



Australian Energy Regulator

Transmission Guidelines

Comments on the Draft Pricing Guidelines

by

The Major Energy Users Inc

May 2007

Assistance in preparing this submission by the Major Energy Users Inc was provided by Headberry Partners Pty Ltd and Bob Lim & Co Pty Ltd.

Major Energy Users Inc acknowledges the financial support provided by the Advocacy Panel in preparing this submission.

The content and conclusions reached are entirely the work of the Major Energy Users Inc and its consultants.

CONTENTS	Page
Executive summary	3
1. Introduction	8
2. Current pricing practices by TNSPs	14
3. Views espoused in the AEMC determination on pricing	23
4. The Pricing Guideline	32
5. Questions asked by the AER	43
Appendix A Differentiation between entry and exit points	49
Appendix B An example of a multi use substation	52

Executive Summary

Throughout the review processes undertaken by the AEMC on electricity transmission revenue and pricing, there was an unequivocal statement that the changes to the proposed Rules made were to incentivise TNSP investments. For exactly the same reasons, consumers see that the review processes which produced the economically efficient outcomes for TNSPs must also result in rational decisions on investments which consumers are going to make. It is in this light that the AER should take note of the submissions from consumers relating to the issue of TNSP revenue and pricing.

Prior to the recent decision by the AEMC on transmission pricing and revenue, regulators had paid scant attention to the way the regulated businesses allocated their costs and priced their services. Particularly in the case of transmission pricing, the AEMC (initially) took the view that this issue was one that needed little attention, as the revenue stream was constrained by the revenue cap, and any 'under' or 'over' recovery from pricing mismatches, was addressed in the next year's revenue stream..

Historically, some Australian regulators considered that if the pricing for each service was between the bounds of avoided cost and stand alone cost (the Baumol Willig range) then the pricing determined by the transmission business for each customer was effectively an issue for the business to make. However, the determination by the AEMC on pricing (reflecting the MEU representations) has created a number of changes that TNSPs (unlike on previous occasions) cannot now ignore.

It is quite clear that hitherto practices by TNSPs did **not** recognise the need to devote close attention to their pricing policies as there was little guidance from the Rules other than at the high level (i.e. the Baumol Willig rule)..

The MEU points to a number of aspects of the new AEMC Rules which will have a major impact on TNSPs approach to recovering their approved revenue through their pricing approaches. The most important of these is that the AEMC has accepted that the views of consumers for economically efficient pricing outcomes are now the primary driver behind the pricing practices to be established by TNSPs

The new transmission revenue and pricing Rules established by the AEMC highlight that pricing is of as much concern as is the establishment of revenue. The pricing approach by a TNSP must now provide a number of clear outcomes.

- It provides locational signals for both generation and loads

- It requires the costs for the provision of services to be allocated to the “causer” of the need for investment in the network
- It provides a mechanism for equitable allocation of the cost of the transmission services amongst classes of users
- It requires that even occasional use of assets requires the user to pay for the full provision of the service provided
- It provides a clear signal to those class of users where their load shape requires provision of the assets for very few times in the year (eg air conditioning)

The AEMC makes it clear that consistency of pricing approach across the NEM is in the interests of consumers. This need for consistency by consumers must have a higher priority than the flexibility provided to TNSPs. Accepting this view requires the AER to determine the approaches that are to form the basis for pricing and to ensure the guidelines allow TNSPs little latitude to unilaterally decide on their own pricing approach (which can disadvantage particular classes of customers).

The MEU observes that the draft AER Pricing Guidelines clearly reflect the short time lines given to the AER resulting from the AEMC’s late Final Rules Determination. As a result, many details and approaches have been lifted directly from the ACCC’s Statement of Regulatory Principles for transmission networks, and do not adequately consider the major changes in regulation following the AEMC’s Determination. This oversight disadvantages consumers in general and must be rectified.

Accordingly, many of the MEU’s comments are an attempt to encourage AER reflection and consideration of detailed issues that arise because of the AEMC recent Rules changes.

One issue common to all the draft guidelines is that there is no specific time when the AER will assess the effectiveness or otherwise of the guidelines to provide the correct direction for TNSPs to take. The MEU considers that all such guidelines must have a review date so that the preceding experiences can be integrated into the guidelines and applied to future reset reviews. **The MEU strongly recommends that there be a formal review of all guidelines developed by the AER within two years of their implementation.**

Comments on specific issues are as follows:-

- The MEU considers that contracted maximum demands should be used as the basis for price development of TUoS prices combined with load flows applying for the few hours on each of the few peak system days that occur in a year.

- As the bulk of the costs which provide the basis for the general and common services are related to the costs of providing the assets which are in turn sized to meet the contracted demands, then these postage stamped prices should be based on the contracted demands used to size the assets required.
- The connection point where the TUoS and general and common services are levied should be the connection point between the entry/exit assets and the shared network.
- Where an asset is operating at maximum capacity, there is a requirement for an approach that will provide a disincentive to users connected to that element so as to either reduce demand or not to increase demand, whereas for elements of the network which have adequate capacity for additional demand, pricing should provide an incentive to increase demand and so better utilize the assets.
- Co-location of generation and load can be encouraged by a sensible approach to sharing the costs of entry and exit and to have general and common service costs allocated at the connection point between entry/exit and the shared network.
- The MEU considers that contracted maximum demands should be used as the basis for price development of TUoS charges combined with load flows applying for the few hours on each of the few peak system days that occur in a year.
- As the bulk of the costs which provide the basis for the general and common services are related to the costs of providing the assets which are in turn sized to meet the contracted demands, then these postage stamped prices should be based on the contracted demands used to size the assets required.
- The connection point where the TUoS and general and common services are levied should be the connection point between the entry/exit assets and the shared network, with the same definition used by all TNSPs.
- The need for consistency across the NEM means that all TNSPs follow the same basis for pricing approaches.
- The Guidelines must be developed so that not only are the pricing structures consistent across the NEM, but that the derivation of the inputs

to the pricing is consistently applied by all TNSPs. There is little reason not to impose such consistency, but from a consumer viewpoint consistency in pricing provides a number of benefits (including locational signals). This was recognised by the AEMC in its Pricing Rules Final Determination.

- Consistency is preferred but where there is opportunity for TNSPs to introduce alternatives providing for a greater benefit to consumers then there should be an avenue which provides for that opportunity in the AER Guidelines.
- There needs to be adequate disclosure by the TNSP to allow the AER to identify that consistency in approach has occurred and that allocation of costs to each pricing element follows the same approach by all TNSPs.
- TUoS charges must be based on demand as demand is what drives the capital costs. The demand identified by the user must be the basis for allocation of the cost of resources used. Thus demand must be based on the contracted amount or on the highest demand recorded in the previous 12 months whichever is the higher.
- The allocation of TUoS charges should be developed applying T-Price, using as the inputs the flows that are recorded each half hour between the hours of 11 am to 7 pm on the 10 highest demand days in the latest previous 12 months.
- Postage stamped prices for general and common services should be based on demand, in the same way as TUoS charges allocated (based on demand). Allocating these costs on the higher of contract demand and actual recorded demand in the previous 12 months, provides an incentive to limit demand and so lessen the pressure for new augmentations.
- MEU does not agree with attempting to define specific types of assets with each category.
 - Entry and exit assets should be defined as those assets which can be removed from a connection point to the shared network without impacting consumers connected at other points of the network
 - Common services should be defined as those assets which cannot be removed without impacting every consumer connected to the network
 - An entry is where energy is injected into the network and an exit is where energy is extracted from the network. (see section 2.7 and appendix A)

The MEU is concerned to ensure that the AER reflects carefully on this submission. The specific details on current pricing practices by TNSPs and the key AEMC Rule changes that are required to be reflected in the AER's pricing guidelines have been based on MEU member companies' experiences and on members close interactions with the AEMC (during the AEMC review processes).

The MEU recognizes the AER's limited exposure to TNSPs pricing guidelines (and the short time-frame provided for this review) and would welcome further interactions.

1. Introduction

1.1 The MEU

The Major Energy Users (MEU), which comprises some 20 major energy using companies in NSW, Victoria, SA, Tasmania and Queensland, welcomes the opportunity to provide comments on the AER's draft electricity transmission pricing guidelines. In particular, the submission represents the views of the Energy Markets Reform Forum (NSW), Energy Consumers Coalition of South Australia, the Energy Users Coalition of Victoria, the A3P and the Cement Industry Federation.

Analysis of the electricity usage by the members of MEU shows that between them they consume about 5% of the electricity generated in the NEM. Many of the members are located in regional parts of Australia, some distance from the regional nodes. As such, they are highly dependent on the transmission network to deliver efficiently the electricity so essential to their operations. Being regionally located, those members also have an obligation to represent the views of their local suppliers and of the regionally based workforce on which the companies are dependent. With this in mind, the members require their views to not only represent the views of large energy users but also those of smaller power usage facilities and residences located near to their regional operations.

The companies represented by the MEU (and their suppliers) have identified that they have an interest in the **cost** of the energy networks services as this comprise a large cost element in their electricity and gas bills.

Although electricity is an essential source of energy required by each member company in order to maintain operations, a failure in the supply of electricity or gas effectively will cause every business affected to cease production, and members' experiences are no different. Thus the **reliable supply** of electricity and gas is an essential element of each member's business operations.

With the introduction of highly sensitive equipment required to maintain operations at the highest level of productivity, the **quality** of energy supplies has become increasingly important with the focus on the performance of the distribution businesses because they control the quality of electricity and gas delivered. Variation of electricity voltage (especially voltage sags, momentary interruptions, and transients) and gas pressure by even small amounts now has the ability to shut down critical elements of many production processes. Thus member companies have become increasingly more dependent on the quality of electricity and gas services supplied.

Each of the businesses represented here has invested considerable capital in establishing their operations and in order that they can recover the capital costs invested, long-term **sustainability** of energy supplies is required. If sustainable supplies of energy are not available into the future these investments will have little value.

Accordingly, MEU is keen to address the issues that impact on the **cost, reliability, quality** and the long term **sustainability** of their gas and electricity supplies.

The members of MEU have identified that transmission plays a pivotal role in the electricity market. This role encompasses the ability of consumers to identify the optimum location for investment of its facilities and providing the facility for generators to also locate where they can provide the lowest cost for electricity generation. Equally, consumers recognise that the cost of providing the transmission system is not an insignificant element of the total cost of delivered electricity, and due consideration must be given to ensure there is a balance between the two competing elements.

