



## **On the road to cost reflective pricing**

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## The Public Interest Advocacy Centre

The Public Interest Advocacy Centre (PIAC) is an independent, non-profit law and policy organisation that works for a fair, just and democratic society, empowering citizens, consumers and communities by taking strategic action on public interest issues.

The Energy + Water Consumers' Advocacy Program was established at PIAC in 1998 with NSW Government funding. The aim of the program is to develop policy and advocate in the interests of low-income and other residential consumers in the NSW energy and water markets. PIAC receives policy input to the program from a community-based reference group whose members include:

- Council of Social Service of NSW (NCOSS);
- Combined Pensioners and Superannuants Association of NSW;
- Tenants Union of NSW;
- Ethnic Communities Council of NSW;
- Physical Disability Council of NSW;
- St Vincent de Paul Society of NSW;
- Good Shepherd Microfinance;
- Affiliated Residential Park Residents Association;
- Financial Rights Legal Centre; and
- The Salvation Army.

## Introduction

The Public Interest Advocacy Centre (PIAC) welcomes the opportunity to respond to the Australian Energy Regulator's (AER) *Draft Decision: Tariff structure statement proposals for Ausgrid, Endeavour Energy, Essential Energy*.<sup>1</sup> This submission also addresses the revised tariff structure statements submitted by the networks in response to the AER's draft decision.<sup>2</sup>

The development of the NSW networks tariff structure statements (TSS) has been a long and in-depth process. PIAC has been involved throughout the process, and has made a number of submissions that noted our concern about the declining block tariff and other aspects of the proposed statements.

PIAC generally supports the AER's draft determination, which includes a range of recommendations that the three networks appear to have addressed in their revised proposals. PIAC remains concerned, however, that the networks have still not satisfactorily addressed the key issue of how they plan to balance residuals with long-run marginal cost. We discuss our concerns in detail below.

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<sup>1</sup> Australian Energy Regulator, 'Draft Decision: Tariff Structure Statement Proposals – Ausgrid, Endeavour Energy, Essential Energy', August 2016.

<sup>2</sup> Ausgrid, 'Revised tariff structure Statement', 4 October 2016; Endeavour Energy, 'Tariff structure statement explanatory statement', October 2016; Essential Energy, 'Addendum to our tariff structure statement', October 2016.

This submission has been informed by research PIAC commissioned from Sapere Research Group.<sup>3</sup>

## **Consultation**

During the initial round of TSS, PIAC was critical of the networks' engagement with consumer representatives. A report currently being developed for Energy Consumers Australia (ECA) notes that many other stakeholders were similarly critical. PIAC notes that, since then, the networks have made efforts to improve their engagement with consumer representatives. Ausgrid, in particular, has hosted several meetings to inform consumer representatives of its proposed response to the AER draft decision. While we acknowledge and appreciate these increased efforts, we are of the view that the nature of the engagement is to inform rather than being genuine deliberative consultation. PIAC understands the constraints of the timeframe involved of the present process but would like to see meaningful, collaborative consultation as we move into the next round.

PIAC appreciates the AER's flexibility in allowing consumer representatives to make one submission in response to both the AER's draft decision and the networks' revised proposals. PIAC would encourage the AER to allow this from the beginning of the process in next round of TSS.

## **Key issues**

Generally, the AER found that the networks' proposals did not comply with the distribution pricing principles. They were not satisfied that each element was complete or that there was sufficient evidence to support the networks' proposals.<sup>4</sup> PIAC agrees with the AER's assessment and supports the AER's request that the networks resubmit their proposals.

PIAC has concerns with some aspects of the AER's reasoning. In preparation for the next round of TSS proposals, this submission will also consider areas that PIAC believes should be better addressed by the networks and the AER.

### **Pricing principles – have they worked?**

Once the TSS processes are finalised across the NEM, PIAC submits that it would be valuable for the AER to assess all the statements against the pricing principles. This would provide useful insight to inform the next round of TSS.

From the evidence so far, it appears that the rule-change and the pricing principles lack sufficient clarity to instruct the networks how to develop tariffs. The Australian Energy Market Commission (AEMC) drafted the new rule so that networks could develop tariffs that reflect their customer base and the availability of advanced meters and network capacity. PIAC agrees that some flexibility is necessary, but we consider that guidelines are needed to provide parameters within which the networks should operate and provide greater guidance for consumer representatives assessing the proposed tariff structures.

