competitive product indicative of the emerging deregulated commercial energy industry in Western Australia. SmartPower's competitive and cost-reflective rates will assist Western Power to retain and expand its residential market in this new deregulated environment. In launching SmartPower, Western Power is delivering greater value and choice to its customers today, while anticipating and planning for new product developments to meet customers requirements in the future.

Western Power

Proposed reference service and reference tariff for bi-directional connection points

SUBMISSION

A New Planning Process for Achieving Sustainable Energy Management and Carbon Emissions Reduction in Urban Developments in Western Australia

Martin Anda

September, 2009

I have reviewed the proposed reference service and it seems to me that there is more opportunity to address embedded generation than currently given. In particular, I am interested in p32 of the NAS report regarding the relationship between embedded generation and load profile:

In order to assess whether a particular option reflects costs, it is necessary to understand what is the cost of a customer on the network. In general, the cost associated with providing network services to a customer differs according to the shape of the customer's load profile, which is reflective of the nature of the customer (i.e. domestic or business), the voltage required and the total electricity use of the customer. The load shape affects the cost of service provision because the network is primarily built to meet peak load requirements rather than energy consumption.

This has been confirmed by various distribution network service providers. For example:

- *Integral Energy has stated that "Growth in peak demand is a primary driver of network capital investment";²⁴*
- *Country Energy has stated that "Peak demand, particularly summer peak demand, is a principal driver of growth related capital expenditure"²⁵*
- *AGL Electricity (now known as Jemena Electricity Networks) has stated that "Forecasts of network demand and customer connections drive much of the need for investment in the network";²⁶ and*
- *ActewAGL has stated that "The zone substation demand forecasts are key drivers of the capital expenditure program".²⁷*

Customers with peakier load profiles that correspond with the network peaks generally require greater network capacity, and therefore have higher costs to serve per unit of energy delivered compared to customers with a relatively flat load profile. It should also be noted that there is a relationship between the number of new embedded generator connections and the costs of planning and building the network. If peak demand can be reduced by increasing numbers of embedded generation systems then reductions in capital expenditure may be achievable in some areas of the network. However, large numbers of these systems, located in areas where load is low, may lead to the amount of electricity being imported into the system exceeding that which is being used by the area – thus feeding electricity back up into the system and into transformers which may require substantial network redesign to accommodate.

However, the relationship of renewable energy systems, such as solar PV systems, with network cost is complicated by the fact that the generation output may not be coincidental with peak demand and that there is a lack of certainty, or firmness, associated with the reliability of renewable generator systems. In Western Power's SWIN, the residential peak demand tends to occur between approximately 5:30pm and 8pm during summer and between 6:15pm and 8:30pm during winter,²⁸ whereas solar PV output tends to peak between 10am and 2pm, when the sun is strongest. The difference in peak solar PV output and residential peak demand needs to be taken into consideration in assessing the cost reflectivity of the Options and is addressed in section 5 of this Report.

The cost structure proposed needs to be able to encourage urban land developers (and urban renewal developers) to design their developments (subdivision and built form) that reduce peak loads at appropriate times and maximise opportunities for embedded generation. By doing this the scale of local distribution networks could be downsized due to well-balanced bi-directional flows and ultimately downstream large scale power generation (gas turbine peaking plants and Collie coal power stations) may not require such a large growth and in the long term could also be downsized. This model will simultaneously assist the State (as well as Western Power and Verve) reduce its longer term infrastructure costs and contribute in a substantial manner to the national RET 20% by 2020.

I have thus conceived of a planning process that can be linked to your cost structure to assist this transition by urban and developers and Western Power working together.

After many years of working on Integrated Urban Water Management projects and seeing how Mike Mouritz and Shelley Shepard have developed the Better Urban Water Management policy and process for Western Australia I have come to the view that a similar process can be developed for carbon emissions reduction in urban developments – urban, rural and remote.

I have developed this view after also having conducted numerous energy audits in homes and industry and having reviewed local, national and global energy policies towards GHG abatement initiatives.

In essence, my concept makes use of the existing planning system, as BUWM has done, to enable government, industry and community to work together to achieve carbon reduction outcomes for all our future urban developments.

The concept is outlined below in a table in line with the core planning stages used in Western Australia for urban development as follows. I have retained mention of the BUWM water planning tool at each stage for the purposes of comparison.

Planning stage/scale	Land planning tool	Water planning tool	Energy & carbon planning tool	Summary of actions required at each stage	Responsibility for action	ARC project research opportunity
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1. Regional and sub-regional Greater than one local government area	Regional/sub- regional strategy, region scheme or regional/ sub- regional structure plan. These documents are endorsed by the Western Australian Planning Commission (WAPC).	Chapter in regional/ sub- regional structure plan or strategy supported by a regional water management strategy (as a technical appendix).	Chapter in regional/ sub- regional structure plan or strategy supported by a regional carbon management strategy (as a technical appendix).	Definition of regional objectives for total carbon cycle management. Regional/sub-regional energy resources, transport and carbon sequestration investigations. Mapping of energy resources (existing generation and transmission infrastructure, solar, wind, biomass, soil, ocean, geothermal) Identify significant carbon-rich environments (woodlands, heath) to be protected. Energy source planning and identification of options for renewable energy, transport and offsets based on regional energy balance. Preparation of regional energy management strategy (including strategic carbon reduction plan), having consideration of regional/ sub-regional energy resource information and strategy.	Office of Energy and DEC OCC Office of Energy and DEC OCC and NRM groups OOE, DEC (OCC) DEC, DPI OOE, DEC OOE/Verve/Horizon/ regional generators	Partnerships with WA government agencies and NRM groups Eg Regional carbon plan with OOE and regional development commission
2. District Generally greater than 300 ha (but may not be in inner metropolitan areas), may be greater than one local government area	District structure plan, local planning strategy, region scheme amendment. These documents are endorsed by WAPC.	District water management strategy – separate document that accompanies the district structure plan, local planning strategy or region scheme amendment report.	District carbon management strategy – separate document that accompanies the district structure plan, local planning strategy or region scheme amendment report.	Define carbon reduction objectives and design objectives for energy source, quantity and conservation for local planning and subdivision. Define best planning practice.	OOE, DEC OCCC DPI	Eg District carbon management strategy with Horizon Power and local government

				<p>Determine potential impact of proposed land use change on local environment, eg tidal barrages mangroves; turbines on birds/noise; carbon forest on groundwater.</p> <p>More detailed ecological investigations and modelling, focusing on potential risk.</p> <p>Where required, more detailed mapping of resources: distribution network, wind, solar, tidal, geothermal.</p> <p>Identify appropriate sources for energy and carbon offsets based on district scale energy and carbon balance. Consider smart grids. Consider approvals required.</p> <p>Refine distribution network and transport plan.</p> <p>Define ongoing management arrangements and responsibilities for urban energy/carbon management.</p> <p>Preparation of district carbon management strategy which provides input into local planning strategy or district structure plan or region scheme amendment report. Include a chapter on energy resource management and transport.</p>	<p>DEC/ local government</p> <p>DEC</p> <p>DEC, OOE, Western Power, Horizon Power</p> <p>OOE/local government/Verve, Horizon</p> <p>WP, Horizon, OOE/ local government</p> <p>OOE/ local government</p> <p>OOE/ local government/utilities, generators</p>	
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3. Local Less than 300 ha	Local planning scheme amendment, local structure plan, outline development plan. These documents are endorsed by the WAPC.	Local water management strategy – separate document to accompany a local planning scheme amendment report and local structure plan (summarised in chapter in structure plan).	Local carbon management strategy	Results of detailed investigations and modelling of energy resources, transport, carbon reduction targets and offsets. Local-scale energy/carbon balance – options for energy efficiency, smart grids, trigen, renewable energy, transport and carbon reduction strategy, including required approvals. Identification of energy management infrastructure and strategies required to meet design objectives. Undertake site investigations, particularly where diesel power stations exist. Define ongoing management arrangements and responsibilities for urban energy/carbon management. Preparation of local carbon management strategy, including requirements for monitoring and urban carbon management plans.	Developer with input from local government	Local carbon management strategy with Horizon Power and local community
4a. Subdivision - Application	Subdivision application. Approved by the WAPC with or without conditions.	Urban water management plan – separate document to accompany the application for preliminary subdivision approval. ²	Urban energy management plan	Further modelling of energy and carbon systems – build on previous results. Specific best management practices and design of carbon management system, including offsets, to meet design objectives.	Developer with input from local government	Urban energy management plan with Horizon Power and/or local generators

				<p>Further power generation, smart grid, trigen, carbon sink, resource recovery sites assessment where required.</p> <p>Preparation of urban energy management plan, including management of construction works, metering, monitoring and maintenance arrangements.</p>		
4b. Subdivision – clearance of conditions and construction of subdivision	Certificate of title after WAPC clears all conditions.			<p>Necessary clearances.</p> <p>Completion of subdivision condition requirements.</p> <p>Construction and management consistent with urban energy management plan.</p>	Developer with input from local government	Develop new Energywise and /or Carbonwise land development program
5. Development	<p>Development application (where required) and building licence.</p> <p>Approved by local government.</p>	Building plans	Building plans, plantation approvals	<p>Identification of design requirements via developer covenant.</p> <p>Site works and management consistent with urban energy management plan.</p> <p>Compliance with new draft Carbonwise Land Development Program.</p> <p>Installation of metering systems and initiation of monitoring program.</p> <p>Negative impact site issues are addressed.</p>	Developer with input from local government	Discrete carbon reduction demonstration project implementation
6. Post- development	N/A	Performance monitoring report	Performance monitoring report	Data collection.	Developer with input from local	Monitoring and evaluation of

				<p>Data management.</p> <p>Data review:</p> <ul style="list-style-type: none"> - Review principles and objectives of regional carbon management strategy; - Review objectives and procedures of district carbon management strategy; - Review assumptions of local carbon management strategy; - Review implemented best management practices; - Revise all documents as necessary to ensure improved performance of any future development; - Review biomass accumulation data to review growth trend; <p>Remedial action as necessary (identified through written agreements).</p>	government	demonstration project.
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Thus one can see that energy planning and strategic carbon reduction can be coordinated with improved water management in urban areas.