1.2 A shared network: the underlying principles

As consumers are the prime providers of funds to support the transmission network, they accept that having a jointly shared facility is by the far the most cost effective approach to the provision of a natural monopoly service. Not only would it be absurd for each user to have a separate supply arrangement for its provision of power, it is economically inefficient from a national viewpoint for this to occur. Having established that a joint facility is the most appropriate approach for infrastructure provision, there is an unstated but real requirement that the costs each user is liable for must be equitably shared and that the prices they pay are representative of the use they make of the shared facility.

Consumers see transmission pricing as an essential element of the AER regulatory reviews of TNSP's. Pricing is the allocation of the revenue streams into clearly identifiable elements so that consumers can readily see that the **allocation of the permitted revenue is equitably allocated between all consumers representing the share of the cost of the provision of the transmission network. The outcome of this approach provides for all consumers to see that they each pay their equitable share of the jointly used assets. It also provides certainty that decisions made by each user (such as location, time of and frequency of use, and overall demand placed on the network) are adequately recognised by the user, and that no one user is effectively supporting less rational decisions by another user.**

Inappropriate pricing of services leads to inefficient outcomes. A user that is convinced that it is paying too much for the service will take a number of actions to reduce its costs, perhaps leading to nationally inefficient outcomes. The user that is not paying its fair share for the service undervalues it and makes inappropriate use of the facility. Over allocation of transmission costs can lead to companies deciding to relocate overseas or close down, causing remaining users to provide that contribution from the business ceasing its operations. Equally, under allocation of costs results in the proliferation of occasional users who do not recognise that impact of the decisions they are making.

Consumers have observed that transmission companies have little incentive to make appropriate allocational decisions about their revenue. Their objective is maximization of revenue. This does not mean that they have not attempted to allocate costs equitably, but as pointed out by the AEMC in its decision¹ on pricing (page 15)

“... a *revenue cap* form of price control provides less incentive for a TNSP to maximise network utilisation in the short run. This is because a revenue cap allows for any under-recovery of allowable revenue by a TNSP in one year to be recovered in subsequent years. This provides benefits through greater revenue certainty for transmission businesses, which is important considering they incur costs that are largely fixed and have little capacity to influence final demand. If a revenue cap is accompanied with low risk of regulatory stranding of redundant assets, TNSPs will have relatively weak incentives to set prices to promote high network utilisation as a means of reducing the risk of redundancy. If anything, under a revenue cap form of control, TNSPs have an incentive to formulate prices in a manner that is as mechanical and non-controversial as possible, in order to avoid payment disputes with their customers.

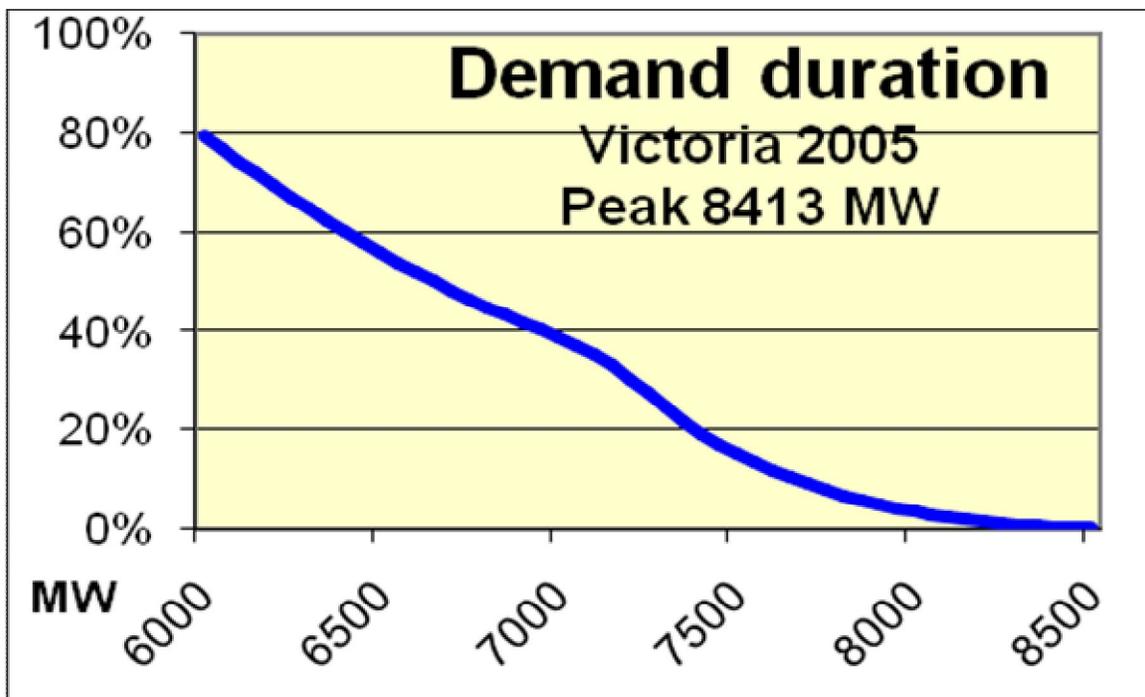
This discussion highlights that in the absence of pricing rules, regardless of the form of control adopted, a revenue cap form of regulation provides weak incentives for TNSPs to price services in a way that promotes the NEM Objective. In view of the importance of transmission prices for efficient utilisation and investment in both the network and electricity markets, and the weak commercial incentives of TNSPs to price efficiently, the NEM Objective is likely to be best served by some form of regulatory oversight of transmission pricing.”

¹ AEMC 2006, *National Electricity Amendment (Pricing of Prescribed Transmission Services) Rule 2006 No. 22*, Rule Determination, 21 December 2006.

1.3 Pricing of network services

An observation of the usage profile made of transmission assets can be made by examining the profile of regional demand. Whilst it is accepted that regional demand is only an indication of the usage of specific assets, it does provide a guide.

In Victoria in 2005², the peak regional demand was some 8413 MW. In that year the lowest demand was 3780MW on Christmas Day, a Sunday. Over the year, a low of about 4000 MW was recorded a number of times.

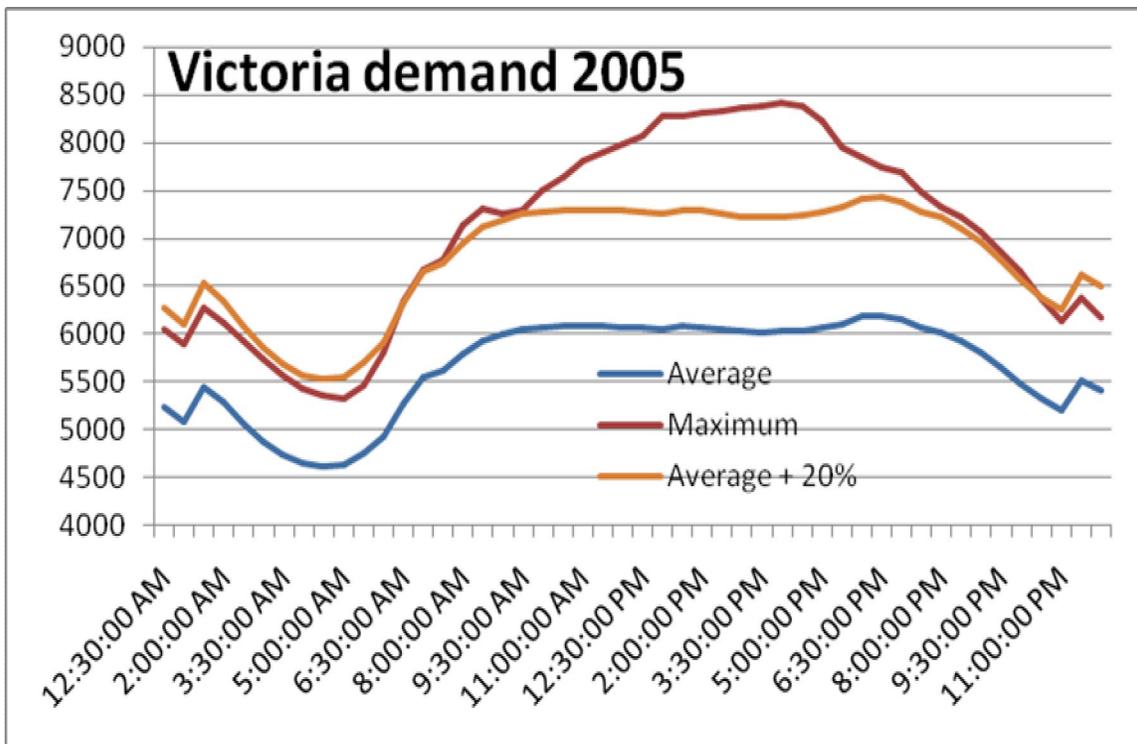


Source: NEMMCo and NEM Review

This chart implies that the Victorian network must be sized to transport a minimum 4000 MW with a peak capacity of over 8500 MW – a range of over two times.

² This year and region was selected as it is observed that it is typical of most regional demand variation. The demand in SA is more “peaky” than this, but Queensland is less so – NSW has a similar pattern to that of Victoria.

A review of the average daily load shape of the Victorian demand for 2005 shows that, on average, the average minimum demand was some 4600 MW and there is an average peak of 6200 MW. The demand levels below the average peak demand of 6200 MW would have applied for about 70% of the time.



Data source: NEMMCo and NEM Review

By applying an averaging technique, it is clear that for about 2/3rd of the time during the day the peak demands recorded for each half hour period of the day are within about 20% of the average demand through the year. This analysis indicates that that most users of electricity would have a normal variation in demand of 20% of the average.

The significant mismatch between the “average + 20%” and the recorded peak demand occurs between the hours of 11:00 AM to 7:00 PM, implying that for about 1/3rd of the time the peak demands exceeded a reasonable premium. The largest difference is that the actual peak exceeded the “average + 20%” by 16%.

These two graphs indicate that an additional 1100 MW capacity in the network was required in addition to an assessed 20% premium needed to manage normal variation in demand. This excess peak demand applies for very limited periods.