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<sup>3</sup> Sapere, 'Review of AER draft decision; Tariff structure statement proposals, Ausgrid, Endeavour Energy, Essential Energy', Prepared for Public Interest Advocacy Centre, August 2016.

<sup>4</sup> AER, see above n 1, 15.

As discussed in previous submissions, the new pricing principles require the networks to develop cost reflective pricing, based on calculating the long-run marginal costs (LRMC) of supply. At its simplest, LRMC is the cost of supplying the next unit of energy if the network were to be augmented or capacity increased.<sup>5</sup> This is a forward looking cost based on projected demand. LRMC is thus the cost of expanding the system to cope with peak demand that constrains the system and which, if not appropriately accounted for, may lead to blackouts and other system security and reliability issues. There are a number of ways of calculating LRMC, and each network has outlined the particular method it has used.

Peak demand results in costs to the system, and raises the price for all consumers regardless of when they use energy. The timing and occurrence varies for each network with regard to both location and season. In general, however, peak demand is during summer and occurs less than 2% of the year. Due to the high level of spare capacity in the networks, it is unlikely that the LRMC will be triggered in the foreseeable future.

Residual costs are the costs of paying for past spending to build and manage the network. The residual is the cost difference between revenue collected from LRMC-based tariffs and the regulated revenue for each network.

Each network must determine how to balance peak demand costs and residual costs when developing tariffs. There is no clear guidance in the rules as to how this should be done. There is need for transparency, however, as it outlines how the networks recover their guaranteed revenue and gives a picture of when network augmentation is needed, if it is needed at all. This is particularly important in a situation where demand over the past five years has either decreased or remained flat, and is projected to continue that trend.<sup>6</sup> In the same period, the networks in NSW have increased capacity through increased capital expenditure. This has resulted in significant spare capacity within the system and the likelihood that any critical peak pricing would be triggered for the next five years is low.<sup>7</sup>

There is a trade-off between the fixed and variable component of a tariff. Increased fixed charges mean greater revenue stability for networks and less 'peaky' bills for customers. Increased fixed charges, however, mean customers do not receive price signals as no matter how much they consume their bill remains static. During Sydney Water's most recent price review, they found that customers preferred a higher variable charge to a fixed charge as it gave them some control over their bills.<sup>8</sup>

There has been a trend towards recovering residual costs through increased fixed charges. PIAC considers this to be distortionary, because it entails recovering costs associated with assets that may be at risk of being stranded as demand decreases.<sup>9</sup>

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<sup>5</sup> Houston Kemp, 'Final Report, Estimation of long run marginal cost and other concepts related to the distribution pricing principles', Prepared for Essential Energy, November 2015, 1.

<sup>6</sup> AEMO 2016, 'National electricity forecasting report for the National electricity market', June 2016, 24.

<sup>7</sup> Sapere, see above n 3, 20.

<sup>8</sup> Sydney Water, 'Our plan for the future: Sydney Water's prices for 2016–20', June 2016, at 235.

<sup>9</sup> Sapere see above n 3, 21.

PIAC expects that the methodology for calculating the balance between LRMC and marginal costs will become problematic in the future and recommends that thought is given to how to determine the appropriate balance between marginal pricing and recovering past investment costs.

**Recommendation 1**

PIAC recommends that tariff structure guidelines be developed to provide greater clarity and consistency.

**Networks’ presentation of data**

The method that the networks have used to communicate the impact of network capacity and peak periods could be improved. According to PIAC’s research, the most appropriate format is the load duration curve (see figure 1), because it demonstrates when the highest percentage of

