CANEGROWERS

Review of AER Draft Decision; Tariff Structure Statement Proposals, Energex and Ergon, August 2016

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About Sapere Research Group Limited

Sapere Research Group is one of the largest expert consulting firms in Australasia and a leader in provision of independent economic, forensic accounting and public policy services. Sapere provides independent expert testimony, strategic advisory services, data analytics and other advice to Australasia’s private sector corporate clients, major law firms, government agencies, and regulatory bodies.

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Executive summary

This report has been prepared for CANEGROWERS. It reviews the AER’s Draft Decision; Tariff Structure Statement proposals; Energex and Ergon Energy, August 2016 (henceforth ‘Queensland DD’), focusing on Ergon.

The evidence and analysis provided in this review suggests that the key propositions on which the AER’s Queensland DD to accept Ergon’s Draft Tariff Statement are not evidence based. In its Final Determination, the AER needs to make further enquiries of Ergon in order to assess whether gaps in the evidence base supporting the AER DD can be addressed. If these gaps cannot be addressed, the AER needs to consider revising key findings in the AER DD. This reassessment may require reconsideration as to whether the ETSS contributes to compliance with the pricing principles. The AER has the power either to require Ergon to undertake detailed analysis and justification of the proposed tariffs, or to amend the ETSS directly (Cl. 6.18.8(b) refers).

The reasons for these conclusions are as follows.

1. Efficient tariffs should yield lower prices for irrigators and other consumers that do not drive system demand peaks and higher prices for consumers that do drive system demand peaks. There should be no need for separate tariffs to distinguish such consumer groups.

2. Demand from sugar cane irrigators does not correspond to or drive the periods of greatest utilisation of the network. Irrigators are capable of responding to well designed and well communicated price signals targeted at such periods.

3. All three available tariff options in the ETSS, assuming they are made available by Ergon Retail, are likely to result in network prices for sugar cane irrigators (small business SAC) in excess of forward LRMC reasonably attributable to customers with similar demand profiles.

4. This failure suggests the ETSS proposals are inconsistent with the LRMC pricing principle (cl. 6.18.5(6)(2)) because they do not differentiate prices for customers who drive demand during periods of greatest demand from prices for other customers.

5. This is because:

   (a) Due to their relatively high energy use, irrigators are substantially exposed to the third block of the default inclining block tariff (IBT). The third block rate is set with a substantial penalty charge, unrelated to the cost of supply. While the alternatives are opt-in, the ETSS is actively pressing customers to opt out of the IBT.

   (b) The seasonal time of use energy tariff (STOUE) exposes irrigators to high seasonal peak energy prices during weekday periods, due to the wide charging window applied. Overall, this has the effect of setting prices above the cost of supply.

   (c) Irrigators have high maximum demand and hence are exposed to the seasonal time of use demand (STOUD) tariff, due to the wide charging window within which the
STOUD tariff is calculated. Overall, this has the effect of setting prices above the cost of supply.

6. Both time of use related tariff structures are likely to yield prices for irrigators that are in excess of their marginal network costs. The AER DD notes that it may not be practicable for Ergon to establish varying charging windows to suit more narrowly defined customer classes such as particular types of irrigators. The problem for irrigators suggests the ETSS proposals are inconsistent with the LRMC pricing principle (cl. 6.18.5(f)(2)), because they do not differentiate network prices for customers who drive total demand during periods of greatest demand, from prices for other customers. Consequently, the proposed tariffs incorporate a penalty component. This means that the ETSS is also inconsistent with the customer impacts principle (cl. 6.18.5(h)(3)).

7. The three tariff proposals do not appear to represent significant movement toward cost reflective prices, to the extent required to achieve cost reflectivity by the end of the period following the current ETSS.

(a) The default inclining block tariff (IBT) is no more cost reflective than a flat or declining block tariff (DBT).

(b) The STOUE as proposed is slightly more cost reflective than a flat tariff but the business charging window is too broad relative to the targeted peak network demand and the indicative rate appears too high for business, given the higher diversity factor.

(c) The proposed STOUD could represent significant movement along the cost reflectivity spectrum, including a statistically valid, probabilistic approach to predicting a consumer’s likely contribution to future peak network demand based on their historical behaviour. Again, however, the charging window is too broad and the indicative rate appears much too high, suggesting a possible error.

8. The STOUD could be modified to represent a far more cost reflective tariff in the immediate and medium term. In the immediate term this could be achieved by reducing the rate, consistent with the STOUE, and moving the charging windows to a narrower band during weekdays only, corresponding to known peak network demand periods, applied equally to residential and business STOUD versions. In the medium term, i.e. the next TSS round, the STOUD could be moved further along the cost-reflective spectrum by:

(a) Moving the definition of the four highest demand days from individual demand to system demand (or for the relevant sub-system);

(b) Ergon communicating with customers a day ahead (via a variety of means) announcement that the following day or days may represent the network (or sub-system) maximum demand, on which the STOUD tariff for individual customers will be set (providing customers the opportunity to moderate demand); and

(c) Introducing greater transparency about the extent all business customers are exposed to forward LRMC based tariffs, noting the ETSS suggests forward aggregate LRMC for representative business customers should be lower than for representative residential customers.
The requirement for communication in advance would represent an additional transaction cost. This is likely to be preferable to the cost arising from proposed inefficient tariffs.

9. It seems likely the 2014 demand forecasts, on which the proposed ETSS LRMC-related tariff structure parameters were derived, are no longer valid. It seems unlikely that the threshold for forward LRMC based tariffs would be triggered over the ETSS period and beyond. Under these conditions, while LRMC based tariffs should form part of the tariff structure, they should only be triggered during the annual tariff approval process, if increases in actual maximum demand for LV customers, during periods of greatest utilization:

a) Fully utilize the current significant excess between maximum network capacity and maximum network demand; and
b) Exceed the demand forecast on which the current regulated revenue has been set.

10. Whatever threshold for triggering LRMC tariffs is applied, there is a related issue of determining the extent of the existing whole of system demand profile to which forward LRMC tariffs would apply for each defined customer group. There is no clear linkage between forward LRMC and residual costs to specific tariff components for each customer group. This is most evident from the fact that the ETSS proposes to apply different tariff rates and charging windows for residential and business, despite having identical unit LRMC.

11. In the Queensland DD, the AER has not queried the balance of revenue to be raised by LRMC based tariffs relative to “residual” based tariffs. This is, however, a central tariff structure issue, given the reference in the rules to periods of greatest utilisation of the network. This suggests that the ETSS should be more transparent over the proposed total revenue split between tariff elements that recover LRMC vs. the residual for each proposed tariff class. Ergon states that it allocates its revenue cap to user groups. It provides a flow chart but not actual data on the revenue split.

The proposed tariff structures do not appear consistent with the network pricing objective. They allow the DSNSP to recover its regulated revenue. They do not send efficient signals about future network costs. Nor do they yield tariffs under which each customer pays for the costs caused by their use of the network. The proposed STOUD should be modified.
1. Objectives, background and approach

1.1 Objective of this review

Through the process of the AER’s review of the tariff structure statement submitted by Ergon (“ETSS”), CANEGROWERS has commissioned Sapere to review the regulatory documentation of the proposed tariffs produced by Ergon and the AER. In April 2016 CANEGROWERS included reports by Sapere and Alternative Technology Association as attachments to their submission in response to the AER’s issues paper. The AER published its Draft Decision (“Queensland DD”) in August 2016, which included some discussion of CANEGROWERS concerns.

