REPORT

Prepared for:

Queensland Council of Social Service (QCOSS)

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Energy Queensland:

Tariff Structure Statements (TSS) 2020-25

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The views expressed in this document do not necessarily reflect the views of Energy Consumers Australia.

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1. INTRODUCTION

This report has been prepared by Etrog Consulting Pty Ltd for Queensland Council of Social Service (QCOSS). It comments on the Tariff Structure Statements (TSS) for network pricing that Energy Queensland (EQ) has proposed to the Australian Energy Regulator (AER) to apply in Queensland from 1 July 2020 to 30 June 2025.[1] The scope of this report does not extend to any other aspect of EQ's regulatory proposals besides the TSS.

While the author of this report is a member of the AER's Consumer Challenge Panel (CCP),[2] the author is not a member of the sub-panel of the CCP that is engaged with EQ's regulatory proposals.[3] This report is being written independently of CCP. It is not a CCP document, and it is not being funded by the AER or CCP.

This report builds on its author's expertise and experience, and considers the opinions of other experts, as well as wider relevant reports and other documentation that are available on the AER and EQ[4] and other websites, and discussions with QCOSS and other interested consumer organisations.

Since 1 March 2019, on behalf of QCOSS, Etrog Consulting has attended forums and workshops and deep dives organised by EQ, and has initiated one-to-one discussion with EQ, to obtain better understanding of EQ's proposals, its compliance with the Rules, and in particular its potential effects on vulnerable consumers.

The AER has requested that submissions to EQ's regulatory proposals should be received by 31 May 2019. This report has been developed in consultation with QCOSS with the understanding that QCOSS is intending to submit this report to the AER as a Companion Report to its own submission in response to the EQ regulatory proposals.

The remainder of this report is structured as follows:

- **Section 2** discusses the key issues with EQ's TSS, including its rationale, and EQ's decision-making in consulting on and developing the TSS.
- **Section 3** responds to the EQ's tariff proposals.
- **Appendices A to H** contain evidence to support the positions in this report.

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1 Documentation related to the TSS and other aspects of the regulatory determinations for 2020-25 for Energex and Ergon Energy can be found on the AER website at https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/energex-determination-2020-25 and https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements/ergon-energy-determination-2020-25 respectively. This documentation includes EQ's regulatory submissions.

2 Further information on the CCP is available at https://www.aer.gov.au/about-us/consumer-challenge-panel

3 See https://www.aer.gov.au/about-us/consumer-challenge-panel/statements-and-advice#subpanel-14

4 Documentation on EQ consultation on the TSS for Energex and Ergon Energy for 2020-25 can be found at https://www.talkingenergy.com.au/future-network-tariffs

2. KEY ISSUES WITH THE PROCESS

This section highlights the key issues identified with the rationale and process of consultation and development that EQ has followed in developing its proposed TSS.

The process undertaken by EQ has engendered lack of trust in the current tariff structure proposals, and this needs to be addressed before the TSS can be deemed to be capable of acceptance.

The clear finding emerging from issues with the process is that the TSS are not capable of being accepted, on the basis that:

- The TSS are incomplete.
- EQ's decision-making has not reflected consultation feedback.
- EQ has not provided any comparison of its proposed tariff structures against other options.
- There has been inconsistent rationale for proposed tariffs.
- There has been limited identification of customer impacts, no trials or modelling.

These issues are explored in this report section 2. The following section 3 provides further reasons why the currently proposed tariff structures are not capable of being accepted.

2.1. TSS ARE INCOMPLETE

Under the requirements of the National Electricity Rules (the NER), by 31 January 2019, EQ should have provided to the AER TSS which were complete and were fully compliant with the NER). Instead, the sequence of events has been as follows:

- On 31 January 2019, EQ first provided TSS to the AER alongside its main regulatory proposals for 2020-25. These TSS were substantially incomplete. The AER stated on its website that the "Tariff Structure Statement proposals submitted to us in January 2019 did not include important detail."[5]
- On 14 February 2019, EQ provided a letter to the AER which stated: "Energex and Ergon Energy understand that the AER has concerns that the TSSs as submitted on 31 January do not provide sufficient information for the AER and customers to fully assess the proposed network tariff structures." The letter gave commitments to provide further information to the AER no later than 18 February 2019, and "as part of Energex and Ergon Energy's responses to the AER's TSS Issues Paper in May 2019".

5 Requirements for TSS are set out in clause 6.18.1A of the National Electricity Rules (NER). We find it difficult to understand how the AER was able to deem the TSS element of the 31 January 2019 submissions to be compliant with the requirements of the NER.

- Further information was provided by EQ on 2 May 2019, but the submissions were still incomplete.[6] As the AER wrote on its website shortly after receiving the further information on 2 May 2019:

  "Tariff Structure Statement proposals submitted to us in January 2019 did not include important detail. On May 2, 2019 Energy Queensland provided additional information including detail regarding network tariffs, tariff structure and assignment arrangements, along with some impact analysis for small customers. We consider the Tariff Structure Statement proposal remains incomplete. We are seeking further information and will publish it as it becomes available. To assist stakeholders, we have extended the submission due date to 31 May 2019".

- We have been informed by EQ that some further information was provided by EQ to the AER on 17 May 2019, but that information has not been placed on the AER website as at 31 May 2019.

We understand that EQ is continuing to update its thinking on the tariff structures that it wishes to apply from 1 July 2020. Most recently, we participated in a forum that EQ held on 9 May 2019 with consumer representatives to discuss EQ's tariff proposals. EQ has not finalised its proposed TSS, and it is anticipated that there will be more consultation and possibly more documentation will be submitted to the AER. It is unclear when EQ's final TSS proposals will be available.

We are grateful that the AER extended the submission date from 16 May to 31 May 2019. We recognise that the AER could not reasonably extend further without compromising its own timetables for the regulatory review process, but further extension is required in order to allow consumer advocates more time to review important detail that has been provided late, or has not yet been provided at all.

2.2. EQ'S DECISION-MAKING HAS NOT REFLECTED CONSULTATION FEEDBACK

Consumer representatives have been pleased that EQ has undertaken stakeholder engagement in advance of submission of EQ's regulatory proposals for the upcoming regulatory period from 2020 to 2025. However, it seemed to the consumer stakeholders that EQ was more focused on the details of the components of its regulatory proposals that would affect its allowed revenue. Throughout 2018, the TSS did not get sufficient attention, and EQ did not respond effectively to feedback from consumer stakeholders.[7]

6 It appears that the information provided on 2 May 2019 was that which the EQ letter of 14 February 2019 committed to provide to the AER no later than 18 February 2019.

7 Appendix B lists an extract of relevant issues from submissions previously made by QCOSS. It shows how QCOSS has given EQ consistent messages throughout the process, which EQ has apparently not taken on board. Similar issues can be found with EQ's responses to submissions from other consumer stakeholders.

EQ undertook three rounds of consultation on its TSS proposals during 2018, in which QCOSS and other consumer stakeholders participated. QCOSS and other consumer stakeholders provided formal submissions to each round of consultation.[8] Further workshops and deep-dives have been held during 2019.

As they currently stand, just one year out from when new tariff structures are expected to apply, the TSS do not reflect key issues that were raised in consultation.

Throughout 2018, consumer stakeholders requested more tariff options analysis, and explanation from EQ as to why the Lifestyle Package had emerged and was preferred over other tariff structure options. Now the Lifestyle Package is no longer preferred by EQ. Instead, new proposed tariff structures have been introduced, with new names, in each round of consultation. The tariff structures that were submitted to the AER in January 2019 still included the Lifestyle Tariff, while also flagging that EQ was developing more new tariff structures.

There is now significant divergence between the tariff structures that were in the TSS that EQ submitted to the AER in January 2019 and the tariff structures on which EQ is currently consulting with stakeholders in May 2019, but on which there was no consultation throughout 2018.

Consumer advocates have very limited budgets and resources. Consequently, consumer stakeholders found it extremely difficult to keep up with the changes that EQ continued to introduce during its consultation processes. Further, the underlying concepts and the tariff structure proposals themselves have been innovative and more complex than have previously been applied in Queensland.

Consumer advocates recognise that some of the changes introduced by EQ were as a result of stakeholder feedback, but it is difficult to follow which changes were on that basis, as against simple change of viewpoint within EQ. While consumers welcomed the openness of EQ to consult on its proposals, the fact that those proposals kept changing without adequate explanation, and the proposals are still incomplete, has made for a very unsatisfactory consultation process.

Appendix A notes some specific examples of areas where consumer advocates have had difficulties with the documentation provided by EQ.

8 The submissions from QCOSS and other consumer stakeholders are available on EQ's website. QCOSS' submissions are also available on the QCOSS website at https://www.qcoss.org.au/our-work/publications/?fwp_focus_area=energy

2.3. LACK OF COMPARISON OF PROPOSED TARIFF STRUCTURES AGAINST OTHER OPTIONS

The AEMC's determination of a rule change on distribution network pricing arrangements introduced a requirement for "cost reflective" tariffs into the NER in 2014.[9] Prior to this, there had been progress in the introduction of more cost reflective network tariffs in various jurisdictions in the National Electricity Market (the NEM) for several years.

Consumers understood that the key rationale for more cost reflective tariffs was to address peak demands that were driving up augmentation capex (augex). Largely, increasing air-conditioning penetration and increased sizing of installed air-conditioners was driving peak demand growth. This was common across much of the NEM, and as explained further in this report was a key driver of the move to implement requirements in the NER for cost-reflective network pricing across the NEM.

Stakeholders acknowledged that tariff reform was necessary on that basis. They did not want to stand in the way of reforms, as long as the reforms would be beneficial to the long-term interests of consumers.

However, the electricity supply industry is now undergoing significant further change, with changes to generation mix, and a move towards more Distributed Energy Resources (DER). There is an increasingly complex energy environment, which has implications for networks businesses and for customers. Installation of household-level PV and more recently battery storage has grown very fast from a zero starting point.

Many residential customers who are homeowners have taken on this new technology, in good faith, for a variety of reasons, including seeking to do their bit to move Australia to a more sustainable energy generation portfolio. Many subsidies and schemes have been made available to enable and provide incentive for homeowners to make these investments. On the other hand, others such as renters, those who live in apartments, and those with lower disposable incomes who have not been able to invest have been left behind.

The current view being put forward by EQ is that augex is not the key expenditure that the Queensland networks will be facing in the coming regulatory period, or in the foreseeable future. Rather, as of May 2019, the key issue now facing EQ is said to be the cost of managing DER. EQ listed challenges that it is facing from DER such as changing customers preferences, declining energy consumption, reduced peak demand, and the expected future electrification of transport.[10] However, EQ has not drawn a clear link between these challenges and the tariff structures now being proposed, and has not explained why these tariff structures are being put forward as the solution, in preference to other tariff options, non-tariff solutions, or transitional pathways.

9 Documentation on the consultation process leading to the rule change is available at https://www.aemc.gov.au/rule-changes/distribution-network-pricing-arrangements

10 *Residential Network Tariffs – Energex and Ergon Energy – Overview*, EQ, May 2019

EQ has not explained why tariff reform to implement these new tariff structures (as against other options) is now in the best interests of consumers. Further, EQ has not explained what would happen to the network if there was no tariff reform, and in particular what would happen to network charges. There was no quantification of the dollar value of the problem that EQ is trying to solve, or how urgent it is to fix. Importantly, EQ did not explore with stakeholders the benefits and costs of other options to address the issue of increasing investment by consumers in DER.

Consumer stakeholders in Queensland are seeking further explanation and discussion on key issues and solutions, including the following points.

There is some understanding that integration of DER may be less urgent in Queensland than for example in South Australia, which has the highest penetration of DER, and where there can be a significant fall in daytime demand from the grid on some days, as shown in **Appendix G**. AEMO has stated that the trends now visible in South Australia are emerging in other NEM regions.[11]

EQ has not clarified how this affects the EQ proposals, and, for example, how differences between jurisdictions explain the proposal for a solar sponge tariff in South Australia as against a daytime demand charge in Queensland.

There is a growing spectrum of difference emerging across consumers, depending on their financial and other capacity to access DER and smart home energy management systems.

At one end of the spectrum, there will be consumer response provided through automated software and algorithms that will respond fully to price signals in a rational manner. Installers of solar PV and storage are now providing investors in DER intelligent software that seeks to maximise the benefit of the installation to the householder. Using machine learning and AI, this software "learns" the household energy consumption behaviour pattern, and with knowledge of the household tariff structures and rates and any other applicable incentives manages the charging and discharging of the battery storage.

If tariffs are not well designed, existing cross subsidies will potentially be significantly exacerbated, and households with these systems will get a significant individual benefit, probably to the detriment of others. Alternatively, these systems provide an opportunity that if the household is rewarded appropriately, through tariffs and / or incentive schemes, the software will respond to the benefit of the community, which will align with the householder's personal interests. Tariff complexity is not a barrier for these software driven cases, although it is a significant barrier to individuals seeking to manage their own usage.

At the other end of the spectrum, vulnerable customers will not have made such investments. Without the benefit of home energy management systems, they will have great difficulty to respond to complex tariff structures that are very difficult to understand.

11 See *AEMO observations: Operational and market challenges to reliability and security in the NEM*, March 2018, available at https://www.aemo.com.au/-/media/Files/Media_Centre/2018/AEMO-observations_operational-and-market-challenges-to-reliability-and-security-in-the-NEM.pdf

EQ should be modelling different options for tariff structures and non-tariff solutions, taking into account this full diversity of customers.

EQ has some notion of capacity tariffs as the ultimate way to address these issues, which has not been fully explained, and in the meantime has proposed in its TSS various 'intermediate tariffs' as a pathway to get to the capacity tariff. In this transition period, it has also proposed the retention of load control tariffs because of their ability to play their part in tariff reform by soaking up solar input during the day.