In the future it will also possible to develop similar integrated planning strategies for waste management and resource recovery.

The proposed cost structure for bi-directional connections to the SWIN must be such that it encourages urban land developers and the State to redesign their subdivisions, urban renewal and built form such that embedded generation is maximised and the balance with peak loads is optimised for offsetting.

I would like the opportunity to meet with you and discuss this.

Martin Anda
September, 2009.

To the Manager
Regulation, Pricing and Access Development
Western Power
GPO Box L921
Perth WA 6842

To whom it may concern,

Western Power requests feedback and comments from the public and interested parties prior to making a formal submission to the Economic Regulation Authority to ensure that the reference service and reference tariff meets the needs of users and applicants.

Responses are requested on four areas:

- 1: Whether the proposed reference service meets the requirements of users;
- 2: Feedback on the proposed reference tariff structure;
- 3: Feedback on the proposed on peak, off peak and shoulder times for the reference tariff;
- 4: Whether the proposed reference service and reference tariff are compatible with the Renewable Energy Buyback Scheme.

Renewablelogic has made a response to these 4 parts as below:

General

Renewablelogic advocates reflective tariffs for electricity use in Western Australia across all users that capture all costs to the utilities and third-parties affected by this consumption. However, the consequence of this proposal is to impose 'reflective' network costs on embedded renewable generators only. This approach is one-dimensional and appears predatory. Western Power have given no evidence that it contributes to reducing total network costs or meeting any broader social or environmental objectives that the diffusion of Renewable Energy represent.

We consider that comparisons to EnergyAustralia's imposition of time-of-use tariffs for embedded generators is out of context and Western Powers application of a similar scheme lacks any objective analysis on the impact of consumption or 'barriers of entry'.

It appears, that the intent of this draft is to surreptitiously increase the marginal cost of consumption at an embedded generators premise while reducing the expected return of such a system.

1. Whether the proposed reference service meets the requirements of users

The proposed reference service appears to make no reference at all to the needs and requirements of users. No part of the draft submission shows any evidence of research with respect to this. In formulating EnergyAustralia's policy, this utility undertook a two year pilot study to determine whether a time-of-use tariff met the requirements of users in general. EnergyAustralia's position to impose PowerSmart on renewable energy producers was grounded on a broader principle to impose PowerSmart on all users. The policy objectives and background greatly differs from Western Powers proposal as there is no such policy to impose time-of-use tariffs on all users in the SWIS, and in fact this position has the protection of parliament under the Uniform Tariff Act.

Synergys tariff structure is based partly on the reference service set by Western Power. It is therefore reasonable to expect Synergy to impose time-of-use tariff on those embedded renewable generators as a consequence of this proposed reference service. This tariff would be 'imposed' as because a residential customer has an embedded generator, they effectively relinquish their rights to choose a suitable tariff structure in contrast to every other residential user on the network.

Under the existing tariff arrangements, residential customers can choose between a time-of-use tariff or a flat tariff rate. The selection is based on consumers flexibility and load profile and it is our understanding that the vast majority of embedded renewable generators remain on A1 due to uncertainty of return or simply a preferable tariff given their load profiles. This is consistent with the majority of residential consumers on the SWIS.

There is no evidence to determine what the costs to users would be, nor what the impacts are on expected returns from their renewable energy systems. In fact, both returns and the marginal cost of power is likely to be inferior to either of the existing tariffs. As the contribution of the embedded renewable generator to total consumption differs greatly between households, the effects experienced will not be equal.

The proposed reference service is inequitable, imposing 'reflective' network access charges on one group of consumers while completely ignoring over 99% of the residential users remaining. Additionally it is antithetical with its objective to remove cross-subsidization among user groups as embedded renewable generators will be 'subsidizing' the network costs of all other residential users. A far better policy would be to target the diffusion of air-conditioners, as by Western Powers own admission, it is this user-group that is imposing the highest cost to the network. Solar power systems which constitute the largest group of embedded renewable generators specifically relieve this network system stress and have been shown by South Australian and Victorian studies to complement peak-capacity.

Western Power must demonstrate the expected impact on embedded generators and the network costs of distributed generation before imposing discriminatory pricing schedules on the user group. Furthermore, as a state-owned enterprise and provider

of essential services; broader environmental and social objectives should be considered in regards to renewable generation. Clearly this policy demonstrates no such consideration.

2. Feedback on the proposed reference tariff structure

As in the preceding response, our objection to the structure of this reference tariff is that Western Power intends to oblige all new embedded generators and perhaps all existing generators to use a tariff that could be grossly inferior to their existing tariffs. Renewablelogic has no objection to a time-of-use tariff for all customers, however where a customer is obliged to have this tariff because of their embedded renewable generator we consider this treatment inequitable.

In p4 of the draft submission Western Power proposes that for Option 4 'the difference between the new tariff and RT1 was that the new tariff be at a higher rate to compensate for reduced network electricity consumption'. This is contradictory to public objectives for electricity conservation and sustainability. A user group that reduces their consumption should not be penalized but rather encouraged. EnergyAustralia have an incrementally higher tariff to penalize higher users rather than the inverse.

The assertion that network costs associated with suburban expansion of air-conditioning is recovered through higher consumption in the long-run lacks formal analysis and runs contrary to social and environmental objectives centred on energy conservation.

Renewablelogic requests an investigation into proposed and existing Western Power policies that run contrary to their stated objectives as there appears to be a disconnect between public objectives and the private objectives of Western Power. We believe a public statement is necessary to affirm whether the diffusion of distributed renewable generation is consistent with their strategic objectives.

3. Feedback on the proposed on peak, off peak and shoulder times for the reference tariff

The proposed time periods for on peak, off peak and shoulder times are inferior to the existing time-of-use tariff –Smart power, for all other users and as such inequitable. Under SmartPower 38% of an optimized fixed solar systems output is 'peak' whereas under the proposed reference service 'peak' power constitutes only 23% in Perth. This combined with the tariff periods, means that peak consumption is much harder to avoid as a larger portion of it is outside of common working hours.

While these new time periods may be more reflective than the existing time-of-use tariff on network cost, it does not necessarily correlate with peak generation costs. As one of the objectives of this reference tariff is for 'administrative simplicity' collaboration with Verve energy should have been a consideration in determining

these time periods. Renewablelogic is concerned that Synergy will use this reference tariff to set time-of-use tariffs that capture only part of peak costs. This is prescriptive and one-dimensional.

4. Whether the proposed reference service and reference tariff are compatible with the Renewable Energy Buyback Scheme

The proposed reference service is incompatible with the Renewable Energy Buyback scheme as a new user-group must be defined for Synergy to charge a 'special penalty' for renewable energy users. This is discriminatory as it is the only specially defined residential group that is captured by the new tariff and counter to the objective of the scheme if it is to encourage the diffusion of residential renewable energy systems.

The manager of Energy Matters, NSW; Grant McDowell, has confirmed that the imposed time-of-use tariff within EnergyAustralia's network has significantly reduced uptake of renewable energy systems. This may understate the extent of change in Western Australia the proposed reference service and consequential retail tariff will cause given our different tariff structure and state policies.

The Manager
Renewablelogic

YOUR REF: NC SW - 09 - 17747

Dear Sirs, PROPOSED REFERENCE SERVICE + REFERENCE TARIFF FOR BI-DIRECTIONAL CONNECTION POINTS

Firstly may I express my thanks to Hugh Smith of W.P. for his help in answering my queries on the proposal. He was patient, understanding and helpful to someone who has just started the journey of using solar modules at home.

My responses to the 4 questions asked are:-

1 Does the reference service meet the requirements of users? If I am a customer

of Synergy I qualify as a user then I have reservations because

- a. Without any cost guide for the users it is impossible to comment.
- b. It appears to me that W.P. will set their charges to Synergy + then what Synergy do with them (see comment later on meter charges) is up to Synergy and so as a user it certainly could not meet my requirements.
- c. My requirements involve getting a return on my investment to go solar apart from "going green".

2 Proposed reference Tariff structure. My comments are:-

- a. To the householders user the 8 part tariff seems very complicated compared with the current Synergy 2 part tariff of cost per unit and supply charge.
I understand ref. tariff (a) + (e) are equal to supply charge and the remaining 6 fall into cost/unit.
- b. If my assumption in ~~into~~ a. above is correct then why is there a need for both a fixed charge ~~on~~ both using the system and a fixed metering charge?
- c. It seems W.P. propose charging Synergy at 3 rates of usage regardless of whether Synergy follow and charge its users at 3 rates.

3 Tariff Times. My comments are:-

- a. If cost of supply is justified by kW demand on the system and the tariff is aimed at reducing maximum demand then how can W.P. charging Synergy different rates & if Synergy don't follow suit by charging users different rates then how will this help reduce max. demand?
- b. I suggest there are only 2 rates. Off peak and On peak. On peak from 3pm - 7pm (this same to cover max. demand period) and the balance of the 24 hours

to be Off Peak. This would also need Synergy to have dual tariffs for costs/unit. Assume this means new meters for all householders.

4. Compatibility with REBS. My comment:-

As I understood it currently Synergy pay back to their customers a rate equal to cost/unit less GST.