This report reflects on the Queensland DD. The objective of this review is to test whether the AER’s proposed approval of Ergon’s TSS in the Queensland DD contributes to achievement of compliance with the distribution pricing principles.

This involves a basic test – do proposed tariffs target customer behaviours that drive network costs, leading to higher costs for customers with high demand during periods of greatest network utilisation, and lower costs for customers with low demand at those times? Adopting the AER’s language of a cost-reflectivity spectrum, we ask what the likely outcomes of the Queensland DD may look like on that spectrum, and how the initial step in this first round Tariff Statements reasonably contributes to achieving significant movement along this spectrum in ten to twelve years’ time – that is whether the degree of cost-reflectivity achieved now is assuring that significant achievement of the network pricing objective can be made in the medium term? Further to this we ask whether the documents produced for this regulatory process provide an adequate evidence base to sustain the conclusions that are reached in the AER DD.

We have provided some analysis, based on the publicly available documentation and data, to address these questions. However, in responding to Ergon’s proposed tariff structures, it is the role of neither CANEGROWERS nor Sapere to conduct the analysis of proprietary data in order to propose a preferred or ideal cost-reflective tariff that prices the small business class of customers that includes CANEGROWERS membership.

1.2 Network pricing rules

The network pricing objective is as follows:

“the tariffs that a Distribution Network Service Provider charges in respect of its provision of direct control services to a retail customer should reflect the Distribution Network Service Provider’s efficient costs of providing those services to the retail customer.”

The AEMC states that

Cost reflectivity in relation to network tariffs has three key components:

(i) Sending efficient signals about future network costs.
(ii) Allowing a DNSP to recover its regulated revenue so that it can recover its efficient costs of building and maintaining the existing network.

(iii) Each consumer should pay for the costs caused by its use of the network.

Taken together, these three components of cost reflectivity should result in an outcome where the network prices that each consumer faces reflect the costs that particular consumer causes through its use of the network.

The AEMC stated that it considers that DNSPs should have the flexibility to implement LRMC based network prices in the way that best suits their consumer and network characteristics. The final rule does this by not specifying the method for calculating LRMC.’

AEMC also decided against requiring an AER guideline (p85 AEMC FD). Along with the March Issues Paper, the Draft Determination is significant in providing guidance on the direction of network pricing reform and likely to influence future TSS statements in NSW and elsewhere.

### 1.3 Summary of AER DD

In its Queensland DD, the AER proposes to approve the tariff structure statement submitted by Ergon (“ETSS’’). It finds that the ETSS is ‘‘compliant with the Rules’ requirements, both in terms of what it contains and how it reflects the distribution pricing principles.’ The main ETSS proposals for small residential and business customers (metrology type 4-6) are as follows.

- A default inclining block tariff (IBT) with fixed and variable charges, with the phased introduction of three blocks and growing price differentials between the blocks.
- Opt in to seasonal time of use energy (STOUE) or seasonal time of use demand (STOUD) tariffs.
  - A STOUE tariff with a fixed and variable charge including a peak charge applicable from 3pm to 9.30pm every day (residential) and 10am-8pm weekdays (business), with higher peak charge rates applicable during summer (seasonal TOU).
  - A STOUD tariff with the same charging windows as the STOUE, with a summer time peak charge based on the 4 top demand days (for the customer) during each monthly billing period, with a minimum 3kW off peak demand charge (but no fixed charge).

The AER finds the ETSS:

- ‘‘exhibit movement along the cost reflectivity spectrum, incorporating time of use and demand tariff options for small customers’’;
- ‘‘includes tariffs with varying charges targeting network peak demand’’;
- ‘‘demonstrates Ergon Energy has accounted for customer impacts by:
  - making: making small customer time of use and demand tariffs opt-in’’

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1 AER DD, p8.
2 AER DD, p8
— gradually increasing the demand charge component of small customer demand tariffs to equal long run marginal cost (LRMC)\(^3\)

- ‘…links LRMC and residual costs to specific tariff components, reflecting efficiency goals and consideration of customer impacts.’\(^4\)
- ‘…Ergon sufficiently justifies its cost reflective tariff peak charging windows.’\(^5\)

The AER indicates some reservations with the ETSS including:

- “Encouraging” Ergon to reconsider its current default IBT in subsequent TSS proposals as customers adopt smart meters (p40)
- It agrees with the observation that demand based charges do not match coincident peak demand but states that ‘at present no distribution is able to fully match customer and network peak times via a tariff signal’ (p42). It may not be practicable … to establish charging windows to suit more narrowly defined customer classes such as particular types of irrigators.’ ‘We accept that … Ergon Energy may not have information to further disaggregate a customer group into a separate tariff class’ (p54).
- For the 2017-20 period,… it is reasonable … to target charging windows at its network peaks, taking into account typical demand profiles for broadly defined tariff classes’ (p54)
- Ergon is ‘encouraged to liaise with its irrigation customers and consider the potential for more discreet tariffs that target irrigators’ demands in future tariff structure statement periods’ (p54)
- ‘Ergon is encouraged to consider whether optional location specific pricing that target [sic] particular irrigation types will be feasible in future tariff structure statement periods.’ (p59).

In contrast to Queensland, in its NSW DD the AER decided not to approve all three NSW TSS on the basis they did not contribute to the achievement of compliance with the distribution pricing principles. This was based on:

- The inclusion of declining block tariffs (DBT).
- The definition of the proposed charging windows for TOU tariffs. The AER found that NSW distributors did not provide adequate evidence to justify the length of proposed peak and shoulder hours.
- Tariff assignment policies in some cases.
- Adoption of a ‘wait and see’ approach – limited movement toward cost reflective pricing.

\(^3\) AER DD, p8
\(^4\) AER DD, p8
\(^5\) AER DD p52
1.4 Approach to reviewing Queensland DD

It is clear in the AER’s draft decision that the points made and supporting evidence presented in our April memo (and June presentation) have been misconstrued and not understood. As a result, the proposed grounds for rejecting the ETSS have not been accepted in the Queensland DD. Appendix 1 addresses the representation of Sapere comments in the Queensland DD.

Network pricing is highly complex and economic theory, and international best regulatory practice, do not prescribe what constitutes efficient network pricing. This is evident from different approaches to network pricing adopted in different jurisdictions. It is also reflected in the AEMC’s Final Determination, which does not prescribe a methodology for applying forward LRMC based tariffs to existing or near future marginal demand.

Nevertheless the objectives, principles and practicalities of cost-reflective network pricing are well understood. This is evidenced by the extensive materials associated with the AEMC’s Power of Choice review, and the AER’s own introduction and background to its draft determinations that discuss some of the tariff design options and their challenges along the cost-reflective spectrum.6

Due to scope and resource limitations, in previous material and in the remainder of this memo, we focus on points of difference with both Ergon and the AER. We should highlight that we agree with much of the material in both the ETSS and the Queensland DD regarding the economics of efficient network pricing. In particular, we acknowledge that there are trade-offs between efficient pricing, on the one hand, and consumer impacts and comprehensibility on the other.

We also acknowledge there is a spectrum between network prices that are not cost-reflective, those that are partially cost-reflective and are those close to fully cost-reflective, taking into account transaction costs are likely to be excessive under perfectly cost reflective prices. The rules require a phased approach to the application of the new pricing rules. That said, the phased approach has a set timetable with the period set between each round of TSS allowing only three steps towards significantly achieving the network pricing objectives by 2030.