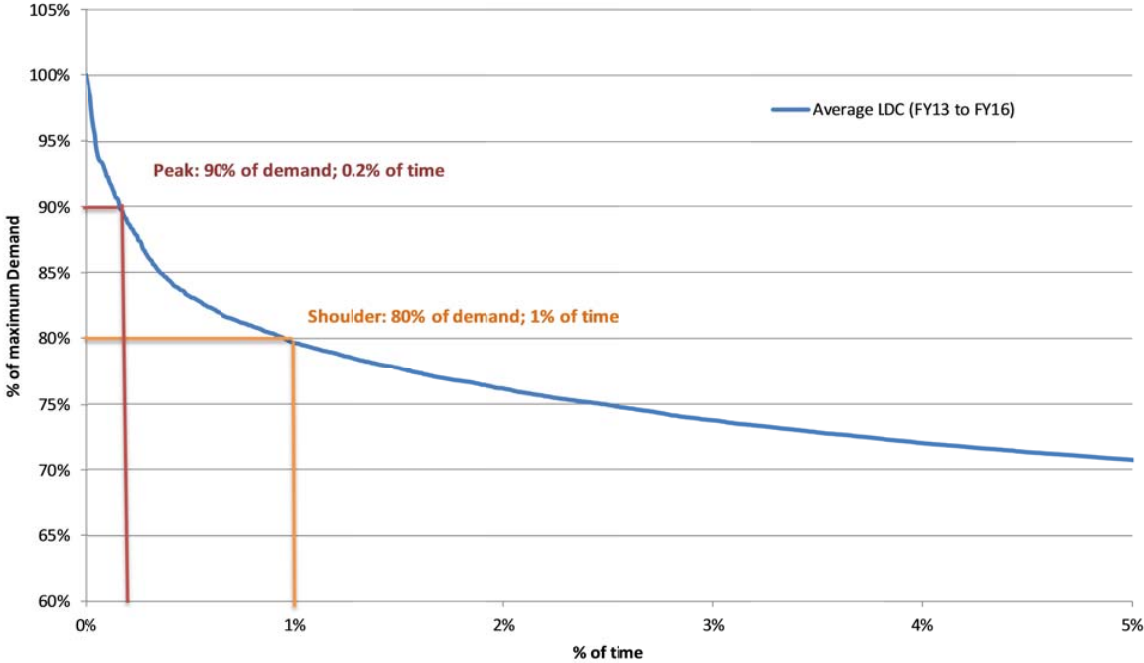


Figure 1: Load duration curve for Endeavour Energy

maximum demand occurs in a year. For Endeavour, we can see that it occurs 0.2% of the time. This is similar to the other NSW networks.

Only Endeavour Energy used a load duration curve. The other networks’ method, which uses daily demand data, creates the impression that the top 20% of demand is reached every day, rather than just 0.2% of the time in a year.

To correctly calculate the charging windows and costs of a time of use (TOU) or demand tariff, it is important to consider the consumption profiles used. Daily consumption profiles are often used in this calculation as they reflect the time of day structure of the tariff. This is problematic as it conflates daily fluctuation with total network demand. These calculations should be based on probabilistic curves of the annual network, which represent the half-hour peak demand on the

system.<sup>10</sup> These can be used to target the periods when the system is reaching maximum network utilisation.

It is important to ensure that tariffs are well designed to ensure that electricity used within normal network capacity is not charged at the marginal cost. PIAC is concerned that the proposed TOU tariffs for each of the networks will charge marginal prices for consumption that does not place constraints on the system.

## Residential tariffs

### Declining block tariff

The AER rejected the networks proposed declining block tariffs (DBT) for residential customers. It did not consider that the DBT reflected efficient recovery of costs or sent efficient price signals to consumers. The AER was also concerned that the three networks did not provide enough evidence to support the proposed tariff, and that customers' consumption in the higher block was not as price sensitive as that in the lower block.<sup>11</sup> PIAC agrees with the AER's decision in this regard.

The networks have accepted the AER's decision and will adopt a flat rate tariff for the next two years. The networks disagreed with some of the AER's reasoning, but they did not provide additional evidence to support DBT. The networks indicated they may examine the value of inclining block tariff (IBT) for the next round of TSS.

PIAC does not support adopting IBT because we do not consider that inclining, declining or even flat rate tariffs are cost reflective. This is because the tariffs make no correlation between peak demand (when system utilisation is at its highest) and household volume of consumption. There are low volume consumers who put high costs on the system and high volume consumers who put low cost on the system and many other combinations in between, depending on when they use electricity.<sup>12</sup> These types of tariffs do not target the time or seasonality of a consumer's energy use, which is what tariffs need to be designed to target. Block tariffs represent a zero on the cost-reflective spectrum, and PIAC recommends that the networks move away from these styles of tariffs if cost-reflectivity is the primary objective.