I have been advised by our Solar Panel supplier & 3 others that the State Govt are going to introduce a Feed in Tariff of 60c/unit on 1/7/10. If this is correct it seems to be worth our investment in Solar panels otherwise I feel I have been given incorrect information. REBS need to be clarified to the householders. I would assume all Govts would want to encourage everyone to 'go green'.

General comments

I am perplexed that W.P. - according to our Solar Panel installer and confirmed by W.P. staff at W.P. Community Outreach Session at Muncaster today - are holding up/delaying the approval of our installation due I understand to the Inverter having to be approved. It seems to me that W.P. should have approved installers (this would help us householders choose suppliers) and an approved inverter list. Surely then it would only take minutes to approve a proposal. Am I being too simplistic? If not, as I understand 5 extra staff have been employed to approve applications, may I ask how long approval should take?

Another query that I have but this is for Synergy / State Govt is the cost of the new meter. According to the REBS report (page 26) W.P. will charge Synergy \$115.50 for the installation of the meter. I am advised by Synergy that they will be charging me \$205 for the meter.

This seems exorbitant. Can you advise me who to contact as Synergy have not responded to my comment.

Yours sincerely,

MR IAN BRANDON

DENIS SHEEDY

FRIDAY 18/09/2009

MR FIMTH
PROJECT MANAGER
REGULATORY AND POLICIES
WESTERN POWER "COMMUNITY Plug In"
BPO BOX L1921, PERTH WA 6842

DEAR SIR / MS

SOLAR POWER TARIFF

WE WISH TO SUBMIT THE FOLLOWING FEED BACK
ON THE FOLLOWING

THAT CONSIDERATION BEEN
WESTERN POWER AND MAJOR RETAIL ENERGY PROVIDERS
AND PRIVATE STAKE HOLDERS CONDUCT VIABILITY
REVIEW AND RESEARCH IN TO WAYS SETTING UP
SUBSIDIES GRANTS TO INSTALL SOLAR POWER
ROOF COLLECTORS 1.23 KW SYSTEMS WITH A SUNTECH
PANELS AND A SUNNY INVERTER

OPTION 2 7 x 175 WATT MONO-CRYSTAL LINE SYSTEM
AND SUNNY BOY INVERTER.

WHY IS IT ^{NOT POSSIBLE} ~~NOT~~ PEOPLE IN STATE PUBLIC HOUSING
ALLOWED TO PARTICIPATE IN SUCH PROMOTIONS (i.e.
FEDERAL GOVERNMENT \$1600 DOLLARS TOWARDS INSTALLATION
IN THE PROPERTIES

TO ME IT SEEM BECAUSE BEING IN PUBLIC SOCIAL HOUSING BEEN PROVIDED BY THE STATE

THAT STATE TREASURER INTRODUCES IN THE WESTERN AUSTRALIA STATE BUDGET 2010 FOLLOWING

- 1 LOW INCOME FAMILIES GRANT ASSISTANCE TO HAVE THEIR EXISTING SYSTEMS CONVERTED TO SOLAR WATER HEATER AND/OR SOLAR PULLER ROOF COLLECTOR SYSTEMS INSTALLED IN SOCIAL PUBLIC ACCOMMODATION, WITH ASSISTANCE FROM THE COMMONWEALTH
- 2 AFTER ALL TENANTS ARE LOOKING AFTER THEIR RENTAL ACCOMMODATION, WHICH WOULD BE AN IMPROVEMENT AND INVESTMENT.
- 3 THAT BOTH FEDERAL AND STATE GOVERNMENTS RESEARCH REVIEW AS PART ASSISTANCE PROGRAM TO INCLUDE EACH STATE INCLUDE SOCIAL PUBLIC HOUSING TENANTS PARTICIPATE IN BOTH 1600 DOLLAR INSTALLATION IN THEIR HOMES AND INTRODUCE A STATE SOLAR ^{POWER} ASSISTANCE PROGRAMME BEEN INTRODUCED BY MARCH 2010 IN BOTH COMMONWEALTH/ STATE BUDGETS IN 2010

AS A KEEN ADVOCATE AND A PURCHASER OF GREEN POWER FOR NEARLY 6 YEARS NOW. I WOULD SUPPORT ANY MOVE TO INTRODUCE INCREASE GREEN POWER SUBSIDIES LEVIES PER BILLING PERIOD RESIDENTIAL ELECTRICITY CONSUMPTION CHARGES

PROPOSAL TO BE GIVEN CONSIDERATION IS THAT GREEN POWER SUBSIDIES (EXAMPLE THAT 20 DOLLARS GOES INTO SUBSIDIES ASSISTANCE GRANTS ~~OR~~ WHERE A CONTRACTOR WILL INSTALL A GREEN POWER SOLAR POWER

3/4
AND PRESENT A INVOICE STATEMENT FOR PAYMENT
TO EITHER WESTERN POWER OR ENERGY RESIDENTIAL
PROVIDER/S.

CONSIDERATION BEEN GIVEN BY ENERGY RESIDENTIAL
PROVIDER/S NO INTEREST LOANS BEEN OFFERED
TO PEOPLE IN EACH STATE THAT IS IN SOCIAL
PUBLIC HOUSING WITH REPAYMENT BEEN MADE
WITH ENERGY RETAIL PROVIDER/S ~~THE~~ INVOICES
STATEMENTS EACH BILLING PERIODS.

CONSIDERATION BEEN GIVEN ENERGY PROVIDER
ORGANISATIONS TO RESEARCH THE VIABILITY
OF A SOLAR WATER HEATER INSTALLATION LOANS
IN PROGRESS PAYMENTS BEEN INCLUDING IN CONSUMPTION
CHARGER/S ~~INVO~~ INVOICE STATEMENT

WE NEED TO DEVELOP PROMOTION EDUCATION
TO PURCHASE MORE GREEN POWER

COMMERCIAL CUSTOMER/S PURCHASE GREEN POWER
SIMILAR TYPE OF A PROGRAMME (U EXAMPLE
\$ DOLLARS ~~FOR~~ GREEN POWER SUBSIDIES LEVIES
AND \$ DOLLARS RESEARCH GRANTS AND \$ DOLLARS
~~FOR~~ GREEN POWER SUBSIDIES LEVIES AND 0-50 CENTS
~~FREE PLANTING~~ TREE PLANTS PROGRAMS GREEN TREE
AVENUES (EXAMPLE STATE DISTRIBUTION SUB-
STATION AT MALAGA)

THAT CONSIDERATION BEEN GIVEN TO INTRODUCE
NEW UPGRADE AND IMPROVEMENTS STATE MALAGA
DISTRIBUTION SUB-STATION (U RESEARCH VIABILITY
STUDY SMALL SOLAR DISK COLLECTOR FARM
AND FEED INTO DISTRIBUTION ^{POWER} NETWORK MALAGA SUB-
STATION

NEW UPGRADE IMPROVEMENTS DISTRIBUTION SUB-STATIONS

NEW UNDER GROUND POWER NETWORKS

INTER SECTION MIRRA BOOKA AVENUE AND REID
HIGHWAY

MILLDALE WAY ESTATE UNBAN ~~FEEL~~ INFILL RESIDENT
IAL SUBDIVISION DEVELOPMENT

UNDER GROUND POWER NETWORK FEEDER MAINS
SOUTH/NORTH MAINS ALONG MIRRA BOOKA AVENUE

SOUTH NETWORK FEEDER MAINS DIRECT IN TO

(A) MIRRA BOOKA SQUARE SHOPPING CENTRE

(B) STIRLING CITY COUNCIL PROPOSE TOWN SQUARE
PROJECT FEED MAINS RETICULATED MAINS

(C) CONNECTION OF PROPERTIES VIA UNDER GROUND
POWER NETWORK PROPERTY LEAD IN

(D) YIRRAGAN DRIVE, CHESTERFIELD ROAD NORTH WOOD
DRIVE UNDERGROUND POWER RETICULATED MAINS

(E) NORTH WOOD DRIVE AUSTRISS AVENUE AND ALBR-
ANDER DRIVE AND BEACH ROAD NEW PROPOS
UNBAN INFILL LAND.

I WOULD APPRECIATE A REPLY TO MY LETTER

THANK YOU YOURS SINCERELY



25 September 2009

Manager Regulation, Pricing and Development
Western Power
GPO Box L921
Perth WA6842

Your reference NCS-09-18142 attention Mr. Hugh Smith.

Dear Mr. Mattner,

First of all I thank you for the report prepared by Western Power, written by Network Advisory Services regarding proposed reference services and reference tariff for bi-directional connection points. Also thank you for giving me the opportunity to forward my submissions.

Secondly, if I may be so bold as to ask why was this draft report not executed prior to the public investing in solar energy ? When the Commonwealth Government introduced the financial assistance to the public it was taken for granted that the authorities had sorted out all their technical know-how including administrative tariffs, charges etc.,.The document reflects disagreements between Western Power and Synergy. Also if I may comment that the format of the draft report is confusing and very difficult to comprehend, specially to a layman. I sincerely hope that the feedback is simplified and not so wordy! One must get to the point, what is the ultimate objective?

Submission details:

I do think that imposing additional taxes on the import and export of electricity is going to discourage the public from investing in solar power. The public want an incentive and certainly do not want to pay out more than they have to.

Western Power along with Synergy (in the document), reflect dissatisfaction that solar energy customers are creating a problem in that they yet have to work out how they are going to distribute this power to their various customers. It does seem that the organisations concerned are worried that the influx of solar energy users will interfere with the normal business practices being adopted at this point of time.

I would object strongly if I had to pay an extra charge because the power exported by my panels have to be directed to a certain utility.