The absence of widespread interval metrology in Ergon’s area (even where interval metering is in place) is a severe limitation to the adoption of efficient network pricing structures. This suggests that, in the first round of TSS tariff reform objectives should be toward improving cost-reflectivity rather than necessarily achieving cost-reflectivity.

Our understanding from the AEMC Final Determination is that significant movement toward cost reflectivity is expected to occur during the transition period, corresponding to the ETSS in Ergon’s case. In other words, we assume that the network pricing objective should be achieved in the period following the period to which the ETSS applies.

In this review, we adopt the AER’s interpretation of “LRMC” as referring to ‘forward LRMC’. That is to say, “LRMC” refers not to the actual cost of supplying existing demand

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6 AEMC, Power of choice review - giving consumers options in the way they use electricity, Final Report, 30 November 2012
using the existing network assets. Instead, it refers to the theoretical or modelled cost of future network assets to meet possible new demand in excess of the demand forecast on which approved forward augmentation capital expenditure is based. It also includes a small portion of the cost of network asset replacement (2.5 per cent).

In our April memo and June presentation, we attempted to respond to each of the questions set out in the AER’s March Issues Paper. We based our arguments on a discussion of the rules and the underlying economics of networks, with a strong focus on the interpretation of “LRMC” in the rules.

In this review, we start with considering the outcomes of the ETSS tariff proposals for irrigators in terms of the pricing principles. We then move to diagnosing the underlying conceptual and data issues.

In both cases our objective is the same: understanding whether the proposed tariffs target customer behaviours that drive network costs, and whether these proposed tariffs are supported by clearly articulated, evidence based logic. For that reason, where our analysis fails to meet these objectives, we have articulated questions about such issues that we believe should be addressed clearly in the AER Final Decision.
2. Impact for irrigators

Based on the indicative Distribution Use of System (DUoS) prices provided in the ETSS Appendices, if Ergon’s ETSS is accepted in the AER’s Final Determination, sugar cane irrigators are likely to face significantly rising network prices. This is because all three tariff designs proposed in the ETSS create significant exposure to penalty tariffs based on an estimate of aggregate forward LRMC for the small business customer tariff class.

The ETSS does not provide data on the periods of greatest utilisation of the network, or locations at greatest risk of congestion. At least for Queensland as a whole, the greatest utilisation of the network occurs as a result of increased electricity demand for cooling during severe and extreme heatwaves.

Drawing from the ATA analysis of a sample of actual interval metering data, sugar cane irrigator demand profiles do not appear to respond to heatwaves. The data suggests that there is significant potential for irrigator demand to be reduced or avoided during such events. Irrigator demand does not correspond to or drive demand at times of greatest utilisation of the network.

2.1 Inclining block tariff (IBT)

The AER Draft Decision states that Ergon’s Tariff Statement:
‘…demonstrates Ergon Energy has accounted for customer impacts by:
— making small customer time of use and demand tariffs opt-in.”

From the indicative DUOS prices provided in the ETSS, the rate for the third block of the IBT tariff for the third and final year of the ETSS period (2019-20), by which time the first block is intended to correspond to forward LRMC, is 482 per cent above the rate for the first block. The ETSS does not explain why the rate for the third business block is set at a premium compared with the third block of the residential tariff.

The threshold for the third block for business is 20MWh. The annual demand for cane irrigators on LV tariffs is between 50MWh and 100MWh so there is a significant exposure to the third block.

Consumption volume is inclusive of estimated distribution loss factors (DLF). This means higher dollar differences between the three steps in the IBT and an earlier triggering of rate increase thresholds.

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7 See Appendix D, Tariff Structure Statement 2017-18 – 2019-20, 27 November 2015, Appendices. While these are indicative only, they are invaluable in detailing possible outcomes from tariff structure proposals.
8 See Sapere report Implications of extreme heatwaves and the NEM etc.
10 Ibid.
Table 1 ETSS IBT indicative tariff

<table>
<thead>
<tr>
<th>Block</th>
<th>Variable rate $/kWh</th>
<th>Premium over bloc 1</th>
<th>Residential 19-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block 1</td>
<td>0.02153</td>
<td>%</td>
<td>Difference</td>
</tr>
<tr>
<td>Block 2</td>
<td>0.06667</td>
<td>210%</td>
<td>0.04514</td>
</tr>
<tr>
<td>Block 3</td>
<td>0.09613</td>
<td>346%</td>
<td>0.0746</td>
</tr>
</tbody>
</table>

Source; ETSS Appendix 1, Table 20, Indicative DUOS prices, IBT residential and business east for 1919-20.

As noted in our April memo, there is ample evidence from actual interval data that there is no economic efficiency basis for IBT structures. IBTs are not cost reflective because there is no relationship between customer consumption volume and customer demand during times of greatest utilisation of the network, as illustrated in slide 26 of Sapere’s June presentation to the AER. One of the three examples, from the AEMC’s own 2014 review of Distribution Network Pricing Arrangements, is provided in Figure 1 below.

**Figure 1 Volume vs. peak demand**

From Fig. 6.7 NERA Economic Concepts for Pricing Electricity Services for AEMC, Distribution Network pricing arrangements for AEMC, Distribution Network Pricing Arrangements, 2014.

Under this tariff structure, irrigators are highly likely to be paying prices that are well in excess of efficient costs (forward LRMC as defined by the AER). It appears the level of the
third block has been set at a penalty level to create incentives for customers to switch to time of use or demand tariffs. IBT does not create incentives to avoid or otherwise minimize demand during system peaks and hence provides little if any economic efficiency benefit.

Part of the purpose of single number tariffs is to provide a ‘safe harbour’ for customers who are concerned over potential price increases under cost reflective tariffs. In principle, it is defensible for a “flat” tariff such as an IBT to be set at a premium compared with cost reflective tariffs. This is because, where customers can opt in or out of flat tariffs, over time, it could be expected that higher cost customers would remain on or move toward flat tariffs. The application of a penalty component could be justifiable where efficient alternative tariffs are available. This does not, however, appear to be the case, as explained below.

Because of the substantial penalty component in the third volume block, the proposed IBT does not represent a ‘safe harbour’ for higher volume customers, including irrigators. Under these conditions, the IBT may force customers to opt-out of the IBT, rather than to opt-in to a time of use or demand tariff.

**Question 1:** Why apply a higher IBT penalty to business?

**Question 2:** Why does the AER consider the IBT superior to any other single volumetric number tariff?

**Question 3:** On what basis does the AER consider the proposed IBT represents a “safe harbour” enabling customers to choose whether to opt-in to LRMC based tariffs?

### 2.2 Seasonal time of use energy (STOUE)

The AER DD states that the ETSS “…includes tariffs with varying charges targeting network peak demand”\(^\text{11}\)

STOUE could represent some movement along the spectrum toward more cost reflective prices and may be an improvement over flat tariffs. This depends on ensuring the peak tariff rate relates to the time of greatest utilisation of the network, and that the calculation of forward LRMC is reasonable and evidence based.

The peak charging window for business represents the bulk of daylight hours for weekdays during the summer period (10am -8pm weekdays), but at a lower rate than residential customers. As a result, the aggregate forward LRMC is substantially diluted on being converted to the rate applied to the summer business peak charging window. The ETSS refers to this as “scaling” (Appendices, p32)

As a result, the connection between the “peak” charging window, and forward LRMC at times of greatest utilisation of the network is very weak. Incentives to reduce demand during periods of greatest utilisation of the network are similarly very weak. The ETSS itself

\(^\text{11}\) AER DD, p8
acknowledges that seasonal time of use tariffs … ‘over signal LRMC across too many observation periods (all half hours in the peak period window).’

