Draft Network Tariff Strategy
Aurora Energy Network
for period July 2008 to June 2010
as at March 2008

A REVIEW OF THE DRAFT STRATEGY PAPER and TARIFF ADDENDA

Erldunda Associates
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REVIEW of AURORA NETWORK DRAFT TARIFF STRATEGY and ADDENDA

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BACKGROUND

The Declared Electrical Services Pricing Determination 2007 (the Determination) by the Office of the Tasmanian Energy Regulator (OTTER) requires Aurora Energy Pty Ltd (Aurora) in its capacity of Distribution Services Provider to submit network tariffs for approval each year. This is to be done in accordance with any relevant Guideline [1] issued by OTTER. This Guideline requires, inter alia, preparation of draft and final Tariff Strategy and Pricing Proposals [2] and arranging consultation on these proposals.

As part of this consultation process, OTTER has commissioned [3] Erldunda Associates [4] to carry out a review of the Aurora draft Network Tariff Strategy and Addenda and make a submission to Aurora.

The draft network Strategy document is the document *Aurora Energy Draft Network Tariff Strategy – Periods 2 to 5 – 1 July 2008 to 30 June 2012* on the Aurora website dated 28 February. The *Addenda* document dated March 2008 was received by OTTER on 20 March 2008 and was available on the website shortly after. These are referred to in this review as the *Draft Strategy* and the *Addenda* respectively.

An associated document to which some reference is made is the *Aurora Energy Draft Retail Tariff Strategy – Periods 2 and 3 – 1/7/2008 to 30/6/2009 (period 2) – 1/7/2009 – 30/6/2010 (Period 3)*. This is referred to as the *Draft Retail Strategy*.

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[1] OTTER – November 2007 – *Guideline – Approval of Network Tariffs in accordance with the 2007 Determination – Version 1*

[2] The relevant sections of the Guideline has been extracted and included here as Appendix 1

[3] The relevant section of the commissioning email is included here in Appendix 2

[4] Some relevant details and background of this Consultant are given in Appendix 3

The *Draft Retail Strategy* includes in its principles (at page 8) that "The strategy will attempt to align (over time) the retail tariffs with the approved Network tariffs, so that retail tariffs reflect the pricing structure of Network Tariffs.".

It may be noted that OTTER has itself written to Aurora [5] mentioning that "The intention of the Network Strategy is to provide customers with information on the reasons for prospective changes in tariffs, to the extent that is possible." The letter notes that "The Regulator does not approve the Network Pricing Strategy" but "is required to approve the annual Network Pricing Proposal … if (it) complies with the 2007 Determination."

The comments in this review are those of the author, and, while there is some reference to the published response by the Regulator to the Aurora proposals, they do not claim to represent any position or opinion which may be held by the Regulator.

[5] This letter is reproduced on the Aurora website.

OUTLINE OF THIS REVIEW

This review considers principally the documents recently issued for public submissions - *Aurora Energy Draft Network Tariff Strategy* for Periods 2 to 5 (1 July 2008 to 30 June 2012) dated 28 February 2008, and the associated *Draft Strategy Addenda* dated March 2008

These are reviewed for current proposals, as well as in the light of previous documents relating to Network Revenues and associated Tariffs. Current P1 tariffs, their projection to P5 and their relation to the tariffs proposed for 2005 (at the time of Tasmanian entry to the National Electricity Market) are taken into consideration.

Comments generally are left aligned, while matters specifically directed to Aurora for consideration are indented.

AURORA'S PREVIOUS INTENTIONS

Some comparison with Aurora's document *Report on the Formation and Introduction of Network Tariffs, August 2005,* referred to here as the *2005 Introduction* paper may also prove instructive.

This document includes (in Section 5 from page 27) discussion of Target Network Tariffs which presaged much of what is now proposed.

It includes (in Appendix A from page 53) the Revised Tariff Principles which have been set out in Section 6.3 (from page 29) of the current *Draft Strategy*. It also includes (in Appendix C from page 57) the Distribution Costs of Service (DCoS) – Allocation to Cost Pools methodology - which is summarised in the *Draft Strategy* and virtually reproduced in its Appendix A (from Section 9.4 at page 4 of that Appendix).

CURRENT STRATEGY DOCUMENTS

The current proposals are contained in the *Aurora Energy Draft Network Strategy* document per se and the later released *Addenda* document. An associated document to which some reference is made is *Aurora Energy Draft Retail Tariff Strategy.*

Guideline Requirements

The Regulator's *Guideline- Approval of Network Tariffs in accordance with the 2007 Determination – Version 1, November 2007* document requires various details to be provided in the *Draft Strategy* (as reproduced here at Appendix 1 – Extract from OTTER Guideline) and quoted in the Introduction of the *Draft Strategy* (from page 1).

Intentions, rather than Discussion and Rationale ?

As outlined in OTTER's comment letter to Aurora, the *Draft Strategy* document sets out Aurora's intentions and methodologies for various cost allocation and derivation of tariff elements and associated relativities between tariffs. It does this rather than showing how these detailed intentions for tariff changes in format and relativity might derive from a consideration of "the problem and the objective, for example to reduce demand in peak periods or to encourage use in periods when there is spare capacity in the system."

> For example, the rationale (other than similar $/MWh allocation for small users) for combining the N01 and N02 DUoS tariffs, and for thus abolishing the current "next 1000 kWh step" in the current Residential tariff could be more explicitly stated. (The allocating of differing TUoS and hence differing overall NUoS might also be discussed.)
>
> More explicit rationale for the introduction of Time of Use (ToU) and seasonal tariffs (other than "some network costs are related to the time of day and season of the year in which energy is consumed"), perhaps discussing the impact of load factor, consumption patterns as well as implied incentives for load shifting could be useful in understanding the intentions.

Table 4 – Cost of Supply for Low Voltage Customers shows near equality for average Residential and Business below 25 kVA, but possibly surprising decreases (on a $/MWh basis) for the larger consumers.

> Comment might help to explain the reason– possibly better load factor - for the reduction being observed for larger General customers.

It is proposed (at page 17)to introduce Time of Use tariffs, but the stated rationale seems to be that "some network costs are related to the time of day and the season of the year" and the comment that bringing the N01 and N02 tariffs together by the removal of large user access to the previously much reduced Business remainder step "may impose cost increases for larger commercial operators".