QCOSS and other stakeholders were not persuaded that the proposed tariffs reforms are in the interests of consumers. Rather they seemed to be geared to solving EQ's problems and seemed to comprise 'punitive' measures to be levied on customers whose investment and usage behaviour were impacting on EQ – presumably through imposing additional costs, but this has not been explained.

EQ must also be able to explain to stakeholder why it is not considering implementing non-tariff solutions (such as capacity rewards) to support consumers who can shift and reduce load to do so.

There is need to make consumers part of the solution, not "the cause of the problem". For example, the Energex Distribution Annual Planning Report 2018-19 to 2022-23[12] recognises the potential of Battery Energy Storage Systems (BESS) to provide network benefits, addressing peak demand and / or power quality issues. EQ must respond to what consumers want by enabling and / or considering how it will facilitate the uptake of DER, energy management systems, and peer on peer trading, with an emphasis on including customers experiencing vulnerability in the transition. This and other ways that consumers can be part of the solution does not come through the TSS process.

2.4. INCONSISTENT RATIONALE FOR PROPOSED TARIFFS

Throughout 2018, EQ proposed a Lifetime Package and talked up the tariffs' appropriateness and simplicity, up to and including EQ's regulatory submission to the AER on 31 January 2019, where EQ wrote:

> *We know that electricity affordability is a critical issue for our customers – both from a cost of living and business competitiveness stand point.*
>
> *This has seen us working hard to deliver price reductions through our forward investment plans and develop network tariffs that are cost reflective, simple, fair and equitable.*

12 Available at https://www.energex.com.au/about-us/company-information/company-policies-And-reports/distribution-annual-planning-report

There are many cases of similar claims in EQ's consultation material during 2018. One example is a presentation that EQ gave to a retailer forum in Melbourne on 31 July 2018, where EQ presented the following information on a presentation slide:[13]

> ***5.2 Measuring network usage – the use of energy rather than demand concepts***
>
> - *Customers prefer simplicity, predictability and familiarity*
> - *Energy concepts are more readily understood*
> - *Customer are unfamiliar with demand*
> - *Daily peak energy is less volatile than half hourly demand*
> - *Averaging four "demand days" is confusing for customers, but the concept of a "highest day" is less confusing*
> - *Diversity of network usage means that single half hour demand peaks are not well correlated with network peaks*
> - *Single half hour demand intervals are always reported retrospectively which inhibits customer response*
> - *Enables development of apps and services to advise customers to take control and respond within the relevant time period*

The key messages of this presentation slide are striking:

- Customers prefer, are familiar with, and understand energy tariffs (c/kWh).
- Customers are unfamiliar with demand.
- Customers prefer predictability, and energy use is less volatile than half hourly demand.
- Single half hour demand peaks are not well correlated with network peaks.
- Single half hour demand intervals are always reported retrospectively which inhibits customer response.

Yet despite these findings being presented in consultation by EQ in July 2018, EQ is now proposing a Residential Demand tariff as the default tariff for a customer with a new digital meter. This tariff has all the adverse characteristics that were presented in July 2018 – it relies on demand with which customers are unfamiliar; it charges based on half hourly demand peaks that are not well correlated with network peaks; and it inhibits customer response.

Further, EQ wrote in its 2 May 2019 submission to the AER that its proposed tariffs were developed on the basis that they needed to be fair and equitable, simple and easy to understand, and cost-reflective.

13 See https://www.talkingenergy.com.au/36857/documents/84821 EQL_Retailer_Forum_-_Melbourne_-_31_July_2018.pdf, slide 20 – section 5.2

When EQ proposed Time Of Use (TOU) prices, they were presented to be fair and equitable, simple and easy to understand, and cost-reflective, and demand tariffs were presented to have the opposite characteristics. Now that EQ is proposing demand tariffs, suddenly they are fair and equitable, simple and easy to understand, and cost-reflective, instead.

This about turn, without any supportive evidence, leads to our conclusion that the process has engendered lack of trust in the current tariff proposals. The ease with which EQ makes such positive assertions makes it difficult to discern any objective attempt to measure the tariff proposal against consumers' acceptance criteria. It is difficult to have any confidence in any proposal from EQ unless and until it is backed by evidence, based on trials with real customers, and accurate analysis.

2.5. LIMITED IDENTIFICATION OF CUSTOMER IMPACTS

QCOSS and other stakeholders fed back their concerns continually throughout the consultation process that there was no research and no trials of how the new tariffs would affect customers if implemented (and vulnerable customers in particular).

Customers who currently have similar bills because they have similar usage in total may in future be affected quite differently because their load profiles differ.

EQ has proposed the Residential Flat tariff as a "safety net" for customers who might otherwise pay more on a Residential Demand tariff. As shown in section 3.4, this tariff is not compliant with the NER, and is not fit for purposes as a tariff for 2020-25.

EQ has produced scatter diagrams that purport to show whether customers will be better or worse off with tariff reform, but (a) those diagrams compare against the Residential Flat tariff, which doesn't show what prices would have been in 2020-25 if not for tariff reform, so it is not a fair comparison; and (b) the scatter diagrams do not identify where vulnerable customers sit.

The Residential Flat tariff as a 2015-20 tariff is not the correct tariff against which to compare. EQ should instead produce a flat tariff that reflects what would have been the main residential tariff for 2020-25 in the absence of tariff reform. That would enable EQ to compare whether or not customers are better off with or without tariff reform, all other things being equal, and to consider the position of vulnerable customers in particular.

Further, the analysis to date has only included annual impacts and not taken into account bill variability due to seasonality which is significant in some parts of Queensland. Even if customers will pay a lower bill in total on an annual basis, in future their bills might vary more significantly than previously in different seasons. Those who have difficulty budgeting may be adversely affected if an individual monthly or quarterly bill is higher, even if their total bill annually is lower.

EQ has defined "better or worse off" in relation only to the size of the electricity bill, without regard to levels of household stress that may be adversely affected by more complex tariffs. Customer wellbeing is important and needs to be assessed as part of EQ's future impact analysis of new proposed tariff structures. Research has found that complex tariffs can risk customers' wellbeing by causing discomfort and anxiety.[14]

Further, the customer impact analysis that EQ has undertaken has been only for one-year 2020-21, the first year of the five years for which the TSS would apply. To support TSS that are intended to last for five years, customer impact analysis must assess impacts throughout the five years, and not just in the first year.

In contrast to the previous TSS for 2017-20, only limited customer impact analysis has been provided on the TSS for 2020-25. This customer analysis is at the overall customer level and does not include any analysis by customer household usage, income, access to solar, or any other socio-economic characteristics.

CSIRO found that even with limited price signals in current Victorian demand tariffs, certain customers could be up to 40 per cent worse off under a demand tariff than a flat tariff (based on their current consumption profile).[15]

Robust and extensive customer impact analysis and modelling is required in Queensland. It will be important to know who these households are in order to be able to find policies and programs to support them and mitigate any adverse impacts.

2.6. TARIFF, EDUCATION, DYNAMIC INCENTIVES AND INFORMATION (TEDI)

Near the beginning of 2018, EQ proposed a network tariff framework strategy, comprising Tariff, Education, Dynamic incentives, and Information (TEDI). Under TEDI, an extensive education and trial program would support the introduction of new tariffs to manage customer impacts through education and the provision of information tools to customers.

In its response to the EQ draft plan and early engagement, CCP14 stated: "*A key feature of EQ's tariff policy is its education and trials program known as TEDI. CCP14 is impressed with the potential of this leading program.*"[16]

14 See for example *Power Plans for Electricity, The impact of tariff structure changes on vulnerable customers*, BankWest Curtin Economics Centre (2018); *Feral O'Clock, Why Families Struggle to Shift their energy use*, RMIT(2016); *Wein, Paen, Ya Ang Gim: Victorian Aboriginal Experiences of Energy and Water*, CUAC, December 2011. These sources are discussed further in Appendix F to this report.

15 See (Gardner, J, O'Neil, L and Berry, A), *Residential electricity tariff analyses—report extract*, May 2018. Available at https://www.accc.gov.au/publications/restoring-electricity-affordability-australias-competitive-advantage - Appendix 10

16 *Response to the Energy Queensland (Energex and Ergon Energy) 2020-25 Draft Plan and Early Engagement*, CCP14, submitted to the AER and Energy Queensland, September 2018, page 26

QCOSS told EQ: *"There is a need for more development of the TEDI concept, particularly to negotiate and get agreement on the roles and responsibilities of retailers, distributors and government. QCOSS suggests that EQ lead this work to secure the anticipated outcomes from the TEDI concept."*[17]

TEDI was thus originally anticipated to incorporate trials of tariffs that would inform the TSS before their submission to the AER. TEDI was supported by QCOSS and other consumer advocates during 2018 on that basis.

In contrast, the Overview Documents submitted with the TSS on 31 January 2019 state that TEDI is now perceived by EQ largely as a program that will help transition customers to new tariffs, after the structure and content of those tariffs have been agreed with the AER. That was not the basis on which consumer representatives supported TEDI, at least in principle, during 2018.

The Overview documents state:

> *Another key aspect of TEDI is the introduction of network tariff trials. Tariff trials play a critical role in the refinement of our network tariff reforms by informing both us and customers of the education and information necessary to support network tariff reform. Dynamic incentives may also be deployed under this framework including the option of locational incentives as part of demand management programs.*

It is unclear how these trials, which have not yet commenced (to our knowledge), are intended to inform the TSS for 2020-25, given where the process now is.

Real trials would cover at least 12 months, and the opportunity to do that in time to inform new tariff structures for July 2020 has now gone.

2.7. CONCLUSION

The clear finding emerging from issues with the process is that the TSS are not capable of being accepted, on the basis that:

- The TSS are incomplete.
- EQ's decision-making has not reflected consultation feedback.
- EQ has not provided any comparison of its proposed tariff structures against other options.
- There has been inconsistent rationale for proposed tariffs.
- There has been limited identification of customer impacts, no trials or modelling.

As a result, the process undertaken by EQ has engendered lack of trust in the current tariff structure proposals, and this needs to be addressed before the TSS can be deemed to be capable of acceptance.

17 *QCOSS Submission to Energy Queensland: Tariff Structure Statement (TSS) Consultation # 3*, 5 October 2018, page 2

When this process is complete, we suggest that the AER and EQ should conduct a thorough review of EQ's consultation on the TSS, in order to understand what went wrong in the process leading up to submission of the EQ regulatory proposals, and what can be improved in future.

3. OUR RESPONSE TO EQ PROPOSALS

Notwithstanding the points raised in section 2, Etrog Consulting has analysed EQ's current TSS proposals. **Appendix C** contains our understanding of EQ's current TSS proposals for 2020-25 as they relate to residential customers. As discussed in section 2 above, these are not the proposals on which EQ consulted in 2018. Nor are they the proposals in EQ's January 2019 submission. Rather they are currently incomplete proposals which may change further as EQ consultation and thinking continues to progress.

The tariff structures proposed by EQ are:

- A ***Residential Basic*** tariff where a customer has not got a new digital meter.
- A ***Residential Demand*** tariff as the default tariff where a customer has got a new digital meter.
- As an alternative, residential customers with a new digital meter can opt in to what EQ is calling a ***Residential Capacity*** tariff.
- EQ proposes that new customers who are worse off financially on the Residential Demand tariff can opt back to the legacy ***Residential Flat*** tariff (Energex) or ***Residential Inclining Block*** tariff (Ergon Energy).
- EQ is proposing to retire the existing PeakSmart air conditioning incentive reward program.
- Existing load control tariffs (on a secondary circuit) are proposed to continue as currently structured.

Adding to the issues raised in section 2, our issues with these specific tariffs are summarised in this section, supported by more detailed explanations in **Appendices D to H**.

3.1. RESIDENTIAL BASIC TARIFF

EQ proposes to put customers without a new digital meter on a ***Residential Basic*** tariff.

It is clear why a tariff that is based on a fixed charge and an energy volume charge is expected and appropriate for customers without a digital meter.

However, EQ has not adequately explained why larger residential customers need to pay more per incremental kWh consumed than smaller usage customers. Put another way, there is little or no explanation as to how getting larger residential customers to pay more per incremental kWh consumed than smaller usage customers would mean that the larger customers would be paying network charges that better reflect network usage requirements. Further, the starting point of 10,000 kWh for increased charges has not been fully explained by EQ, and without explanation it seems to be an arbitrary round number.

It is unclear how an inclining block tariff is a credible path toward a capacity based future, as envisaged by EQ. EQ has not provided evidence that capacity tariffs are the way of the future, as against other types of cost reflective tariff.

From discussions with EQ, it is understood that part of the rationale for the inclining block tariff is to "catch" larger residential points of connection that are actually gateways to embedded networks and to make them pay more in network charges if they consume above 10,000 kWh pa.

It seems that EQ has a view that it would be more equitable if these customers were to pay more for their electricity. However, this concept of 'equity' has not been explained or explored in consultation with consumers, and certainly not with consumers in embedded networks.

EQ has not given sufficient consideration to the impacts of these tariffs on vulnerable consumers. Vulnerable customers do not necessarily have low energy usage. Some vulnerable customers with large families or medical needs, and people who are housebound may have much higher than average energy use. EQ has not discussed how these customers will be able to respond, and so they risk being will be caught by this new incremental tariff. We are informed[18] that over 300 customers in Queensland are on the Ergon Energy Customer Assist program,[19] which aims to assist people who are struggling to pay their electricity bill have usage above 10,000 kWh pa. There are also customers in payment difficulty not on the Customer Assist program. These customers already have difficulty paying large electricity bills, and will have even more difficulty if their incremental cost per unit consumed increases. This goes to the heart of accessibility and affordability issues.