The pricing principles use the phrase ‘times of greatest utilisation of the… [network]’. By contrast, the proposed business STOUE charging windows have the effect of replacing “greatest” with “high” utilisation of the network, or replacing “network” utilisation with “customer” utilisation.

Under this tariff structure, irrigators are highly likely to be paying prices that are well in excess of efficient costs (interpreted as forward LRMC). Further, there is little incentive or benefit from shifting irrigator demand away from system peaks and hence little or no economic efficiency benefit. TOU could be detrimental to broader economic efficiency to the extent demand tariffs lead to higher labour costs (e.g. shift or weekend rates), increased investment in non-network alternatives, or reduced agricultural output. For business customers with significant demand during summer weekday daylight hours, the proposed TOU structures represent a penalty charge in excess of costs.

**Question 4:** On what basis does the AER consider the STOUE moves towards cost reflectivity, if the impact on marginal demand is diluted while the (possibly larger) impact on infra-marginal demand is inefficient?

### 2.3 Seasonal time of use demand (STOUD)

The AER DD states that the ETSS:

‘…demonstrates Ergon Energy has accounted for customer impacts by:…

- gradually increasing the demand charge component of small customer demand tariffs to equal long run marginal cost (LRMC).’

### 2.3.1 Meeting the challenge of demand tariffs

Among all of the first round of Tariff Structure Statements, Ergon presents the most advanced exposition of the challenges of setting ex ante tariffs that signal prices for network peak demand events for which the timing is only known with certainty ex post, and is the only distributor that actually proposes an ex ante probabilistic method that can be robustly statistically validated. As Ergon notes, faced with the unknown future, the two broad options for LRMC-based tariffs are

1. an ex post charge, that looks back at what a customer’s demand happened to be at what is revealed in time to have been the time of greatest utilisation of the network, or

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12 ETSS Appendices, p42.
13 ETSS Appendices, p29ff
14 AER DD, p8
2. an ex ante charge that, based on the statistics of a customer’s demand at those times that greatest utilisation of the network is most likely, provides a measure of that customer’s probable contribution to network utilisation at the time that peak demand actually occurs.\textsuperscript{15}

While reasonably innovative for customer tariffs, such methods are standard and already have application in the energy sector in planning supply capacity, for example, through applications like the WA Relevant Level Methodology for determining the capacity credits allocated to intermittent generators, such as solar and wind facilities, which are effectively a forecast the likely output of a facility at the time of maximum demand.\textsuperscript{16}

The relationship between system peak (times of greatest utilisation) and AMD for individual customers for Ergon is shown in Figure 2 below.

This indicates that, for a large set of Ergon customers, there is a clear relationship between their maximum demand and system peak. However, for another large set of Ergon customers, there is no such relationship. This includes sugar cane irrigators.

**Figure 2 AMD vs. system peak**


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\textsuperscript{15} It is important to note that this is fundamentally different from small customer “monthly demand” tariffs proposed in other jurisdictions, for good reason. The precedent for a tariff based on measurement of a consumer’s maximum demand in a period comes from large customers for whom a network will have custom-built a connection based on the anticipated capacity required by that customer. Networks provide all small customers with the same capacity connection, or at most a small clutch of pre-set connection types.

2.3.2 Impact of STOUD as proposed

The proposed STOUD usefully excludes customer maximum demand that is not associated with the system peak. However, there are three problems with the STOUD, as proposed:

• as with the STOUE, the charging window is too broad
• the demand tariff is calculated with respect to the average of the four highest consumer demand at any time within STOUD charging window
• the proposed indicative STOUD business rate is at a substantial penalty compared with the residential rate

The charging window has already been addressed. The second point means the STOUD creates an incentive for customers to reduce their maximum demand within the charging windows. There is, however, no incentive for shifting their maximum demand away from system peaks.

In addition, there appears to be an inconsistency between the STOUD and STOUE, relative to the finding in the ETSS there is a higher diversity factor for zone substations deemed to be business compared with zone substations deemed to be residential. Higher diversity suggests that the typical business customer makes a substantially lower probable contribution to marginal demand.

In the case of the STOUE, this is reflected in an indicative STOUE rate for residential that is at a premium of around 10 per cent compared with the business STOUE. However, in the case of the STOUD, the indicative residential rate reflects around a 20 per cent discount relative to the indicative business rate. These points are summarised in the Table below.

Table 2 STOUE and STOUD compared

<table>
<thead>
<tr>
<th>“Indicative” , 2018-19</th>
<th>Scaling factor (diversity)</th>
<th>Seasonal peak window (of time)</th>
<th>Seasonal peak window (of energy)</th>
<th>STOUE</th>
<th>STOUD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>0.4</td>
<td>6.7%</td>
<td>9%</td>
<td>0.47629</td>
<td>97.061</td>
</tr>
<tr>
<td>Business</td>
<td>0.67</td>
<td>7.5%</td>
<td>10.2%</td>
<td>0.43342</td>
<td>120.62</td>
</tr>
<tr>
<td>Residential as % business</td>
<td>89.3%</td>
<td>88.2%</td>
<td></td>
<td>109.9%</td>
<td>80.5%</td>
</tr>
</tbody>
</table>

Source: ETSS, Appendix 1, Table 20, 2019-2020

As shown in Table 2, while the peak charging windows for business are wider than for residential, in the case of the STOUE, it is possible the wider window and lower rates may cancel each other out, resulting in similar aggregate LRMC for business and residential.
As a result of these points, it is in fact not the case that the STOUD, as proposed ‘aims to target times of anticipated network stress from peak demand.’ While there may be a reduction in peak demand for STOUD customers during system peak, the larger effect may be to reduce infra-marginal demand. Hence STOUD tariffs could be detrimental to broader economic efficiency to the extent they lead to various combinations of higher labour costs, increased investment in non-network alternatives, or reduced agricultural output, that exceed any benefits from reduced maximum demand attributable to STOUD.

Under this tariff structure, irrigators are highly likely to be paying prices that are well in excess of efficient costs (interpreted as forward LRMC). The proposed STOUD tariff is too indiscriminate, due to the wide charging window and premium rate, to represent movement along the cost-reflectivity spectrum. In addition, similar to IBT, for irrigators, the STOUD represents a penalty charge, unrelated to the cost of service, for customers with high demand (MW).

**Question 5:** On what basis does the AER consider that the proposed STOUD tariff structure moves towards cost reflectivity?

**Question 6:** On what basis does the AER consider the allocation of LRMC between business and residential to be evidence based and transparent?

### 2.4 Outcomes vs. pricing principles

The AER states that: ‘

*It may not be practicable … to establish charging windows to suit more narrowly defined customer classes such as particular types of irrigators.*’ ‘We accept that … Ergon Energy may not have information to further disaggregate a customer group into a separate tariff class’ (p54).

**Pricing principles**

6.18.5(f) Each tariff must be based on the long run marginal cost of providing the service to which it relates to the retail customers assigned to that tariff with the method of calculating such cost and the manner in which that method is applied to be determined having regard to:

1. the costs and benefits associated with calculating, implementing and applying that method as proposed;
2. the additional costs likely to be associated with meeting demand from retail customers that are assigned to that tariff at times of greatest utilisation of the relevant part of the distribution network; and
3. the location of retail customers that are assigned to that tariff and the extent to which costs vary between different locations in the distribution network.