> Some indication of the relativities between tariffs elements within these tariffs, and relative to alternative tariffs, with respect to pattern of use (single shift, working / opening times, load and power factor etc), break-even levels, and the reasons and effect of the proposals would allow customers to better consider options.

It might thus be argued that, while the *Draft Strategy* complies with the mechanical requirements of the G*uideline,* it falls short in detailing and explaining the rationale for the changes as required by the *Guideline* and espoused in Aurora's Tariff Policy Framework (at page 6 of the *Draft Strategy*.)

> In summary, it would assist "… current and potential users to (better) understand the basis of prices … and to better assess the range of opportunities … that may reduce user's costs and lead to more efficient outcomes…"[6] if a more discursive basis were provided for various tariff amalgamations, changes in options, structures and relativities.

Side Constraints & Tariff Realignment

It is noted that there is no side constraint restriction on tariff variation in the Determination so that Aurora has been offered an opportunity to differentially change tariff elements and hence relativities between tariffs. This has been a deliberate stance by the Regulator who "has concluded that it is not practical to apply side constraints because of the complexity of changes in tariffs and the range of competing objectives." [7]

The Regulator decided "instead to require Aurora, in seeking approval of both distribution and retail tariffs, to prepare a statement of its tariff objectives, reasons for its proposals and

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[6] Item 9 of Aurora's Tariff Policy Framework at page 6 of the *Draft Strategy.*

[7] OTTER – 2007 Electricity Pricing Investigation – Final Report at page 320 et seq

a customer impact assessment …" so as to "ensure that due consideration is given to the Regulator's and Aurora's objectives and the interest of customers."

> While side constraints have not been imposed, and the specific requirements of the National Electricity rules are not applicable at this stage, Aurora might better explain its resolution of the conflict between tariff reform and its tariff principle that "…. a transitional approach should be implemented to assist users manage their adjustment costs." [8]

DRAFT (NETWORK) STRATEGY DOCUMENT

The *Draft Strategy* document (at page 1) has as its purpose to "demonstrate that Aurora Energy has fulfilled the obligations imposed by the 2007 Determination and the Guideline".

By way of background, (and as required) it sets out the Regulatory Arrangements and the Aurora Tariff Policy Framework . It sets out the Network Tariff Strategy including detail of Current Tariffs, the upper and lower bounds of tariffs, the allocation of costs to Asset and Customer cost pools, the assignment of customers to Tariffs as well as the Aurora proposals for tariff projection over time. It sets out proposed changes to Network Tariffs towards a set of proposed Network Tariffs going forward. Transmission Use of System (TUoS) Charges and Metering Charges are considered as additions to the Distribution Use of System (DUoS) Charges to form a resulting Network Use of System (NUoS) Charging scheme.

The document considers Compliance with (Aurora) Pricing Principles, outlines consultation and invites submissions from interested parties. It includes an analysis of Typical Customer Outcomes – based on the effect of projected retail tariffs and combinations of tariffs on various consumers. An Appendix outlines the Distribution Cost of Service (DCoS) model.

Customer Groups and Cost Pools

It appears that the customer pools for cost allocation (in Section 4.2.3.1.3 at page 12) will represent also the customer pools for tariff allocation.

[8] *Draft Strategy* – Tariff principle 6 quoted at page 5

Thus it may be that the various light and power pools might match the general description of customers as very small, small, medium large etc and relevant tariffs as follows:

Customer Group / Customer Cost Allocation Pool	Likely Network Tariff Option(s)	Possible Generic Description
Residential Light & Power	General Network Tariff (to be newly combined)	Residential
Business Light and Power < 25 kVA	General Network Tariff (to be newly combined)	Low Voltage – very small
Business Light and Power 25 kVA to 70 kVA	General Network Tariff OR Low Voltage Time of Use (peak and off-peak only, non seasonal)	Low Voltage - small
Business Light and Power 70 kVA to 300 kVA	LV Time of Use – Small Customer - (peak, shoulder and off-peak, seasonal variation) OR LV kVA demand OR LV kVA Specified demand	Low Voltage - medium
Business Light and Power > 300 kVA	LV Time of Use – Large Customer - (peak, shoulder and off-peak, seasonal variation) OR LV kVA demand OR LV kVA Specified Demand	Low Voltage - large
HV < 1 MVA	HV kVA Specified demand	High Voltage - ???
HV > 1 MVA	HV kVA Specified demand	High Voltage - ???
Specially Calculated HV		

Other tariff / cost pools relate to more specific tariffs.

Section 4.5 of the *Draft Strategy* shows Aurora's proposal to "further simplify" the suite of Network Tariffs. Table 6 (at page 26) of the *Draft Strategy* and the comments to Table 5 (at page 21) show Aurora's intentions to migrate customers from the Period 1 suite of Tariffs in Table 3 (at page 9).

Daily Charge Tariff Element

It may be observed that Tasmanian daily network charge rates are, and have been generally, higher than common elsewhere. It may be further observed that, for declining block tariffs, the first block or blocks include an increment above the final energy related marginal cost (as reflected in the final block). For customers above the relevant block level, this differential may be regarded as a form of additional Supply Charge.

Daily charges derive from customer related allocated costs. The DCoS Appendix (after page 50) notes the following allocations to customer related costs:

- HV system costs - 40% of HV costs in CBD and Urban zones and 80% of HV costs in other geographic zones.
- Distribution Transformer costs - 40% of Distribution Transformer costs (but with no allocation to HV customers, or LV customers above 300 kVA)
- LV system costs – 75 % of LV network costs (but with no allocation to HV customers or LV customers above 300 kVA)
- Connection Asset costs – according to a tabulation of typical connection configurations
- Common Service (NEM) Costs – 50% to customer likely to be in the contestable tranches, ie all HV customers and LV customers above 70 kVA

The relatively high daily charge elements of, especially, the General tariffs are a direct consequence of this allocation. Other distributors may regard lesser fractions of costs as being directly related to the existence of the customer, and more to the demand / capacity required or used. Simple tariffs, without demand measurement often regard charges related to energy partly as a proxy for demand by implicit assumption of a typical load factor.

For example, the Aurora N01 daily charge for P2 – from June 2008 is proposed as a little over 40 cents per day including DUoS, TUoS and Metering (ie some $36 per quarter) but excluding GST.