If the existing meters installed (very recently) ,the EM1000 meters are not viable then it is up to the organisation, (Synergy / Western Power) to replace same at no cost to the solar panel investor. Or if any adjustment is needed this should be done at no charge. Synergy therefore should provide and install a two channel meter at the premises which would provide an import and export channel with five registers. Peak, off-peak, high shoulder, low shoulder and anytime.

It should be noted that recently when the meter reader was approached regarding as to how the figures are worked out, he could not explain it and suggested I contact the administration office, which I did but did not receive much satisfaction either.

With reference to small scale embedded generators for bi-directional points these should be installed on proviso there is no cost involved to the exporter.. As a matter of interest the solar panel company I contacted had not heard of the embedded generators being installed as part of the scheme. This also makes it confusing. Can your organisations explain a little more as to what is proposed for the existing solar power investors?

Network tariffs for bi-directional customers is also a very confusing issue and I am certain that many of the public who have invested in solar energy would find this confusing and would need further clarification as to its meaning and relevance to their investment.

If Energy Australia in NSW has defined time periods, do we have to follow suite?

Western Australia could adopt the following:

Off-peak 9.30pm to 7.30am

Shoulder from 7.30 am to 2 30pm and 7.30pm to 9.30pm during working weekdays and 7.30am to 10.30 pm on weekends and public holidays.

On-peak from 3pm to 7pm on working days.


I have endeavoured to cover the four areas listed under your overview however found the technical terms difficult to follow. Also the interpretation of the draft report needs a simpler presentation so the layman can understand it. No jargon please.

With reference to solar power involvement I do hope this does not become too complicated and that Western Power or Synergy will endeavour to keep us well informed in the future. For example have an area where people can visit and talk to PR people so they can understand what all this documentation really means.

At this juncture I have to say I am concerned as to what our investment is heading for. Mr Rudd may have an answer. In all seriousness **apart from having to obtain another meter that will do the job and an imbedded generator** what will people like myself have to do to get the solar panels investment working without further hitches or am I worrying unduly.

Sincerely

Ralph Laplanche





**CommunityComment/PER/
Western_Power**

Sent by: Hugh
Smith/PER/Western_Power

29/09/2009 05:12 PM

To: Hugh Smith/PER/Western_Power@Western_Power

cc

bcc

Subject: Public Submissions

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:12 PM —



14/09/2009 12:49 PM

To: <communitycomment@westernpower.com.au>

cc

Subject: Community comments on tariffs

Hi

I actually applied to install a 1kva system under the previous scheme, but unfortunately the federal government stopped the scheme 3 weeks early - 1 week after I signed up but apparently just before my supplier got the final details to them - so I currently do not have a system. I was fairly doubtful that the proposed system would ever really save me any money, despite the large government subsidy. My understanding of the new subsidy and the proposed tariffs make me think this will definitely be uneconomic for me.

I am horrified at the complexity of the proposed new tariff system. As a simple householder I am not interested in varying costs depending on the time of day. This is why most (I understand) residential consumers prefer the simple T1 tariff. While I am happy (and do) run some appliance - such as pool pumps, reticulation pumps, etc in off peak hours, I want my air-conditioning, fridge, lights, etc when I want them. The proposed tariff is far too complex to understand or manage - I'll just have to opt out.....

Surely all these subsidies are designed to both reduce emissions and provide some of the peak power the community needs. If these objectives are to be met then there really needs to be no additional cost to those consumers who install these systems - in fact they should be rewarded by lower charges and they need to be able to see this and understand this. A system that charged them as before for all their power usage and then showed them a separate credit for having generated some of this power would be understandable. If the credits were large enough to justify their investment they would tell their friends and the country would get more such investment. Under the proposed tariffs they will never know or understand what if any saving they are making.

If solar power is really uneconomic (taking all factors into account) then it should not be subsidised and supported by government. If it is economic, then let the investors see and understand the benefits

Yours sincerely

Rob Snowden

[Redacted signature]

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:12 PM —



15/09/2009 08:06 AM

To: <communitycomment@westernpower.com.au>

cc

Subject: Western Power's proposal for new tariffs for customers with small scale renewable energy systems.

I have recently had a 1.4KW solar PV system installed on my roof in conjunction with the smartpower tariff. With current use of the smartpower tariff in WA, peak tariff in Summer is between 11am and 5pm. The proposed new tariff moves peak to between 2pm and 8pm. This therefore reduces the sunlight peak hours available for people with solar systems to be able to export electricity to the grid. With the current system in place I am able to export to the grid for 6 hours at peak prices whereby with the proposed new system that is effectively halved.

Also as a user of electricity when I get home from work I will be forced to pay at peak prices until 8pm. The current system is at shoulder rates between 5pm and 9pm. Please note that users without a renewable energy system are not being forced to accept these new tariffs. As this tariff is only aimed at people who have outlaid for an expensive renewable energy system, not at business or other private consumers it appears to me that we are being unfairly targeted. Surely it is the duty of energy utilities to encourage people like myself rather than take away any incentive to help Australia towards a greener future.

regards

Bob Klein

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



15/09/2009 08:38 AM

To <communitycomment@westernpower.com.au>
cc

Subject Renewable Energy Feed-In Tariffs

Hello.

The one thing I would like to comment on with any feed-in tariff scheme is that it should be on a 'gross' rather than 'net' basis.

Also, if the net result for a given billing period is in the customer's favour, then that amount should actually be paid to them rather than be given as a credit.

Yours sincerely,



— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



16/09/2009 08:49 AM

To <communitycomment@westernpower.com.au>
cc

Subject Encouraging the use of solar energy

The Goal

To reduce the power demand at peak times – so we need less power stations to cover very short times annually

To increase the use of alternate energy sources at peak times

How

Put all consumers on a “user pay” tariffs that reflect the real cost and/or limited availability of electricity at various times during the day

Increase electricity costs at peak times to “force” consumers to look at alternatives

Increase credits/rebates to those with alternative power supplies at peak times, so the reason to change hits the back pocket nerve – COST II

Implementation

Make consumers VERY aware of the very high cost \$\$\$\$\$ they will pay for electricity at peak times – 24/7

Make consumers VERY aware of the credits/rebates \$\$\$\$\$ they will get in their electricity bill if they have an alternative energy supply – 24/7

Suggestion

Put everyone on shoulder, peak, off peak tariffs – Make consumers understand - If you want it then be prepared to pay for it

Expand the proposed peak tariff times Monday to Friday from 12 noon to 8.00 pm

Include a peak tariff time on Sat & Sun – 12 noon – 5.00 pm

Trust this is of interest

Ian Westoby



— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



16/09/2009 09:01 AM

To <communitycomment@westernpower.com.au>
cc
Subject Network Tariffs



Dear Sir/Madam,

In regard to proposed changes to network tariffs I would like to suggest that whichever form the system takes that the overwhelming criteria is simply that

"IT SHOULD BE ECONOMICAL FOR THE HOUSEHOLDER TO PARTICIPATE"

I would be very happy to generate electricity back to the grid but until it becomes economically viable I shall not do so.

The main issue is **"HOW LONG WILL IT TAKE TO RECOUP MY INVESTMENT IN THE HARDWARE"**

In my case I would find a three year time frame to recoup my investment to be acceptable.

Yours faithfully

T G Roberts

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



16/09/2009 11:19 AM

To <communitycomment@westernpower.com.au>

cc

Subject [SEC=UNOFFICIAL]

Hi

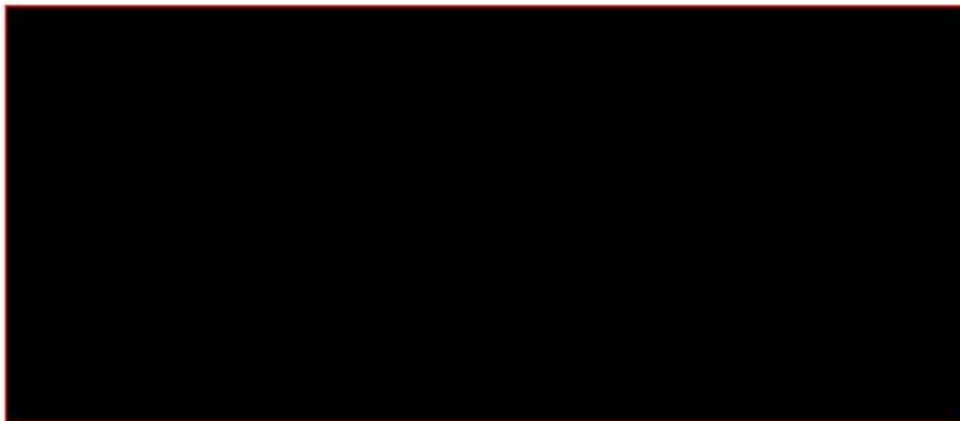
I totally support the proposal to charge people more during peak periods as this will have the effect of reducing these peaks where possible however would like to make the following comments:

I think this should apply to all users, not just those who have purchased solar panels. It would be totally unfair to penalise those households that are trying to make a difference.

People who have purchased solar panels are generally environmentally conscious and I don't think should be penalised for trying to reduce carbon emissions.

The current proposal appears to be inconsistent and perhaps short sighted as on the one hand you have the Government both at a state and federal level offering incentives to people to install solar panels (cost \$15,000 less \$8000 rebate) and then Western Power charging this group of people more. This proposed change would negatively affect this industry as people may be less inclined to install solar panels. This would effect the solar companies which would result in less power being put into the grid which would lead to more power stations being needed.