Under efficient tariff structures consistent with the rules, there should be no need to separate irrigators or other consumers with demand profiles that do not drive or correspond to periods of ‘greatest utilisation of the relevant part of the network’, and who are similarly

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capable of modifying their demand in response to efficient price signals. Efficient tariffs should yield lower prices for consumers that do not drive system demand peaks and higher prices for those that do drive system demand peaks.

The failure of the ETSS proposals to yield lower prices for irrigators does not suggest irrigators should ideally constitute a separate tariff or customer class. Rather, it suggests that the ETSS proposals are inconsistent with the LRMC pricing principle (cl. 6.18.5(f)(2)) because they do not differentiate prices for customers who drive demand during periods of greatest demand from prices for other customers.

The problem arises under all three available pricing structures, and is likely to yield price increases for irrigators. As a result, the ETSS is also inconsistent with the customer impacts principle (cl. 6.18.5(h)(3)).

**Question 7:** Given the likely impact on prices for infra-marginal capacity, on what basis does the AER consider STOUE or STOUE, as proposed, promote sufficient compliance with the pricing principles?

### 2.5 Ergon irrigation tariff trials

The AER DD encouraged Ergon to engage with CANEGROWERS on the issues raised in its submission to the AER TSS Issues Paper. An outcome of this engagement is the development of a proposal for a trial with agricultural businesses to assess outcomes under defined tariff structure options.

One of these tariff options is based on the model of a secondary control load tariff, whereby farmers yield control of the availability of supply for a low unit electricity rate. Another option appears to be a STOUD.

While acknowledging the goodwill of the parties signalled by this trial, the risk transfer to farming businesses under a controlled load tariff separate to other small businesses clearly indicates that this is a second best solution. The overall effect is to impose costs on consumers without any offsetting benefit in the form of avoided network costs. This means that the tariff options being trialled are likely to be contrary to the Network Pricing Objective.

A better solution is a cost-reflective tariff structure, such as a modified STOUD, whereby all small businesses retain control of the availability of supply and receive price signals related to their utilisation of the network at periods of greatest utilisation. Such customers may either pay cost reflective prices or modify their demand.

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18 To be clear, the assertion here is that if the cost-reflective/forward LRMC part of the tariff is efficient, there is no need to distinguish any sub-segments of the customer class. Indeed if LRMC is indistinguishable for residential and business consumers, there is no reason to distinguish these consumers for the cost-reflective part of the tariff. That said, there may be other reasons justifying the distinction between such customer segments, based on other elements of service.
3. Key tariff structure issues

The previous section compared the pricing principles with the outcomes of the current ETSS proposal for irrigators, by proxy for all other (business) classes whose demand does not drive or correspond to periods of greatest utilisation of the network. This section identifies and discusses key tariff structure design issues.

3.1 Moving along the cost-reflective spectrum

The AER DD states that the ETSS ‘…exhibits movement along the cost reflectivity spectrum, incorporating time of use and demand tariff options for small customers’.

Through the TSS processes the AER has been using a metaphor of a “cost-reflectivity spectrum” between existing structures that fail to reflect the costs of consumer behaviours towards “fully” cost-reflective tariffs.

Figure 3 imagines this spectrum, starting with the long-standing “single number” tariffs sited at zero, which price a single volumetric measure of consumption, moving along the spectrum adding price components that increasingly target consumer contributions to the temporal and locational costs of network congestion.

At its simplest, the network pricing objective is to move from the zero position on this spectrum as far to the right as possible in the next dozen years, say, so that inefficient network pricing does not continue to distort economic investment in our energy system.

Figure 3 Cost-reflectivity spectrum

The AER states that:

‘at present no distributor is able to fully match customer and network peak times via a tariff signal’ (p42)

This statement is accurate with respect to the current round of TSS proposals in the NEM insofar as the ambition of those proposals is limited and far from the extreme position on the cost-reflective spectrum that “fully match” implies.
However, this overlooks experience both in Australia and elsewhere with the design and operation of tariff structures that effectively target network system peaks, based on a probabilistic approach focusing on a limited number of periods (no more than two or three per cent of total half hourly intervals each year) corresponding to the system peak - including tariff structures referenced in the ‘Background’ section of each of the AER’s draft determinations, and in Queensland the foundations of the STOUD expounded by Ergon. This type of tariff design is proposed in the ATA advice for CANEGROWERS.

Having observed that, while on good foundations, the STOUD as proposed fails to achieve cost-reflectivity, this tariff could be modified for the present Tariff Statement period to achieve an assertive step along the cost-reflective spectrum by:

(a) moving the definition of the four highest demand days from individual demand to system demand (or for the relevant sub-system);

(b) moving the charging windows to a narrower band during weekdays only, corresponding to known peak network demand periods, and

(c) reducing the rate corresponding with a higher scaling factor, consistent with the STOUE.

In the next TSS period, the STOUD tariff could be shifted further along the cost-reflective spectrum by

(a) Ergon communicating with customers a day ahead (via a variety of means) announcement that the following day or days may represent the network (or sub-system) maximum demand, on which the STOUD tariff for individual customers will be set (providing customers the opportunity to moderate demand); and

(b) Introducing greater transparency about the extent all business customers are exposed to forward LRMC based tariffs, noting that the ETSS suggests forward aggregate LRMC for representative business customers should be lower than for representative residential customers.

| Question 8: Does the first step (Final Decision) need to go to further than the DD, in order to achieve a reasonable degree of network cost-reflectivity toward the end of the second tranche of Tariff Statements? |

### 3.1.1 Achieving the ideal in reflecting network costs

Many energy economists consider locational marginal pricing, featuring prices reflective of both temporal and geographical variability in costs, as the epitome of a cost reflective tariff structure (see Figure 3). In discussions the AER has asked Sapere why it has not advocated an LMP structure tariff. Our response is:

- to reiterate that our objective is to understand the evidence base that demonstrates that the proposed tariffs are cost-reflective, within the reasonable reach of both networks and consumers ability to adapt, and hence a good first step along the cost-reflectivity spectrum, and

- to note that we would warmly welcome such a tariff proposal, given a complete and sufficient evidence base.
3.2 Boundary between marginal and residual costs

The AER DD states that the ETSS:
‘…demonstrates Ergon Energy has accounted for customer impacts by:

…links LRMC and residual costs to specific tariff components, reflecting efficiency goals and consideration of customer impacts’. ’

In the Queensland DD, the AER does not appear to have queried the balance of revenue to be raised by LRMC based tariffs relative to “residual” based tariffs. There are clear trade-offs between efficient tariff structures and revenue stability for networks. These trade-offs arise to the extent that maximum demand on the network can vary substantially between years, and to the extent marginal prices result in avoided future marginal network costs.

Leaving aside the likelihood discussed below that there is substantial excess capacity in the Ergon network, over a given five year price control/Tariff Statement period, maximum demand tariffs might be triggered only once (or not at all). This could result in apparent revenue shortfalls in the other four years. As a result there is a tension between designing cost reflective tariffs and revenue stability for networks.

The AER has suggested in conversation that inter-annual variability can be addressed via the unders and overs mechanism (which is essentially a mechanism to address inter-seasonal variability in sales volumes and hence revenues). This indicates a lack of clarity on the part of the AER over the boundary between marginal and residual costs.