Further, many embedded networks cover social housing, caravan parks and retirement villages – which are accommodation options where vulnerable consumers may live. Many vulnerable customers in embedded networks live in low cost accommodation, to avoid high bills, or because they cannot afford any other accommodation options. Under EQ's proposals, these vulnerable customers will have to pay more to cover incremental costs even if their own usage is low, simply because the overall usage in the network is high when summed across all the occupants.

EQ has not done any customer analysis to find out who the vulnerable customers are, and to what extent vulnerable customers would be adversely affected. Such analysis would be required in order to demonstrate whether this tariff proposal is equitable.

3.2. RESIDENTIAL DEMAND TARIFF

EQ proposes that the default tariff for customers with a new digital meter will be a new ***Residential Demand*** tariff.

18 Conversation during EQ Deep Dive 9 May 2019

19 https://www.ergon.com.au/retail/residential/support-programs/financial-hardship

The NER now requires each new and replacement meter to be a "new digital meter", and does not allow reversion – a customer cannot go back to having an old-style meter once a new digital meter is installed. Meters can be replaced for a variety of reasons that are not subject to customer discretion. Therefore, it can be assumed that customers with a new digital meter did not all choose to have such a meter, and did not choose to be put on a network tariff that EQ decides is applicable to a digital meter. EQ's proposals have been reviewed with that in mind.

As set out in **Appendix C**, this tariff includes:

- A fixed charge in $ per day;
- Two demand charges (measured in kW/month demand)
    - One for daytime (10am to 4pm); and
    - One for evening (4pm to 9pm); and
- A volume charge (per kWh).

EQ has stated that the key issue it now faces is the cost of managing DER rather than augmentation capex (augex), and that EQ is proposing a Demand tariff rather than a Time of Use tariff on that basis. However, the rationale for why a Demand tariff is more appropriate than an energy Time of Use tariff has not been explained. As discussed in **Appendix E**, in other jurisdictions, networks have implemented Time of Use tariffs as an alternative to flat tariffs for when customers get a digital meter.

If there is to be a Residential Demand tariff, it is unclear why it should include two separate demand periods, and why they each need to be so long (6 hours daytime and 5 hours evening). Perhaps the daytime demand charge (if required at all) should be for a shorter period, in order to encourage customers to use electricity at times when there is excess solar PV generation. If the EQ key issue is absorbing solar PV generation, then it seems counter-intuitive to have the daytime demand period at all. Rather the solution might be to look at the "solar soak tariff" to "soak up" extra PV generation during daytime (morning hours) that is being proposed by South Australia Power Networks (SAPN) in South Australia.

The evening period is also quite long, which will make it difficult for households to shift load to avoid or lessen the charge, as discussed below.

As discussed in **Appendix D**, the NER includes the requirements that:

- The network must consider the impact on retail customers of changes in tariffs from the previous regulatory year.
- The structure of each tariff must be reasonably capable of being understood by retail customers that are assigned to that tariff.

The AEMC's determination of the rule change that introduced the requirement for "cost reflective" tariffs into the NER emphasised the importance of customer focus and customer response.[20]

For example, the AEMC's final determination stated:[21]

> *Distribution businesses must also give effect to a consumer impact principle when developing their tariffs.*
>
> *This principle is in two parts. The first part requires distribution businesses to consider the impact on consumers of changes in network prices. Consumers are more likely to be able to respond to price signals if those signals are consistent and apply for a reasonable period of time. Sudden price changes or significant year-to-year price volatility will make it difficult for consumers to make informed consumption decisions. The second part of this principle requires network prices to be reasonably capable of being understood by consumers. Consumers will not be able to respond to price signals if they cannot relate price structures to their usage decisions.*

The final determination noted that cost reflective network price structures "provide stronger signals for consumers to minimise coincident network peak demand, thereby lowering future network costs which will be passed through to consumers through lower future network prices." Coincident peak demand refers to when a consumer's individual peak consumption coincides with the greatest utilisation of the network.

At the time, network costs were seen to be driven by augmentation capex (augex) to allow the network to keep meeting peak demands. Cost reflective prices would provide stronger signals to consumers to reduce their usage at those times, and thereby keep network costs down. The savings from lowering future network costs would be passed through to consumers through lower future network prices.

However, the AEMC cautioned as follows:

> *When DNSPs are introducing new tariff structures they will need to take into account the differing levels of knowledge and ability to understand tariff structures of various types of consumers. For example, residential consumers have little familiarity with demand tariffs. If a DNSP sought to move all of its consumers on to demand tariffs it would need to be able to demonstrate that residential consumers were capable of understanding, and therefore responding to the price signals of such tariffs. A key part of this consideration will be the trade-off between cost reflectivity and complexity in network tariff design.*[22]

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20 Documentation on the consultation process leading to the rule change is available at https://www.aemc.gov.au/rule-changes/distribution-network-pricing-arrangements

21 *National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014*, Rule Determination, AEMC, 27 November 2014, Executive Summary, pages iii-iv

22 *National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014*, Rule Determination, AEMC, 27 November 2014, Section A4.5.2, page 166

Etrog Consulting has seen no research or trials that would test their effects in Queensland. How would customers react to a demand tariff? Would vulnerable customers end up paying more or would they incur stress from facing a demand tariff?

International literature on the impacts on residential consumers of tariff structures that are more complex than Time of Use is limited, because implementation has only occurred in limited cases, and often has not gone beyond a trial. Further, Appendix F importantly discusses effects that complex tariffs can have on household stress, even if objectively the household would pay less under modern tariffs. This has been researched only in a few small trials to the best of our knowledge. It is imperative that analysis on the effects of customer wellbeing is undertaken in Queensland before complex tariffs are introduced.

Our findings which are documented in **Appendix F** include:

1. A study by RMIT in 2014 found that many household routines were unlikely to shift in response to cost-reflective tariffs, which charge a higher fixed peak rate on weekday afternoons and early evenings, offset by lower costs at other times. Most parents in the study identified the times proposed for higher electricity prices as covering the busiest time in their homes.[23]

   > This "family peak period" is hectic for parents with young children, particularly around dinner time. Parents described it as "crazy time", "feral o'clock", "dinner chaos" and the "witching hour". Many activities are bundled together during the family peak (homework, cleaning, washing, food preparation, eating and bathing) as family members return home from work, school and childcare, and prepare for bedtime.
   >
   > Some household activities, like clothes washing, are performed during "time gaps" when children are napping, playing or bathing. This means it is often not practical to switch these activities to different times.
   >
   > Parents also said they were reluctant to increase housework activities later in the evening, reserving this as "down time" where possible.

   In the study, parents reported that they were more willing instead to disrupt their routines on an occasional basis if asked to reduce electricity use for a "peak alert". Eighty-five per cent of survey respondents said they would respond to a peak alert, with no financial penalty or reward.

   > Parents who said they would respond gave many reasons. The most popular were "to help prevent electricity outage (blackout)" (64%), "to be part of a community effort" (59%) and "to reduce stress on the electricity grid" (52%). Thirty-five per cent said they would respond just because they were asked.

23 For more information on this study, see http://theconversation.com/feral-oclock-why-families-struggle-to-shift-their-energy-use-36215 and http://energyconsumersaustralia.cloud9online.com.au/grants/649/Presentation-RMIT---CAP-Interviews-TEC-Network-Tariff-Research-Forum-2014-a095eb73-ad00-4dd1-ad6d-0cb5a95611d3-0.pdf

Parents said they would disrupt a much wider range of activities for the peak alert scenario than they would for a TOU tariff scenario. These included changing their home cooling (air conditioning), television viewing, computer use, and cooking the evening meal. In addition, 40% of survey respondents considered leaving the home to reduce their electricity use for a peak alert scenario.

Part of the peak alert's appeal was that it only occurred occasionally, whereas TOU tariffs apply every weekday and require regular changes to routines. Such occasional responses align better with network peaks in demand (which normally occur on very hot days). They also better align with the types of disruptions considered "normal" and manageable as part of everyday life with children.

It's not all about price

Responses to the peak alert scenario reflect community interest in and responsibility for the electricity system. This is distinct from the dominant "price signals" policy approach, which assumes people will only shift activities to save money. Instead of engaging people via their hip pocket, peak alerts make the problem, and solution, one of community participation. And it's only an occasional change.

Variations on the peak alert concept have been successfully trialled in Australia and internationally, both with and without price incentives. This strategy also resonates with community responses to water restrictions and voluntary targets.

…

Energy reforms need to consider these other ways in which people relate to energy in their everyday lives, how they negotiate disruption and change, and how the problem of peak demand can be managed more equitably.

2. Research undertaken in regional Western Australia by Horizon Power during the 2016-17 summer period found that two-thirds of vulnerable customers were financially better off under a demand based pricing product as against their standard flat tariff, while the remaining third of this customer group were worse off.[24] It is necessary to obtain a better understanding why this customer group would be worse off, in order to devise effective responses. Larger families and those with lower incomes or receiving concessions participated in the pricing research pilot. However, the study raised issues on other aspects of the plans that raised questions as to whether the plan trialled really was beneficial to consumers:

24 For more information on the study see https://news.curtin.edu.au/media-releases/vulnerable-households-worried-summer-energy-bills-survey and https://horizonpower.com.au/our-community/news-events/news/two-thirds-of-vulnerable-customers-better-off-under-horizon-power-trial-pricing-plan. The full study report is available at http://bcec.edu.au/assets/BCEC-Impact-of-tariff-structure-changes-on-energy-vulnerable-households-feature-report-FINAL.pdf

> "*Once study participants were informed about the ways they could reduce their energy use during peak usage times, 25 per cent of participants were able to drop their peak usage by around 15 per cent, mostly due to adjusting or limiting the use of air conditioning," Dr Houghton said.*
>
> *"Some customers reported having to make trade-offs around which appliances to use during peak periods, with half of vulnerable customers indicating they turned off air conditioners when notified that their energy use was too high. This raises the risk of customers facing undue discomfort in their efforts to stay within their plan."*
>
> *BCEC Director Professor Alan Duncan said it was essential any changes to electricity pricing should leave no customers behind.*
>
> *"When developing new electricity pricing structures, utilities must explore options to ensure vulnerable households do not become further disadvantaged," Professor Duncan said.*
>
> *"The use of subsidies or rebates to compensate the most vulnerable in our society could be a place to start, but I'd encourage utilities to examine further the reasons why some vulnerable customers do fair worse from the introduction of programs aimed at reducing their financial stress, such as power plans and bill smoothing."*

One of the key findings of the study was that remaining within their allowances, vulnerable customers were forced to make difficult choices. Customers needed to choose, for example, between using the oven to prepare a cooked meal or to run the air conditioning. There was evidence from the interviews that consumers were curtailing cooling despite experiencing discomfort.

Risk of customers suffering excessive discomfort to stay within peak allowance: Customers indicated that they were having to make trade-offs regarding which appliances to run during the peak period; half of vulnerable customers indicated that they turned off air conditioners when they received an alert. These data do not alone indicate that customers are subjecting themselves to excessively high temperatures but interviewees reported enduring periods of discomfort. Vulnerable customers might be more inclined to seek to make savings in this way and as a result suffer disproportionately more discomfort.

Need to avoid replacing one source of anxiety with another: As discussed, vulnerable customers reported feelings of anxiety when alerts were received or when they sensed they were at risk of exceeding their peak allowance. Once again, it was unclear whether this was a result of concerns about losing the incentives or simply of exceeding the agreed peak allowance. Customers related concerns about the significant fluctuations in power bills between winter and summer and the Power Plans concept is designed to reduce these fluctuations. It seems vital to ensure that in seeking to alleviate one source of stress, another is not created or exacerbated.

There has been no move to educate Queensland consumers regarding demand tariffs. The AEMC assertion that residential consumers have little familiarity with demand tariffs remains true, and EQ has not been able to demonstrate that residential consumers were capable of understanding, and therefore responding to the price signals of such tariffs.

On that basis, EQ's proposal that the default tariff for customers with a new digital meter will be a new ***Residential Demand*** tariff does not meet the requirements of the NER and should be rejected on that basis.

Appendices to this report also quote other principles of good tariff design such as equity, simplicity, bill stability, which have not all been demonstrated by EQ.

The AER also stated in its Issues Paper:

- To achieve an acceptable speed of transition to cost reflective pricing, the AER requires the distributor to re-assign existing customers with a smart meter to a cost reflective tariff as long as there are sufficient safeguard measures and transitional arrangements in place.

The comments in this section relating to customers with a new digital meter apply equally to existing customers with a smart meter. Sufficient safeguard measures and transitional arrangements are not in place for July 2020.

3.3. RESIDENTIAL CAPACITY TARIFF

The proposed ***Residential Capacity*** tariff takes the complexity of the ***Residential Demand*** tariff a stage further, by requiring customers to make decisions in advance of their usage of electricity, and being penalised if they make incorrect decisions. Further, household circumstances may change from month to month, and it is unclear if this proposed tariff will accommodate that.

It may be said that people are used to subscribing in advance to mobile phone plans, so why is electricity different? There are significant differences between mobile phone plans and the proposed ***Residential Capacity*** tariff.

- A key difference is that mobile phone plans ask people to subscribe in advance to total usage per month, whereas the proposed ***Residential Capacity*** tariff will ask people to predict not their total usage of electricity in the next month, but what their maximum coincident usage will be (i.e. how much will be the most electricity they will be using at the same time in future months), and that is a concept with which they are not familiar.
- Mobile phone plans have evolved over the years. Nowadays, telcos are required to send usage alerts as a customer approaches their usage allowance. If people find they are using up their pre-purchased mobile phone package for the month at a faster rate than anticipated, they can reduce usage without significant detriment, perhaps by keeping conversations short, or using WiFi hotspots rather than mobile data. In contrast, no system of usage alerts is currently in place to warn about electricity use. Electricity is an essential service, and going without electricity can cause significant detriment to vulnerable households.