Mark Lynch



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— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



17/09/2009 12:30 AM

To <communitycomment@westernpower.com.au>
cc

Subject Proposed Changes to tariffs for small scale renewable energy systems

To:
Manager
Regulation, Pricing and Access development
Western Power

We have recently installed solar cells on our house to generate electricity in order to do three things:

1. Look after the global environment
2. Reduce the costly need to build more public electricity generators
3. Reduce our own electricity costs in the long term

From my understanding of the recommended changes to network tariffs for small scale energy systems like ours we are now to be penalised financially for installing our system. This will be a disincentive for others to install similar systems in the future.

To justify the recommended Option 3 in the report, we are seen only as a '*cost on the network*' and therefore need to be charged higher useage rates in peak times than non-generating users. For about half of this peak time our generating capacity would not be strong due to the setting sun and so we could not compensate for this selective higher charge rate.

We are energy conscious in our daily living but have no realistic control over when our house needs to be cooled or heated on extreme weather days nor of society's work/sleep/business/recreation patterns so our peak useage of electricity (2pm - 8pm Weekdays) is the same as for most households. The recommended changes will charge us extra for our reserved peak capacity. There is no mention of charging non-generators extra for their reserved peak capacity.

Furthermore, when our generating system is producing at its peak we would only be paid at a lower shoulder rate, again without option.

The proposed, selective rates of charge for electricity useage would not appear to be an optional system for us although currently, non-generating users have an option to use either a standard charge rate for useage or one that is linked to peak need times. That option does not feature in the report's recommendations for those of us who have gone to the effort and expense to develop solar generating capacity.

Surely our efforts to assist the supply of electricity in WA should be supported by a higher Feed In Tariff rather than penalising us financially for useage on top of our already significant capital outlay. Our understanding is that a Feed In Tariff, significantly higher than the standard cost/unit of electricity, is in place in other areas of Australia and that the Government of WA recently renegged on its commitment to introduce such a tariff for generators such as ourselves.

The report is significantly devoid of details in the proposed rates for supply or for buying of electricity although there are some vague mentions of possible compensatory rates to offset the higher charges recommended for those users with small scale renewable energy systems. It would appear that these possible compensatory rates are included only to soften the unfair, main recommendation of Option 3.

We consider the recommendation of this report to be purely a vehicle to justify higher useage charges for generators of electricity. If introduced as recommended it will extinguish the desire of individuals like ourselves to assist both our environment and the supply of electricity in WA.

Milton & Cherry Wild

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



17/09/2009 09:21 PM

To: <communitycomment@westernpower.com.au>

cc

Subject: Feed in Tarrifs

Unfortunately we were unable to access the relevant page on your website, so are submitting our comments to you via email as follows:

A roof mounted PV solar system when grid connected is a highly efficient way to feed and use electricity within a community. By comparison the long distance conventional method of supply is plagued with transmission inefficiencies and therefore transmission losses.

Germany is just one of over 40 countries with feed in tariffs. In the five years from 2000 to

2005 Germany's installed PV capacity increased 700% to an output of 1,500MW by the end of 2005.

Compared to Australia, Germany is not the obvious candidate to lead the world in this field. We have much better climatic conditions for PV generation. We also have very high use of air conditioning at the best time for PV systems to be at maximum output.

Australia should be a world leader in installed solar photovoltaic generation. Therefore a feed in tariff which would motivate the installation of more systems must surely be the way to go.

Regards

Harry & Sarah Sambrooks (Ferntale)

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



18/09/2009 10:19 AM

To communitycomment@westernpower.com.au
cc

Subject Proposed reference tariff for SSRES

To Manager Regulation, Pricing and Access Development

Dear Western Power team,

I was just made aware of your proposed reference tariff for customers connected with SSRES.

My main concern is the definition of peak times suggested. It is purely focused on household consumption patterns. Summer peak times for all electricity consumption (including business and industry) will be much earlier in the day, centered around midday. This is well reflected in the current smart power tariff for the summer months that defines peak times as 11am to 5pm.

SSRES reduce the need for peak generation capacity across the whole network. This is a major cost saving that is mostly ignored by the proposed times for your reference tariff. Focusing on the cost of distributing power to consumers (as done by looking only at Residential Feeder Load Profile) only looks at half the picture, and would therefore lead to a cross subsidy towards people without SSRES, towards industry and business.

In general I am very concerned about the disjoint between your network tariffs and the tariffs offered by Synergy to a majority of their customers (A1). The whole discussion on cross subsidies and cost reflectivity will only make sense when retail tariffs get aligned with wholesale tariffs. I.e. phasing out A1 and replacing it by Smart Power completely.

I fear that this particular discussion (concerning less than 10,000 customers at the moment) is just a smokescreen that is used to distract from having to address the real issue: moving 500,000 customers to a more cost reflective tariff.

Kind Regards,

Peter

--
Solar Designs Pty Ltd
ABN 97 129 954 678
Tel.: +61 8 9594 1243
www.solar-designs.com.au

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



[REDACTED]
19/09/2009 11:08 PM

To communitycomment@westernpower.com.au

[REDACTED]
Subject Comments on tariffs

Manager
Regulation, Pricing and Access Development
Western Power

My comments on the proposed changes to network tariffs for customers that connect to the network with small scale renewable energy systems.

- 1) My first comment is that the proposal document is unclear and very hard to understand.
- 2) If the proposal is that renewable energy customers are placed on a different tariff then I disagree. People with renewable energy systems should have the same choice of tariffs that any other customers have.
- 3) Existing customers that have a renewable energy system should not be forced to upgrade their meters just to suit the proposed new tariff. If the tariff is forced on existing users then the supplier, Western Power, should pay for the cost of meters and installation.
- 4) I can't see how this proposal has anything to do with the Renewable Energy Buyback Scheme. It appears to be more concerned with the Non-renewable energy that a customer purchases from Western Power and has nothing to do with the Renewable Energy Buyback Scheme.

Bruce Pearson.
[REDACTED]

—
Best regards,
Bruce

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



[REDACTED]
21/09/2009 10:26 AM

To <communitycomment@westernpower.com.au>

cc

Subject Western Power is inviting you to comment on its proposed changes to network tariffs for customers that connect to the network with small scale renewable energy systems.
[SEC=UNOFFICIAL]

Responses are requested on four areas:

1. whether the proposed reference service meets the requirements of users
2. feedback on the proposed reference tariff structure
3. feedback on the proposed on peak, off peak and shoulder times for the reference tariff
4. whether the proposed reference service and reference tariff are compatible with the Renewable Energy Buyback Scheme

1. I don't really understand what the proposed reference service means so I am unable to comment on whether it meets the requirement of users.

2. As I understand it, this tariff structure is going to charge people with small scale renewable energy systems (SSRES) for the use of the system based on the amount of power they take out of the grid at each of the relevant tariff points. Not only this but you also wish to charge a metering charge as well. This is double dipping. When the government encouraged everyone to pay to have the SSRES installed there was no mention of these excess costs. If people with SSRES have to bare this extra cost then the system was misrepresented to the public. It also appears that those trying to help the environment are being punished and those who have not are not paying their share for the reduction in pollution.

3. I think that the On-Peak time should not start until 4:00pm as that is when most people come home from work.

4. I think that the proposed reference tariff is unfair to those on the REBS and therefore is not compatible as it is a distinct disincentive to enter the system which appears to be contrary to what the government is trying to achieve.

Other points

The paper implies that the power produced by small scale renewable energy systems is produced in times when it is not needed and is wasted. Does not industry and commerce use this power. Do they pay extra if they use power during peak times? Why should people trying to do right by the environment be punished by higher tariffs?

I feel that if people with SSRES are going to be charged more than those without these systems, then the extra revenue should be used not to create more polluting power stations but systems that can store excess power produced off peak so it can be used during on-peak times. Although I'm sure that this power is sold to none domestic customers/users

Also if as stated in your paper "on-peak, off-peak and shoulder times to provides greater cost reflectively and an incentive for the customer to alter consumption patterns to reduce cost" you wish to alter customer patterns, charging extra for people with SSRES will not necessarily change their power usage as they already have reduced their power usage to the lowest possible level across all periods.

I think this proposal is unfair and a disincentive to enter the system that is designed to help the environment and is sustainable unlike coal fired power stations.

Regards

To Ryan



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— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



21/09/2009 05:42 PM

To <communitycomment@westernpower.com.au>

cc

Subject Renewable Energy Tariffs

To Whom it may concern:

I believe that an householder that pro actively makes the choice to install a form of renewable energy such as a PV grid connect system (which is the most common in residential areas) should not also have to purchase electricity at a higher rate. I feel that the proposed referenced tariff structure is confusing and will become a reason for some people to not go forward with embracing renewable energy.

I am no expert, but with my research those with a PV system would need to pay an additional 4.4cents inc GST by purchasing Natural power for each unit used, I feel that people should be rewarded for being the leaders in the movement of renewable energy. I have thought of a couple of different options that could give real incentive but would come with conditions;

1. Gross feed in tariff structure for those with a grid connect PV system until the out of pocket cost of their system has been paid back, but these people must pay for Natural Power for their entire bill, for the entire duration of the payback period of their system
2. Net feed in tariff could then be an option for those with a PV grid connect system with the same circumstance as above but without the condition of having to purchase Natural power.

I understand that the rates of the Gross feed-in and the Net feed-in need to be further structured to accommodate the peak, off peak and shoulder rates but a system like the above would help convert people to utilise renewable energy.

I have completed my Home Sustainability Assessor training and things that are too complex to explain to someone wanting to install a PV system, like the conditions and tariffs ultimately put the decision into the too hard basket, the best way is to make the information easy to understand and to encourage people to make use of the government help such as the Green Home Loans Scheme.