If, in a given year, the demand threshold for LRMC tariffs is not triggered, there would be no “under” recovery of revenue. The network’s revenue requirement would now be lower than otherwise and hence there would be no revenue gap from reduced demand.

In other words, if cost reflective pricing were effective, then the probability of triggering future marginal network costs would be reduced. This would in turn create uncertainty for networks over the maximum allowed revenue/price (depending on the form of regulation applied). Provided this uncertainty applies equally to marginal revenues and marginal costs, this should not present a problem in terms of revenues equally prudent and efficient network costs.

While some aspects of the process of converting forward LRMC to LRMC based tariffs are discussed at length in the Tariff Statements, the overall method is not clearly articulated. The AER Queensland Draft Determination does not provide further clarification of this conversion. An understanding of the conversion would be assisted by improved transparency by way of a reconciliation between TSS proposals and regulated revenue. The basic question is, within total allowed revenue, what is the balance between forward LRMC and residual, and why?

This suggests that the ETSS should be more transparent over the proposed total revenue split between tariff elements that recover LRMC vs. the residual for each proposed tariff
class. Ergon states that it allocates its revenue cap to user groups. It provides a flow chart but not actual data on the revenue split.\textsuperscript{19}

### 3.3 Where on demand profile to apply LRMC based tariffs

Whatever threshold for triggering LRMC tariffs is applied, there is a related issue of determining the extent of the existing whole of system demand profile to which forward LRMC tariffs would apply for each defined customer group. This is illustrated in Figure 4 below.

**Figure 4 Where on the demand curve do LRMC based tariffs apply?**

This highlights that converting forward LRMC into a peak TOU tariff requires selecting a point on the relevant existing (or near future) system demand profile from which LRMC tariffs apply. Closely related to this, it also requires determining a multiplier to leverage the annualized LRMC value to reflect the much shorter duration over which the annualized LRMC value is recovered.\textsuperscript{20}

\textsuperscript{19} See ETSS Appendices, p80.

\textsuperscript{20} The ETSS LRMC values are expressed in annualised dollar terms. Note this is distinct from but possibly related to the ETSS scaling factor. While the scaling factor dilutes the unit LRMC value depending on the extent peak demand for a given customer class coincides with system peaks, it appears the scaling factor may be translated into a multiplication factor.
The further to the left, the higher the rate (multiplication of the annualized LRMC value) and the more effective is the price signal during periods of greatest utilization of the network. The further to the right, the lower the rate, and the less effective is the price signal during periods of greatest utilization of the network.

Determining a point on the demand curve, from which forward LRMC based tariffs apply, requires a judgment. However, the rules clearly indicate LRMC tariffs should be well toward the left of the relevant network load demand profile, due to the use of the phrase ‘periods of greatest utilization of the network’ (our emphasis). Infra-marginal pricing relates to the “residual”, not the forward LRMC pricing component.

| Question 9: On what basis has the AER so far concluded that benefits from improved pricing of marginal demand (STOUD) exceed the costs (suppressed demand) of applying penalty prices to infra-marginal demand? |
| Question 10: In proposing to approve the ETSS in the Draft Determination, has the AER determined the ‘floor’ or minimum demand threshold from which LRMC prices would apply, relative to historical and current forecast demand? |
| Question 11: On what basis does the AER consider, so far, that the ETSS is consistent with the LRMC pricing principle (cl. 6.18.5(1)(2))? |

3.4 Why different business and residential tariff structures?

A notable feature of the ETSS is that different tariff structures (rates and thresholds for forward LRMC related tariffs) are applied to the business tariff class compared with the residential tariff class and for each of the three tariff structures proposed. The unit forward LRMC is identical (being the forward LV LRMC values for the Ergon east and west zones).

The Queensland DD refers to apparent differences between demand during summer weekdays as justifying differences in charging windows, and by implication rates. This outcome appears to be because both the ETSS and the Queensland DD focus on daily demand “profiles” and in particular the shape of the demand profile provided in Figure 5-5 on page 52 of the Queensland DD.

As noted in the June Sapere presentation to the AER, annual demand profiles, not daily demand profiles, are best practice for pricing customer (class) demand profiles in Australian and similar liberalised energy markets. Daily profiles discard most (97 per cent), or strongly dilute, half hourly information captured from interval meters. Daily profiles do not provide sufficient resolution to reflect the shape of the demand profile at times of greatest utilisation of the network. This is so even for Ergon’s NSLP which appears to have one of the “flattest” profiles in the NEM.

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21 See Queensland DD p51-52
A further problem is that the daily profile data in the ETSS do not relate to individual customer metering data, but instead to zone substation metering data alongside judgments about the nature of the demand associated with substations deemed to be business or residential. This means that, in its evaluation of tariff structures, the ETSS is using highly aggregated, proxy, representative customer data, rather than a representative sample of actual customer meter data.

Reference to representative proxy customers’ profiles (on top of use of daily profiles) is problematic because it does not provide an evidence base for determining tariff structure parameters that differentiate customers, whose own use is greatest during times of greatest utilisation of the network, from other customers. Under these conditions, it is not possible to test whether proposed tariff structures are consistent with the requirement that ‘each consumer should pay for the costs caused by its use of the network.

While we recognise the constraints resulting from the absence of widespread interval meters whose data are captured, in the Ergon area, reference to actual customer interval data is in our view an essential sense check of whether the proposed tariff structures are in fact cost reflective. The ATA report using actual interval data from a sample of sugar cane irrigators highlights the shortcomings of the basic data supporting the ETSS.

To be clear, this is not to suggest that individual customer profiles are required to determine forward LRMC. Rather, it is to suggest that the setting of tariff structure parameters requires consideration of the substantial diversity of individual customer profiles within a customer class, consistent with the third component in the AEMC’s definition of cost reflective network pricing.

**Figure 5 LRMC and charging period?**

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22 See Queensland DD p51-52.
The different treatment of residential and business customers, in terms of applying LRMC based tariffs in the ETSS, is illustrated in Figure 5 above.

The residential window is set at the top 6.8 per cent of the demand profile while the business window is set at the top 7.4 per cent. The difference is relatively small due to the fact that the residential window applies to weekends as well as weekdays.

The different tariff structures seem to have been adopted because the ETSS concludes that a higher LRMC scaling factor (discount) should be applied to business relative to residential, reflecting a lower correlation between peak demand and system peak demand for the former, relative to the latter. In other words, the ETSS is based on the view that the representative business customer contributes significantly less to network congestion and triggering of forward LRMC than a representative residential customer.

There is evidence that most small businesses have a relatively low elasticity of demand (price sensitivity. This is certainly not so for businesses with high levels of electricity utilization for refrigeration, food processing or running irrigation pumps. For most businesses, however, electricity price sensitivity is relatively low. This would suggest setting the business threshold to the left of the residential threshold on the demand profile and applying a higher rate. This is the opposite of what is proposed in the ETSS.

To sum up, the ETSS proposes to apply different tariff rates and charging windows for residential and business, despite their having identical unit LRMC. In addition, the ETSS suggests zone substations serving business customers are less likely to coincide with times of greatest utilization of the (wider) network compared with zone substations serving residential customers. It is, however, unclear whether the ETSS differentiates between residential and business customers in terms of their total liability for aggregate forward LRMC. This suggests that the ETSS should be more transparent over the proposed total revenue split between tariff elements that recover LRMC vs. the residual for each proposed tariff class. Ergon states that it allocates its revenue cap to user groups and provides a flow chart but not actual data (Ibid, p80).