This means that users who have flattish loads (ie operate within a range of +/- 20% of their average demand) are required to pay for network assets which are needed by some users that only **occasionally** use the network to operate at an excessive peak and as a result cause the network to be sized for this occasional high demand.

There have been a number of studies as to why this excessive peak occurs, and it has been identified that it is the burgeoning use of refrigerative air conditioning that causes these excessive peaks. This style of air conditioning is used extensively in office blocks and shopping malls, as well as for residential use.

There is concern that the pricing approaches used by electricity transmission (and distribution) network owners, hide the true costs of providing for these short term excessive peak demands and are therefore not apparent to those users of the networks causing the excess peaks.

In particular pricing approaches based on **consumption** have been used as this is convenient but in fact occasional high usage for short periods results in low consumption, despite the fact that the network is sized to carry the peak demands. Large flat users of electricity are penalized by an approach that prices electricity transport on a consumption basis rather than on a demand basis.

2. Current pricing practices by TNSPs

TNSPs currently have a variety of different pricing practices. Mostly these follow the following:-

- a fixed time based cost for entry and exit charges
- either MW based and/or MW/MWh based TUoS charges
- the lowest of MW based or MWh based for general charges
- the lowest of MW based or MWh based for common service charges

Victorian transmission has a fixed price for exit charges and TUoS, and NSW transmission does not segregate TUoS general and common service charges.

This illustrates the inconsistency across all TNSP pricing approaches, with only Transend (Tasmania) and ElectraNet (SA) having identical approaches to pricing.

2.1 Consistency

One of the decisions by the AEMC in the transmission Rules changes was that a common approach to all transmission pricing is a preferred approach. In its determination on transmission pricing³ (pages 1 and 2) the AEMC states:-

“A concern raised in submissions including by the MEU, however, was the potential for inconsistency across jurisdictions under a principles based approach. The Commission considers it important that customers operating in multiple regions face similar price structures and outcomes in relation to price.

Therefore, the Commission has sought to strengthen the guidance for the TNSPs in formulating their pricing methodologies by requiring the AER to develop guidelines in a number of areas. In developing these guidelines the AER is required to consider the desirability of consistency across the NEM in relation to pricing structure.”

The reasoning behind the MEU request and the AEMC agreement for the view is that TNSPs have little incentive to provide a pricing approach which is **truly cost reflective**, and consumers need to understand the basis of TNSP pricing and the costs, so that ready comparisons can be made between regions.

³ AEMC 2006, *National Electricity Amendment (Pricing of Prescribed Transmission Services) Rule 2006 No. 22*, Rule Determination, 21 December 2006

The AEMC has observed in its determination⁴ on revenue that there are to be three basic cost allocations to be made by TNSPs – for Prescribed Services, for Negotiated Services and for Other Services, and that costs allocated between the three must reflect the costs associated with each service.

In the pricing Rules the AEMC points out that the costs for providing the prescribed services are to be allocated into five categories – entry, exit, TUoS, general and common services. Further, the concept of negotiated services effectively determines that these are to be either an exit service (for consumers) or an entry service (for generators). Effectively the regulatory revenue permitted to a TNSP is the sum of the revenue for prescribed services and revenue for negotiated services⁵.

The AEMC stated that they had a concern that there be certainty as to where costs lie for the equitable allocation between different services and stated (page 37)⁶:-

“As a result of the ambiguity of these definitions in the Rules, the Commission understands that the current practices of different TNSPs in allocating assets (and therefore costs) to prescribed services differs markedly such that charges for essentially the same connection service may vary widely across the NEM, with no underlying rationale. In addition, such ambiguity potentially creates an environment in which TNSPs could engage in double dipping by recovering certain costs in both prescribed and connection service charges or an over-inclusion of assets into the RAB.”

Implicitly the AEMC is stating that costs cannot be allocated twice, and achieving this consistency across the NEM will assist in ensuring this outcome is achieved.

2.2 The relation between costs and assets

All TNSPs allocate part of their prices against consumption – ie MWh. Some allow the user to identify the lower cost approach and to use this, others set a significant element of their cost recovery against consumption.

⁴ AEMC 2006, *Draft National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006*, Rule Determination, 16 November 2006

⁵ Whilst Negotiated Services are to be negotiated between the TNSP and the user, the regulator has an involvement in ensuring that the costs for a Negotiated Service are reasonable

⁶ AEMC 2006, *Draft National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006*, Rule Determination, 16 November 2006

It is essential to identify what is the primary cost driver from the point of view of the TNSP. This then provides a clear indication as to the principles between allocating costs between demand and consumption. A typical breakdown of revenue from a regulatory decision is as follows⁷:-

Table 6 AER's draft decision on allowed revenue (\$m, nominal)

	Total
Return on capital	2043.17
Return of capital	224.72
Operational expenditure	<u>781.93</u>
Total direct costs	3050.85
Net taxes payable	<u>105.92</u>
Unsmoothed revenue	3156.77

This identifies that of the approved direct revenue of \$3050.85m, 74% is derived from return on capital and the associated depreciation. These items are all capital related.

Analysis of the opex breakdown (the other 26% of direct costs), shows:-

Table 6.2 Powerlink's opex proposal (\$m, 2006–07)

	Total	% of opex
Network maintenance	368.84	46.8
Network operations	83.54	7.0
Asset manager support	138.46	17.6
Corporate support	46.40	5.9
Insurance	26.36	3.3
Capex efficiencies	38.50	4.9
Debt management	21.56	2.7
Equity raising costs	12.35	1.6
Network support	80.04	10.2

Network maintenance, asset manager support, insurance and network support are all clearly related to the network and related to assets. These elements are all asset related and comprise nearly 80% of the opex allowance.

This example shows that of the direct revenue permitted a TNSP, some 95% of the revenue is directly related to assets.

⁷ AER Draft Decision Powerlink Queensland transmission network revenue cap 2007–08 to 2011–12 8 December 2006

It is the size of assets required that is determined by demand. Thus it could readily be derived that 95% of the regulated revenue permitted is effectively demand related.

2.3 Common Services

It is possible that some of the assets cannot be clearly identified as being related to demand such as a control centre for network management, but the size of a substation, the capacity of the transmission lines connecting substations are related to demand. Certainly more assets are related to demand than not. Therefore as a prima facie starting point, it should be assumed that all assets are related to demand, and each asset then assessed as being demand related and common to all users.

It is clear (from the MEU's observations) by the large amount of revenue recovered as "common services" that there has been little attempt made by TNSPs to use a clear and consistent approach to cost allocation.

2.4 General Services

General Services are that element of cost recovery that compromise the:-

- Half of the TUoS charge that is not recovered as a locational element
- The return of settlements residues
- Previous year's 'over' or 'under' recovery of revenue

Currently this amount is recovered under a variety of approaches, with a choice of the lesser of a demand based recovery and a consumption based recovery, and a mix of demand and consumption.

TNSPs have not provided any sound reasons for the approaches they have taken, other than that the approach is based on historical reasons!

2.5 Entry and Exit Services and Negotiated Services

Negotiated Services⁸

“... are defined in the Revenue Rule as services dedicated to or requested by specific parties which are characterised by either a lack of

⁸ AEMC 2006, *Draft National Electricity Amendment (Economic Regulation of Transmission Services) Rule 2006*, Rule Determination, 16 November 2006, page xvii

homogeneity, limited market power, or material countervailing buyer power.”

Essentially, negotiated services will include all new entry and exit services (except those exit services for distribution businesses) as well as some augmentations to the shared network where a specific user seeks increases to the capacity of the existing shared network and the augmentation is not permitted under the Regulatory Test.

Thus there is an implicit differentiation between identical services (entry and exit services) between those already operating under the prescribed services regime and future negotiated services regime. This is **inconsistent** and the AER can address the issue by assuming that the principles behind identifying entry and exit services are made common between existing and new. This point has particular purpose when identifying where the connection point is in relation to the levying of general and common services.

2.6 Encouragement to co-locate

There is a general view throughout the AEMC decisions on revenue and pricing that there should be signals to encourage generators and consumers to co-locate, reducing the need for unnecessary extensive transmission networks.

The new pricing Rules, however, do little to incentivise generators to locate other than the location where their lowest cost option is available – there is no incentive to improve utilisation of the network, and at best a small disincentive not to locate where there might be congestion.

Consumers are therefore the only effective target for locational signaling so as to locate adjacent to existing generation or where new generation might locate.

However, if the consumers who do so locate in order to benefit from adjacent generation, then this needs to be strongly encouraged. Under the old Rules there was little such incentive (except as a potential by-pass of the transmission system).

With the new Rules on revenue and pricing there is an opportunity to provide incentives for co-location of load and generation. Such opportunities include both parties sharing from common use of entry/exit assets, and for general and common service costs to reflect the demand at the connection point between entry/exits and the shared network.

2.7 When entry and exit use the same assets

In its determination on pricing the AEMC noted that there are assets which are used by a number of users. On page 22 it states:-

“In recognition of the problems associated with applying the causer pays principle in a shared network with economies of scale and scope the Commission considers that where assets are being used for multiple purposes that it is appropriate to allocate costs on the basis of use. This principle acknowledges that it is often more efficient to utilize existing sunk assets rather than duplicating assets when they are required.”

The importance of this statement cannot be understated – whilst it is accepted that such shared assets might be jointly used by users of the same class (eg multiple generators for entry and multiple consumers for exits for example), it also applies equally to users of different classes, such as a generator using the same assets for entry to the network as a consumer does for its exit from the network. With the greater emphasis on incentivising consumers and generators to co-locate and so reduce the need for transmission assets, there is a likely increase in such common usage of assets for entry and exit.

Thus it is necessary for the TNSPs to identify where the same assets are used for both entry and exit, and to develop a cost allocation approach which recognises this actuality. The AER must require this.

Currently TNSPs allocate entries to generators and exits to consumers⁹. This is a misleading approach. There are a number of scenarios which need to be examined in relation to this sharing of entry and exit assets.

1. Most generators (except those with black start facilities) require electricity for start up. This means that for a time the entry assets are acting as an exit. As the connection point is an exit it is required to contribute to TUoS, and general and common services.
2. There are instances where for common sense reasons, a small load is connected adjacent to entry assets which include a long supply transmission line to a demand centre. Under the causation principles established by the AEMC in its pricing determination, this small load would be required to pay for the TUoS associated with the supply arrangements, and therefore allow the generator free access to a system that it would otherwise have to pay for as an entry service.