Regards,
Taryn Cox



— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



21/09/2009 07:31 PM

To <communitycomment@westernpower.com.au>
cc

Subject Proposed reference service and reference tariff for
bi-directional connection points

Dear Sir/Madam

I have read the "Overview" and skimmed through the longer document. I found both to be presented in a complicated format and not particularly understandable. I am a residential customer who had solar panels installed two years ago. During the summer months our electricity accounts have been in credit. This has encouraged us to actively seek ways of reducing the amount of power we use, whilst still maintaining a reasonable lifestyle – we are not eating cold baked beans by candlelight!!!

My comments are:

- Lack of time to comment on the submission – your document is dated 14/09/09 and submissions have to be in by 25/09/09 (ten working days). This gives us little time to discuss it with other people. The document is difficult to understand by a lay-person.
- Currently the cost/credit is provided in cents per kWh for the particular time periods and is very understandable whereas the "proposed reference tariff" lists complicated formulae.
- I feel that the installation of solar panels should be compulsory on all new residential and non-residential buildings. To ensure that the systems are used as they are meant to ie consuming the most power during the off peak period – then the credit for power exported during the peak period should be doubled.
- It appears that some existing customers may need to have new meters or have their meters modified with the consumer being charged. This is unacceptable. The majority of customers who have installed solar panels have also paid Western Power/Synergy for a new meter at that time.

Janet Carr



[REDACTED]
— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



[REDACTED]
22/09/2009 06:33 PM

To <communitycomment@westernpower.com.au>

cc

Subject Bi-directional reference service and associated tariff

Hello,

Thankyou for allowing me to comment on the bi-directional reference service and associated tariff.

From a community-wide perspective the proposed changes to network tariffs for small scale energy systems appear fair and reasonable. As an owner of a small scale energy system I can see that I am failing to contribute to the infrastructure I still use and expect to be made available to me.

However, as a condition of receiving an \$8,000.00 grant to install the small scale energy system, I am required to be connected to the grid for five years. Should I wish to avoid any new tariff, which may or may not be passed on by Synergy, my only option is to disconnect my system. This would leave me in breach of the conditions of the grant and require me to repay the \$8,000.00.

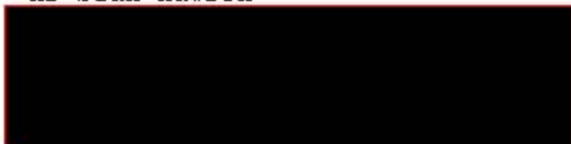
So as not to disadvantage those who have already invested in a small scale energy system, it would be reasonable to maintain the status quo for these customers until they have fulfilled their obligations under the grant. The small scale energy system owner can then decide whether they wish to be subject to whichever tariff is then in place.

Should Western Power choose to increase the tariff to electricity retailers I would like to request that Western Power strongly recommend to electricity retailers that the tariff increase not be passed on to customers for a period of five years. Future purchasers of small scale energy systems would know the environment they were entering before purchasing and could be subject to the new tariff from the time they connect.

I am also concerned that changing the tariff could act as a disincentive to those considering installation of a small scale renewable energy system. I carefully weighed up the financial, as well as environmental, aspect of purchasing my small scale energy system. With the removal of the \$8,000.00 government grant and the prospect of an increased tariff, the financial aspect is now far less attractive than it has been previously.

Changing the network tariffs runs the risk that consumers will stop purchasing small scale energy systems. I am left concerned that the environment will suffer as a consequence. By increasing the tariff it could be interpreted that Western Power, while maintaining its financial bottom line, is punishing those trying to reduce their impact on the environment.

Regards
Ms Sian Mawson



— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



23/09/2009 06:36 AM

To <communitycomment@westernpower.com.au>

cc

Subject Proposed Tarriff Structure

Having carefully studied your proposal as consumers we see no advantages, only disadvantages.

On the current system we are able to run heavier consumption items, ie dishwasher, on the off peak rate from 9pm whereas we would have to wait until 10pm under the proposed structure. There would also be one hour less off peak electricity and one hour more at the shoulder rate each day.

More importantly, the on peak export rate would only apply between the hours of 2pm and 5pm (daylight hours) whereas currently we are on the maximum rate from 11 am to 5pm, ie THREE HOURS LESS PER DAY.

Also we have been on Smart Power for 12 years and the proposed changes give us no incentive to remain on that system.

Therefore we are definitely NOT in favour of the proposed changes.

Harry & Sarah Sambrooks

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



23/09/2009 06:55 PM

To communitycomment@westernpower.com.au

cc

Subject Community Comment

Reading through your proposal it seems that your concerns are based on revenue base loss.

Renewable energy systems are the first stage in providing clean energy and will develop further over the coming years. I thought it would enhance Western Power's image in providing every help in promoting green power. We live on a special rural property; have no scheme water, so rely on collecting rain water and using electric pumps to provide pressure. We have invested in solar power to help with our power bills and reduce the amount of load on the grid, This was our personal choice.

I see our generating of excess power and sending it back through the grid has some measurable benefits to all users, which should be reflected in our tariffs, this includes providing extra capacity to Western Power, saving on generating costs, being

able to on sell as green energy, and as the number of solar generators grow, factor in the total kw's of new power not required to be generated in a new power station. I cannot see how we are being subsidized when all costs involved, including installing solar array, upgrading our meters is at our expense.

Looking at the reference service, it seems balanced, and as a guide to what can be connected and used, seems to the point, [a small note to Synergy, the restriction of 5kva and no wind power is a huge draw back.]

Proposed reference tariff structure is too complicated, in an endeavour to capture the maximum cost at any peak times in the day you would need to charge out at per hour demand, a silly notion, surely this could be spread over an off peak and an on peak to reflect costs as is Synergy's weekend rate on its smart power. With proper costings you will still be paying the same amount without all the complicated shouldered.

The reference tariff times listed as 'on peak', reflect the times that people live their lives these days. We are all working harder and when we come home in the afternoon expect to cook tea, relax and watch tv in comfort, a huge window between 2pm and 8pm of on peak power cost awaits us, with little or no choice to avoid. This high tariff is used as a big stick to help make us change our habits, but it can also be said that although generating costs go up at these times, there is vast number of people to share the cost over this same time frame. I always note that the graph shows consumption of power going up but does show correlation, to the number of users and actuarial extra costs involved.

My only hope in this exercise is that you come up with a fair outcome. Please note these are my general opinions only
Why such a short window of input?

Yours Sincerely,

L.H.WHIDDETT

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



24/09/2009 04:15 PM

To <communitycomment@westernpower.com.au>

cc

Subject Small scale renewable energy sytems

To Western Power,

I have just read the 4 proposals / options being offered to the consumer regarding tariffs and services to owners of small scale renewable energy systems.

I was extremely disappointed. When these systems were strongly marketed 18 months ago it was proposed a feed in tariff of 60c per unit would be paid to the owner for excess power to the grid. This was meant to help compensate owners for cost of system and provide incentive for more to take up of renewable energy systems.

We need to move away from fossil fuel for power power generation, so renewable energy systems need to be given financial incentives.

The best option for owners of small scale renewable energy systems, based on the choices being given to us is Option 1 (status quo). As the owner of a 1kw photovoltaic system this is the only sensible option. Even this option is only the best of a bad bunch.

Regards,
Patric Ring

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— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:11 PM —



24/09/2009 05:27 PM

To <communitycomment@westernpower.com.au>

cc



Subject Proposed reference service and reference tariff for
bi-directional connection points

Responses are requested on four areas:

1. whether the proposed reference service meets the requirements of users:

Not even close, this will financially penalise those residents who outlay for the installation of Solar Panels. Even after the ensuing public outcry once it is realised what these tariffs mean to a families energy bill, the damage it will have caused to the industry will have repercussions into the foreseeable future that will encumber a huge cost not just in dollars but also in environmentally damaging emissions.

2. feedback on the proposed reference tariff structure:

Again, as above, this is not fair to those who pay for a smaller system outright with a view perhaps to upgrade to a bigger system later on. Is the purpose of these tariffs to force residents to install a entire system that meets all their power needs all the time? These systems will be far beyond the reach financially of the majority of Western Australians.

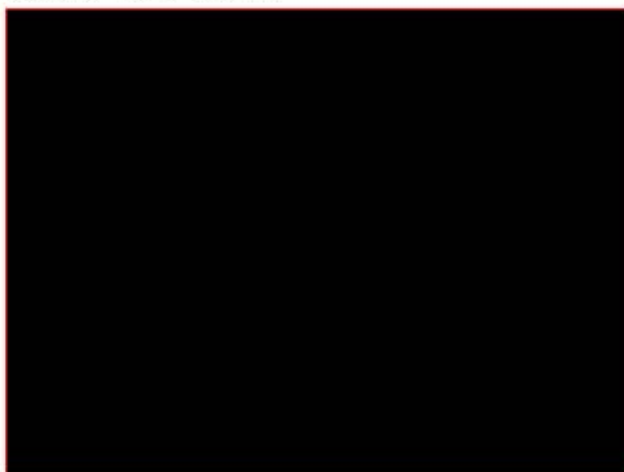
3. feedback on the proposed on peak, off peak and shoulder times for the reference tariff:

These appear to mimic the smart power tariffs – nothing new or innovative here. Due to recent rises in Smart Meter tariffs, I am requesting that my Smart Meter tariffs be changed back to the standard rate - even keeping peak & off peak times into consideration with our lifestyle our family of 2 adults & 2 children will be far better off.

4. whether the proposed reference service and reference tariff are compatible with the Renewable Energy Buyback Scheme:

No. These proposed tariffs will in fact be detrimental to the REBS by preventing average working Australian families from investing in sustainable energy alternatives.