This may be compared [9] with daily Supply Charges (ex GST) for low voltage residential single rate customers of ETSA around 23.5 cents (around $22 per quarter) from February 2008. Integral Energy Access Charge N70 (ex GST, effective 1 July 2007) is around 21 to

23 cents for simple metering while EnergyAustralia EA010 domestic rate (obsolete, but applicable for existing customers with simple metering) is around 14.5 cents per day (ex GST, effective from 1` July 2007). United Energy Distribution standing charge for its low voltage small, single rate LVS1R (ex GST, from 1 January 2007) is just below 5 cents, while their LVS2R for 2 rate supply is around 10.5 cents per day.

Ergon Energy supply charges, on the other hand, range from about 80 to 95 cents ex GST according to TUoS region for Standard Access Customers in the 0 to 26 MWh range applicable from 1 July 2007. (Ergon Energy supplies a mixed urban, rural and regional network covering much of the sparsely populated Queensland area inland of the ranges as well as the more populous coastal areas. One might expect much of its network cost to be customer related, rather than capacity or energy related. With some 606,000 customers and some 140,000 km of line, an average customer density of about 4.3 customers per kilometre applies. [10] Aurora noted its customer density as 11 customer per km in the 2005 document)

It is recognised that tariff formulation often derives from historical settings, possibly with remote origins in local setting bodies (maybe with an eye to re-election and irrespective of cross-subsidies to domestic classes) and often constrained from significant change by subsequent "side constraints". There can be a perception that high service availability charges are unpopular with customers and have impact especially on small customers.

Thus it may be that Aurora's cost allocation and hence tariff formulation is more appropriate than that observed in tariffs elsewhere.

The effect of higher standing charges is most noticeable on customers with small energy consumption. A customer using 1000 kWh per quarter on N01 averages around 12 cents per kWh (plus GST) in Network Charges while a 500 kWh customer averages around 16 cents per kWh and a 200 kWh per quarter customer pays around 27 cents per kWh..

> The customer related service availability charges derive from the various allocation factors discussed elsewhere.

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[9] Tariffs taken from relevant web-site schedules

[10] Detail from Ergon Energy Network Management Plan 2007/08 to 2011/12.

Alignment of General Residential & Business Tariffs

The *Draft Strategy* notes (at Section 4.5.1 – page 16) that "the average cost of supply (on a $/MWh basis) for residential and smallest non-residential segments is very similar" and "the cost .. from small non-residential customers is more similar to residential customers that larger non-residential customers".

The *Draft Strategy* notes the intention of moving the tariffs closer which "will result in the consolidation of the second and remainder energy charges within the residential tariff within Period 4." Further it "proposes to adopt a single tariff for small residential and non-residential customers in Period 5".

> Setting aside for the moment comment generally, it is noted that the *Addenda* does not reflect this consolidation in P4, though it is indicated for P5. In P5 the DUoS tariffs match for Charge and Energy, but different elements are included for TUoS and Metering charges, so that, only to an attentive reader is the transition mentioned in the wording seen not to be achieved. [11]

The intention seems also to replace (or supplement) the newly combined single General Network tariff for business with other rates beyond, say 25 kVA, as "this (sameness of Network Tariff for residential and business customers) may impose cost increases for larger commercial operators" so that "Aurora …will also introduce a time of use energy tariff for larger customers."

> Greater clarity and certainty about Aurora's intentions regarding the relativity and application of the future tariffs and the classes of customer which will find each attractive would allow better consideration of the intentions. It is noted that the *Addenda* tariffs do not clearly contain details of the LV ToU tariffs which were to be offered in Period 2 though mention is made that they match the N08 tariff.
>
> Some indication of consumptions, usage patterns at which network costs would cross on the various tariffs would assist understanding.

[11] While the caveats associated with stated tariff elements is recognised, this divergence between relatively contemporaneous documents might not be expected.

General Network Business Tariff changes

The *Addenda* tariff listing and segregation shows some interesting fluctuations. [12] Between the P1 and P2 periods, the remainder block of DUoS rises from 3.838 to 5.480 c/kWh – a rise of some 43%, while the similar block for TUoS drops from 3.006 to 2.013 c/kWh – a drop of some 33%. The combined NUoS charge changes from 6.844 to 7.493 – an increase of some 9.5% between P2 and P3, the 5.480 c/kWh DUoS component increases by around 7% to 5.862 while the 2.013 c/kWh TUoS lifts some 14.5% to 2.305, for an overall NUoS remainder rate increase of 9%. Between P3 and P4, the Duos remainder is unchanged (perhaps this is a mis-transcription though the summated rate does match the summation of the rates in the table) while TUoS increase some 5.5% for an overall remainder rate increase of around 1.6%. Between P4 and P5, DUoS remainder increases by around 13% and TUoS by around 1.2% for an overall remainder rate increase of some 9.5%

> The sequence of changes in the network charges elements applied to "remainder" consumption seems a little anomalous. It results, for large consumers, in increases in NUoS of around 9% for each year except between P3 and P4 when the increase is only some 1.6%.
>
> Some explanation of this may be appropriate (if it does represent the real intentions).

Business – Nursing Home Tariff

It is apparent that the Nursing Home network tariff is being moved from a previous relationship with residential tariffs to the General Business tariff, and further that the General Residential tariff is itself being aligned (on the basis of similarity for small users) to form a single general tariff. For the 2005 year, the residential General NUoS remainder block was charged at 3.518 c/kWh – ex GST- while the similar remainder rate for Nursing Homes was a low 3.407 c/kWh. At the time, the General NUoS – Business remainder rate was 6.231 c/kWh. For Period 1, the Nursing Home residual rate was effectively the General Network residual rate of 6.844 c/kWh, while the Residential NUoS remainder was higher at 7.028 c/kWh

While it might be argued that Residential NUoS rates might be applicable to a Nursing Home – possibly regarded as a residential care establishment, and while load profiles may (or may not) be similar, the effect of much higher consumption for an institution [13], might have well resulted in an average return (on a cents per kWh basis) that was much lower for an institution than for an independent dwelling. If the upstream system – substations, mains etc have a cost basis in capacity, and if energy consumption must be used as a proxy for demand, where this is not measured directly, such a low return might not have been appropriate.

> If such an argument forms a basis for the proposed tariff migration, Aurora Network might usefully make reference in the *Draft Strategy* to any inappropriateness of previous arrangements as a justification for what have become NUoS increases of "price shock" magnitude.
>
> If, for larger consumption Nursing Homes, another selection of NUoS tariff (rather than the proposed aligned single General Tariff) might offer attraction, this might usefully be expounded in the *Draft Strategy*.