- Mobile data plans are generally personal to oneself (though they can be shared), whereas electricity usage is measured at a household level, which makes demand and capacity tariffs more difficult to control, as discussed in Appendix F.
- Queensland comprises many climate zones. In some zones, electricity customers' usage may be fairly even throughout the year. In other zones, there will be significant variation in electricity usage (but not mobile phone usage) due to heating and cooling differences, and months can vary from year to year in regard to how cold or hot they are. This seasonal variation would make a subscription based electricity tariff more stressful and difficult to control, because of the need to consider what will be the maximum demand for electricity each month or season individually, as against mobile phone usage which can be "set and forget" without variation for years on end.

The Residential Capacity tariff fails to comply with the NER for all the reasons that the Residential Demand Tariff fails to comply. The Residential Capacity tariff simply adds to complexity for a household to understand.

Under the Residential Capacity Tariff, customers can exceed their capacity level on three separate days per month during the evening window (4pm to 9pm) or day time period (10am to 4pm) with no consequence. Customers who exceed their capacity level on more than three separate days per month will pay for the highest monthly day time and evening window exceedances of their capacity level at the day time demand rate or evening demand rate respectively.

EQ has stated that the reason for ignoring the top three demand periods and only looking at the fourth highest demand is to reduce stress, allowing up to three outlying demands per month and only charging for the fourth. We think this only serves to complicate the tariff. We know of no other tariff worldwide that has this rule where we would be able to compare findings from its implementation.

Additionally, the so-called Residential Capacity tariff is not actually a capacity tariff. The Brattle Group's April 2018 report to the Victorian Distribution Businesses helpfully set out definitions of various tariff structures:

> ***Demand subscription service (DSS)*** *requires customers to subscribe to a demand level, but also provides the option of deviating from this level if need be. If customers deviate from their subscribed demand level, they will pay a pre-determined price for every extra unit of consumption. Usually this would be set to reflect the marginal / incremental service price. There are many ways in which the DSS idea can be specified. It can be based on subscribing to a kW demand, a load shape, or possibly even a quantity of energy.*
>
> ***Capacity charges*** *again require customers to subscribe to a demand level, but customers no longer have the option of exceeding this (as they could with the DSS).*[25]

25 *Electricity Distribution Network Tariffs: Principles and analysis of options*, prepared for the Victorian Distribution Businesses, April 2018, page 23, available at https://www.ausnetservices.com.au/-/media/Files/AusNet/About-Us/Electricity-distribution-network/Brattle-paper-on-Network-Tariffs.ashx

What EQ presents as a capacity tariff is actually a demand subscription service (DSS). One would not object to a tariff simply based on its name, but it is important going forward to be more precise on naming, to ensure that customers are not confused more than they otherwise would be.

3.4. Legacy Residential Flat tariff (Energex) or Residential Inclining Block tariff (Ergon Energy)

The legacy tariff that EQ has proposed is to be based on 2019-20 pricing as part of the 2015-20 regulatory revenue requirements, rather than being based on revenue requirements for 2020-25.

As shown in Figures 1, 2 and 3 below, the Residential Flat tariff proposed in the Energex area for 2020-25 continues the trend of that tariff from 2019-20. In contrast to the Residential Basic tariff, it will not give customers the value of any reduction in tariffs that will happen on 1 July 2020, and therefore during the period 2020-25 the Residential Flat tariff comes at a premium to the proposed corresponding Residential Basic tariff.

Figure 1: EQ Proposed Residential Basic tariff for Energex 2020-25

Tariff			Charging parameter	Units	2020-21	2021-22	2022-23	2023-24	2024-25
Residential Basic									
Residential Basic	8400B	DUOS	Fixed Charge	$/day	0.431	0.442	0.452	0.463	0.474
			Volume Charge Block 1	$/kWh	0.060	0.062	0.063	0.065	0.066
			Volume Charge Inclining Block	$/kWh	0.008	0.008	0.008	0.008	0.009
		DPPC	Fixed Charge	$/day					
			Volume Charge Block 1	$/kWh					
			Volume Charge Inclining Block	$/kWh					
		NUOS	Fixed Charge	$/day					
			Volume Charge Block 1	$/kWh					
			Volume Charge Inclining Block	$/kWh					

Figure 2: EQ Proposed Residential Flat tariff for Energex 2020-25

Tariff			Charging parameter	Units	2020-21	2021-22	2022-23	2023-24	2024-25
Residential Flat									
Residential Flat	8400	DUOS	Fixed Charge	$/day	0.433	0.454	0.476	0.499	0.523
			Volume Charge	$/kWh	0.074	0.077	0.081	0.085	0.089
		DPPC	Fixed Charge	$/day					
			Volume Charge	$/kWh					
		NUOS	Fixed Charge	$/day					
			Volume Charge	$/kWh					

Figure 3: EQ Proposed Residential Flat tariff for Energex 2019-20

Tariff Description	NTC	Tariff / Charge Element	Unit	DUOS
Residential Flat	8400	Supply	$/day	$0.421
		Volume Flat	c/kWh	6.999

The NER state:

> NER 6.8.2(d2): The proposed *tariff structure statement* must comply with the *pricing principles for direct control services*.
>
> NER 6.12.3(k): The *AER* must approve a *Distribution Network Service Provider's* proposed *tariff structure statement* unless the *AER* is reasonably satisfied that the proposed *tariff structure statement* does not comply with the *pricing principles for direct control services* or other applicable requirements of the *Rules*.
>
> NER 6.18.1A(b): A *tariff structure statement* must comply with the *pricing principles for direct control services*.

The pricing principles are set out in NER 6.18.5.

> NER 6.18.5(a): The *network pricing objective* is that 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*.
>
> NER 6.18.5(g): The revenue expected to be recovered from each tariff must:
>
> (1) reflect the *Distribution Network Service Provider's* total efficient costs of serving the *retail customers* that are assigned to that tariff;

Clearly a tariff based on last period's efficient costs will not reflect this period's efficient costs.

The proposed Residential Flat tariff for 2020-25 is based on 2015-2020 revenue requirements, so cannot be cost reflective in 2020-25. It is therefore not compliant with the NER as a network tariff for 2020-25 and is not in any way fit for purpose as a tariff for 2020-25.

EQ should instead propose a flat tariff that reflects what would have been the main residential tariff for 2020-25 in the absence of tariff reform.

3.5. PEAKSMART

EQ is proposing to retire the PeakSmart program, on the basis that the program had low take-up, and is now considered to be redundant. As with other EQ proposals, this decision has also not been fully explained. It is not clear if the program delivered benefits to EQ and/or to customers, and if so how those benefits are going to be replaced? If the proposal to retire the PeakSmart program is to be implemented, it is important that this decision is communicated well to consumers. The PeakSmart program was an incentive program, so ideally it should be replaced by another incentive program that is attractive to customers and does help meet EQ objectives.

3.6. LOAD CONTROL TARIFFS

EQ has stated that it sees control tariffs as being a key way in which it evens out demands in its network, and we are pleased that EQ is proposing to continue to offer these tariffs.

In Queensland, loads on load control tariffs can be controlled using ripple control, which is flexible. EQ is not proposing to change its current load control tariff structures in the coming regulatory period, and expects that they will continue to provide the required benefits to the network.

The load control tariffs have provided good value by offering lower priced electricity to those who have access to them, while also enabling the networks to control peaks in demand. Not all can access them: the need in most case to have an electrician hardwire appliances to load control metered circuits can be a barrier because of cost, or because of lack of independence to make changes in the case of renters as against home owners.

Also, not all customers may be aware of load control tariffs and the benefits they can offer. The networks refer to the underlying network tariffs as "secondary tariffs". We have been told that retailers give them various names including auxiliary tariffs.

There are concerns regarding the future of the load control tariffs. We have seen that the differentials in pricing of regulated retail electricity tariffs as between load control tariffs and flat tariffs in the Ergon Energy area have been narrowing, thus making the load control tariffs less attractive than they used to be.

In the Ergon Energy area, the load control tariffs are already being used to optimise the network more flexibly, rather than just to de-energise when energy prices are lower. If similar changes are made to the operation of load control tariffs in the Energex area, Energex may energise the load control circuits at times of high energy cost to retailers. If retailers face energised load control circuits at unexpected times, and at times that are not low cost, they may correspondingly increase their retail load control tariffs, and thus make them less attractive to consumers. This may lower future uptake of load control, causing EQ's objectives not to be met, and increasing costs for consumers.

More generally, the more discretion the network has in the operation of the controlled load the more benefit can arise from lower network costs and making the operation of the network more efficient. However, that same flexibility will add risk and uncertainty (and hence cost) to the retailer's hedging of its purchases of energy.

3.7. ROLE OF RETAILERS

This section considers the consequences of the fact that end-use customers face retail tariffs rather than network tariffs, and retailers rather than customers choose to opt in or opt out of different network tariff options as the basis on which to supply their customers.

The role of retailers is important, and needs to be properly researched by EQ. It is unclear what tariffs each retailer will offer, or what will be the opt-out process envisaged in the TSS. The EQ TSS provide for customers opting out of network tariffs. Instead, in reality, the retailer chooses the network tariff.

More information is also required on how EQ will meet its objectives, given retailers' roles. We realise that in SEQ it is not possible for EQ to know exactly how each retailer will package retail offers based on its proposed network tariff structures, but one would at least have expected some scenario analysis of possible outcomes. However, in regional Queensland it should be relatively simple to do this, given that Ergon Retail is the sole retailer with retail tariffs set by the Queensland Competition Authority under direction from the Minister for Energy (currently the Minister for Natural Resources, Mines and Energy).

Distribution network tariff structures are not necessarily passed through to consumers by retailers. Much has been written about whether distribution networks should be focused on creating tariffs that are capable of acceptance by consumers or by retailers. Our view is that the focus of the question is incomplete, since it is focused solely on energy industry requirements. Rather, consideration should be given to putting more of the focus on the range of retail tariff structures that are reasonable for consumers to understand and to which they can respond. The retail tariffs should meet customer-facing acceptance criteria.

Demand response programs that are distributor led and can be offered directly to customers by distributors may resolve issues that might otherwise arise due to customers not being exposed to the network's chosen tariff structures.

The recent launch of the Energy Charter, a joint initiative between networks and retailers, whose vision is that *together, we will deliver energy for a better Australia*.[26] That forum may provide an opportunity for networks and retailers to work together to give consistent messages to consumers.

Further background materials and diagrams explaining the relevant role of the retailer in regard to tariffs and the TSS is contained in **Appendix H**.

3.8. FEEDBACK INTO THE EQ REGULATORY REVENUE REQUIREMENT

The QCOSS submission to the AER Issues Paper on the EQ proposals for 2020-25 notes:

> *Peak demand tariffs are proposed for the first time for Energex and Ergon. Their impact on demand and peak demand should be considered in determining future augex.*

Recommendation Three in that submission states:

> *The AER should forecast the impact of peak-demand tariffs on the shape of overall demand in order to evaluate whether augex aimed at expanded supply at peak times is justified.*

As a general point, when tariff reform is implemented, the new modern tariffs (and other demand response measures) should encourage consumer response to lower the network business' costs. Therefore, there should be a feedback loop from tariff reform to lower EQ's regulatory revenue requirement. This is apparently absent from EQ's proposals and should be investigated by the AER.

3.9. FIXED CHARGES

The AEMC's final determination of the rule change in 2014 stated that "Cost reflective network prices do not need to result in higher fixed charges", whereas EQ's proposals seem to be seeking to recover larger portions of their revenue from fixed charges than from usage charges.

26 For more information on the Energy Charter, see https://www.theenergycharter.com.au

3.10. CONCLUSION

As noted above, the clear finding from section 2 is that the TSS are not capable of being accepted, on the basis that:

- The TSS are incomplete.
- EQ's decision-making has not reflected consultation feedback.
- EQ has not provided any comparison of its proposed tariff structures against other options.
- There has been inconsistent rationale for proposed tariffs.
- There has been limited identification of customer impacts, no trials or modelling.

As a result, the process undertaken by EQ has engendered lack of trust in the current tariff structure proposals, and this needs to be addressed before the TSS can be deemed to be capable of acceptance.

Notwithstanding these points, we have analysed EQ's current TSS proposals as we understand them. Adding to the issues raised in section 2, our findings of specific tariff issues that we have summarised in this section shows further that the residential tariffs in the TSS proposed by EQ do not comply with the NER.

We do not support the proposed implementation of network tariff reform in Queensland. We recommend that the AER reject EQ's proposed tariffs on the basis that they are not compliant with the NER.

EQ must undertake the following actions to make its tariff proposals compliant and acceptable to consumers:

- Complete its Tariff Structure Statements.
- Establish clear assessment criteria for comparing tariff options which act in the interests of customers and undertake comparative analysis across a suite of tariffs including time of use and energy time of use tariffs.
- Undertake trials and modelling to identify customer impacts, especially for customers experiencing vulnerability, to establish who will be better off or worse off under the various new tariff options.
- Provide a clear plan for how and when it will communicate and educate customers about new tariffs, including appropriate measures for customers experiencing vulnerability.
- Clearly articulate the challenges that EQ will face in the upcoming regulatory period and further into the future in order to continue to meet the NEO, how tariff reform is the best way to address these challenges, and what other options might be available.
- Provide compliant tariff options (or other non-tariff options) for consumers who would otherwise be made worse off by the new tariffs.
- Demonstrate engagement with retailers to ensure public facing retail tariffs maintain beneficial consumer outcomes of network tariffs, especially for consumers experiencing vulnerability.

- Undertake and support more research on consumer and household behaviour with respect to more complex tariffs.

Given the above issues remain unresolved, there is not enough time available for EQ to complete the above actions by 1 July 2020. We therefore recommend the AER consider an extension of 12 months to implement network tariff reform in Queensland. For the period 1 July 2020 to 30 June 2021, the AER should approve flat network tariffs for residential customers based on the 2020-2025 regulatory revenue requirement.