Ian Carlisle



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— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:10 PM —



24/09/2009 05:56 PM

To <communitycomment@westernpower.com.au>

cc

Subject Community comments on tariffs

1. whether the proposed reference service meets the requirements of users
2. feedback on the proposed reference tariff structure
3. feedback on the proposed on peak, off peak and shoulder times for the reference tariff
4. whether the proposed reference service and reference tariff are compatible with the Renewable Energy Buyback Scheme.

COMMENTS (ON ITEMS 1, 2 AND 3):-

We invested \$8450 (\$16450 less Commonwealth Government \$8000 rebate) in a 1.5Kw solar power installation in January 2009. It will take several years to recover our investment.

The option proposed allows for variable charges based on time of day. This seems sensible.

As the actual charges per unit bought and sold are not mentioned, and of course will change, we have one major concern. WE NEED TO RECOVER THE \$8450 COST OF OUR SYSTEM, AND RECEIVE SOME BENEFIT FOR INSTALLING SOLAR POWER. There needs to be some incentive to install solar power.

Regards

Roger and Shirley Tuffley

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:10 PM —



24/09/2009 07:04 PM

To <communitycomment@westernpower.com.au>

Subject Network Tarriff changes for small RES's

Hi Hugh,

Further to our Telephone conversation today regarding community comment on proposed tariff changes for Renewable Energy Systems (RES), I have an interest in this having recently completed a new home which has a 2.5 KVA Solar System installed. Initially our bi-directional meter was programmed for RESM SM1 Tariff which we used for the first couple of months. My personal calculations in comparison to Standard Tariff for the way in which we used power in our house confirmed to me that we would be better off on Standard Tariff, so I had Western Power re-configure our Bi-directional meter to Standard Tariff and our Synergy bill dropped approximately 40%.

My logic for the change was that I now operated with a level playing field in that whilst the tariff is constant any power I generate during daylight hours with our own system, provides me with either a credit or reduction on power usage from Western Power. The High & Low Shoulders are negated and we receive actual credit for the power our system generates. Similarly any credits we receive during daylight hours is also constant. My Solar System has an East, West aspect with more panels facing West than East to compensate for our higher usage later in the day, mainly in summer when we run the household airconditioner and we are gaining maximum output from our Solar System. Our House has been designed to deliver minimal requirements for heating and cooling, due to the predominance of a Northerly aspect and as such we have only turned on the heating component of our air-conditioning system 4 or 5 times for approximately an hour through this current winter which has been our first winter in the home. Last summer we turned on the cooling part of the air-conditioner late in the afternoon when the daytime temperature was in the very high 30's/40's and then only for a couple of hours. Overall our Solar Passive design of our house and our Solar Power System has met all our expectations.

Consequently as per our conversation my preference is to remain on Standard Tariff as renewable tariff RESM SM1 is definitely of no advantage to our lifestyle and household.

Thank you for your interest, I would be most interested in your final outcome.....

Regards,

George Horton

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:10 PM —



25/09/2009 01:08 AM

To <communitycomment@westernpower.com.au>

cc

Subject Comment on Western Power's proposal "Bi-directional Reference Service and Associated Tariff"

To the Manager
Regulation, Pricing and Access Development
Western Power
GPO Box L921
Perth WA 6842

Dear Sir or Madam,

Western Power requests feedback and comments from the public and interested parties prior to making a formal submission to the Economic Regulation Authority to ensure that

the reference service and reference tariff meets the needs of users and applicants.

Responses are requested on four areas:

1. whether the proposed reference service meets the requirements of users
2. feedback on the proposed reference tariff structure
3. feedback on the proposed on peak, off peak and shoulder times for the reference tariff
4. whether the proposed reference service and reference tariff are compatible with the Renewable Energy Buyback Scheme

In detail:

1. whether the proposed reference service meets the requirements of users

The proposed reference service is not at all trying to establish what the users' requirements might be and instead focusses on in-house issues and business partner Synergy, while a governmental regulation is mainly ignored although initially mentioned:

The Electricity Networks Access Code 2004 (the Code) establishes a framework for third party access to electricity transmission and distribution networks in Western Australia. The objective, as stated in section 2.1 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** in markets upstream and downstream of the networks.

Three of the four options **work against this regulation**, only Option 1 (keeping the Status Quo) doesn't change anything.

Assuming that a customer who has a solar photovoltaic array installed (herein after dubbed Solar Photovoltaic User, or SPVU for short) is not focussing on damaging Western Power's (WP) needs, we can assume he/she is or has:

- expressing his/her green conscience
- trying to do his/her bit to contribute to reducing Greenhouse Gas Emissions (GHG), addressing Climate Change
- trying to do his/her bit to contribute to meeting the Federal Government's Renewable Energy Target (RET)
- adding long term value to his/her house while saving some money on the power bill
- wanting choice of tariffs/products
- other moral/ethical reasons
- other financial reasons

or any combination of the above.

WP could directly address the money saving aspect and the desire to have a choice, and indirectly through incentives to the contribution to the Federal Government's RET and the reduction in GHG.

But they don't.

Instead WP loses focus on the purpose of the report (2.2 ... to define a reference service and

associated reference tariff for distribution users with bi-directional energy flows due to small scale embedded generation, for inclusion in WP's Access Arrangement.) and shifts towards its old problem of how to address peak demand.

It appears that WP has no solution to "the peak issue" and tries to (ab)use existing and new SPVUs as culprits for the dilemma by having them pay twice: Once for their PV array and secondly with higher tariffs compared to non-SPVUs, tariffs which potentially would be forced upon them.

2. feedback on the proposed reference tariff structure

The proposed Option 3 may be cost reflective for WP but not at all for SPVUs as WP tries to recoup monetary losses incurred by "the peak issue" from SPVUs alone. This issue is to be solved by WP addressing the whole of electricity consumers, not alone by SPVUs.

The prohibition of cross subsidies is required by the Code, Option 3 is mainly adhering to it. As Option 3 is a variant of the known Smart Power tariff it should not pose any difficulty to administer this tariff

3. feedback on the proposed on peak, off peak and shoulder times for the reference tariff

The proposal is in essence a variation of the currently existing Smart Power tariff. While the proposed new time segments appear to more truly reflect peak, off peak and shoulder times, they are a strong disadvantage to be used for any householder to actually be at home during non-peak times, assuming Option 3 has even higher rates than Smart Power.

Considering the long non-peak periods this doesn't appear likely.

Option 3 is very family unfriendly and favours those who leave their house for prolonged periods every weekday.

4. whether the proposed reference service and reference tariff are compatible with the Renewable Energy Buyback Scheme

Technically this seems to be the case.

However, in its current form Option 3 is a disincentive for SPVUs to choose - if forced upon them this argument will gain weight even more. SPVUs may find not applying for REBS cheaper than doing so, maybe even sell their array altogether.

While the Smart Power tariff paid peak amounts during peak solar activity, Option 3 deliberately avoids it creating the disincentive.

Regards,

Ben Hermann



— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:10 PM —



To <communitycomment@westernpower.com.au>



[REDACTED]
25/09/2009 03:24 PM

cc

Subject: Comment on SSRES

Hi,

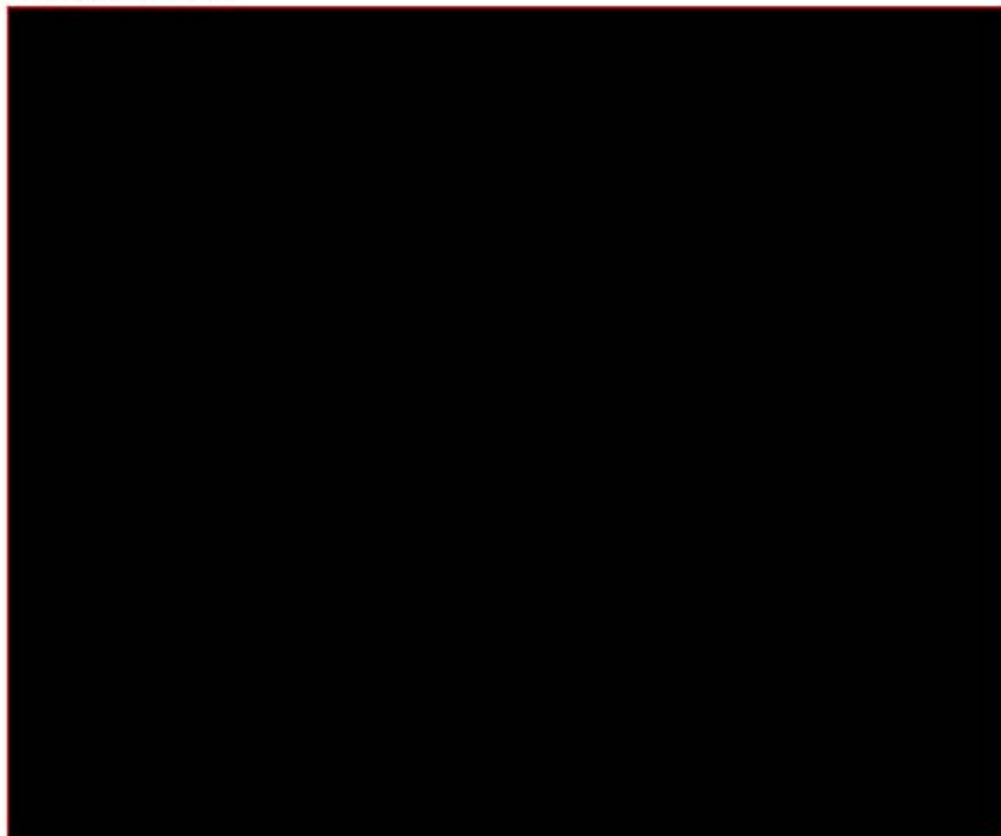
It's important any feed-in scheme applies to larger systems than the current REBS agreement (capped at 5kW).