LV Time of Use Tariffs

It is proposed (from page 17) to make the present N08 LV Day / night Irrigation tariff more generally available and to introduce a further ToU tariff for "large" customers.

It appears that these ToU tariffs will be available as replacement for small customer demand tariffs which are to be made obsolete and possibly to become attractive tariffs for some General customers over the "very small" consumption level of the aligned N012 and N02. The "small" ToU has peak / off peak energy periods and rates, while "large" is to also have separate shoulder period rates with winter summer differentiation.

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[12] The caveats in the documents about actual tariff element values are noted.

[13] The current *Retail Draft Strategy* (page 12) notes that "99% of Nursing Home consumption is in Step 3"

Clarity of intention as to any differentiation "large" and "small" customers (other than the seasonal aspect of the "large" tariff) would assist customer understanding and choice.

There may be some ambiguity in the definition of "Summer" being the neat calendar months from November to March inclusive "… or as close as daylight saving time definitions allow". The intention here ought be more specific or the dates may require specific definition each year. (The clarification of day / night hours by reference to Eastern Standard – ie NEM - time, in the A*ddenda* is noted, but choice of Eastern Standard time may not be reflective of customer perceptions or assist their knowledgeable application of the tariffs to discretionary consumption.)

The ToU LV tariff elements for "large" customers are not included in the *Addenda* though they appear to be proposed for offer during Period 2. (Perhaps it was only intended to introduce only the time segmentation of the N15 very large kVA tariffs rather than extend ToU tariffs for both small and large customers that do not include a demand component.)

Irrigation Tariff

As mentioned above, Aurora indicates (at page 20) its intention to introduce (further, more generally available) Time of Use tariffs during P2 (though the "large customer" tariff is not included in the *Addenda*) and "believes that larger irrigators will find the LV ToU (large customer) tariff more attractive … due to its seasonal component."

The existing N08 LV Day / Night Irrigation tariff will remain and will apparently match the new LV ToU (small customer) rates. This tariff has seen increases in both day and night energy elements since 2005. The NUoS Night time energy element has risen from 1.023 c/kWh to 1.563, a level proposed through to P5, while the daytime energy, at a much higher c/kWh rate, has risen from 8.964 c/kWh to 9.659 for P2 and P3, rising in P5 to 10.297.

The Day / Night ratio of the DUoS elements is set to rise from 8.75 times in 2005 to 14.8 times in P3. The TUoS ratio has dropped from 8.77 and remains at 4.0 for the P1 to P5 period. Overall, the NUoS ratio has dropped from 8.76 for 2005 to 6.18, but is set to rise to 6.60 by P5.

More detail of the proposed LV ToU (large customers) as well as indication of the cross-over consumption levels and patterns will allow customers to better understand the options proposed from P2.

Heating Tariffs

Both the N05 Uncontrolled Heating and the N06 Controlled Heating NUoS tariffs have seen increases since 2005 with the (remainder) energy element rising some 40%. The N05 NUoS remains relatively steady over the P2 to P5 period, while the N06 rate increases by some 30% into P2 before stabilising.

Demand Tariff Element Relativity

It may be observed generally that Aurora's (network) demand tariffs, N03 – LV kW (obsolete), N09 - LV kVA, N11 – HV kW and N10 HV kVA are structured so that the demand fraction charge forms the greater part of the final amount. Thus it is not surprising that such customers might prefer "stability" in charging, rather than costs which vary month by month according to a fluctuating measured demand.

For a 250 LV kW customer, the N03 demand charge (NUoS) for P2 is proposed at 43.759 cents / kW/day. With energy at 2.577 cents / kWh, the customer would need a (consistent monthly) load factor of around 70% for equality between demand and energy fractions. If the power factor were 85%, the demand would be 294 kVA, so that with NUoS demand steps of 33.343 (to 250 kVA) and 30.056 cents per kVA per day, and an energy rate of 2.128 c/kWh, the load factor for 50% demand /energy charges would be around 80%.

Recognising that a flat load for 40 hours per week represents a load factor of some 24%, and that lower load factors increase the relative demand charge share, it is apparent that the demand fraction will be dominant for most customers on these tariffs.

(For HV customers with a demand of 1500 kW and 85% power factor, the similar load factor requirements for 50% demand / energy share is around 87% on the HV kW tariff and some 102% for the HV kVA tariff.)

At a load factor x power factor product around 25% the demand fraction is likely to represent over 70% of the actual NUoS charge.

Demand Tariffs – kW or kVA

Aurora has intentions to make the N03 and N11 LV and HV kW demand tariffs obsolete (at page 21), so that no new customers can be supplied on these tariffs and (at page 16) to remove them over time . It is further embarking on a strategy to encourage existing customers on these tariffs to change to other tariffs, especially to those measuring demand in kVA rather than kW.

It appears from the graphs in Section 8.2.10 of the *Draft Strategy* that there are around 400 customers on the N03 – LV kW tariff, and 39 on the N11 – HV kW tariff.

> The *Draft Strategy* considers (at page 19) opting for demand tariffs based on kW (with load factor penalties) or kVA and notes "for simplicity" that only one type is proposed. (It is presumed that the option for kW tariff penalties refers actually to power factor penalties rather than load factor penalties as the demand tariff per se includes cost variation for load factor.)
>
> The reasons for choice of kVA would be more appealing to customers if the incentive to improve power factor (and hence reduce kVA demand element charges) were highlighted rather than the decrease in power factor (and system service capacity) apparently regarded as inevitable due to air-conditioning and gas heating. The point that kVA is more cost reflective and equitable might be explained more fully by specific mention that measurement of actual whole current flow (amperes per se and hence kVA) better reflects system thermal capacity than does measurement of the active component of current (and hence kW) and that poor power factor increases system voltage drop.

It is clear from the *Addenda* scenario that tariff elements on these will be increased at greater rates that other tariffs. For example, the N03 DUoS Demand element for both blocks (up to 250 kW and additional above 250 kW) have increased to P1 by a significant 45% above the 2005 tariff when the tariffs were made obsolete. The proposed increase for P4 and P5 of around 10% each for the additional demand element and 9 % and 3% respectively for the level below 250 kW demand.