⁹ See Appendix A for more detailed discussion on this issue

3. A large embedded generator can connect to the distribution system to avoid entry costs to the transmission system, even though its output exceeds the demand of the consumers connected.

In its draft determination¹⁰ on pricing (page 32) the AEMC stated that:-

“As for the MEU’s point about whether it is appropriate for consumers to be charged for transmission based on their peak annual demand, the Commission believes that this is the correct outcome. Even if a consumer only requires an asset once per year, that asset nevertheless needs to be developed – and the costs incurred – to serve that need.”

The import of this statement is that even occasional use of an asset requires the user to pay for its share of the costs of provision of the asset. This principle applies equally here.

Both supply and demand vary with time. At the theoretical balance point where supply is assumed to equal demand, this in reality becomes a range. Theoretically if there is only one consumer connected to an entry point and if the generation is not operating, the entry point becomes an exit point. Equally if there is an embedded generator operating and all demand ceases, then what was a transmission exit point actually becomes a transmission entry point.

This can be demonstrated (see below) by use of a continuum line which shows that at the left hand end of the continuum is a generator with black start capability, requiring no use of the network to commence generation. Near this point, is the generator which requires supply in order to commence generation, and the supply line from a generator to which a small load is connected.

At the right hand end is the exit point where there is no generation. The continuum line shows that even where some embedded generation is present, where the output of the embedded generation never exceeds the load in the local area so the connection is still always an exit. The connection point can become an entry when the embedded generation can exceed the local demand.

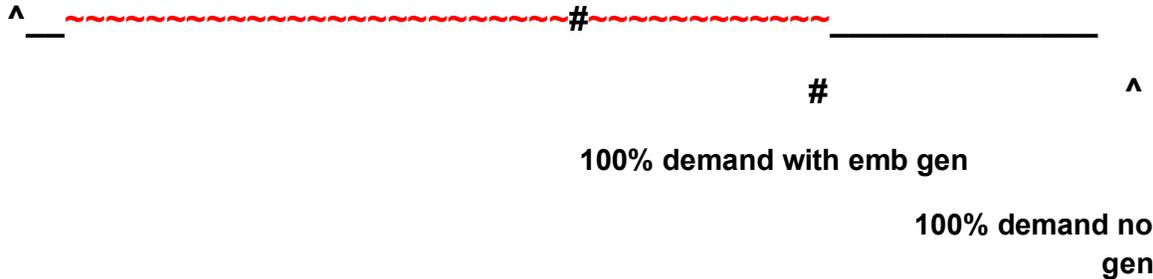
The balance point is where the connection point is an entry and exit for equal periods of time.

¹⁰ AEMC 2006, *Draft National Electricity Amendment (Pricing of Prescribed Transmission Services) Rule 2006*, Draft Determination, 19 October 2006

100% supply, no load

~~Potential to be exit or entry~~

Balance point



That there is a range over which the same connection assets can provide an entry service at one time and an exit service at another is now evident. The revised Rules accept the practicality of this and develop the principle that shared assets should be paid for by all of the parties using the assets on a “causer pays” basis.

Despite the obvious “grey area” between what is an entry and what is an exit, TNSPs have maintained that there no need to differentiate between different uses of connection assets, and they have determined that connection points are either purely an entry or purely an exit. The TNSPs have not accepted that there is in fact a middle ground and that they have a responsibility to recognise the reality of the extensiveness of this common ground. However, MEU would argue that the (additional) cost implications for consumers arising from the TNSPs approach suggest that the situation must be rectified.

2.8 Conclusions

The determination by the AEMC on pricing has created a number of changes that TNSPs have been previously able to ignore.

It is quite clear that current practices by TNSPs do not recognise the need to devote close attention to their pricing policies to ensure that the outcomes desired of the Rules will be attained (including the NEM objective viz “..... long term interests of consumers”).

The MEU has identified a number of aspects of the new Rules which will have a major impact on TNSPs and their approach to recovering their

approved revenue through their pricing approaches. The most important of these is that the AEMC has accepted that these views of consumers are now the primary driver behind the pricing practices to be established by TNSPs.

It has been recognised that In order to reduce the costs of providing transmission assets, generators and consumers should be encouraged to share the use of entry and exit assets.

Co-location of generation and load can be encouraged by a sensible approach to sharing the costs of entry and exit and to have general and common service costs allocated at the connection point between entry/exit and the shared network.

As consistency of pricing approach is a stated element of the AEMC determination on pricing, the AER must provide clear direction so that the outcome of the TNSP pricing approaches results in consistency across the NEM.

3. Views espoused in the AEMC determination on pricing

Prior to the recent decision by the AEMC on transmission pricing and revenue, some regulators had paid scant attention to the way the regulated businesses allocated their costs and priced their services. Particularly in the case of transmission pricing, the regulators took the view that this issue was one that needed little attention, as the revenue stream was constrained by the revenue cap, and any ‘under’ or ‘over’ recovery from pricing mismatches, was addressed in the next year’s revenue.

Historically regulators considered that if the pricing for each service was between the bounds of avoided cost and stand alone cost (the Baumol Willig range) then the pricing determined by the transmission business was effectively an issue for the business.

On page 28 of its determination on pricing, the AEMC states:-

“Overall, the Commission considers that the approach embodied in the Final Pricing Rule advances the NEM Objective by providing for a principles-based approach that facilitates efficiency in pricing, removing unnecessary prescription in Rules and allowing flexibility for innovative pricing methodologies to develop over time. In addition, it allows consumers to have an increased focus and input into the development of pricing methodologies.”

The new transmission revenue and pricing Rules established by the AEMC highlight that pricing is of as much concern as is the establishment of revenue, and that consumers must be allowed increased input (and their interests given increased focus) in the development of pricing methodologies. The pricing approach by a TNSP must now provide a number of clear outcomes.

- It provides locational signals for both generation and loads
- It requires the costs for the provision of services to recognise that the “causer” of the need must carry the costs of the provision of the service
- It provides a mechanism for equitable allocation of the cost of the transmission service to users
- It requires that even occasional use of assets requires the user to pay for the full provision of the service provided
- It provides a clear signal to those users where their load shape requires provision of the assets for very few times in the year (eg air conditioning)

Of greatest importance is that the new Rules recognise that it is consumers that should be the prime driver behind establishing the pricing approaches used by TNSPs to recover their approved revenue. The AEMC also recognises that TNSPs have little or no incentive to get the pricing “right” to achieve the outcomes needed for pricing to achieve.

3.1 Causation

The AEMC devotes extensive discussion as to how the costs for services must be derived. A number of approaches are discussed, but the AEMC decided that “causation” for the need of the service is the primary tool to be used for cost allocation, and hence pricing.

3.2 Connection point

The discussion of what constitutes a connection and a connection point, receives considerable attention in the final determination on revenue. On page 37 the AEMC observes

“As a result of the ambiguity of these definitions in the Rules, the Commission understands that the current practices of different TNSPs in allocating assets (and therefore costs) to prescribed services differs markedly such that charges for essentially the same connection service may vary widely across the NEM, with no underlying rationale. In addition, such ambiguity potentially creates an environment in which TNSPs could engage in double dipping by recovering certain costs in both prescribed and connection service charges or an over-inclusion of assets into the RAB.”

The outcome of the decision is effectively that connection assets are the entry and exit assets. The AEMC has decided that where such connection assets are for the use of identifiable users then these assets will be priced on a negotiated basis. The AEMC also seeks for ensure consistency in approach across the NEM. Thus for the purposes of equality it makes eminent sense that all connection assets (regardless that they are provided under a prescribed service or a negotiated service) where users of the assets can be readily identified (and therefore have costs directly attributed to them) there should be a common approach to cost allocation and pricing.

The AEMC decided (page 46 of the pricing decision) that the service for entry and exit shall be priced on a fixed amount per year.

“For the recovery of the ASRR, a TNSP is to develop separate prices for each category of Prescribed Transmission Service in accordance with the following principles:

- prices for Prescribed Entry and Exit Services must be a fixed annual amount;”

Thus the clear intention is that connection assets are to be costed separately from other elements comprising the revenue. The implication is that the connection point for assessment of all other costs must be at the point where the connection assets connect to the shared network. There is no doubt that where a connection is made as a negotiated service that all costs associated with the shared network must be assessed at the point where the negotiated service ceases and the shared service commences.

The MEU considers that in the interest of consistency across the NEM, where these connection assets are provided as a prescribed service, then the same view should apply – that the connection point to the shared network is that point where the entry/exit assets connect to the shared network.

The AEMC did address this concern to an extent where it states in the pricing final decision (pages 40 and 41):-

“With respect [to] MEU’s and Hydro Tasmania’s contention about the appropriate location of the connection point and hence the appropriate point for determining transmission charges, the Final Pricing Rule does not change the definition of ‘connection point’. Therefore, where a connection point is located continues to be a matter for the TNSP and its customers to determine. The Rules do not preclude a transmission customer or customers agreeing with a TNSP on the location of the connection point. In that regard, the Commission considers this to be a matter of detail and administration and is therefore not appropriate to be specified in Rules.”

The MEU does not concur that this issue needs to be left to TNSPs and its customers. To do so, precludes the potential for consistency across the NEM, which is a stated goal of the AEMC, and of consumers.

The cost of the TUoS service is the locational element reflecting the costs of using the shared network from the connection of the entry/exit assets. These costs must be reflective of the use of assets upstream of the connection between the entry/exit assets and the shared network. Thus for the purpose of cost allocation, the connection point is that connection between entry/exits and the shared network.

The MEU considers that the AER guidelines must require a common definition for the connection point which is used to allocation of other services such as the TUoS, common and general services. The MEU considers that logically this point must be the connection between entry/exits and the shared network.

This definition is supported by the MEU suggestions in section 4 as to how to define entry, exit and common service assets.

3.3 Common services

Common services are those defined as services that

“provide equivalent benefits to all *Transmission Customers* who have a *connection point* with the relevant *transmission network* without any differentiation based on their location within the *transmission system*.”

These services can be also described as those which have no locational benefit, and therefore cannot be ascribed to a part of the transmission network. There is reference made by the AEMC in its final decision on pricing that such services might include the inclusion of reactive power assets.