Realistically the scheme should meet the agreements in place in other states, but ideally supersede them.

Kind regards,

Richard

Richard Parris



— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:10 PM —



[REDACTED]
25/09/2009 04:29 PM

To: <communitycomment@westernpower.com.au>

[REDACTED]
Subject: Bi-directional Reference Service and Associated Tariff



To the Manager,

I am a customer of Western Power(WP) with a 1.5kW system installed at my residence. I would like to comment on your proposed new tariff draft.

1. Whether the proposed reference service meets the requirements of users?

I would have to say that the proposed reference service outlined in the draft meets the requirements of WP to the detriment of installed energy generators. Notwithstanding the technobabble that we the general public had to read through, it was quite obvious that the statement included in the draft "However, the higher tariff rate will remove some of the existing financial incentive for customers to install embedded generators" says it all. The Federal Government is pushing residential installations of PV systems to meet their green energy requirements and your draft is making a mockery of their agenda. A drop in PV orders will also impact on the businesses that make their income from PV installations, many family businesses working on narrow margins.

2. Feedback on the proposed reference tariff structure;

To tell you the truth, I could understand much due to the fact that I'm not an electrical engineer other than the uptake disincentive statements you included with them.

3. Feedback on the proposed on peak, off peak and shoulder times for the reference tariff;

I would accept a Smartpower based tariff structure more based on the original structure you have used. There has to be some give and take. PV systems are expensive to purchase even with the government subsidies and being able to recover some of this outlay by using the current Smartpower tariff complimented by changes of usage habits. Your proposed new tariff structure would be a disincentive for people trying to do the right thing towards the environment. May I suggest starting the Peak Power rate at 11:00am and continue it through to 8pm removing some of the shoulder rate. That way PV owners would still benefit from a better return for their exported electricity and WP will still cover it's peak draw period. It is also not fair to cut one hour from the off peak rate. Many people are in bed a 10pm so owners of manual washing and dishwashing machines will be inconvenienced. If you are trying to instill good electricity useage habits, 9:00pm is the way to go. 10:00pm is too late in the evening.

4 Whether the proposed reference service and reference tariff are compatible with the Renewable Energy Buyback Scheme;

Sorry but I don't understand the meaning to this question.

I hope that you will read my input into your considerations. I would also like to state that I find it unfair that Synergy has a cap on the maximum size of a residential embedded generator to 5kW. I live at a semi rural property and though in Perth, my trip to a shopping mall is a 20km round trip. To keep my travel down I run extra fridges and freezers to store the surplus food. These consume extra electricity which needs a PV embedded generator system beyond the 5kW cap to produce enough energy to become self sufficient. Remember

that driving extra not only produces more CO2 but also other pollutants. If I have more PV panels, I could do lower my carbon footprint.

Sincerely,
Fred Erdsieck .

— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:10 PM —



25/09/2009 04:58 PM

To "communitycomment@westernpower.com.au"
<communitycomment@westernpower.com.au>

cc

Subject Proposed reference service and reference tariff for
bi-directional connection points

The Manager
Regulation, Pricing and Access Development
Western Power
GPO Box L921
Perth WA 6842

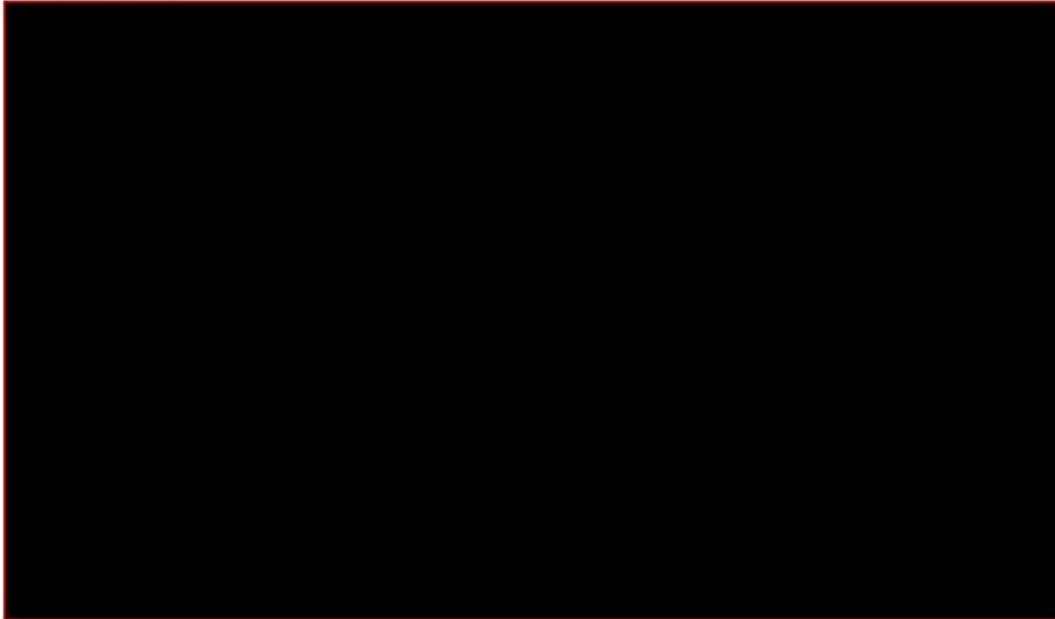
I am at a loss to understand why Western Power has decided to penalise owners of Grid-connected solar systems with a "time of use" reference tariff and hours which are different from other energy consumers, the majority of whom are our neighbours who work the same hours we do and use energy at the same time as we do but have NOT made the financial outlay to install a solar system.

Why is the proposed peak period for a energy consumer WITH a solar system different from an energy consumer WITHOUT a solar system. We will get home from work at the same time and use energy in the evening at the same time. Western Power states "Western Power recommends the following times for the on-peak, off-peak and shoulder times to provides greater cost reflectively and an incentive for the customer to alter consumption patterns to reduce cost." When precisely is one meant to use energy in order to 'reduce cost' when Off-Peak starts at 10pm at night and one has been forced to use Peak period power for the preparation of evening meals and the evening's entertainment and chores.

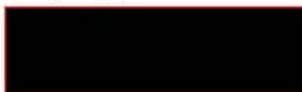
With reference to your document "Notice. Invitation for submissions. Proposed reference service and reference tariff for bi-directional connection points.", the document states "Applicable Reference Tariff: "RT14" in the Price List published in Appendix 5 of the Access Arrangement (Note: See discussion below for proposed tariff)", I was unable to find any reference to RT14 in any Western Power Access Arrangement document. It is a bit difficult to comment on a tariff when one has no idea to the proposed level of the tariff and how Synergy intend to pass this tariff on in the form of a new product. (It is noted that Synergy introduces high and low should periods to its Smartpower 'time of use' tariff which do not appear in the RT3 the reference tariff.)

To summarise, I wish to lodge my disapproval for the proposed RT14 reference tariff in its current form.

Tim Webber



--- Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:10 PM ---



25/09/2009 05:29 PM

To communitycomment@westernpower.com.au

cc

Subject Comment on network tariffs for small scale renewable energy systems

Hello

We have a photovoltaic system approved for our premise and we are presently waiting for approval of our Federal rebate prior to installation.

The Option 4 recommended by NAS discusses a higher peak, off-peak and shoulder tariff to compensate for the absence of consumption during photovoltaic production.

As I understand the argument, this means that the import/export is a nett tariff so power delivered back to the network is the instantaneous difference between photovoltaic production and household consumption.

Given that the small scale renewable system purchaser has made a significant investment to reduce their household carbon footprint, the imposition of a punitive tariff, justified as an avoidance of cross-subsidy from ordinary consumers, is a poor decision for several reasons.

1. The imposition of the higher tariff is another disincentive to taking personal action to reduce carbon emissions at a critical time in the work to address climate change.

2. The economic value of taking action will be further eroded if the tariff structure exceeds the cost of the present Green Energy tariff; the perception

is that personal action is being devalued compared to the Green Energy delivered by Western Power across the network. Unless Western Power has access to renewable sources to meet the renewable energy targets as they become mandatory then all installations of renewable systems are important for carbon reduction.

If the tariff proposal is to make the cost higher for small renewable energy producers, then the service level agreements for bi-directional connections will also need to be considered. My concern is that the photovoltaic system must have a level of service such that network disturbance does not periodically trip the inverter anti-islanding protection and disconnect the inverter during the peak insolation periods. To impose a punitive tariff and have the photovoltaic system unable to deliver power (either to the household or as a nett export to the grid) is an unrecoverable cost; both financially and from a carbon reduction perspective.

Overall, I disagree with the higher tariff and believe that a peak, off-peak, and shoulder tariff that matches existing retail tariffs is an adequate mechanism to encourage change of consumption patterns by consumers. I would argue that the awareness of consumption issues is greater in a householder who has sufficient awareness and motivation for reducing their carbon footprint that they are prepared to invest in a small scale photovoltaic system.

All the best
Harry McNally



— Forwarded by Hugh Smith/PER/Western_Power on 29/09/2009 05:10 PM —



29/09/2009 10:56 AM

To communitycomment@westernpower.com.au
cc

Subject Small scale renewable energy systems

Hello there

Sorry that this was not submitted before 25th, but I only noticed the advert over the weekend. Perhaps you could have mailed all customers that have systems? There was not much time either.

However if you are still interested here are my comments;

Tariff is presumeably not related to 'Smartpower' rates? So without actual rates and formula does not mean much. IN FACT IT IS RATHER CONFUSING!

There seems to be no mention of feed in tariffs?

Once again times do not relate to "Smartpower" times?

What would be useful would be to know how it compares with the present system.

I would appreciate further information.

R.B.Marshall