### 3.5 Trigger for forward LRMC

The AER DD states that the ETSS:

‘…demonstrates Ergon Energy has accounted for customer impacts by:

...gradually increasing the demand charge component of small customer demand tariffs to equal long run marginal cost…

links LRMC and residual costs to specific tariff components, reflecting efficiency goals and consideration of customer impacts’.

As explained in the Queensland DD: ‘forward LRMC is equivalent to the forward looking cost of a distributor providing one more unit of service, measured over a period of time sufficient for all factors of

production to be varied.’ It is equivalent to forward looking costs that are responsive to changes in electricity production.

Ergon states that ‘incremental demand for the LRMC calculation requires a demand forecast for each functional level of the network.’ It also states that ‘In more recent times, as the pace of network investment has declined, the source of benefit has shifted away from avoiding network investments towards avoiding inefficient distributed energy resources (DER).’

The demand forecast mentioned would relate to future changes in maximum demand for the customer class in question at the times of greatest utilisation of the network, relative to a baseline level of future demand for that customer class.

The ETSS states that incremental network demand forecasts are ‘taken from the information provided to the AER as part of the October 2014 Regulatory Proposal.’ Maximum demand for standard control services barely changed between 2010 (2,319MW) and 2015 (2,354MW).

In its 2014 proposal Ergon notes that over the course of the regulatory price control period, in response to lower than forecast demand growth, actual capital expenditure was less than approved capital expenditure. The change in the reliability margin following changes to jurisdictionally set reliability settings also enabled significant capital expenditure to be avoided during this period.

Nevertheless, Ergon’s current Regulatory Information Notice indicates that substantial new augmentation capital expenditure was invested over the same period and the nominal Regulated Asset Base for standard control services increased by 53 per cent or $3.5 billion over the five year period to mid 2015.

The most recent data suggest business forward demand (MW) in Queensland as a whole is not expected to grow rapidly over the next two decades. Separate forecasts for the Ergon network area and small business (versus residential) demand are not available.

In the 2016 NEFR, forecast demand growth (both MWh and MW) for Queensland, excluding LNG, is substantially revised down compared with the 2015 NEFR and even more so compared with the 2014 NEFR. Under the neutral and low cases, there appears to be no increase in total demand across Queensland over the ETSS forecast period.

24 AER Queensland DD, p18.
25 See ETSS Appendices, p27.
26 ETSS Appendices, p24.
27 ETSS, p25.
28 See Ergon’s Regulatory Information Notice, line DOPSD0106.
30 See Table 3.3.1 of relevant Ergon RIN returns.
The 2016 NEFR takes into account ongoing moderation in demand growth across the NEM, with the notable exception of new demand related to Queensland LNG. It also takes into account the implications for future demand growth as a result of the government’s commitments made at the end of 2015 to reduce carbon emissions in both the short and medium term. In addition, it takes into account the substantial increase (27.4 per cent) in the non-network component of Queensland regulated retail prices in the Queensland Competition Authority’s 2016 Determination.

We understand LNG customers are transmission connected and hence outside the LV estimate of forward LRMC applicable to all but one individual Queensland sugar cane irrigator. As shown in Figure 6 above, forecast maximum demand (MW) for Queensland is expected not to increase, excluding LNG production, or increase only moderately even under the high demand scenario.

A further matter to take into account is the significant incremental capital expenditure already incorporated into the current approved regulated price. These costs do not form part of forward (incremental) LRMC and hence would be recovered from the residual.

Drawing these points together, the threshold for triggering forward LRMC would represent the difference between the red and blue lines (top two lines) in Figure 7 below.
Since the demand forecast used in the ETSS preceded the ETSS, it seems likely the forecasts assume the current tariff structures. The ETSS does not discuss the implications of efficient network pricing for future demand. Efficient network prices should result in some moderation of peak demand, to the extent consumers prefer to reduce peak demand rather than pay (higher) cost reflective network prices. This would manifest toward the latter part of the ETSS period after the initial phase in. Demand in the following periods should be lower than otherwise. If proposed tariffs were efficient and effective, they should reduce the (already very low) probability that the forward LRMC threshold would be triggered.

Taking all of these points together, it seems likely that the demand forecasts on which the ETSS LRMC-related tariffs are based on may no longer be valid. There is, therefore, reasonable doubt as to whether the threshold for forward LRMC based tariffs would be triggered.

Under these conditions, while LRMC based tariffs should form part of the tariff structure, they should only be triggered during the annual tariff approval process, if increases in actual maximum demand for LV customers, during periods of greatest utilization:

- c) Fully utilize the current significant excess between maximum network capacity and maximum network demand; and
- d) Exceed the demand forecast on which the current regulated revenue has been set.

**Question 12:** How is marginal demand defined? On What basis does the AER consider the ETSS demand forecast for setting LRMC tariffs exceeds the demand forecast on which regulated prices are currently set?
| **Question 13:** | How has the AER taken any existing excess capacity into account in accepting the reasonableness of proposed LRMC tariffs? |
| **Question 14:** | In proposing to approve the ETSS in the Draft Determination, in light of the 2016 NEFR relative to 2014 NEFR, on what basis does the AER consider the “floor” for LRMC pricing would be triggered over the course of the ETSS? |
4. Conclusions

The evidence and analysis provided in this review suggests that the key propositions on which the AER’s Queensland DD to accept Ergon’s Draft Tariff Statement are not evidence based. The key issues identified are as follows.

1. Inclining block tariff:- The AER DD finds that Ergon has accounted for customer impacts by making small customer time of use and demand tariffs opt in. Because of the very substantial penalty component in the third volume block, once the IBT is fully deployed, the IBT does not appear to provide a ‘safe harbour’, consistent with retaining customer choice and managing customer impacts. Under these considerations, the IBT may force customers to opt-out of the IBT, rather than opt-in to time of use and demand tariffs. The AER’s finding on the IBT does not appear to be evidence based.

2. Definition of peak charging windows:- The AER DD finds that Ergon has sufficiently justified its peak charging windows. In fact the charging windows are too broad and as a result the major effect may be to charge marginal prices for utilisation of infra-marginal capacity. The AER's finding on the definition of peak charging windows appears to rely on considerations of local congestion not provided in the ETSS or in the AER DD and hence is currently not evidence based. To the extent that local congestion is an issue, under the pricing rules, consideration would need to be given to placing locational boundaries on peak charges, alongside ensuring the charging windows reflect periods of greatest utilisation on the relevant local network elements.

3. Targeting of network peak demand:- The AER DD finds the ETSS includes tariffs with varying charges targeting network peak demand. As the AER’s finding on the definition of peak charging windows does not appear to be evidence based, similarly, the conclusion that proposed tariffs target network peak demand has so far not been substantiated.

4. Boundary between marginal and residual costs:- The AER DD finds that the ETSS demonstrates Ergon has accounted for customer impacts by linking LRMC and residual costs to specific tariff components, reflecting efficiency goals and consideration of customer impacts. The current boundary in the ETSS appears to give priority to revenue stability objectives rather than cost-reflectivity. There appears to be a lack of clarity and transparency in both the ETSS and the AER DD over the impact of avoided marginal network costs, attributable to cost reflective tariffs, on allowed standard control network revenue. The AER’s finding on this point does not, so far, appear to be evidence based.