It is noted that the DUoS energy element has increased by 44% since 2005 but then remains fairly constant. (The anomalous decrease by almost 30% for the P5 period is noted. Perhaps this is an error in transcription by writing 1.085 rather than, say 1.585 c/kWh which would continue the 3% rise observed for the P4 period. This decrease, coupled with the similarly anomalous 3% increase for P5 in the lower level kW element results in decreased overall cost for any customers remaining on this tariff.)

> The implementation of the strategy, by differential increase in the kW tariffs, ought be made more explicit, rather than being hinted at by mention (at page 20) that "Aurora is hopeful that all kW customers will have made this choice (to move away from a kW tariff) by the end of P5".

It is Aurora's intention to similarly phase out the N11 HV kW tariff through customer movement to the N10 HV kVA tariff or perhaps to the new Specified Demand structure. There appear to be some 29 customers on the N11 HV kW demand tariff. The demand tariff is likely to appeal to customers through the reward for power factor correction, although this has not been highlighted in the *Draft Strategy*.

> There do appear to be some significant fluctuations in some elements of the N11 kW tariff which might bear explanation for better customer understanding. For example, the DUoS energy element (granted a very small portion of the final cost) has varied from 0.477 c/kWh in 2005, through to 0.088 for P1 and P2, but with an increase from P3 through 0.155 and 0.198 to 0.183 c/kWh. Conversely, the energy element of the TUoS tariff has moved from 0.290 c/kWh in 2005 to a series from 1.008 in P1.
>
> The TUoS demand element has dropped from 7.141 c/kW/day in 2005 to 1.535 c/kW/day for P1 thence to a proposed 3.198 in P2 followed by a drop to 3.095, a rise to 3.118 thence to 3.128 c/kW/day for P5. The overall NUoS demand element has changed from 18.893 c/kW/day in 2005 to 23.495 for P1, rising to 25.158c/kW/day for P2 and 25.545 for P3 before settling back to the same 23.495 for P4 and P5.

After initial rebalancing between the 2005 elements and the P1 set, the N10 kVA NUOS is relatively stable, with demand element increase of 7.5% between P1 and P2, followed by changes of 1.0%, 0.34% and 2.42% over the periods to P5.

Perhaps some smoothing of the tariff element trajectories would allow better customer comprehension of the intentions.

As mentioned elsewhere, graphs and discussion showing relativities and cross-over/break-even values between the various Demand tariffs and General tariffs would help customer understanding and choice.

Specified Demand Tariff Regime

As noted above, the demand fraction of a customer's energy delivery cost dominates most accounts for these customers This explains the rationale (at page 19) for the introduction of a Specified Demand tariff formulation that "For larger customers, a more stable pricing signal is desired."

It appears this Specified Demand formulation will be the only option for (new) HV customers as Table 5 (Proposed Network Tariffs at page 21) indicates the intention that N10 – HV kVA Demand will be made obsolete and discontinued after the end of P5. The *Draft Strategy* notes that Aurora "will work with customers and retailers to transition all existing HV demand customers to the N17-HV kVA Specified Demand Tariff".

Without more details of the proposal and relativities internally between its elements, and to the elements of other demand tariffs and without knowledge of a customer's load characteristics, variability, load factor etc it is difficult to comment on this proposal. Aurora would, of course, have full details of customer history for complete analysis of the intentions and effects. It may be commented in passing that complete abolition of the conventional demand / capacity tariff based at least partially on measured demands, and a compulsory move to contracted demands with high multiple rates for excess demand, does not seem to represent common practice.

The *Draft Strategy* notes that "We envisage that retailers will help customers select their "specified demand" level."

Demand Tariffs – Relativity between LV and HV

As might be expected, network tariff charges for HV demand customers are lower than for LV demand customers. (HV customers provide and own at least the HV / LV transformer, and possibly circuit breakers and HV mains within their supply site.)

Without more detail, and detail of asset costs etc, any comment can only be general but it is noted that there is a significant differential by which the LV kVA demand charge exceeds the charge on the HV kVA tariff. It is noted that the LV cost, for supply above a likely break point around 300,000 kWh per quarter, (ie about 600 kVA at 25% load factor and 90% power factor), is from 60% to 80% above the similar HV cost. Thus, where HV supply might cost some $13,650 per quarter in P2, the LV supply is dearer by some $9,500. By P5, the similar costs are some $15,300 for HV, with a differential for LV of some $12,000.

Customer Effect Analysis

The *Draft Strategy* includes quartile analysis of customer effect in Section 8 *Outcomes – Typical Customer Analysis* (from page 34). This price path was shown at the final retail bill level by using a series of assumptions rather than by disclosure of likely Network tariffs per se. The *Addenda* document discloses the Network Tariff components over the five Periods, segregating charges for DUoS, TUoS and Metering.

Both documents comment (at pages 35 and 5 respectively and in bolded type in both) that "… the typical customer analysis provides a high level analysis of potential increases only …" adding that "… no reliance should be placed on the values or prices ….." as "It is almost certain that final tariffs will not match those shown … due to differences between Aurora's estimates and final outcomes."

While this caveat could be reasonably expected, it is only from the figures presented that the effect of annual changes and proposed levels can be examined.

ADDENDA DOCUMENT

The *Addenda* document expands and clarifies Aurora's intentions in several areas. It includes response to some matters raised by other respondents to the consultation.

Curtilage Discount

This discount of fixed charges for secondary consuming locations within a single rural property may be an historic residual with a basis in pragmatic policy rather than one of cost reflectivity and efficiency. It may also have accommodated a wish by the consumer to separately meter consumption and hence better allocate consumption between activities on the property.

In the *2005 Introduction* paper, Aurora noted a similar situation in South Australia as Category 1 Connection Configuration and the conclusion by ESCOSA that "these customers should be eligible for virtual meter rationalisation [14] and subsidy to customers wishing to physically consolidate metering arrangements. In that paper "Aurora proposes to replicate the SA physical meter consolidation subsidy arrangements" and to seek Regulator approval "for funding for this programme as part of its submission to the 2008 price review." In the 2007 Electricity Pricing Investigation – Final Report the Regulator noted that "the retention or abolition of curtilage discounts is more a matter of policy than a matter for the Regulator" echoing comments in the 2003 Final Report.

> It may be asked what benefit would accrue to the community by requiring (or even assisting) existing curtilage customers to alter supply and metering arrangements when the artifice of "virtual meter rationalisation" may represent an option.