The MEU has a fundamental concern that the allocation of costs to common service has been expansively attributed. A review of the pricing structures used by different TNSPs shows that allocation of costs to common services varies significantly. As a result, it is recommended that the AER guidelines should provide a consistent approach to allocation of costs to common services.

The MEU suggests that the first allocation must be to identify, with certainty, those assets which really cannot be allocated to a part of the network, rather than approaching the allocation from the opposite direction. This means that the TNSP must nominate those assets which it deems cannot be readily allocated to the network or part of the network.

For example, reactive power assets are located in specific parts of the network to support voltages in that area – they are not sized and located to support all consumers.

There has been a view that common service should be a “catch-all” so that costs can be allocated across all consumers rather than focused on those that might benefit. In this regard it is pointed out that about half of the value of the assets provided by TNSPs is recovered under a postage stamp basis. Therefore there is no need to use common service to provide a greater component of costs smeared over all consumers.

The MEU believes that the AER must develop a guideline which provides direction to TNSPs as to what is considered appropriate to be included in cost allocation of common service.

3.4 Demand vs consumption as allocator

The AEMC has determined that TUoS charges shall be recovered in proportion to demand¹¹ (page 44)

“The Commission has been persuaded, however, that the Rules should be explicit that pricing for the locational TUoS charge should be based on demand (rather than consumption) of times of peak system conditions. The Commission considers that demand provides a better and clearer signal to users of the network. Therefore, the Final Pricing Rule has been amended to reflect this position.”

As the locational element of TUoS is recovered using a process based on demand, there is an equal argument that the non-locational element of TUoS be recovered using a similar approach. It therefore raises the question as to why the TNSPs have a variety of approaches to recovery of this element using a mix of demand and consumption.

General Service is that element of cost recovery that catches:-

- Half of the TUoS that is not recovered as a locational element
- The return of settlements residues
- Previous year ‘over’ or ‘under’ recovery of revenue

The settlements residue is an amount of money held by NEMMCo effectively as a result of congestion on inter-regional connectors, and resulting from the effect of differential prices between constrained regions. As such there is no clear basis as to the most appropriate method for redistributing these funds back to consumers.

The last significant element of the General Service charge relates to under or over recovery of permitted revenue. If the bulk of the recovery relates to one dominant basis of recovery of revenue, then this same basis should be used as the means for allocating the costs of under/over recovery.

¹¹ AEMC 2006, *National Electricity Amendment (Pricing of Prescribed Transmission Services) Rule 2006 No. 22*, Rule Determination, 21 December 2006

The MEU considers that:-

- **the guidelines must provide for the recovery of general service which is the most appropriate allocator of the costs for providing the services.**
- **it is totally inappropriate for the TNSP to provide different classes of user with opting for an approach which reduces their costs for receiving the service.**
- **the AER must ensure that whatever cost allocator is used, the outcome must minimise the potential for cross subsidization between different users and that the pricing signals developed must be as strong as possible to demonstrate to the users affected, the costs associated with their decisions.**

3.5 What is a demand basis?

The AEMC provides extensive discussion in the pricing decision in regard to the issues of basing prices on demand. On pages 44 and 45 of the final decision it states:-

“The Commission has been persuaded, however, that the Rules should be explicit that pricing for the locational TUoS charge should be based on demand (rather than consumption) of times of peak system conditions. The Commission considers that demand provides a better and clearer signal to users of the network. Therefore, the Final Pricing Rule has been amended to reflect this position.

Taking this approach in the Rules requires the resolution of two key issues. The first is the precise meaning of ‘demand’ – whether it should refer to contract demand, actual demand or some other measure. Resolution of this issue is likely to require consultation with TNSPs and transmission customers. The second issue is the timeframe of the assessment – whether demand and peak network conditions should be assessed over a single half-hour for the year, or whether they should be assessed over one day, several days or a longer period. The Commission believes these matters are best left to the assessment of the AER through an extensive consultation process.

Therefore, the Final Pricing Rule provides for the AER to develop pricing guidelines on how demand-based pricing for the locational TUoS charge is to be formulated, having regard to:

- the desirability of consistency across the NEM, particularly for Transmission Customers that have operations in multiple jurisdictions; and
- the desirability of sending efficient signals to actual and potential Transmission Network Users regarding their investment and network utilisation decisions.

With respect to the non-locational TUoS price (currently, the TUoS General price) and the Common Service price, these are currently recovered through postage-stamped pricing – which means that prices are set at the same rate irrespective of the location or consumption of the customer. The existing Rules specify that TNSPs must calculate both an energy-based (\$/MWh) postage-stamped price for these charges as well as a demand-based price (\$/MW) and apply the most favourable to each Transmission Customer. However, the demand-based price is only to apply where the relevant connection agreement specifies a maximum demand level with penalties for exceedance.

The Commission believes that the price structure for the non-locational TUoS charge and Common Service Charge should continue to be postage-stamped. However, it would be inappropriate to specify the precise form or type of postage-stamping in the Rules.

For example, postage-stamping could refer to various measures of either demand or consumption. In the Commission's view, the appropriate type of postage-stamping needs to reflect a balance of both:

- the importance of minimising the disincentive on Transmission Network Users to utilise the (existing sunk) network; and
- the importance of signaling the potential future impact of load growth on the need to invest in transmission or transmission alternatives.

In other words, the pricing structure needs to balance the demands of static efficiency and dynamic efficiency.

Once again, the Commission believes this matter is best left to the assessment of the AER. Therefore, the Final Pricing Rule provides for the AER to develop pricing guidelines on how demand-based pricing for the non-locational TUoS and Common Service charges are to be formulated, having regard to:

- the desirability of consistency across the NEM, particularly for Transmission Customers that have operations in multiple jurisdictions; and
- the desirability of sending efficient signals to actual and potential Transmission Network Users regarding their investment and network utilisation decisions.”

The AEMC clearly notes that there are a number of outcomes sought from the AER review in establishing the guidelines. These are:-

1. There be consistency of pricing development across the NEM
2. Prices should reflect the costs of providing the services
3. Prices must provide a signal to encourage usage of under utilized assets, to minimise additional use of fully loaded assets and so avoid more transmission investment
4. Prices must provide appropriate signals for new investment in the network
5. The price signals must show consumers what are the cost implications of their decisions in electricity usage

It is clear that:-

- Assets providing the services are sized to reflect the demand on the network to all connection points
- Augmentation of the network is driven by an increase in demand, not by an increase in consumption
- Demand varies with time, over a day and between seasons. This issue is addressed extensively in section 1 above.
- It is the burgeoning incidence of refrigerative air conditioning that is driving demand faster than consumption, reducing the network load factor
- Utilisation of the network shows a low load factor, which is dependent on dispatch decisions made by generators and by consumer decisions
- As a result of the AEMC final decision on pricing there are to be virtually no signals to drive locational decisions by generators

It is these issues that must be used as the basis for selecting the allocative approach to costs and therefore pricing.

As a result the MEU is firmly of the view that prices based on demand will send the most appropriate price signals to consumers.

Further, the MEU recognises that there are a few hours in a few days each year on which demand reaches its maximum. It at these times that the locational flows used in the cost allocation program T-Price to develop the TUoS locational prices elements, should be measured.

The MEU also recognises that the network is sized to meet the contracted demands provided either directly by users (or indirectly through the distribution businesses) that sets the size and capacity of the transmission network.

3.6 Conclusions

The MEU considers that contracted maximum demands should be used as the basis for price development of TUoS prices combined with load flows applying for the few hours on each of the few peak system days that occur in a year.

As the bulk of the costs which provide the basis for the general and common services are related to the costs of providing the assets which are in turn sized to meet the contracted demands, then these postage stamped prices should be based on the contracted demands used to size the assets needed.

The connection point where the TUoS and general and common services are levied should be the connection point between the entry/exit assets and the shared network, with the same definition used by all TNSPs.

Where an asset is at maximum capacity, there is needed an approach that will provide a disincentive on users connected to that element to either reduce demand or not to increase demand, whereas elements of the network which have adequate capacity for additional demand, pricing should provide an incentive to increase demand and so better utilize the assets.

The needs of consistency require that all TNSPs follow the same basis for pricing approaches.

4. The Pricing Guideline

The MEU has provided a series of observations about the NEM as seen by consumers, the current practices by TNSPs, and the recent decisions of the AEMC regarding the new Rules, and their rationale.

The AER has requested that Interested Parties comment on the proposed guideline for pricing of transmission services. The MEU considers that it is essential that the AER understand why consumers are concerned about pricing approaches, and on the changes they see as needed to reflect the new Rules.

Under the current Rules, TNSPs have little incentive to get the pricing for consumers to be cost reflective, nor to provide price signals to achieve the aims of the National Electricity Law. This submission is not intended to cast any aspersions on TNSPs or their current practices – we see these as stemming from the old Rules.

The MEU expects that the AER and TNSPs will take extensive note of the observations of the AEMC as espoused in their final decisions on revenue and pricing. Most particularly, the MEU seeks for the AER and the TNSPs to recognise that pricing is an issue which is very important to consumers. There can be a view that large industry as represented by the MEU might have very specific differences in how a TNSP's revenue should be reflected in its pricing, compared to those views of small consumers of electricity. In this regard the MEU has been charged by its members to note that the members are largely regionally based, and therefore very dependent on a locally based workforce. As a result, the MEU is required not to approach issues in a way that would specifically disadvantage small consumers for the benefit of the members themselves.

The MEU has therefore attempted to take an even handed approach to the entire issue of pricing so that the outcome will be prices that reflect an allocation of costs relative to the use made of the services provided.

There are number of questions raised by the AER in its proposed guideline. The MEU comments that extensive discussion in the previous sections provides much of the rationale behind the comments and answers provided in this section of its submission.

4.1 Consistency across the NEM

Throughout the decision processes made by the AEMC on transmission revenue and pricing, there was a clear statement that the changes made were to incentivise TNSP investments. For exactly the same reasons, consumers see that pricing is the basis for them to make rational decisions on investments that consumers are going to make.

The AEMC makes a number of comments about consistency of pricing across the NEM. This is an issue that was raised by consumers in submissions and discussions with the AEMC prior to the final decision on the Rules.