An extension will not only provide EQ with enough time to address deficiencies in its tariff proposals. It will also enable the Queensland Government to develop and implement policy reforms which protect and inform affected consumers.

APPENDIX A: EXAMPLES OF WHERE CONSUMER ADVOCATES HAVE HAD DIFFICULTIES WITH THE DOCUMENTATION PROVIDED BY EQ

Some further specific examples of areas where consumer advocates have had difficulties with the documentation provided by EQ are as follows:

- In regard to the Lifestyle Package
    - From an early stage, and throughout 2018, EQ focused in its consultation processes on the introduction of a Lifestyle Package of tariffs, which incorporated Time of Use tariffs.
    - The 31 January 2019 submission from EQ to the AER included the Lifestyle Package on which EQ had consulted throughout 2018, and spoke of undertaking trials of the tariff before July 2020.
    - A 14 February 2019 letter to the AER from EQ stated that "feedback on the Package Tariffs received in late 2018 indicated some stakeholder disquiet over customer choice, customer accessibility, and alignment with the longer term strategic direction of network tariff reform. Accordingly, Energex and Ergon Energy consider that further consultation is required with customers, retailers and other stakeholders to address these matters proactively, either by way of changes to the Package Tariffs or through exploring alternative tariffs."
    - The 14 February 2019 letter also stated "We confirm the Package Tariffs are included in the TSSs because they represent the current state of the engagement with stakeholders and customers. The inclusion of these tariffs enables the AER and customers to continue a genuine and meaningful engagement process to assess the tariff structures, indicative rates and customer impact analysis that have been provided in the TSSs and Explanatory Notes and which have already been submitted to the AER. We note that the assignment rules associated with the Package Tariffs are already set out in the TSS".
    - The 2 May 2019 submissions report that: "The Lifestyle Package and Small Business Package tariffs will no longer be offered for residential or small business customers."
- In regard to the proposed Residential and Small Business Demand and Capacity tariffs, one of the tariff components relates to a period from 4pm to 9pm as "night time", while the update document refers to the period in the same sentence as both "night time" and "the evening window". We have pointed out this confusion to EQ, and expect that it will be rectified. We think that it is more appropriate to refer to the period from 4pm to 9pm as "evening" rather than "night".
- Various errors in case studies showing comparisons between tariffs have been found and notified by other consumer representatives. These do not engender trust in the case studies in regard to consumer impacts.

APPENDIX B: PREVIOUS SUBMISSIONS BY QCOSS

This appendix lists an extract of relevant issues from submissions[27] previously made by QCOSS in 2018. It shows how QCOSS has given EQ consistent messages throughout the process, which EQ has apparently not taken on board.

Developments in the electricity sector are of great interest to QCOSS because the supply of electricity is an essential service that is vitally important for the health and wellbeing of families and individuals. QCOSS believes it is important to provide a voice for residential consumers, and particularly low-income and disadvantaged households, in the tariff reform process.

QCOSS has participated in the evolution of cost reflective pricing since its emergence as a recommendation in the Australian Energy Markets Commission's (AEMC) major review Power of Choice in 2012. This 2012 review identified that consumers needed clear signals about the cost of their energy consumption in order to manage their demand.

B.1 NETWORK TARIFFS 2020-25, QCOSS SUBMISSION IN RESPONSE TO ISSUES PAPER (MAY 2018)

The key messages in QCOSS' May 2018 submission were:

- QCOSS supports the intent of moving towards more cost reflective network pricing to the extent that it will lead to better outcomes for customers.
- Cost reflective tariffs must be designed based on an understanding of customer impacts including their actual ability to control and shift their energy use.
- Low income and vulnerable customers need to be provided with support and protections to ensure that they are not worse off because of the transition to cost reflective tariffs.
- A transition phase is required to ensure that low income and vulnerable customers have time to build capacity and capability to engage, and make informed choices about participating in tariff reform.
- Underpinning this transition, the core principles of tariff design and implementation must include equity, bill stability, and simplicity.
- The EQ appraisal matrix should be more closely based on the design principles, prioritised based on what has the most importance for low income and vulnerable customers.
- To achieve this, retailers, government and the community sector must collaborate to ensure that participation by low income and vulnerable customers is enabled through information, education and consumer protections.

27 The submissions from QCOSS are available on EQ's website, and also on the QCOSS website at https://www.qcoss.org.au/our-work/publications/?fwp_focus_area=energy

- Low income and vulnerable customers must be supported to access and utilise the digital technology required to get the full benefits of cost reflective tariffs.

QCOSS proposed prioritising principles such as equity, bill stability and simplicity over cost reflectivity in tariff design, particularly in the initial phases.

B.2 QCOSS Submission to Round Two Consultation Energy Queensland Tariff Structure Statement 2020-25 (August 2018)

In this submission, QCOSS sets out the potential impacts of tariff reform on low income and vulnerable customers, and requests EQ to consider these impacts in its draft TSS. Although an improvement on the Ergon Energy and Energex previous cost reflective tariffs, in its current form QCOSS view is that the proposed network tariff - Lifestyle Package - is likely to lead to bill shock. QCOSS has put forward recommendations that can support low-income and vulnerable customers through the transition to more cost-reflective tariffs:

- A gradual approach to the introduction of cost-reflective tariffs that include customer research (especially for low-income and vulnerable customers) and a data sampling period following installation of a digital meter.
- Adjustments to the Lifestyle Package to reduce bill shock.
- Additional supports to assist customers to understand the Lifestyle Package.

QCOSS believes that effective and targeted supports and consumer protections must be in place to manage any significant impacts from tariff reform. Consequently, QCOSS also recommends a number of “enabling factors” - including a technology fund, better education and awareness including an education campaign and improved concessions - to ensure successful network tariff reform for all customers and especially low-income and vulnerable customers.

For low-income and vulnerable customers remaining on legacy tariffs or who are unable to engage with more cost-reflective tariffs, QCOSS is also calling for research on “safeguard” tariff arrangements that would act as a protection against bill shock. Development and analysis of such a tariff offering must be part of tariff reform so that no one gets left behind.

Further QCOSS believes it is too risky to allow cost reflective tariffs without wider reform. Without effective and targeted concessions and other consumer protections in place, any significant impacts from tariff reform including for those left on the legacy tariffs are likely to result in public backlash. It is therefore in the distributors’ own interest to advocate with governments for the wider reform needed.

QCOSS identified a number of enabling conditions which will be necessary for the introduction of cost reflective tariffs in Queensland to be effective in meeting its objectives.

B.3 QCOSS SUBMISSION TO ENERGY QUEENSLAND: TARIFF STRUCTURE STATEMENT (TSS) CONSULTATION # 3 (5 OCTOBER 2018)

In its third submission, QCOSS included the following points:

> QCOSS has made two previous submissions to EQ in response to the first two consultations. The process identified some enabling factors necessary for the introduction of cost reflective tariffs in Queensland. These include:
>
> - Increased energy literacy and awareness
> - Fair access to technology fund
> - Wider reform on concessions and customer protections
> - Introduction of a Safeguard Tariff
>
> The EQ Energex and Ergon Network Tariff Structure Summaries produced on 5 September 2018 did not address key issues raised in our submissions. We look forward to these issues being addressed in the final TSS.
>
> This third submission raises some supplementary issues identified through our own consultation. This included engagement with QCOSS's Essential Services Consultative Group, and a workshop on the 26th September with consumer energy advocates and the Australian Energy Regulator (AER) Tariff Structure Statement Consumer Challenge Panel (TSS CCP).

APPENDIX C: OUR UNDERSTANDING OF EQ'S CURRENT PROPOSALS

Our understanding of the current EQ proposals in its TSS for residential customers is as follows.

There are two cases:

- Case 1: where a customer has not got a "new digital meter"; and
- Case 2: where a customer does have a "new digital meter".

Each of these two cases is considered in turn.

C.1 CASE 1: WHERE A CUSTOMER HAS NOT GOT A NEW DIGITAL METER

Where a residential customer does not have a digital meter, EQ proposes that the customer will be put on a ***Residential Basic*** tariff. This tariff would comprise two parts:

- A fixed charge in $ per day; and
- An inclining block volume charge per kWh, with blocks increasing in 10,000 kWh pa increments.

EQ's stated rationale for the inclining block element to the tariff is that it would ensure that larger residential customers with consumption higher than their first block (10,000 kWh pa) would pay network charges that better reflect their network usage requirements. EQ states that it believes that this tariff structure offers a credible path toward a capacity based future and towards greater cost reflectivity.

C.2 CASE 2: WHERE A CUSTOMER HAS GOT A NEW DIGITAL METER

C.2.1 Residential Demand tariff

Where a residential customer has a digital meter, EQ proposes that the customer will be put on a ***Residential Demand*** tariff. This tariff would comprise:

- A fixed charge in $ per day;
- Two demand charges (measured in kW/month demand)
    - One for daytime (10am to 4pm); and
    - One for evening (4pm to 9pm); and
- A volume charge (per kWh).

EQ is proposing that the evening time demand charge would be based on the maximum monthly half-hourly demand recorded within the evening window (4pm to 9pm), and the daytime demand charges would be based on maximum half-hourly monthly demand recorded within the period 10am to 4pm period during the billing month.

EQ proposes the Residential Demand tariff to be the default tariff for new residential customers with digital meters after 1 July 2020, and for customers who upgrade – alter or add to – their metering due to a change at the premises, e.g. installation of Solar PV.

Existing customers with digital meters as of 1 July 2020 can also opt in to the Residential Demand tariff. Otherwise they can stay on the Residential Basic tariff.

C.2.2 Residential Capacity tariff

As an alternative, residential customers with a digital meter can opt in to what EQ is calling a ***Residential Capacity*** tariff. This tariff would comprise:

- A fixed charge in $/day, which includes prepayment for a selected capacity level (or minimum demand);
- Two demand charges in $/kW/month, which apply to demand in excess of the selected capacity level
    - One for daytime (10am to 4pm); and
    - One for evening (4pm to 9pm); and
- A volume charge in $/kWh.

Customers can exceed their capacity level on three separate days per month during the evening window (4pm to 9pm) or day time period (10am to 4pm) with no consequence. Customers who exceed their capacity level on more than three separate days per month will pay for the highest monthly day time and evening window exceedances of their capacity level at the day time demand rate or evening demand rate respectively.

Controlled load (i.e. on a secondary circuit) is not counted towards the customer capacity.

C.2.3 Residential Flat or Inclining Block tariff

EQ proposes that new customers who are worse off financially on the Residential Demand tariff can opt back to the legacy Residential Flat tariff (Energex) or Residential Inclining Block tariff (Ergon Energy).

C.3 EXISTING PEAKSMART AIR CONDITIONING INCENTIVE REWARD PROGRAM

PeakSmart was an incentive reward program where consumers could help manage peak demand by choosing a PeakSmart air-conditioner, and be rewarded up to $400 by connecting it to the PeakSmart program.[28]

EQ is proposing to retire this program from the beginning of the next regulatory period, on the basis that the program had very low take-up, and the change in EQ's objective from managing air conditioning load to managing DER.

C.4 EXISTING LOAD CONTROL TARIFFS

We understand that existing load control tariffs (on a secondary circuit) are proposed to continue as currently structured.

28 Further information on the existing PeakSmart air conditioning reward program can be found at https://www.energex.com.au/home/control-your-energy/positive-payback-program/positive-payback-for-households/air-conditioning-rewards and https://www.ergon.com.au/network/manage-your-energy/incentives/peaksmart-air-conditioning.

APPENDIX D: REQUIREMENTS IN THE NATIONAL ENERGY RULES (NER) FOR NETWORK TARIFFS

As with other aspects of regulatory proposals, the TSS must comply with the National Electricity Objective to be in the long-term interests of consumers.

The NER also set out requirements for network tariffs in the Distribution Pricing Rules (Part I) of Chapter 6: Economic Regulation of Distribution Service. Among the requirements in the NER, clause 6.18.5 sets out the network pricing objective that the tariffs that a network charges in respect of its provision of direct control services to a retail customer should reflect the network's efficient costs of providing those services to the retail customer.

Other requirements set out in the pricing principles in clause 6.18.5 of the NER include that:

- 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.
- The network must consider the impact on retail customers of changes in tariffs from the previous regulatory year.
- The structure of each tariff must be reasonably capable of being understood by retail customers that are assigned to that tariff.

Network businesses are further restricted by clause 6.1.4 of the NER which prohibits a distribution network from charging distribution use of system charges for the export of electricity generated by a user into the distribution network.

The requirements in the NER still leave considerable freedom in the hands of the network businesses as to how they structure network tariffs.

In assessing the TSS, the AER must consider whether they comply with the NER.

The AER has stated in regard to the TSS in its March 2019 Issues Paper on the EQ regulatory proposals:

> We encourage the QLD distributors, when formulating their preferred position on each of these issues, to take into account the recent AER decisions on TSS proposals in other jurisdictions. The key insights from these decisions are:
>
> - The AER will not approve the flat tariff as the default network tariff for new residential and small business customers. In other words the default network tariff must have a cost reflective structure.
> - The AER considers that Time of Use and demand tariffs can be designed to be cost reflective.
> - The AER believes that it is in the interests of customers for the distributor to also offer alternative cost reflective tariffs on an opt-in basis.
> - To achieve an acceptable speed of transition to cost reflective pricing, the AER requires the distributor to re-assign existing customers with a smart meter to a cost reflective tariff as long as there are sufficient safeguard measures and transitional arrangements in place.

We discuss good network tariff design principles in the next section of this report. We comment here with regard to the following two bullet points which we quoted from the AER's Issues Paper:

> The AER will not approve the flat tariff as the default network tariff for new residential and small business customers. In other words the default network tariff must have a cost reflective structure.