The *Addenda* offers a proposal to offer reduced "same curtilage" network discounts only to existing holders from 1 July 2008 till 30 June 2009 by discounting the N01 daily charge by 50% through an amended N01a tariff which would be abolished from 1 July 2009, thereby ending the discount [15]. These apply under the Category 1 Connection Configuration (page 3) where separate metering has been applied to separated customer loads supplied from a single network connection.

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[14] The *2005 Introduction* paper expands the meaning of this at page 47.

[15] It is noted that Table 1.2 (at page A-2) of the *Addenda* shows the reduced 50% rate in DUoS for P2, but this reduction is not reflected, possibly by transcription error rather than intention, into the overall NUoS Daily charge.

The rationale, on the basis of cost reflectivity and administrative difficulty, relates to these customers' future entry to a fully contestable retail market, at which time any discounts would necessarily be through Aurora network rather than retail concessions.

> Is there a clear rationale (especially from the customer's perspective where more metering points may have been installed under the previous arrangement) for setting this arrangement within Network, (with similar discounting in Retail) and then reducing and abolishing it prior to the time when the customer might see opportunities in the contestable market ? Might not the arrangement persist until the customer becomes contestable (or even until the end of the grace period after that contestability) or be reduced more gradually, say over the whole P2 to P5 period, rather than in just two steps ?

It is noted that the *Draft Retail Strategy* proposes (at page 14) to reduce the overall discount by 50% from 1 July 2008, and to remove it completely from 1 July 2009 in line with the (Retail) policy objective "of reflecting Network Tariffs in retail prices".

This paper notes , as does the Networks Draft, that some 5,300 customers will be affected, but offers a stratified breakdown of the change in cost between the P1 tariff and that if curtilage is completely removed. The paper notes that each installation will see a cost increase of $264.53 if curtilage is completely removed. This reflects Aurora Retail rebating the Tariff 36 Fixed charge for P1 of 72.473 cents per day (stated inclusive of GST)– around 65 % more than the apparent effect if Network Tariff Fixed charges (including NUoS) of some 40 cents (increased to some 44 cents by addition of GST) were considered alone. At

The breakdown (in Table 6 on page 15) shows the number of sites at various consumptions, and the percentage effect on customers' retail billing as follows:

Table 6: Impact of Curtilage on total bill

Annual Consumption (kWh)	% Change	Cumulative Number of Sites	Cumulative % of Sites
0	8	714	13%
100	1,169%	1,573	30%
400	292%	2,669	50%

Annual Consumption (kWh)	% Change	Cumulative Number of Sites	Cumulative % of Sites
1,000	117%	3,593	68%
2,000	58%	4,271	80%
5,000	28%	4,820	91%
Over 5,000	11% (average)	5,311	100%

It is observed that the effect on 80% of sites, with consumption below 2000 kWh per year will be over 58%, with smaller consumptions being relatively more affected.

OTTER notes in its letter to Aurora (Networks) that "in approving the retail tariffs …. The Regulator would have regard to the underlying components, including the structure of the network tariffs" and, presumably changes in the arrangements associated with these tariffs.

> It could well be argued that removal of this discount, especially as seen at the retail tariff rate and without any immediate benefit from contestability, would impose significant "price shock" to these 4500 or so customers.
>
> Perhaps Aurora should have greater concern for Item 6 of its (Network) Tariff Policy Framework (at page 5) which notes that "Tariffs should consider equity" and continues that "In particular, where proposed tariff strategies would impose significant adjustment costs on users, a transitional approach should be implemented to assist users manage their adjustment costs."

The *Draft Retail Strategy*, notes that many sites receiving this discount have low consumption and adds that "these customers, being exempt from any fixed charges, have no incentive to consider whether or not they really need the connection. We (Retail) would expect up to 50% of these customers to review their supply arrangements once they are exposed to the standard fixed charges."

> One might have expected some such comment in the *Draft (Network) Strategy* if that development was to be expected or was part of the intention of removing the discount – possibly in the name of cost reflectivity and possible customer response to the change.

Multiple Connection Discount

The *Draft (Network) Strategy* considers also existing "multiple connection discounts" where the separated customer loads are supplied under Category 2 Connection Configuration from separate multiple network connections.

The rationale is similarly based to the above, but with stronger argument on the basis of cost reflectivity because of separated network connections rather than separate supply arms from a single connection. It notes that some customers will become contestable even before any introduction of full retail contestability.

> Is there clear rationale for altering the present arrangements until such time as the benefits of contestability are available to the customer ?

Time of Use Period Definition

The *Addenda* proposes clarification of time periods as being relevant to Eastern Standard Time. While this is consistent with NEM practice and conveniently applicable to installations where metering and consumption etc are controlled by time switches, it does not appear usual for retail tariffs in other jurisdictions which incorporate Type 5 (or better) metering. If it reflects and continues present practice, its persistence may be reasonable.

> At the time of application of ToU tariffs where use is to be under the control of the customer, and where tariff is expected to influence consumption patterns, an alteration of time definitions to reflect Daylight Saving maybe appropriate.

The proposal to delineate terms and conditions associated with a network role from those of a retail role is appropriate.

Listing of Tariff Elements

The *Addenda* includes listing of the elements of the various Network Tariffs, including segregation into DUoS, TUoS and Metering, and provides information for the P2 to P5 periods, albeit with the caveats mentioned elsewhere.

> Inclusion of the P1 tariffs in the Addendum tabulations (as they are in the *Draft Strategy* comparisons at projected retail level) would more readily allow comparison

as would tabulation of the network charges associated with the quartile consumption bands for each tariff.

As mentioned elsewhere, there seem to be some inconsistencies between the *Draft Strategy* per se and the detail in the *Addenda.*

GST Exclusion from Listed Rates

The *Addenda* is silent on the inclusion or otherwise of GST, though the *Draft Strategy* indicates (albeit under a heading relating to the Second Discussion Paper due for release in April 2008) that "all costs, prices and tariffs … are exclusive of GST…". It is assumed that GST is excluded for the rates tabulated in the *Addenda*.

If exclusion of GST is to form the basis of, for example, Typical Customer Analysis effects for residential customers, more explicit reminder of this might help comparison with previous costs including GST as perceived by the customer.