The issue is not one that prices must be the same for each element of service provision across the NEM. This is patently absurd, as every TNSP operates in a totally different environment and cost structure. What the purpose behind the request for consistency is based on is that in each TNSP region, the

- Approach to establishing prices should be the same. In this regard it would be expected that for instance the assets that are included in common services, entry exit and general services comprise the same source of costs regardless of the jurisdiction
- Structure of the pricing be the same ie that all have the same structure of entry service, exit service, TUoS, common service and general service. Currently whilst some have this structure, others roll some of these into a combined cost structure, making comparisons quite difficult for consumers
- Basis for the allocative control be the same across all TNSPs for each element of service, rather than using a mix of some or all of \$, MW, MVA and MWh.

If this approach is used across the NEM, then there is a consistent basis for consumers to make proper comparisons and so allow consumers to make rational decisions about their investments based on a common pricing approach and structure.

This need of consumers for consistency must take precedence over a TNSP desire for an “easy way”, as the AEMC recognised has little incentive to ensure that pricing must be as cost reflective as possible and to provide for strong pricing signals to cause consumers to recognise the costs resulting from their actions.

4.2 Information requirements and disclosure

The AER has structured its request for information about how the TNSP intends to allocate its costs and approaches. This defeats the purpose of consistency.

The MEU is of the view that the AER guidelines should provide direction on how many of these elements of information must be prepared to ensure there is consistency between each TNSP.

The MEU considers that the AER must determine the boundaries (attributable cost shares) of what is to be included in each of the five pricing elements (entry, exit, TUoS, common and general services), and where the reference point for TUoS, common and general services is located so there is a consistent approach across the NEM.

If the TNSP has a valid reason for wishing to vary from the standard approach then this should be judged on its merits and ability to better reflect the aims of the NEL to reflect the long term interests of consumers. By allowing the TNSP to ability to decide unilaterally its approach to price development, many of the benefits to consumers of the Rule changes will be lost.

The AER notes that there might be “confidential information” provided by a TNSP as part of its pricing methodology. The MEU accepts that there might be details of specific contracts (negotiated services or prudent discounting) that they should not divulge if it included information relative to a specific user. Equally the MEU can see that a TNSP might not want certain information disclosed where a technique used by a specific user has successfully resulted in a benefit for that user, as it might encourage others to do likewise.

In principle the MEU believes that other than information specific to a particular user, there is little information that a TNSP should not be able to prevent being released.

4.3 Locational pricing structures

The new Rules have determined that TUoS must be allocated on a demand (MW or MVA) basis applying at the time of peak system usage.

In the discussion relating to the AER guidelines and the six options canvassed, the AER has not identified there is an additional element in the development of the TUoS pricing. This is the development of the TNSP approach that measures the impact of an increase in demand at a connection point, and the impact this has on other parts of the network. This additional element is the widespread use

of the computer program T-Price, which allocates the impact of a marginal increase in demand at one point in the network, on all other elements of the network. This program is intended to provide a TUoS cost at each connection point in the network relative to the cost of the entire network. T-Price provides its allocative output by identifying the flows on each element of the network in response to a marginal increase in demand.

An example of the outcome of using T-Price for every half hour of the year can result in a TUoS price in the SE of SA (such as Mt Gambier) including a contribution in its cost build up of the TUoS for the provision of the powerline from Port Lincoln to Port Augusta (in the NW of SA) should the Port Lincoln power station have operated at any time in the previous 12 months. This outcome, perhaps reflecting a degree of practicality, is also bizarre.

Thus in examining the options, it is also necessary to examine the tools that will be used to develop the answer. The MEU considers that the T-Price run should only use the flow data applying for the critical few peak hours on the critical few peak system days of the previous 12 months prior to the development of the new prices. Currently prices are developed using the previous full financial year of electricity flows, making the output price based on information up to 21 months out of date. There is no reason for this use of out of date data.

The network is sized based on the contracted demand set between the TNSP and the user. Whilst this particularly applies to entry and exit services, it also has an impact on the sizing of the shared network away from the entry/exit. As the TNSP has contracted to provide the contracted demand, a user has every expectation that this capacity will be available to it at any time the user wishes to use it.

Most consumers will reach their contract demand very infrequently, but despite that fact the usage is infrequent, the TNSP must size the network for the potential that it will be used. Thus to use an actual peak demand understates the investment made by the TNSP to provide for the occasional use.

The MEU considers that as a minimum, the contracted demand must be the basis for allocation of costs (and therefore pricing) as this is the only amount that has been used by the TNSP to provide the assets put in place. Contracted demand is reflective of the assets provided by the TNSP.

There is a comment made by the AER whether total power (real and reactive ie MVA) or real power (ie MW) only should be used for the allocation of costs and therefore of pricing. There has already been a trend throughout the distribution networks to price demand based on MVA as this represents the amount of current carried on the power lines and therefore limits the flow of power. While

the same principle holds for transmission, it is questionable whether pricing on a MVA basis will add significant value to the transmission network. Already TNSPs require users on the transmission network to have a high power factor (usually greater than 0.95) so the price differential between MW and MVA based prices will be modest.

It is suggested that the AER seek input from the TNSPs as to whether a MVA tariff will be preferable to a MW tariff in providing a signal to users of the network, accepting that demand is the primary cause of low power factor, and most demand is from distribution businesses.

In summary the MEU suggests that the TUoS be based on contracted demand and that the allocative flow mechanism (T-Price) only use the limited number of hours between 11 am and 7 pm¹² on the ten highest system demand days in the latest 12 months to determine the flow impact in each element of the network. This approach fulfils each of the needs of the Rules to address demand in terms of the maximum utilisation of the network, and to reflect the value of the assets provided by a TNSP at the behest of the user.

The above recommendation does not provide any incentives to reduce demand on highly utilized assets, or to incentivise the use of under utilized assets. The AEMC points out that it sees that such incentives are appropriate and to be encouraged.

In this regard the MEU notes with interest demand based option 6. TUoS is the cost of having the network to deliver power from remote generators to the consumer. The analysis by T-Price of the flows on each element at high utilisation will provide an indication of those power lines which have additional capacity available and those which are fully loaded and close to constraint for marginal changes at each connection point.

T-Price identifies the flows on all elements of the network for a marginal change in demand at a nominated connection point. Rather than using this as the basis for allocating shares of each element of the network to the TUoS at that connection point, T-Price can be used to identify what the maximum capacity can be accommodated at that connection point before a constraint occurs in the network. This approach can be carried out for all connection points giving a notional maximum capacity at each connection point. TUoS can then be

¹² See section 1.3

calculated using the maximum capacity at each connection point, rather than the contracted demand at each connection point.

If T-Price shows that there can be a large change in demand at a connection point without increasing flows on elements of the network that are close to constraint, this provides the basis for setting a lower TUoS price for that connection point, and therefore an incentive for consumers to locate where the TUoS is lower.

Equally, if there is no additional capacity available for supply to the connection point (ie a constraint will occur in one or more elements of the network), then this limited capacity becomes the basis for setting the TUoS pricing.

An approach such as this provides signals for consumers to connect, and for consumers to reduce demand. It also provides the basis for pricing a demand side response from a consumer reducing its demand at a critical time and so avoiding the need for augmentation.

The MEU would be prepared to meet with the AER to develop this concept further if this is appropriate.

4.4 Postage stamp pricing structures

In clause 6.3.2 of the guideline the AER notes that it is

“... aware of the need to ensure that the *postage stamp* structures specified in the *Pricing Methodology Guidelines* do not cause participants to adjust their consumption of energy in order to avoid or minimise charges.

The AER notes that *energy based prices* are defined in the NER as:

A price expressed in cents per kilowatt hour of energy.

Based on this definition, it does not appear that kVA or kVAh can be used as an alternative measure.”

The MEU does not concur with either of these sentiments.

Firstly, the entire purpose of pricing structures is to provide signals to users to modify their usage to reflect the costs associated with provision of the service. There is every expectation that consumers will modify their pattern of usage in light of accurately developed pricing signals. Not to do so would be entirely self defeating.

Secondly, that energy prices are required to be in cents per kilowatt hour does not preclude a demand price being set in \$/kVA.

The AER discusses the relative merits of energy based pricing for the non-locational elements of the TNSP charges. In particular, it effectively poses the question whether users paying under an energy based charge only would see appropriate cost allocation and price signals. To respond to this question requires some analysis as to how the network costs are developed.

As discussed in section 2.2, and as implicitly accepted by the AEMC¹³, network costs are related to the capacity of the network. Thus to allocate charges based on energy rather than demand appears to be counter to the derivation of the costs. This view is further reinforced when it is identified that the load factor of the networks generally lies between 50 and 65%, ie that much of the time there is significant unused capacity in the network because the network has been sized to match the peak demands, and not the energy which flows. This excess capacity is shown graphically in section 1.3 above.

Accepting that the network is sized to meet the peak demands of the electricity supply system, it is therefore illogical to allocate prices (and recover costs) based on a determinant that is not related to the basis on the network development.

Whilst this view is a general observation, it needs further analysis to verify its correctness.

As the bulk of the general service is the “other half” of the TUoS cost, if the TUoS is driven by capacity and therefore is to be recovered in relation to demand, it follows, for the same reasons that the general charge is also demand driven, rather than energy driven. This is discussed in more detail in section 2.2 above. Thus there is a strong logic that the general service should be related to demand rather than energy. Additionally, charging for general services based on energy does not provide the signals to consumers that it is demand that drives the capital needs of the network – and providing signals to consumers is a stated aim of the AEMC determinations.

There is some debate as to whether common services are energy or, demand based, or even on the numbers of consumers served. If the approach to identification of assets and costs to be included in the common services cost centre proposed by MEU (see the following section on categories) – *those costs*

¹³ The AEMC states that the locational element of the network charges (TUoS) must be related to demand as demand is what determines the capacity of the network which in turn drives the costs to provide the service.

and assets which if removed from service, would impact on every consumer in the region – is used, then this provides an indication that perhaps the number of consumers served should be the basis. Certainly MEU would point out that allocating common services based on energy only would result in a significant cross subsidy from large users to small users for the provision of common services.

The TNSPs set the prices for these postage stamped elements of general and common services, so that a user which has a profile replicating the system average demand shape, will be indifferent to which of demand or energy is used. Apparently the recovery revenue resulting from this approach is that some 50% of the revenue is recovered under a demand based charge and the other 50% is recovered from energy based charges. This implies that where a customer has a peaky demand, it will select an energy based price, and those with a flat demand will use a demand based price.