Our comment is that a tariff that is not flat may or may not have a more cost reflective structure than a flat tariff. If it is badly designed, a complex non-flat tariff may actually be counter-cost reflective. It should not be assumed that every possible complex tariff is more cost reflective than a flat tariff. There remains an onus on any proponent of a complex tariff to demonstrate that it really is more cost reflective than a flat tariff.

> To achieve an acceptable speed of transition to cost reflective pricing, the AER requires the distributor to re-assign existing customers with a smart meter to a cost reflective tariff as long as there are sufficient safeguard measures and transitional arrangements in place.

The comments in section 3 of this report relating to customers with a new digital meter apply equally to existing customers with a smart meter. Sufficient safeguard measures and transitional arrangements are not in place for July 2020.

The AER's Issues paper also states:

> If tariffs accurately reflect the marginal or forward looking cost of changes (positive or negative) in demand, then consumers can make informed and appropriate choices on whether and when to consume more or less electricity. Tariff reform seeks to promote additional investment in the network by distributors only when consumers value that increased demand more than the cost of delivering the additional network capacity necessary to meet that demand.

We agree that it is important that consumers can make informed and appropriate choices on whether and when to consume more or less electricity. We also agree that tariff reform should seek to promote additional investment in the network by distributors only when consumers value that increased demand more than the cost of delivering the additional network capacity necessary to meet that demand.

However, as discussed in this report, consumers make more decisions than whether to consumer more or less electricity. They may also choose whether to generate their own electricity, to generate surplus electricity to export, and/or to invest in battery or other storage. Tariff reform must take those more complex consumer decisions into account as well.

APPENDIX E: NETWORK TARIFF DESIGN PRINCIPLES

Among others, the Brattle Group is respected internationally for its analysis of factors relating to how to structure network and retail tariffs, and it has been consulted by various parties in Australia regarding electricity network tariff design.[29]

Three of the Brattle Group's recent relevant publications that address Australian network tariff design to which we refer here are:

- *Structure of Electricity Distribution Network Tariffs: Recovery of Residual Costs*, prepared for the Australian Energy Market Commission, August 2014;[30]
- *Electricity Distribution Network Tariffs: Principles and analysis of options*, prepared for the Victorian Distribution Businesses, April 2018;[31] and
- *Modernizing Distribution tariffs for Households*, presented to Energy Consumers Australia, 9 November 2018.[32]

The August 2014 report, which was prepared for the AEMC as part of the AEMC's consideration of a rule change to implement cost reflective pricing, includes the following ten principles of tariff design. These were set out at a time when utilities were vertically-integrated and distribution network services were not unbundled. Nevertheless, the Brattle Group authors considered that the ten principles noted below provide a framework within which distribution tariffs should be evaluated:

1. Effectiveness in yielding total revenue requirements, without encouraging undesirable over-investment or discouraging reliability and safety.
2. Revenue stability and predictability, with a minimum of unexpected changes that are seriously adverse to the utility companies.
3. Stability and predictability of the tariffs themselves, with a minimum of unexpected changes that are seriously adverse to utility customers.
4. Static efficiency, i.e., discouraging wasteful use of electricity in the aggregate as well as by time of use.
5. Reflection of all present and future private and social costs in the provision of electricity (i.e., the internalization of all externalities).
6. Fairness in the allocation of costs among customers so that equals are treated equally.

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29 Disclaimer: Dr Ahmad Faruqui, Principal of the Brattle Group, who has led much of the Brattle Group's work in this area, is a former colleague of the author of this report, in previous employment. This has not influenced the comments here.

30 Available at https://www.aemc.gov.au/rule-changes/distribution-network-pricing-arrangements

31 Available at https://www.ausnetservices.com.au/-/media/Files/AusNet/About-Us/Electricity-distribution-network/Brattle-paper-on-Network-Tariffs.ashx

32 Available at https://energyconsumersaustralia.com.au/wp-content/uploads/Ahmad-Faruqui-Modernizing-distribution-tariffs-for-households.pdf

7. Avoidance of undue discrimination so as to avoid subsidising particular customer groups.
8. Dynamic efficiency in promoting innovation and responding to changing supply-demand patterns.
9. Simplicity, certainty, convenience of payment, economy in collection, comprehensibility, public acceptability, and feasibility of application.
10. Freedom from controversies as to proper interpretation.

In 2007, the Demand Response Research Center at the Lawrence Berkeley National Laboratory carried out a project to assist the two commissions in California deal with the state's pricing challenges. It published an Issues Paper in which the above ten principles were refreshed to deal with new issues that had emerged, mostly dealing with the restructuring of the industry and the emergence of customer choice, and condensed into five principles:

1. Economic efficiency in consumption and production.
2. Equity between customers and between the utility and the customers.
3. Revenue stability for the utility.
4. Bill stability for the customer.
5. Customer satisfaction.

In practice, economic efficiency is only one of five principles in tariff design, not the only one or even the dominant one. Equity, or treating different groups of customers fairly, and gradualism (i.e., avoiding sudden changes in the level of tariffs, to ensure revenue stability for the utility and bill stability for the customer) are equally important. And a new focus on customer satisfaction has emerged, since customers have become well versed in how to use energy wisely, both through investing in energy efficient equipment and by installing self-generation technologies, and how to choose their energy suppliers.

The April 2018 report from the Brattle Group was prepared for the Victorian electricity distribution businesses to assist those businesses in their deliberations regarding tariff structures in the next regulatory period in Victoria (commencing in 2021). This report reforms that

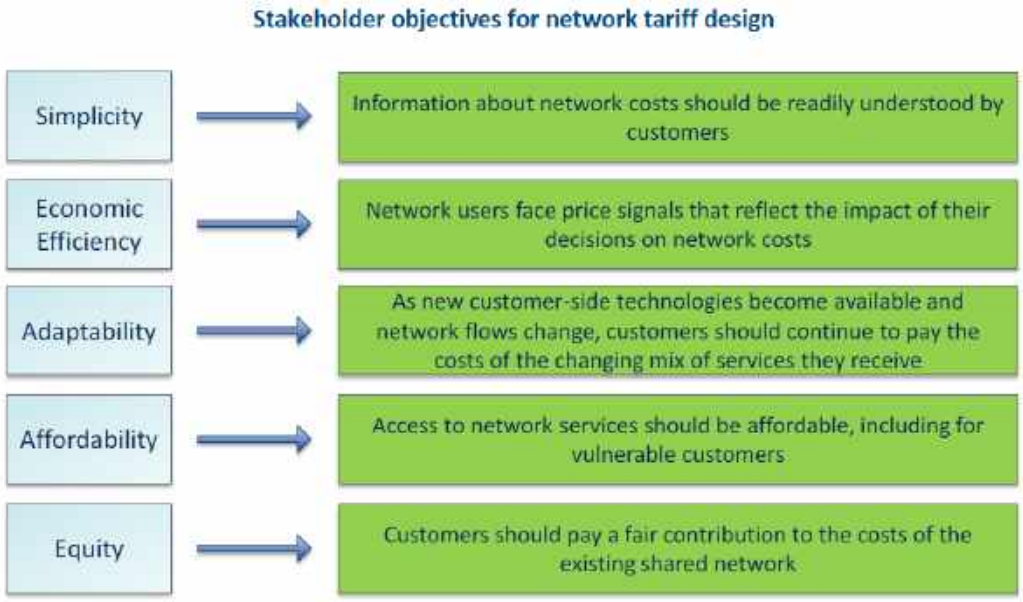
> … result in a network tariff that is more "cost reflective", in the sense that the contribution to overall network cost from each customer reflects drivers of future network cost. Reflecting cost is important because this promotes economic efficiency, ultimately leading to lower prices. However, economic efficiency is not the only objective of tariff reform, with other considerations often taken into account, such as equity or fairness, and the benefits of gradual change.

The report further notes that the Victorian Distribution Networks' stakeholder engagement process has identified several objectives for future tariffs. The five objectives are: simplicity, economic efficiency, adaptability, affordability and equity.

In developing tariff options that can help achieve these objectives, the Brattle Group notes the need to recognise that there are trade-offs among the objectives (for example, a simple tariff may not be as good at promoting economic efficiency as a more complex one). Furthermore, end-customers pay the retail price, which may not necessarily resemble the structure of the network tariff.

Figure 4 below, which is sourced from the Brattle Group report, shows how these objectives can be interpreted for the purposes of network tariff design and prices paid by end customers.

Figure 4: Mapping stakeholder objectives for network tariff design



Source: Brattle Group (April 2018)

The Brattle Group's November 2018 presentation to Energy Consumers Australia (ECA) provides many examples of modern tariff designs in overseas jurisdictions.

The presentation states: "Customers understand modern tariffs and respond to them, enhancing economic efficiency in the use of scarce financial and energy resources, and promoting equity between customers."

Our understanding is that the "modern tariffs" to which the Brattle Group refers are largely time of use tariffs. In some jurisdictions, time of use tariffs have been in place for many decades, and have wide levels of acceptance and understanding. Consumers understand that the cost of a commodity can vary at different times of the day or year.

Demand charges are also starting to be offered, but with lower levels of take-up. The Brattle Group provides the following answer to the question "Will residential customers understand demand charges?"

> Demand charges can be easily explained to customers using the example of a light bulb, which is expressed in watts, and by referring to the circuit breaker as an example of a household-specific capacity constraint.

> Customers can be provided typical demand ratings of major appliances and loads in their house.
>
> The message, successfully expressed by utilities in Arizona, needs to be simple: "Don't use all your major appliances at the same time."

While this is a starting point, we do not believe that the solution is so straightforward. As discussed in Appendix F, there are significant issues with the implementation of complex tariffs such as demand and/or capacity tariffs.

APPENDIX F: ISSUES WITH MAXIMUM DEMAND TARIFFS, AND COMPLEX TARIFFS IN GENERAL

There are significant issues with the implementation of maximum demand tariffs in Queensland households, which have not been explored by EQ, and which include the following:

1. The maximum demand will be measured across the household, not at the individual appliance level, which might not be as well understood.
2. Energy management in a household is not under the control of one individual. While an overall message to conserve energy can be reasonably easy to give to all family members, getting different family members to co-ordinate their energy use so that they use appliances sequentially rather than simultaneously is likely to be stressful and difficult. Households are not as homogenous as they were in the past. They may include "children" who are actually young adults in relationships of their own, living with their parents.[33]
3. Visitors may also use more electricity in the short time they are visiting. We have heard first hand in deliberative forums from older people who now do not allow their children and grandchildren to visit them because of fear of the bigger energy bill that will result from energy use during their visit. While at the moment the extra cost can be contained to the few days when the family visit, with a demand tariff the higher demands on the few days of visit could have an order of magnitude effect on the host's bill.[34] Measures that reduce interactions with family and make them more stressful are not good for the welfare of disadvantaged Australians.
4. Research undertaken in Victoria by Consumer Utilities Advocacy Centre among the indigenous Australian community found that larger average household size contributes to utility stress for Victorian Aboriginal consumers, and utility stress has a range of direct and indirect impacts on Aboriginal consumers' health and wellbeing.

33 See for example recent research published by the Australian Institute of Family Studies (https://aifs.gov.au/media-releases/more-young-adults-living-home-their-parents), which shows an increasing tendency for adult in their 20s still to be living with their parents. In 2016, 50 per cent of young men and 43 per cent of young women in our capital cities lived at home, compared with 42 per cent of young men and 31 per cent of young women in regional areas.

34 For example, let's suppose a month has thirty days, the visitors stay for 3 days, and each day of the visit the household electricity use (and maximum demand) is three times as much as it would have been had the visit not occurred. On a flat (or time of use) energy tariff, each $30 of the energy use component of the monthly bill without the visit will now be $36 to account for the visitors' extra use of electricity. In contrast, on a demand tariff, each $30 of the demand component of the monthly bill will now be $90 to account for the visitors' contribution to maximum demand.

> While utility stress is not confined to the Aboriginal community, there are factors which can magnify or exacerbate utility stress for Aboriginal consumers in particular. One factor is the larger average size of Aboriginal households. On average, Aboriginal families have more dependent children and strong communal values mean the household is also likely to include extended family. Related to this, within the Victorian Aboriginal community extended family, friends and community members often gather and stay together for extended periods for funerals. While important mutual support is provided in this way, it can also place a financial burden on the host household. Funerals and the associated bill impact were raised by consumers in almost every discussion group.[35]

This is likely to apply to Queensland as much to Victoria, and is not confined to the Aboriginal community. As shown in the example above, a tariff based on demand charges rather than energy charges further exacerbates bill stress on large families without central energy co-ordination and with short-term visitors.

5. A study by RMIT in 2014 found that many household routines were unlikely to shift in response to cost-reflective tariffs, which charge a higher fixed peak rate on weekday afternoons and early evenings, offset by lower costs at other times. Most parents in the study identified the times proposed for higher electricity prices as covering the busiest time in their homes.[36]

   > This “family peak period” is hectic for parents with young children, particularly around dinner time. Parents described it as “crazy time”, “feral o’clock”, “dinner chaos” and the “witching hour”. Many activities are bundled together during the family peak (homework, cleaning, washing, food preparation, eating and bathing) as family members return home from work, school and childcare, and prepare for bedtime.
   >
   > Some household activities, like clothes washing, are performed during “time gaps” when children are napping, playing or bathing. This means it is often not practical to switch these activities to different times.
   >
   > Parents also said they were reluctant to increase housework activities later in the evening, reserving this as “down time” where possible.

   In the study, parents reported that they were more willing instead to disrupt their routines on an occasional basis if asked to reduce electricity use for a “peak alert”. Eighty-five per cent of survey respondents said they would respond to a peak alert, with no financial penalty or reward.