### ***Recommendation 2***

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*PIAC agrees with the AER that a flat rate tariff should be retained as the 'safe harbour' tariff under the next round of TSS.*

### Time of Use tariffs

The AER found that the networks did not provide sufficient information to justify the timing of the windows for their TOU tariffs. A typical TOU tariff has three pricing windows: peak, off-peak and shoulder, designed to target when a customer uses electricity. TOU tariffs represent some movement along the cost reflective pricing spectrum, but there are important design elements

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<sup>10</sup> Endeavour Energy see above no **Error! Bookmark not defined.**, at 47.

<sup>11</sup> AER see above no 1, at 20-21.

<sup>12</sup> Sapere see above n 3, at 24.

that need to be addressed to ensure they are effectively targeting peak demand rather than average maximum demand.

The AER recommended that the networks shorten the charging windows for the peak and shoulder periods. PIAC supports this recommendation. TOU tariffs with peak windows that are too wide capture electricity use that does not contribute to system constraints. The top 20 percent of network capacity is used just two percent of the time. The top two percent of demand, the point where new capacity would need to be considered, is less than one percent of the year. The networks proposed charging windows covered two thirds of the year, which is far beyond the point where the system would reach peak capacity.<sup>13</sup>

Ausgrid has adjusted the peak periods, introducing a summer and winter peak, with different daily peak windows for each. During non-summer or winter peaks, a shoulder price will apply:

- Summer peak 2-8pm,
- Winter peak 5-9pm weekdays,
- Shoulder 7am-10pm everyday excluding peak

While PIAC is pleased to see that Ausgrid have adjusted their TOU tariff, we are concerned that the daily charging windows are still too wide. From our understanding, system level peak occurs between 3:30-6:30pm, and Ausgrid is using substation variation to apply the 2-8pm window.

Endeavour Energy has agreed that a change in charging windows will lead to more cost reflective prices, but has proposed to retain the current charging windows due to the possible impact on consumers. The AER did not approve the application of shoulder pricing on weekends for residential customers and Endeavour Energy has indicated that there would be minimal impact on consumers if shoulder pricing was removed. PIAC supports this change, but we question whether, if there are so few residential customers on TOU tariffs,<sup>14</sup> why a change to the peak windows could not also be made. Endeavour has said it will use the consultation period for the next round of tariffs to examine the customer impact of reduced peak windows. PIAC welcomes this and looks forward to being involved in the consultation and analysis.

The AER questioned Essential Energy applying a morning peak charging window. Essential has indicated that it will change the morning peak to shoulder rates, but does concede that there is enough evidence to move to off-peak for mornings.<sup>15</sup> This change will only occur for customers who have interval meters, and those with accumulation meters will still have a morning peak window.

Essential has indicated that due to substation variability across the whole network they need a wider window that applies across the year; 'since some areas of our network peak in winter, others in summer and many in both seasons, we have not implemented seasonal TOU windows'.<sup>16</sup> PIAC is concerned that the data Essential has presented is based on daily maximum demand rather than load duration curves. As noted above, PIAC considers load duration curves to be a more appropriate measure of demand. According to their summer maximum demand

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<sup>13</sup> Ibid 11.

<sup>14</sup> Endeavour Energy see above no **Error! Bookmark not defined.**, at 48.

<sup>15</sup> Essential see above no **Error! Bookmark not defined.**, at 13.

<sup>16</sup> Ibid 8.



profile, the peak occurs before the peak window time.<sup>17</sup> Until Essential presents additional demand data, we cannot support the charging windows that have been presented.

PIAC appreciates the limitations for the networks in rolling out widespread TOU tariffs and the costs of adjusting charging windows on accumulation meters. However, PIAC is not satisfied that the networks have done all they can to move well-designed TOU tariffs.