On balance, the MEU considers that recovery of the common service revenue element is more appropriately allocated on the basis of demand. Certainly the MEU does not support the potential of cross subsidy as presently occurs, where users select the option which results in the lowest cost to them.

The AER suggests (options 3 and 4) that demand is an option for postage stamped pricing. It then requires that the demand is measured and used as the base for the development of the charge. Concern is then raised as to whether penalties should apply for exceeding the set demand.

The MEU points out that in a number of jurisdictions where a demand basis is used for charging, there is an inherent penalty for exceeding the agreed demand, in that there is an automatic ratcheting of demand so that all costs are related to the highest demand recorded in the previous 12 months, and that the consumer has to demonstrate to the network that there is little chance of repeating the offence before the network will allow the demand to be reduced.

User demand has to be measured by TNSPs for allocation of TUoS charges. Thus a demand based approach to charging for postage stamped costs, could be the contracted demand, the highest demand recorded in the previous 12 months, or some similar approach. The potential for incurring higher general and common service charges due to excessive demand provides an incentive not to exceed the demand contracted (and therefore the design capacity of the supply system) whereas levying costs purely on recorded energy flows provides no such signal. Providing strong signals based on demand provides incentives to limit the need for investment in capacity increases.

4.5 Categories

The AER has attempted to identify what assets are attributable to what service, by nominating those which would appear to be used for each service. Attached as appendix B is an example of a multi use substation. Analysis of this arrangement assists in identifying categories for cost allocation.

The MEU would comment that a better solution for identifying what is in each category is by defining the point at which an exit and entry assets become network assets. The MEU considers that the assets comprising the connection assets can be identified as those assets which can be removed from service without impacting any other user of the network.

Thus entry and exit assets are those assets which can be removed from a substation without impacting users connected to the wider network other than those connected at the entry/exit point substation. Further the differentiation between what is an entry and what is an exit need to be clarified. Section 2.7 and appendix A discuss these and in summary, an entry must be defined as where electricity is injected to the transmission network, and an exit is where electricity is extracted. This definition provides the basis for cost allocation between assets which have multiple uses.

Network assets at a substation would be those required to maintain the network in a stable form. These assets located at a substation would include the bus bars connecting between in and out power lines, including meters measuring in and out flows, and reactive power equipment located at the substation to support voltage for other elements of the network.

This approach recognises that there is a single connection point between the shared network assets and entry and exit assets. It allows for a variety of different configurations at various substations, but maintains a consistent approach to allocation of costs.

In a similar fashion, MEU would suggest that the allocation of assets to common service, would be those assets which if removed would impact on every user connected to the network

In particular the MEU notes that:-

- **The assets listed in clause 6.4.1 of the guidelines as entry assets are certainly incomplete. There are instances where a generator is provided by the TNSP step up transformation from generation voltage to the local network voltage as part of the entry service. These should be included in the listing of assets**

- **The AER has assumed that there are only entry and exit services. The guidelines need to recognise that an entry can become an exit and so there is a need to identify what are the parameters for sharing the costs used by both generators and consumers**

4.6 Conclusions

The MEU concludes that based on assessment of the issues and the commentary above that:-

- 1. The Guidelines must be developed so that not only are the pricing structures consistent across the NEM, but that the derivation of the inputs to the pricing is consistently applied by all TNSPs. There is little reason not to impose such consistency, but from a consumer viewpoint consistency in pricing provides a number of benefits. This was recognised by the AEMC.**

Consistency is preferred but there should be the opportunity for TNSPs to introduce alternatives providing there is a greater benefit to consumers than what is provided by consistency.

- 2. There needs to be adequate disclosure by the TNSP to allow the AER to identify that consistency in approach has occurred and that allocation of costs to each pricing element follows the same approach by all TNSPs.**
- 3. TUoS must be based on demand as demand is what drives the capital costs. The demand identified by the user must be the basis for allocation of the cost of resources used. Thus demand must be based on the contracted amount or on the highest demand recorded in the previous 12 months whichever is the higher.**

The allocation of TUoS contributions should be developed using T-Price using as the inputs the flows that are recorded each half hour between the hours of 11 am to 7 pm on the 10 highest demand days in the latest previous 12 months.

- 4. Postage stamped prices for general and common services should be based on demand, in the same way as TUoS is allocated based on demand. Allocating these costs on the higher of contract demand and actual recorded demand in the previous 12 months, provides an**

incentive to limit demand and so lessen the pressure for augmentation.

- 5. MEU does not agree with attempting to define specific types of assets with each category.**
 - a. Entry and exit assets should be defined as those assets which can be removed from a connection point to the shared network without impacting consumers connected at other points of the network**
 - b. Common services should be defined as those assets which cannot be removed without impacting every consumer connected to the network**
 - c. An entry is where energy is injected into the network and an exit is where energy is extracted from the network. (see section 2.7 and appendix A)**

5. Questions asked by the AER

The answers to the questions asked are based on the commentary provided above. The commentary provides much more detail than the brief responses included in the following table.

Question number	Question	MEU comments
1	What additional information should be sought by the AER to assist it in determining whether a <i>TNSP's</i> proposed <i>pricing methodology</i> is consistent with the <i>Pricing Principles for Prescribed Transmission Services</i> and Part J of Chapter 6A of the NER?	The MEU has commented on this above. Essentially the TNSP must provide sufficient information to demonstrate that it has complied with the requirements detailed in the pricing structure developed by the AER, to prove compliance and to demonstrate consistency across the NEM.
2	Is any of the information contained in section 6.1 unnecessary to determine whether a <i>TNSP's</i> proposed <i>pricing methodology</i> is consistent with the <i>Pricing Principles for Prescribed Transmission Services</i> and Part J of Chapter 6A of the NER?	The MEU is concerned that the AER has a view that TNSPs will decide on what will be the basis for development of pricing. The guideline must develop a structure and outcome that meets the requirements of the Rules, and the views espoused by the AEMC. The MEU considers that pricing methodology requirements must be prescriptive in order to obtain consistency across the NEM.
3	Given the requirement to signal efficient investment and utilisation decisions, which of the pricing structure options discussed would be most appropriate for the recovery of the locational component of <i>prescribed TUOS services</i> ?	The MEU considers that TUoS must be based on the higher of contracted demand and the highest demand recorded in the previous 12 months.
4	To what extent would the pricing structure options discussed deter efficient investment and utilisation decisions?	The MEU considers that the higher of contract demand and the highest demand in the previous 12 months provides the best option for incentive and utilisation decisions.
5	How could the pricing structure options canvassed be	The MEU has provided an indication of an option which might provide better

	modified to better reflect the requirements of the NER.	signals, in section 4.3
6	Can a price based on demand at times of greatest utilisation of the transmission network include an <i>energy based price</i> or a fixed price?	This would be contradictory as energy does not determine the investment made by a TNSP. Only demand determines the investment required.
7	Are there any implementation issues which might impede the use of the pricing structure options canvassed?	The MEU considers that an MVA based structure might be used, but is of the view that the benefits from implements might not outweigh the costs of implementation
8	If the <i>demand based pricing</i> structure options are not appropriate, or are impractical, what <i>demand based pricing</i> structures could be implemented?	MEU has provided its views in section 4.3
9	To what extent is consistency across the NEM required when specifying a <i>demand based pricing</i> structure for this component of <i>prescribed TUOS services</i> ? To what extent are the various options compatible with each other?	The derivation, cost allocation and determination of what is included in the TUoS allocation must be common. The MEU considers that assets which comprise the TUoS costs are those which are not entry/exit (assets which can be excluded at a connection point without impacting other users) and common assets (assets which if are excluded impact on all users). MEU has provided its views in section 4
10	Would additional costs be incurred by TNSPs in adopting any of the <i>demand based pricing</i> options discussed, and if so, can these costs be quantified?	MEU sees that allocation of costs into different areas does not result in additional costs depending on which area the costs are allocated. The allocation of costs relative to flows in the network is done now. The MEU concept of using data from fewer half hour periods would result in less cost to TNSPs – thus if there are any increases these are offset by having less input data to the T-Price program
11	What is the likely impact of the <i>demand based pricing</i> structure	There will be some winners and losers, but the allocation based on

	options canvassed on all classes of network users?	demand reflects the investments made by TNSPs, so the demand based allocation is a better reflection of investments made, and so is more cost reflective. A cost reflective approach provides more accurate signals to consumers of the decisions made by them.
12	What is the benefit of consistency in pricing structure to network users in general, and to specific types of users in particular?	<p>The MEU considers that the question has been put badly. The question should be what is the detriment of not having consistency?</p> <p>Consistency across the NEM provides a clear basis for comparisons between TNSPs, whether the users are generators, DNSPs, or consumers. The AEMC decision requires that large consumers can seek identification of the TNSP cost elements included in the DNSP pricing. Thus even large consumers connected to DNSPs can see the impact of TNSP pricing. With this information consumers and consistent approaches can assist in making sensible comparisons, and to take actions to reduce costs from TNSPs.</p>
13	To what extent do the current pricing structure arrangements provide signals for efficient network investment and utilisation decisions?	<p>Very little, as nearly 2/3^{rds} of the TNSP revenue is derived from consumers having an option to pay the lesser amount from two calculations (demand and consumption). As demand is the prime driver of investment then this should be the basis on the pricing approach.</p> <p>If the consumption of energy provides little of the rationale for investment, then a pricing structure based on consumption provides little indication to consumers of the impact of their demand profile.</p> <p>TNSPs base investment on demand, therefore pricing should be based on demand.</p>