35 See *Wein, Paen, Ya Ang Gim: Victorian Aboriginal Experiences of Energy and Water*, CUAC, December 2011, available at https://www.cuac.org.au/research/cuac-research

36 For more information on this study, see http://theconversation.com/feral-oclock-why-families-struggle-to-shift-their-energy-use-36215 and http://energyconsumersaustralia.cloud9online.com.au/grants/649/Presentation-RMIT---CAP-Interviews-TEC-Network-Tariff-Research-Forum-2014-a095eb73-ad00-4dd1-ad6d-0cb5a95611d3-0.pdf

Parents who said they would respond gave many reasons. The most popular were “to help prevent electricity outage (blackout)” (64%), “to be part of a community effort” (59%) and “to reduce stress on the electricity grid” (52%). Thirty-five per cent said they would respond just because they were asked.

Parents said they would disrupt a much wider range of activities for the peak alert scenario than they would for a TOU tariff scenario. These included changing their home cooling (air conditioning), television viewing, computer use, and cooking the evening meal. In addition, 40% of survey respondents considered leaving the home to reduce their electricity use for a peak alert scenario.

Part of the peak alert’s appeal was that it only occurred occasionally, whereas TOU tariffs apply every weekday and require regular changes to routines. Such occasional responses align better with network peaks in demand (which normally occur on very hot days). They also better align with the types of disruptions considered “normal” and manageable as part of everyday life with children.

It’s not all about price

Responses to the peak alert scenario reflect community interest in and responsibility for the electricity system. This is distinct from the dominant “price signals” policy approach, which assumes people will only shift activities to save money. Instead of engaging people via their hip pocket, peak alerts make the problem, and solution, one of community participation. And it’s only an occasional change.

Variations on the peak alert concept have been successfully trialled in Australia and internationally, both with and without price incentives. This strategy also resonates with community responses to water restrictions and voluntary targets.

…

Energy reforms need to consider these other ways in which people relate to energy in their everyday lives, how they negotiate disruption and change, and how the problem of peak demand can be managed more equitably.

6. Research undertaken in regional Western Australia by Horizon Power during the 2016-17 summer period found that two-thirds of vulnerable customers were financially better off under a demand based pricing product as against their standard flat tariff, while the remaining third of this customer group were worse off.[37] It is necessary to obtain a better understanding why this customer group would be worse off, in order to devise effective responses. Larger families and those with lower incomes or receiving concessions participated in the pricing research pilot. However, the study raised issues on other aspects of the plans that raised questions as to whether the plan trialled really was beneficial to consumers:

   > "Once study participants were informed about the ways they could reduce their energy use during peak usage times, 25 per cent of participants were able to drop their peak usage by around 15 per cent, mostly due to adjusting or limiting the use of air conditioning," Dr Houghton said.
   >
   > "Some customers reported having to make trade-offs around which appliances to use during peak periods, with half of vulnerable customers indicating they turned off air conditioners when notified that their energy use was too high. This raises the risk of customers facing undue discomfort in their efforts to stay within their plan."
   >
   > BCEC Director Professor Alan Duncan said it was essential any changes to electricity pricing should leave no customers behind.
   >
   > "When developing new electricity pricing structures, utilities must explore options to ensure vulnerable households do not become further disadvantaged," Professor Duncan said.
   >
   > "The use of subsidies or rebates to compensate the most vulnerable in our society could be a place to start, but I'd encourage utilities to examine further the reasons why some vulnerable customers do fair worse from the introduction of programs aimed at reducing their financial stress, such as power plans and bill smoothing."

   One of the key findings of the study was that remaining within their allowances, vulnerable customers were forced to make difficult choices. Customers needed to choose, for example, between using the oven to prepare a cooked meal or to run the air conditioning. There was evidence from the interviews that consumers were curtailing cooling despite experiencing discomfort.

37 For more information on the study see https://news.curtin.edu.au/media-releases/vulnerable-households-worried-summer-energy-bills-survey and https://horizonpower.com.au/our-community/news-events/news/two-thirds-of-vulnerable-customers-better-off-under-horizon-power-trial-pricing-plan. The full study report is available at http://bcec.edu.au/assets/BCEC-Impact-of-tariff-structure-changes-on-energy-vulnerable-households-feature-report-FINAL.pdf

Risk of customers suffering excessive discomfort to stay within peak allowance: Customers indicated that they were having to make trade-offs regarding which appliances to run during the peak period; half of vulnerable customers indicated that they turned off air conditioners when they received an alert. These data do not alone indicate that customers are subjecting themselves to excessively high temperatures but interviewees reported enduring periods of discomfort. Vulnerable customers might be more inclined to seek to make savings in this way and as a result suffer disproportionately more discomfort.

Need to avoid replacing one source of anxiety with another: As discussed, vulnerable customers reported feelings of anxiety when alerts were received or when they sensed they were at risk of exceeding their peak allowance. Once again, it was unclear whether this was a result of concerns about losing the incentives or simply of exceeding the agreed peak allowance. Customers related concerns about the significant fluctuations in power bills between winter and summer and the Power Plans concept is designed to reduce these fluctuations. It seems vital to ensure that in seeking to alleviate one source of stress, another is not created or exacerbated.

APPENDIX G: COST REFLECTIVITY OF DISTRIBUTION NETWORK TARIFFS

As discussed in Appendix D, the NER set out the network pricing objective that the tariffs that a network charges in respect of its provision of direct control services to a retail customer should reflect the network's efficient costs of providing those services to the retail customer. Appendix E also noted that cost reflectivity was not the only principle to take into account in tariff design, nor even the necessarily the dominant principle.

We already noted in Appendix E that a tariff that is not flat may or may not have a more cost reflective structure than a flat tariff. If it is badly designed, a complex non-flat tariff may actually be counter-cost reflective. It should not be assumed that every possible complex tariff is more cost reflective than a flat tariff. There remains an onus on any proponent of a complex tariff to demonstrate that it really is more cost reflective than a flat tariff.

What is meant by cost reflectivity is not always articulated well. This section of our report therefore gives a brief history of network tariff design, and considers the relevance of cost reflectivity in the Queensland context.

G.1 FLAT TARIFFS AND THEIR EVOLUTION INTO TIME OF USE TARIFFS

Traditionally, residential users of electricity have been charged for their share of network costs based on "flat tariffs" comprising a fixed daily charge ($/day)[38] and a charge per unit of electricity consumed ($/kWh). For all but the smallest users, the unit charges were more significant than the fixed charges.

In many jurisdictions, Time of Use (TOU) tariffs evolved, where charges were still based on a fixed daily charge ($/day) and a charge per unit of electricity consumed ($/kWh), but different network charges applied at different times of day (and sometimes at different times of the year). The charges per unit were sometimes differentiated two-way (often denoted peak and off-peak) and sometimes differentiated three-way (often denoted peak, off-peak and shoulder).

Figure 5 below illustrates seasonal TOU network tariffs that apply in the Ausgrid network area of NSW.[39]

38 The fixed daily charge would often be quoted as $/month or $/year, but whatever the way the amount is quoted it is essentially equivalent to a fixed charge per day.

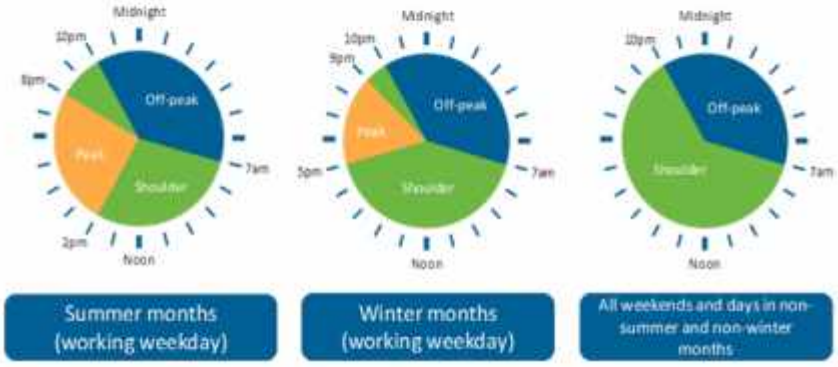
39 This figure was copied from https://www.ausgrid.com.au/-/media/Documents/Regulation/Pricing/Price-change/Ausgrid-Tariff-Fact-sheet-2018-19.pdf

Figure 5: Ausgrid seasonal time of use tariffs for residential customers 2018-19

Seasonal TOU Period: Residential Customers

Season	TOU Time Period - Residential		
	Peak period	Shoulder period	Off-peak period
'Summer' months (from 1 November to 31 March inclusive)	From **2pm to 8pm** on working weekdays	From **7am to 10pm** (except where a seasonal peak period applies)	All other times (**10pm to 7am**)
'Winter' months (from 1 June to 31 August inclusive)	From **5pm to 9pm** on working weekdays		
Other (non-Summer and non-Winter)	N/A	From **7am to 10pm**	

How seasonal TOU applies to residential customers



Source: Ausgrid

As Ausgrid wrote in the factsheet from which this figure was copied:

> The TOU tariffs reflect the higher costs of providing reliable electricity supply during 'peak' times, when more customers use our network services at the same time.

G.2 WHAT COST REFLECTIVE TARIFFS ARE INTENDED TO ACHIEVE

Many network businesses have articulated that TOU pricing encouraged customers to use electricity at lower cost times.[40]

The AEMC's determination of the rule change that introduced the requirement for "cost reflective" tariffs into the NER emphasised the importance of customer focus and customer response.[41]

For example, the AEMC's final determination stated:[42]

> Distribution businesses must also give effect to a consumer impact principle when developing their tariffs.
>
> This principle is in two parts. The first part requires distribution businesses to consider the impact on consumers of changes in network prices. Consumers are more likely to be able to respond to price signals if those signals are consistent and apply for a reasonable period of time. Sudden price changes or significant year-to-year price volatility will make it difficult for consumers to make informed consumption decisions. The second part of this principle requires network prices to be reasonably capable of being understood by consumers. Consumers will not be able to respond to price signals if they cannot relate price structures to their usage decisions.

The final determination noted that cost reflective network price structures "provide stronger signals for consumers to minimise coincident network peak demand, thereby lowering future network costs which will be passed through to consumers through lower future network prices." Coincident peak demand refers to when a consumer's individual peak consumption coincides with the greatest utilisation of the network.

At the time, network costs were seen to be driven by augmentation capex (augex) to allow the network to keep meeting peak demands. Cost reflective prices would provide stronger signals to consumers to reduce their usage at those times, and thereby keep network costs down. The savings from lowering future network costs would be passed through to consumers through lower future network prices.

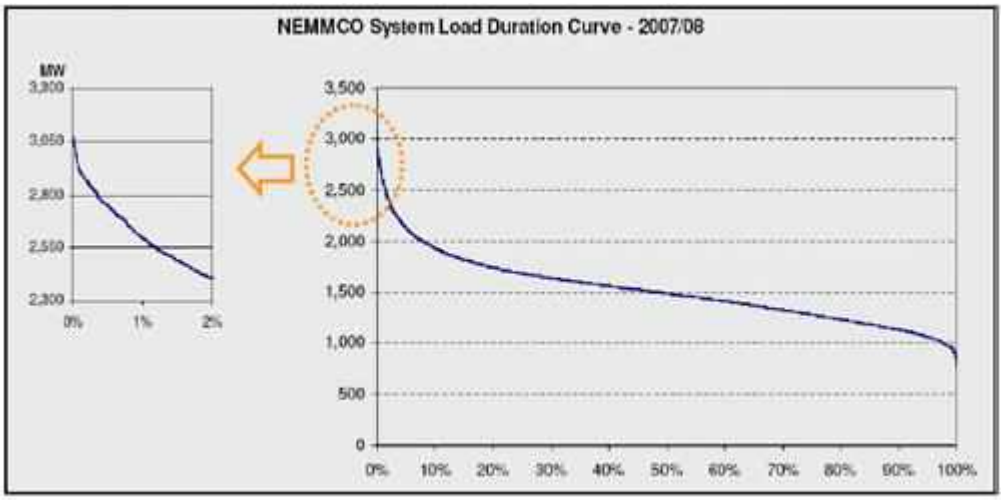
The need to take action to control augex expenditure was often illustrated through a load duration curve, as shown in Figure 6 below.

40 For example, Ausgrid stated that TOU pricing: "Encourages customers to use our network when the cost of doing so is low, leading to lower rates overall". Source: https://www.ausgrid.com.au/-/media/Documents/Tariff/Amended.pdf

41 Documentation on the consultation process leading to the rule change is available at https://www.aemc.gov.au/rule-changes/distribution-network-pricing-arrangements

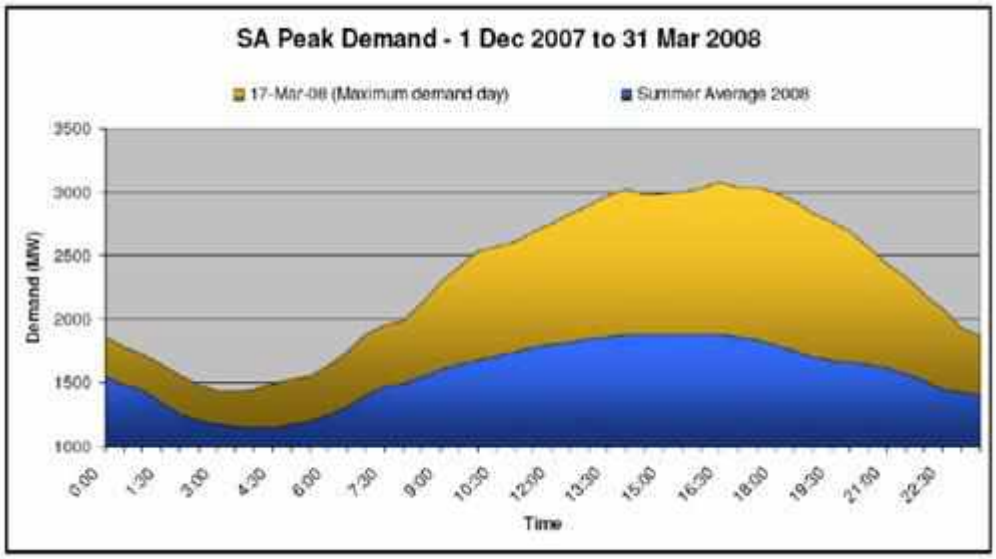
42 National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014, Rule Determination, AEMC, 27 November 2014

Figure 6: Load Duration Curve for the ETSA Utilities System, 2007/08



This now somewhat old load duration curve showed that 20% of the capacity of the distribution system in South Australia is used for 2% of the time during the year 2007/8. The major contribution to the peak was said to be from the residential sector, particularly air conditioning use on hot days. ETSA Utilities estimated that peak demand on hot days, primarily due to air-conditioning load, was about 1,000 MW higher than average daily peak demand over the summer.[43]

Figure 7: Peak Day Load Profile for the ETSA Utilities System, 17 March 2008, Compared with Summer Average Load Profile



43 We sourced these figures and accompanying text from http://www.ieadsm.org/article/etsa-utilities-air-conditioner-direct-load-control-programe. That factsheet would have been sourced from original ETSA Utilities documentation that we may have in archive but do not currently have to hand. Note: ETSA Utilities is now SA Power Networks (SAPN).