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### **Recommendation 3**

*PIAC supports the AER's decision to reject the charging windows proposed by the networks.*

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### **Recommendation 4**

*PIAC recommends that the networks begin consultation on charging windows for the 2020-2025 TSS as soon as possible to ensure consumer representatives are able to effectively engage in the process.*

## **Demand tariff for residential customers**

While customers do have daily consumption peaks, there is little correlation between a customer's individual daily peak and the network peak. A customer may have maximum daily peak at 11pm, but this is not necessarily when the system peak occurs. A customer should not be charged peak prices when their household peak use does not contribute to the system peak. This is particularly important in the context of cost-reflective pricing, where overall system demand is decreasing and there is excess capacity in the network. Supplying a customer who uses electricity when the system is not at or near capacity does not result in any additional or marginal cost for the network.

Demand tariffs are more cost reflective, however it is important to design them so as to target maximum demand on the system, which is what drives network costs. The NSW networks have not proposed demand tariffs in this round of the TSS due to the limited uptake so far of smart meters within their distribution networks. PIAC considers that the networks have missed an opportunity to use this shortened TSS period to conduct a trial and collect data on the impact of demand tariffs on customer use. This would also allow the networks to begin the conversation with customers about network pricing and the costs of supplying electricity during peak consumption periods such as heat waves.

Essential has introduced a simple maximum demand charge for residents. This is based on the highest half-hour of consumption in a month that occurs in either the peak or shoulder period.<sup>18</sup> This is similar to the Victorian demand tariff. PIAC does not consider it an effective tariff, as there is little price signalling. PIAC recommends that the networks consider a similar demand tariff to that of Ergon in Queensland and looks forward to discussing that approach early in the next round of TSS consultations.

In preparation for that conversation, this submission outlines some critical design features of a demand tariff. An effective demand tariff targets the few half hour intervals in a year where system utilisation is at its highest, and charges a higher amount to discourage use during this period. Demand tariffs that have been proposed by other networks in the NEM target a

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<sup>17</sup> Ibid 13.

<sup>18</sup> Ibid 8.

customer's maximum monthly demand and some have different rates for summer and winter maximum demand. PIAC is not convinced that this is the best design, as peak network demand occurs in summer and not winter across most of the NEM, including in NSW, and so a maximum monthly demand that targets winter does nothing to impact maximum system usage. Second, there may be no correlation between a customer's maximum monthly demand which may occur at any point during the month and their use of the system during the maximum utilisation of the system by all customers.

Ergon's demand tariff tried to rectify this by predicting customers' contribution to the system when peak demand actually occurs. It proposed using the top four days of customer demand during a month. Our analysis indicates that, like the TOU tariffs, the window for Ergon's demand tariff is too broad. However, this can be addressed by using the four highest demand days of network rather than individual demand.

Finally, an effective demand tariff that targets the few critical peaks during the year requires effective communication methods to inform customers the day ahead of a peak capacity day. This will enable customers to make changes to their use during that period to avoid the peak pricing, thereby reducing overall system demand and system constraints that would normally trigger expansion of the system. In France, where they have a critical peak tariff – the Tempo Tariff – there are three pricing structures.<sup>19</sup> Blue days are the most common and cheapest, white days are higher demand but not the critical peak days and red days are the highest use days with the highest price. The number of days for each category is set each year. Customers are informed the day before what colour the next day will be and they can make choices informed by that information.

Endeavour has said that they will wait to introduce demand tariffs in the next round of TSS. They will use the intervening period to learn from lessons in Victoria where they have widespread adoption of interval meters. This is problematic for two reasons; first, the Victorian Energy minister has intervened and made demand tariffs opt in rather than opt out, and second, the design of the Victorian demand tariffs is problematic and in PIAC's view, not cost reflective. We suggest that Endeavour considers other demand tariff designs, such as that of Ergon in Queensland.

### ***Recommendation 5***

*PIAC recommends that the networks move towards a demand tariff modelled on Ergon's, with some modifications.*

## **Impact on customers**

While PIAC is supportive of cost reflective pricing in general, we do have concerns about the impact of demand tariffs on vulnerable consumers who are unable to adjust their energy use during periods of high network demand. We are concerned that the introduction of demand charges may result in households dramatically cutting electricity use during the critical peak days at detriment to their health and wellbeing. There must be protections put in place that accompany demand or critical demand pricing to ease the transition. At the very least, PIAC supports the

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<sup>19</sup> See <http://residential.edf.com/energy-at-home/offers/electricity/tarif-bleu-56121.html>

retention of a flat rate tariff as a 'safe harbour' tariff for those customers who may be reluctant or unable to move to a more complex tariff.