14	What implications arise in considering whether <i>demand based prices</i> might be better expressed in dollars per kVA per time period, as opposed to dollars per kW per time period?	In principle it is MVA that determines the size of assets, so in principle prices should be passed on MVA. TNSPs require exit points to have a high power factor. Therefore the impact of MVA or MW pricing could be seen as marginal.
15	Which of the <i>postage stamp</i> pricing structures discussed would be most appropriate, taking into consideration the desirability of consistency across the NEM, particularly for customers with operations in multiple jurisdictions and the desirability of signaling efficient investment and network utilisation decisions?	The MEU considers that as most of the costs associated with general and common services are demand related, then demand should be the basis for pricing The comments in section 4.4 apply.
16	Are there any implementation issues which might affect the adoption of any of the postage stamp pricing structure options discussed?	Demand must be measured for the allocation of TUoS, so the recovery of general and common services based on demand is straight forward.
17	To what extent would any of the postage stamp options disadvantage any group of market participants?	Converting to demand rather than the lesser of demand and energy will create winners and losers. However as demand is the driver for investment by TNSP, then to use energy consumption as the basis of pricing implements a cross subsidy under the current approaches. Cross subsidies should be avoided as a matter of principle, so a change to only a demand basis is logical and cost reflective. All consumers using more than 160 kWh have demand meters (IMA) as do some using less than this amount. This means that all consumers without demand meters are connected to DNSPs and therefore the DNSP allocates the TNSP costs based on demand to small consumers.
18	If the options for the postage	See comments in section 4.4

	stamp pricing structures are not appropriate, practical, or create excessive additional implementation costs, what alternative postage stamp structures could be considered?	
19	If a capacity based price structure was used to recover costs associated with the adjusted non-locational component of <i>prescribed TUOS services</i> and <i>prescribed common transmission services</i> , is the use of kVA or MVA (as opposed to kW or MW) appropriate and practical?	See comments under question 14. The MEU does not see that this is a problem. Either MVA or MW based prices can be set with little cost to TNSPs
20	If the use of historical usage or demand data is required and is not available or the data has changed significantly would it be appropriate to use current data?	The MEU considers that the latest available set of 12 month data should be used to develop TNSP prices rather than the last full financial year data. Consumer demand should be the higher of contract demand and the highest demand incurred in the previous 12 months.
21	What additions or deletions should be made to the list of transmission asset types directly attributable to <i>prescribed entry services</i> ?	The MEU suggests a different approach based on what can be excluded without impacting all users. See section 4.5
22	What additions or deletions should be made to the list of transmission asset types directly attributable to <i>prescribed exit services</i> ?	The MEU suggests a different approach based on what can be excluded without impacting all users. See section 4.5
23	Should a cost sharing mechanism be established for assets which are used as both <i>prescribed entry services</i> and <i>prescribed exit services</i> ?	Yes. See sections 2.7, 3.2 and 4.6 and appendix A
24	What additions or deletions should be made to the list of transmission asset types directly attributable to <i>prescribed common</i>	The MEU suggests a different approach based on what can be excluded without impacting all users. See section 4.5

	<i>transmission services?</i>	
25	What additions or deletions should be made to the list of transmission asset types directly attributable to <i>prescribed TUOS services?</i>	TUoS assets are those left after excluding entry, exit and common service assets under the proposed definitions for entry, exit and common service assets
26	What information, associated with a pricing methodology, is likely to have confidentiality issues, and how can the information be presented to maximise transparency of the process in relation to these matters?	Very little. See section 4.1

Appendix A – Differentiation between entry and exit points

There is no specific definition in the Rules of what a generator actually does in relation to the transmission network but in order to make the electricity market work, there are definitional aspects in the Rules of what a generator must be and do. Therefore, how does a TNSP decide what is an entry point and what is an exit point as the definitions of entry and exit points only refer to the type of user connected?

entry service

A service provided to serve a *Generator* or a group of *Generators*, or a *Network Service Provider* or a group of *Network Service Providers*, at a single *connection point*.

exit service

A service provided to serve a *Transmission Customer* or *Distribution Customer* or a group of *Transmission Customers* or *Distribution Customers*, or a *Network Service Provider* or a group of *Network Service Providers*, at a single *connection point*.

If the TNSP relies on defining an entry point only as being one which is connected to a generator, then how does the TNSP define a connection point as an entry or exit if a Network Service Provider (including a DNSP¹⁴) approaches them? The definition for an entry service specifically notes that a network service provider can be a customer requiring an entry service, because the definition of an entry service recognises this.

Implicitly if there is supply of power to enter the transmission network at a connection point, regardless as to whether the connection point is for the use of a generator or NSP, this connection point must be classified as an entry point and the NSP required to pay its share of the costs for the provision of this entry service to the transmission network. Using this same approach, if there is a flow of power out of the transmission network then this point would be an exit point. This approach recognises the observation of the AEMC that assets can have multiple purposes.

¹⁴ Intriguingly a DNSP is defined in the Rules as one which owns and operates a distribution system. A distribution system comprises a network which is “not a transmission network”.

It is quite clear that an NSP can approach a TNSP for a connection to the transmission network which is specifically to deliver power to the NEM. Thus it is for the TNSP to identify when a connection is an entry or an exit to its network, and not the party seeking connection.

In attempting to clarify the fundamental principle behind the separation and purpose of an entry point from other services provided by a TNSP, the clear implication of the Rules is that an entry point is where energy is injected into the electricity system (the definition in the Rules for a Generator is a person which *supplies* electricity; and the Rules define *supply* as the delivery of electricity), and an exit point is where energy is extracted from the system (the Rules definition of a Customer is a person which *purchases* electricity).

There is a cascading effect also. For example, there is an exit point between a TNSP and a DNSP, as well as between a DNSP and a consumer – the former is a transmission exit point, and the latter called a distribution exit point. Equally there are transmission entry points (between the TNSP and a generator or an NSP) and distribution entry points (between the DNSP and an embedded generator).

There is no limitation as to when or for how long an entry point must receive energy in order to remain an entry point. Thus an entry point might only receive small amounts of power for short times but still be classified as an entry point.

The Rules accept that for efficient use of network assets, the same assets can be used for multiple purposes by identifying that different services can be provided using the same assets but at different times. Thus within the Rules there is a clear expectation that what might be an exit point at one time, could well become an entry connection at another point in time.

From the definition afforded to embedded generators, it would appear that an embedded generator only injects power into the distribution system – this is because the definition in the Rules of an embedded generator is:-

A generating unit connected within a distribution network and not having direct access to the transmission network.

This would seem to imply that the output of the embedded generator is assumed to be absorbed within the distribution network and as a result there would be no resultant injection of energy from the distribution network into the transmission system. The Rules are silent with regard to the situation where an embedded generator is sized such that there is injection into the transmission system from the distribution network.

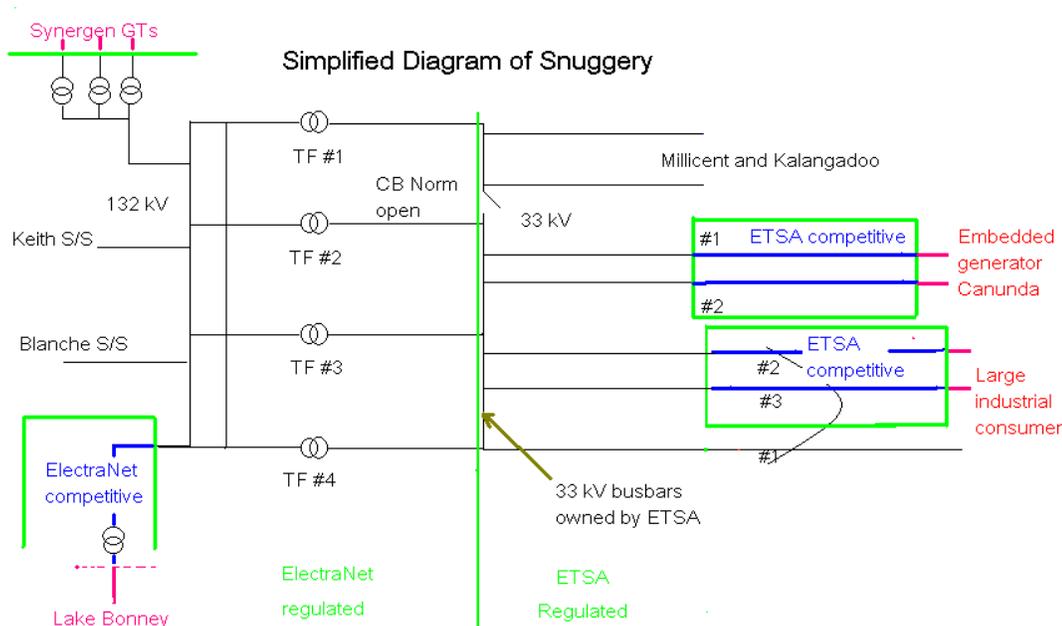
There is included in Chapter 2 of the Rules, reference to an NSP injecting energy into the network under the description of a Market Network Service provider (MNSP). A market network service provider is defined in Chapter 10 of the rules – the references to MNSP made in Chapter 2 clearly imply that an MNSP is detachable like a generator and therefore injects power into a network. Thus an NSP can be identified as a supplier of power and when it is so, it must require the use of an entry service. Accordingly it should be charged for use of the entry service provided.

Using this approach of defining entry as where electricity is injected into the network, and an exit as a one where electricity is extracted from the network adds clarity, but also some other impacts.

Consider a large generator, which on a regular basis requires maintenance. It ceases injection of electricity, and during the maintenance period and for start up, it is an importer of power – ie the connection is an entry point for a significant period of time.

The AEMC considers that even if a consumer only uses the assets occasionally it should still pay its share of TUoS and general and common services. Thus if a generator does not have black start capabilities then for a period of time each year, a generator connection point is also an exit point. This means that for this period the generator is obliged to pay TUoS and common and general services based on its peak usage of power drawn from the network.

Appendix B – An example of a multi use substation: Snuggery



Network connections to Snuggery in SA are to Keith to the north and Blanche to the south. The network assets are the busbars connecting the power lines in and out, with the associated metering assets, as these are the only assets needed for the network to continue operation. This is also the connection point to the network

Lake Bonney power station is connected to Snuggery at 132 kV – the local network system voltage – its entry assets comprise the connection to the Snuggery 132 kV busbars and associated circuit breakers, isolators and metering

Synergen terminal points are the 11 kV feeders from the generator circuit breakers. The entry assets comprise the isolators, step up transformation, meters and circuit breakers.

Canunda uses the step down assets for consumers as a step up to line voltage. Canunda output exceeds the ability of the distribution network to absorb all of its output, requiring access to the exit assets to deliver its output.

There is one major industrial user and a number of small users connected to the distribution network.

The entry assets needed by Canunda are also exit assets used by consumers.