On that basis, ETSA Utilities undertook various measures to reduce these network peaks, thereby reducing usage at the times of maximum system demand during the day.

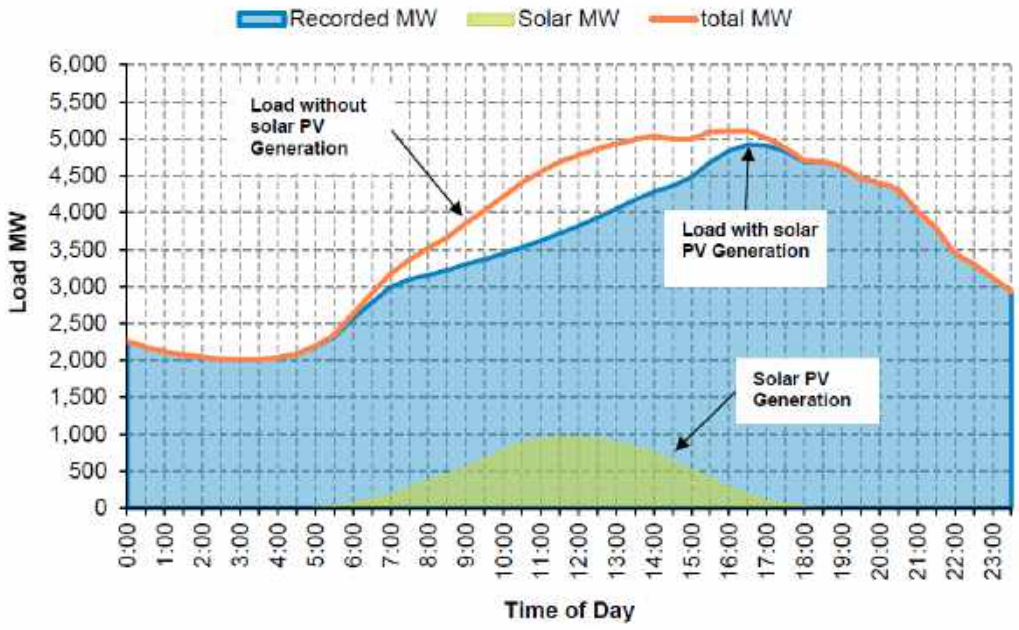
G.3 CHANGES IN CUSTOMER BEHAVIOUR SINCE THE RULE CHANGE IN 2014

As discussed above, the rule change in 2014 was designed to address growing maximum system demands – the "peakiness of the load".

Since 2014, much has changed. Nowadays, consumers can choose to be "prosumers". There has been significant implementation of solar PV on residential rooftops, particularly in South Australia and Queensland.

Figures 8 and 9 below shows how solar PV has cut into demands in Queensland on a peak day in Queensland.[44]

Figure 8: Energex System Demand 14 February 2018



44 These figures were sourced from the Energex and Ergon Energy Distribution Annual Planning Reports 2018-19 to 2022-23, December 2018, available at https://www.energex.com.au/about-us/company-information/company-policies-And-reports/distribution-annual-planning-report and https://www.ergon.com.au/network/network-management/future-investment/distribution-annual-planning-report respectively.

Figure 9: Ergon Energy System Demand – Solar PV Impact, 14-16 February 2018

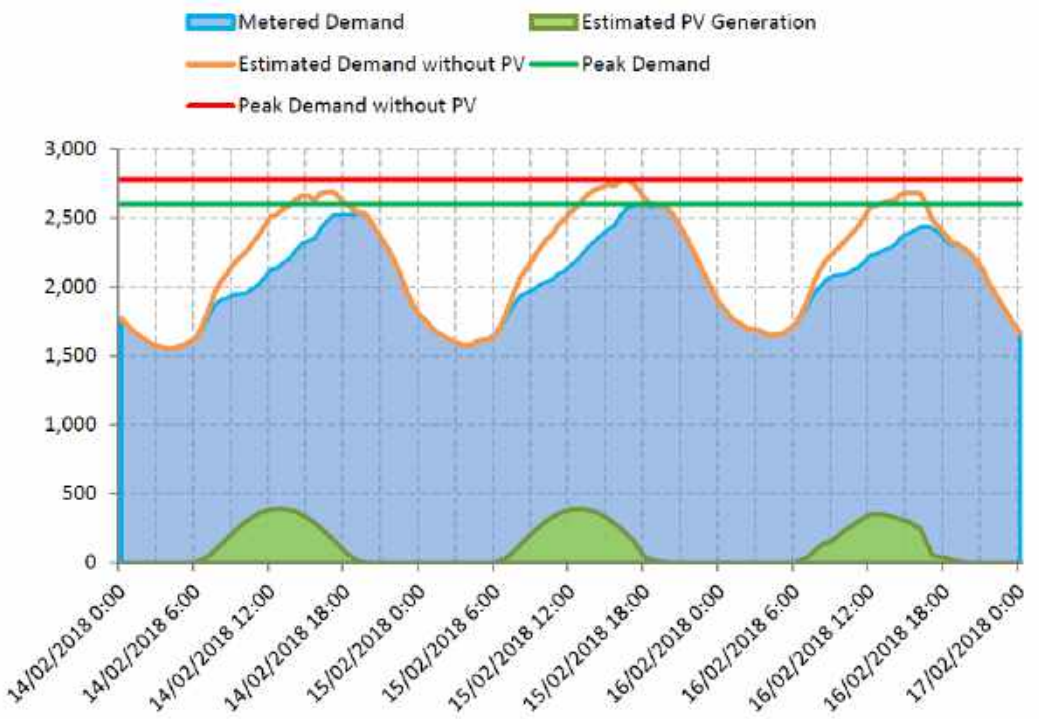
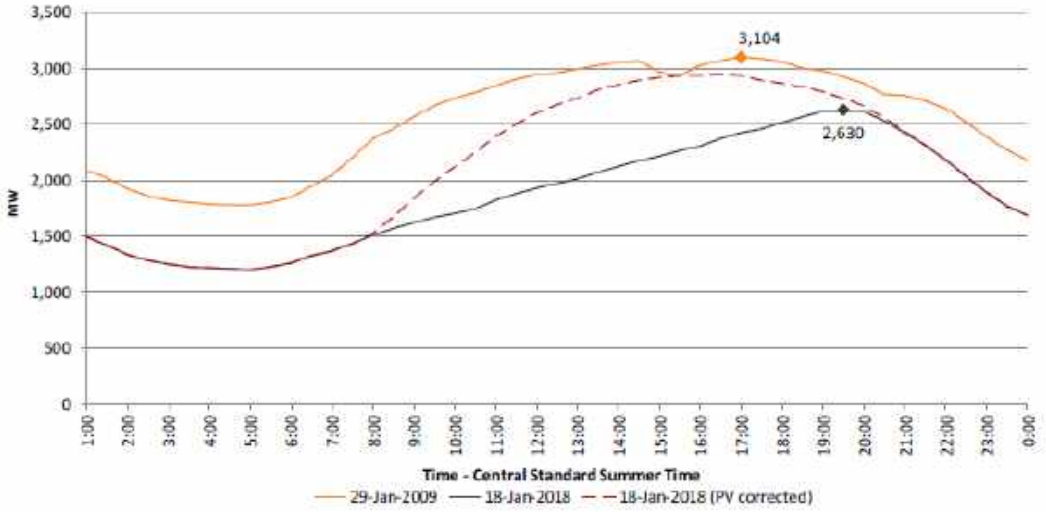


Figure 10 below shows a similar story on a peak day in South Australia.[45]

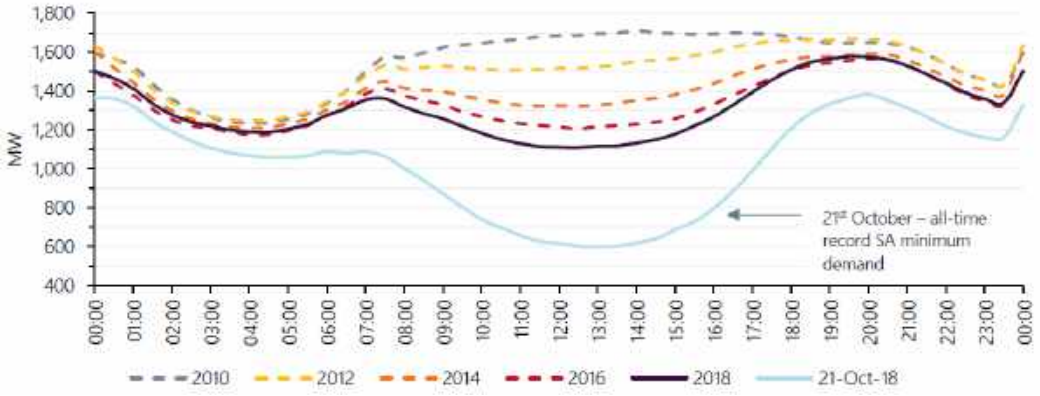
Figure 10: South Australia – SA Power Networks Load Profile Comparison



Finally Figure 11 below illustrates what has become known as the “duck curve” where on an average day in South Australia the effect of solar PV is causing minimum demands in the middle of the day.[46]

45 Source: SA Power Networks Distribution Annual Planning Report 2018/19 to 2022/23, January 2019, available at https://www.sapowernetworks.com.au/industry/annual-network-plans

Figure 11: Average Q4 2018 daily operational demand in South Australia



These graphs explain the changes in consumer behaviour that are changing the shape of load and causing the understanding of "cost reflectivity" to change over a short number of years. Previously the concern was in regard to controlling maximum demands that were driving augex and were driven by air conditioning uptake. Now the concern is regarding minimum demands, and how to manage DER, driven by strong solar PV uptake.

Figure 11 in particular explains the SAPN proposal to introduce a solar sponge tariff. It explains why old style rates are no longer fit for purpose and change is required.

It has been widely acknowledged that it is not straightforward to design tariffs to respond to the effects of solar PV installation.

For example, NERA Economic Consulting found in a desk research case study that designing tariffs to reflect the operational characteristics of battery storage is complex and requires deeper consideration, and current tariffs are not well suited to efficiently managing a significant penetration of battery storage.[47]

46 Source: Quarterly Energy Dynamics, Q4 2018, AEMO, available at https://www.aemo.com.au/Media-Centre/AEMO-publishes-Quarterly-Energy-Dynamics---Q4-2018

47 Source: Efficiency of Tariffs for Current and Emerging Technologies, NERA Economic Consulting, A Report for the Australian Energy Market Commission, 21 July 2014, available at https://www.aemc.gov.au/rule-changes/distribution-network-pricing-arrangements

APPENDIX H: ROLE OF RETAILERS

H.1 DISTINGUISHING BETWEEN RETAIL AND NETWORK TARIFFS

The tariff structures on which the AER is consulting relate to network tariffs that are charged by the EQ network businesses to retailers. They are not necessarily the tariff structures that retailers will offer to end use residential customers.

In the competitive market, retailers have significant freedom as to the tariff structures that they offer residential customers. While retailers often fashion their retail tariff structures to match the underlying network tariff structures, there is no obligation on them to do so. In other jurisdictions, we have seen retailers simplify tariff structures to make them easier to market and more understandable to customers. A more complex and innovative network tariff structure may be less likely to be passed through to customers by retailers in that form than a simpler traditional tariff structure. Alternatively, where a network offers a choice of network tariffs, a retailer may choose only to offer customers retail tariffs based on a subset of those network tariff choices.

Where a network seeks to provide pricing signals in its tariff structures and the retailers do not pass on that tariff structure to end-use customers, the network may consider that the retailer "diluted" the pricing signals that the network wished to pass on to the end use customers. However, network costs are only one set of costs that an energy retailer faces, and the retailer faces challenges to market tariffs to customers which networks do not face. There are therefore legitimate reasons why the retail tariff structure seen by a customer may differ from the network tariff structure seen by the customer's retailer.

In the Ergon Energy area, where notified prices apply, the Queensland Competition Authority (QCA) sets retail notified prices based on a Direction from the Minister. In recent years, the Minister has directed the QCA to determine notified prices based on Ergon Energy area network tariff structures and Energex area network tariff levels. However, there is no certainty that the same Direction will be given by the Minister in future years.

H.2 ILLUSTRATION OF INFORMATION FLOWS IN REGARD TO NETWORK AND RETAIL TARIFFS

In its April 2018 report to the Victorian Distribution Businesses, the Brattle Group illustrated very well in the figures below the information flows between networks and retail customers and the cycle of information flows which show the process by which customers and retailers choose tariffs.

Figure 12: Information flows between networks and retail customers

Figure 13: The cycle of information flows which show the process by which customers and retailers choose tariffs