PREVIOUS ANALYSIS OF NETWORK TARIFF EFFECTS

Crossover Analysis

The Aurora *2005 Introduction Report* included *Crossover Analysis* comparisons between tariffs classes (at Section 5.3 from page 30) indicating the likely effect of tariff proposals on various customers having regard to annual consumption, load profile and pattern of day / night use as well as stability or variability of demand.

The present *Draft Strategy* would be improved by the inclusion of similar analysis and discussion of the impacts of changes in relativities and the application of Specified (contracted) demand tariffs. This analysis, preferably showing recent / current tariffs and on a year by year basis, would better inform customers of the effect of Aurora's intentions and allow comparison between available options.

Similarly, Section 5.5 (from page 33) and Appendix E (from page 75) include details and graphical comparisons with tariffs which would be applicable in other NEM jurisdictions.

Again, the present *Draft Strategy* would benefit from inclusion of similar analysis.

IMPACT ON RETAIL TARIFFS

Draft Retail Tariff Strategy for P2 and P3

As mentioned above, Aurora has published a *Draft Retail Tariff Strategy*. This makes certain mention of effects in the retail tariffs occasioned by their Strategy (page 4) to "attempt to align (over time) the retail tariffs with the approved Network tariffs, so that retail tariffs, as closely as possible, reflect the pricing structure of Network Tariffs".[16]

Thus it notes, with respect to the January 2008 reset, and the upcoming resets, retail element changes which, "principally from aligning retail tariffs with the Network tariffs", resulted in increases beyond their average of 15.3 % for Residential and 15.8% for Business.

Hot water daily charges (Tariffs 41 and 42) increased by 97.5%, while the effect on the (Tariff 34) Nursing Home customers (from page 12) would have seen retail charges "increased by approximately 40%". Aurora Retail notes a "negative gross margin" on this tariff because "there is a 'disconnect' in the third energy step where the retail price falls sharply, while network price remains constant.: It continues "Since 99% of Nursing Home consumption is in Step 3 (above 1000 kWh per quarter) this produces a substantial negative margin from this Tariff." It notes the intention for "consultation .. with this group of customers prior to this subsidy from all other consumers towards Nursing Homes being removed in July 2008."

The Nursing Home step rate elements in the 2005 tariffs, for example, were 4.991 c/kWh for the first 500 kWh per quarter, and 2.118 c/kWh above 500 kWh.

The "remainder" step of retail Tariff 31 (Residential Light and Power) increased by some 35% from 1 January 2007 and will increase again by more than average as the N01 (General Network – Residential) tariff moves towards alignment by Period 5 with the N02 (General Network – Business) tariff. The (Networks) *Draft Strategy* proposes to progressively remove the element step rate decrease beyond 1500 kWh per quarter as part

[16] The intention to include "a section on retail implications…" in the Second Network Strategy Discussion paper is noted.

of the Strategy of combining these rates for relevant customers, both (normal) residential and (very small) business users.

> It is presumed that relatively few residential customers will consume more than 6000 kWh per year on this tariff, so removal of the step decrease may have limited actual effect[17].

The Retail Strategy notes that the January 2008 increase for Tariff 34 (Nursing Homes Light & Power) was held at the "average business change of 15.8%" but that "this concession … will be removed with effect from 1 July 2008 (when) customers on this tariff will see price rises of 20% or more." Similarly, the retail increase for Tariffs 73/74 (Irrigation, with Day & Night rates) was "held to the average change although the Network tariffs would have suggested higher increases in both the daily charge and the energy charges."

Further, as a result of the Network *Draft Strategy* for curtilage (at page 12), "each curtilage installation will see an increase in their (retail) account of $132 per annum from 1 July 2008 … and $264 per annum from 1 July 2009".

In discussing the Period 2 Retail prices (based by Retail on draft Period 2 Network prices) Aurora notes (at page 21 of its *Draft Retail Strategy*) a range of unsatisfactory results involving negative gross margins for the retailer. It outlines a series of differential tariff changes to correct these negative margins, with effects on various Residential and Business (retail) tariff elements and tabulates and graphs "impacts on typical customers."

> The impact, passed through to retail level and highlighted in the *Draft Retail Tariff Strategy*, of certain Network changes and *Draft Strategy* changes will likely result in price shocks for customers on certain tariffs. It may be that the Regulator, advised of these effects, and having to consider and approve retail tariffs, would need persuading that the underlying Network tariff changes are reasonable.

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[17] The 2005 Introduction document included 7 typical residential consumptions and tariff mixes. The "very large Residential" was shown as consuming 5,000 kWh on retail Tariff 312

Perhaps again, Aurora should have greater concern for Item 6 of its (Network) Tariff Policy Framework (at page 5) which notes that "Tariffs should consider equity" and continues that "In particular, where proposed tariff strategies would impose significant adjustment costs on users, a transitional approach should be implemented to assist users to manage their adjustment costs.

APPENDICES

The following items are included as Appendices

Appendix 1 – Extract from OTTER Guideline

Appendix 2 – OTTER Request for this Review

Appendix 3 – Background to Erldunda Associates

Appendix 1 – Extract from OTTER Guideline

Extract [18] from *Guideline – Approval of Network Tariffs in accordance with the 2007 Determination – Version 1, November 2007*

2.3 Tariff Strategy and Pricing Proposals

(a) Aurora must:

(1) submit to the Regulator, as soon as practicable, and in any case by 30 November 2007:

(i) an Initial Network Tariff Strategy for period 1, and

(ii) a Network Tariff Pricing Proposal (the 'Initial Network Tariff Pricing Proposal') for period 1; and

(2) publish a draft Network Tariff Strategy for periods 2 to 5 by 28 February 2008;

(3) consult on that draft Network Tariff Strategy, including by inviting public submissions;

(4) prepare a final Network Tariff Strategy for periods 2 to 5 that takes account of any submissions received and submit that Network Tariff Strategy to the Regulator by 30 April 2008; and

(5) submit to the Regulator, at least 2 months before the commencement of Period 2 and each subsequent period of the Determination, a further Pricing Proposal (an 'Annual Pricing Proposal') for the relevant period.