An inclining block tariff has been suggested as a means of protecting vulnerable consumers, but there is no established correlation between consumption and income. For example, AGL found that their hardship customers consume on average more than 40% electricity that other customers.<sup>20</sup> An inclining block tariff would result in even more hardship for these customers.

Endeavour Energy has indicated that peak time rebate tariffs may be a possible tariff option in the future. A peak time tariff provides a rebate to customers who lower their consumption on peak days after notification by the network. They are then paid a rebate based on how much they conserved. The rest of the year they pay a flat rate for energy consumed. Endeavour trialled a peak time tariff in 2013/14 and found that customers reduced their consumption by 17.1% on peak days.<sup>21</sup> Research by the CSIRO found that of all the cost reflective tariffs, a rebate tariff that rewards conservation was the most preferable for customers.<sup>22</sup> This is reflected in the survey that Endeavour Energy conducted after the trial, which demonstrated high satisfaction from participants.<sup>23</sup> PIAC would like more information on this tariff design and the potential for this to benefit vulnerable customers or those otherwise reluctant to adopt demand tariffs.

Some consumer representatives have called for the introduction of a social tariff for vulnerable customers. To date, the networks have rejected this call. While PIAC has not formed a view on the value of social tariffs, PIAC does support calls for the networks to be part of the discussion in terms of reducing energy debt and hardship. PIAC would like to work with networks and retailers during the next two years to develop policies that leverage their role in the electricity market to help vulnerable consumers.

### ***Recommendation 6***

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*PIAC recommends that the NSW networks participate in the development of policy and work collaboratively with retailers and consumer representatives to ensure the introduction of cost reflective pricing does not negatively affect vulnerable consumers.*

### **Next round of TSS**

PIAC accepts that the limited availability of smart meters limits the development of innovative tariff designs. We do not accept that the networks are unable to use this period for testing or experimental design to gather data and gain a deeper understanding of cost reflective tariffs to enable the roll out of demand or critical peak tariffs when smart meters are more common.

Consumers are keen to begin the conversation with networks about tariff design and the link between consumption and peak capacity in the system. Research has shown that the more complex a tariff is the harder it is for customers to understand and the lower the level of acceptance is.<sup>24</sup> More broadly speaking, research also demonstrates that the more unpopular or risky a decision is perceived to be, the more effective information and communication must be

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<sup>20</sup> AGL presentation to PIAC Reference Group meeting, 29 August 2016.

<sup>21</sup> Endeavour Energy at 56

<sup>22</sup> Karen Stenner, Elisha Frederiks, Elizabeth V. Hobman and Sarah Meikle, 'Australian Consumers' Likely Response to Cost-Reflective Electricity Pricing', June 2016, at 30.

<sup>23</sup> Endeavour Energy, at 57

<sup>24</sup> Karen Stenner et al, see above no 22, at 8.

provided to improve acceptability.<sup>25</sup> PIAC recommends that the networks use the next two years to begin informing and communicating with customers about cost reflective tariffs. For example, networks might begin by sending messages via a number of communication channels to customers before expected heat waves requesting customers not to use too much electricity during the peak hours of the day. This could be a useful tool for the networks to begin developing customer knowledge about tariffs and energy distribution in general.

### ***Recommendation 7***

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*PIAC recommends that the networks adopt more proactive engagement strategies with consumers during the next two years in preparation for the roll out of more complex and innovative tariff designs.*

## **Conclusion**

PIAC supports the AER's decision to reject the networks proposed tariffs. While we acknowledge that there are a number of challenges in moving to more cost reflective tariff designs, PIAC would like to see more commitment from the networks to implement greater tariff design options in the next round. PIAC will work with the networks during the next two years to progress more cost reflective pricing. PIAC looks forward to beginning these discussions early in the process, so as to be able to seek comments from our community reference panel, other advocates and our economic consultants. While progress has been made in the networks revised tariff statements, there is still a long way to go to effectively meet the cost-reflectivity objectives.

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<sup>25</sup> Sara Dolnicar, Anna Hurlimann, Long Duc Nghiem, 'The effect of information on public acceptance – The case of water from alternative sources', [Journal of Environmental Management Volume 91, Issue 6](#), June 2010, at 16.