5. Trigger for forward LRMC tariffs:- The AER DD finds that the ETSS gradually increase the demand charge component of small customer demand tariffs to equal long run marginal cost. Given that the most recent outlook for demand growth is substantially lower than the outlook that informed the ETSS, alongside the likelihood of substantial spare capacity, it is currently highly uncertain whether any significant future marginal network costs would be triggered over the period of the ETSS. Accordingly, the AER conclusion on this point does not appear to be evidence based.
6. Movement along the cost-reflectivity spectrum: The AER DD states that the ETSS exhibits movement along the cost reflectivity spectrum, incorporating time of use and demand tariff options for small customers. The ETSS does not appear to represent significant movement toward cost reflective prices, to the extent required to achieve cost reflectivity by the end of the period following the current ETSS. The proposed STOUD could be shifted well along the cost reflectivity spectrum with relatively small changes, including a peak charging window that is limited to marginal demand. A revised STOUD would reduce revenue stability to the extent future marginal network cost is avoided, in which case there would in fact not be a revenue gap.

In its Final Determination, the AER needs to make further enquiries of Ergon in order to assess whether gaps in the evidence base supporting the AER DD, identified above, can be addressed adequately. If these gaps cannot be addressed, the AER needs to consider revising key findings in the AER DD.

This reassessment may require reconsideration as to whether the ETSS contributes to compliance with the pricing principles. The AER has the power either to:

- require Ergon to undertake detailed analysis and justification of the proposed tariffs sufficient to address the matters identified above, or to
- amend the ETSS directly (Cl. 6.18.8(b) refers).
Appendix 1: AER responses to previous submission

The AER Queensland DD provides the following responses to CANEGROWERS April submission:

- ‘knowledge of an individual customers’ demand or load profile is not required to establish the marginal cost of providing additional network capacity’. (AER DD p58)
- ‘We… do not regard the post-tax revenue model as a useful guide to long run marginal costs. Rather the post-tax revenue model at best yields an estimate of total annualised costs. Dividing this measure of network capacity would yield a measure of average (annualised) cost per unit of capacity. This measure could be quite different to an estimate of average incremental cost of capacity or long run marginal cost of an additional unit of capacity.’ (AER DD p59)
- With respect to Sapere’s proposition that Ergon Energy’s network asset value should be optimised we note this is not a feature of the Australian electricity regulatory framework. Adjusting the regulatory asset base to account for potentially stranded assets is not an approach that can be employed by regulators. We are therefore not addressing this as part of assessing a tariff structure statement.’ (AER DD p59)

The table below compares text in the Sapere memo with how these were represented in the Queensland DD and then makes comments, drawing also on the analysis in the present report.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Sapere</th>
<th>AER</th>
<th>Comment</th>
</tr>
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<tr>
<td>Demand profile</td>
<td>‘That is to say, under the pricing rules, the definition of electricity tariff classes and tariff structures must be made with reference to a combination of two elements:</td>
<td>‘knowledge of an individual customers’ demand or load profile is not required to establish the marginal cost of providing additional network capacity’,(AER p58)</td>
<td>The term “customer” is used in the previous Sapere work interchangeably with tariff class, so refers to “customer” as defined in the rules. Using the correct interpretation of “demand”, the AER statement contrasts with Ergon’s statement that ‘incremental demand for the LRMC calculation requires a demand forecast for each functional level of the network.” p27 ETSS Appendices. Note Ergon’s methodology explicitly produces an identical unit LRMC value for both small residential and small</td>
</tr>
<tr>
<td></td>
<td>1. the network cost of supply curve for the [sic] all of the network’s demand; and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. the demand curve for the particular tariff class or retail customer in question.</td>
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</tbody>
</table>
Under the pricing rules, both elements are necessary to determine the point at which the supply and demand curves intersect, with respect to the particular retail customer in question.31 (Sapere p2).

The term ‘retail customer’ is defined in the Rules as ‘typical’ (see 5A.A1 definitions). However, there is ample evidence of substantial variability of profiles and supply costs within tariff classes.32

<table>
<thead>
<tr>
<th>Optimisation</th>
<th>business customers (see table 16, p29 ETSS Appendices) but concludes different tariff rates and charging windows should apply due to differences in daily demand profiles.</th>
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<tr>
<td>‘In fact, under the roll-forward method for setting the regulated asset base (RAB), and the main variable determining regulated standard control price levels, there is now no provision for asset optimisation and previously there was no provision for post hoc reviews and optimisation of actual capital expenditure.’33 In addition, there is no provision to optimise the RAB roll-forward to take into account a subsequent decision by the Queensland government.</td>
<td>Variability in demand profiles (and hence forward LRMC) is not reflected in the ETSS proposed tariff structures. The AEMC final rule refers to efficient prices for “each” individual customer.</td>
</tr>
<tr>
<td>With respect to Sapere’s proposition that Ergon Energy’s network asset value should be optimised, we note this is not a feature of the Australian electricity regulatory framework. Adjusting the regulatory asset base to account for potentially stranded assets is not an approach that can be employed by regulators. (AER p59)</td>
<td>There was no suggestion either in the memo or the June ppt. provided to the AER that network assets should be optimised. Rather, the suggestion was that this was relevant in setting tariffs corresponding to the “residual” or non-LRMC component of tariff structures.</td>
</tr>
<tr>
<td>As explained in the present memo, information on the extent of spare capacity in the network (which would be optimised under an ODRC method for setting the RAB) is necessary to</td>
<td></td>
</tr>
</tbody>
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31 This is a simplification to the extent that networks are required at all times to ensure there is adequate spare capacity relative to expected maximum demand (at 10 per cent probability of exceedance) consistent with relevant network reliability regulation, but the principle is valid nevertheless.

32 See, for example, A report to the Ministerial Council on Energy Standing Committee of Officials on the Consumer Impacts of Smart Metering, Energy Market Consulting Associates, April 2009. This was co-authored by Simon Orme.

33 This last issue was addressed as part of the AER’s Better Regulation package. Optimisation of the RAB was initially provided for in regulatory frameworks via use of the Depreciated Optimised Replacement Cost (DORC) methodology for setting the RAB but DORC was omitted from Chapter 6 of the NER.
| Reconciliation with PTRM | ‘Transparency is an essential requirement for distribution pricing. The ETSS, however, is highly opaque. Among other things, this is because there is no reconciliation between the proposals for LRMC per tariff class and the implicit LRMC contained within the PTRM.’ | ‘We… do not regard the post-tax revenue model as a useful guide to long run marginal costs. Rather the post-tax revenue model at best yields an estimate of total annualised costs. Dividing this measure of network capacity would yield a measure of average (annualised) cost per unit of capacity. This measure could be quite different to an estimate of average incremental cost of capacity or long run marginal cost of an additional unit of capacity.’ (p59) | Ergon states that it allocates its revenue cap to user groups and provides a flow chart but no actual data (Ibid, p80). It appears the AER in its DD has not queried the balance of revenue to be raised by LRMC based tariffs in the ETSS relative to “residual” based tariffs and in particular whether business and residential customer classes are equally liable for LRMC based tariffs. The evidence in the ETSS is that business customers overall may be less likely to contribute to forward LRMC because there is greater diversity in business Zone Substation demand maxima relative to system maxima conclusion the ETSS justifies the proposed charging windows is therefore not evidence based. As noted in the present report, the AER does not appear to be clear on the impact of avoided marginal network cost on regulated revenues. |