(b) The Initial Network Tariff Strategy must set out:

(c) The draft Network Tariff Strategy and final Network Tariff Strategy for periods 2 to 5 must set out:

(1) an explanation of the regulatory arrangements;

(2) details of the Network Tariff setting policy framework;

(3) details of the overarching Network Tariff Strategy, including:

(i) information on the current Network Tariffs,

(ii) a description of the methodologies, and rationale, used to determine stand alone and avoidable costs,

(iii) the proposed methodology or methodologies for deriving Network Tariff price adjustments,

(iv) details of Network Tariff assignment and any proposed re-assignment including the rationale for change,

……..

[18] In the extraction, pagination has been altered, and some items omitted, but the numbering is preserved from the original Guideline.

(v) proposed reform or rebalancing of, or changes to, the Network Tariffs, including any amendments to the terms and conditions that apply to each Network Tariff during the duration of the Determination, and the rationale for the changes,

(vi) the proposed Network Tariffs and Network Tariff components for the duration of the Determination,

(vii) an explanation as to how the breakdown between fixed and variable charges has been determined,

(viii) an explanation of the methodology adopted for allocating transmission charges to distribution customers through the Network Tariffs,

(ix) an explanation of the methodology adopted for allocating metering service related costs to distribution customers through the Network Tariffs,

(x) an explanation of the methodology adopted for allocating NEM related costs to distribution customers through the Network Tariffs, and

(xi) a description of outcomes arising from the proposed application of the pricing principles including a customer impact analysis that demonstrates the impact on typical customers;

(4) how Aurora will achieve compliance with the pricing principles set out in Schedule 2 of the 2007 Determination; and

(5) details of consultation undertaken in accordance with clause 2.4.

(d) A Network Tariff Pricing Proposal must:

(1) set out the proposed Network Tariffs that are to apply for the relevant period;

(2) set out, for each proposed Network Tariff, the terms and conditions and the charging parameters and the elements of service to which each charging parameter relates;

(3) detail the bona fide forecast installation numbers and loads and the basis of that forecast for each proposed Network Tariff used in developing the Network Tariff Pricing Proposal;

(4) set out, for each proposed Network Tariff, the expected revenue for that Network Tariff for the relevant regulatory period and also for the current regulatory period;

(5) detail any proposed amendments, variations or adjustments to the Network Tariff proposed, the justification for the proposed amendments,

variations or adjustments and whether these amendments, variations or adjustments are consistent with the Network Tariff Strategy;

(6) provide details of adjustment variables, including CPI, pass-through and other adjustments permissible under the 2007 Determination and transmission charges attributable to distribution connected customers for the period and an explanation of how each Network Tariff will be affected by the impact of the adjustment or adjustments.

(7) set out the nature of any proposed variation or adjustment to the Network Tariff that could occur during the subsequent periods and the basis on which it could occur;

(8) demonstrate compliance with the 2007 Determination, including demonstrating that the expected revenue from the distribution network tariffs does not exceed the AARR for the specified period, these Guidelines and the Network Tariff Strategy;

(9) describe the nature and extent of and proposed changes from the previous period and demonstrate that the changes comply with these Guidelines and the 2007 Determination;

(10) demonstrate the impact on typical customers; and

(11) be accompanied by an internal audit certificate and certified as correct by the Chairman and one other Director of Aurora.

(d) The Regulator, on receipt of a Network Tariff Strategy or Network Tariff Pricing Proposal from a Distribution Network Service Provider, will publish the proposal on the Regulator's website.

Appendix 2 – OTTER Request for this Review

Extract from email of 20 March 2008 from OTTER to the Principal, Erldunda Associates.

As we discussed this afternoon, I would be pleased if you would review the Aurora draft Network Tariff Strategy and Addenda and make a submission to Aurora as part of its process of consultation, by end March. Your submission should include a critique of the draft strategy and comment particularly on the effect on the behaviour of end user and the long term effects on the network. It should also include your observations on interstate practice where you observe that the effect of the Aurora strategy is not consistent with industry principles and practice. In addition, you should draw attention to those parts of the Strategy where you consider there is a need to expand on the explanation of the need for change and the additional information which would assist observers to make further informed comment.

Appendix 3 – Background to Erldunda Associates

BACKGROUND

John Kain is the Principal of Erldunda Associates. This is a specialist consultancy in matters relating to Costs and Tariffs for electricity supply, in particular relating to charges for retail electricity to various classes of customers, and for network service charges in a disaggregated industry.

Before forming the consultancy, he had worked for many years in the Electricity Distribution Industry, culminating in the position of General Manager - Engineering and Chief Engineer of the ACT Electricity and Water Authority (previously the ACT Electricity Authority).

John Kain graduated from Sydney University with a Bachelor of Science Degree in 1963, followed in 1965 by a First Class Honours Degree in Engineering, specialising in Electrical Engineering.

INDUSTRY EXPERIENCE

John Kain was employed by the Canberra Electricity Supply from 1959 to 1991. (This became the ACT Electricity Authority, and later the ACT Electricity and Water Authority). During that time he was employed in various Technical and Management positions, gaining experience in the Electricity Distribution Industry and reaching the position of Chief Engineer and General Manager Engineering.

CONSULTING EXPERIENCE

Since leaving the Authority in 1991, John Kain has operated as principal of Erldunda Associates as an independent Consultant in the Electricity Distribution Industry, specialising in the analysis of electricity network costs and tariffs.

He has prepared analysis of costs and revenues on behalf of the previous New South Wales County Councils for the Government Pricing Tribunal and later the Independent Pricing and Regulatory Tribunal over several tariff review cycles. These analyses assisted the Tribunal in its reviews for determination of tariff levels and formats in movement towards more cost reflective retail tariffs. Later work in this jurisdiction derived a methodology for

separating costs, revenues and tariffs in the “Retail” and “Wires” activities in anticipation of the re-organisation of the New South Wales Distribution Industry. These studies were conducted variously for the (NSW) Electricity Council, the Local Government Electricity Association and the Tribunal itself.

Other work in the tariff area has included analysis of Network costs and formulation of Network tariffs for Integral Energy and for NorthPower and analysis of the costs and tariffs etc. of the Hydro Electric Commission of Tasmania for the then Government Prices Oversight Commission. He has provided similar advice to the Electricity Trust of South Australia, and offered continuing assistance over several years to the then Power and Water Corporation of the Northern Territory in the introduction of a Network Access regime for contestability in that market.

More recent work, as an Associate of Meyrick and Associates, has included analysis work on costs, tariffs and productivity for the New Zealand Commerce Commission, for the Energy Networks Association and for various electricity and gas distributors.