Submission: Essential Energy Electricity Distribution Determination, 1 July 2024 to 30 June 2029

Submission on Q17, 6.2 Tariff Structure Statement. If the topics below are attended to, additional benefits would be achieved for energy users, the environment and the network.

1) Make Controlled Load 1 / Energy Saver 1 Tariffs more flexible

Controlled Load 1 was introduced several decades ago to help avoid the inefficiency and cost of ramping down coal-fired power stations when power consumption fell overnight. Coal-fired power station owners were only too happy to offer very cheap rates, because of the limited capacity to ramp down generation; this tariff was used mainly for low-cost overnight water heating.

The situation has now changed. We all recognise the importance of phasing out coal-fired power stations to curb global warming. Moreover, coal-fired power stations are approaching the end of their useful life and no longer produce cheap overnight power. Table 1 below shows average prices and demand (as % of hourly average) for January to April 2023 (after price caps were introduced for domestic gas and coal).

Table 1. Wholesale prices, National Electricity Market, NSW & SA, Jan-April 2023 by time of day.

	NSW		South Australia	
Clock Time	Price, c/kWh	Demand*	Price, c/kWh	Demand*
10 pm to 6:59 am	10.3	94%	9.1	110%
7 to 7:59 am	9.9	99%	9.6	113%
8 am to 13:59	5.7	93%	0.2	74%
2 pm to 3:59	8.5	98%	2.1	69%
4 pm to 4:59	14.1	119%	12.2	109%
5 pm to 7:59	18.9	121%	17.0	123%
8 pm to 9:59	12.9	114%	14.1	130%
Average, all hours	10.3	100%	7.6	100%

*Demand expressed as percentage of the average of all hours of the day.

The cheapest wholesale prices for both NSW (5.2 c/kWh) and SA (0.2 c/kWh) were from 8 am (local time, including DST), presumably because rooftop solar generation suppressed demand (93% of the NSW hourly average) and commercial solar farms are also producing power.

Ausgrid proposes to address this issue by switching times for controlled load devices allowing them to be used when solar customers are exporting to the grid, improving network utilisation, reducing greenhouse gas emissions, improve pricing efficiency and supporting the transition to net zero.

Ausgrid's proposed changes to Controlled load tariffs, Tariff Structure Statement 2014-29

Reform	What and why	What has changed since the Pricing Directions Paper
Controlled load	Change the switching times for controlled load devices to allow customers to use these devices during the daytime, when solar customers are exporting to the grid. This proposal will encourage soaking of solar exports during the day, improve network utilisation, and potentially reduce greenhouse gas emissions, improving pricing efficiency and supporting the transition to net zero.	No changes to our proposal.
Charging windows	Move our peak period window to later in the day for customers on TOU and demand/capacity network tariffs, and extend it to weekends for residential customers. These changes will ensure our peak charges accurately signal the periods when these customers' energy use imposes highest costs on the network, improving pricing efficiency and fairness.	No changes to our proposal.

Essential Energy's proposed Tariff Structure Statement renames the controlled load tariffs as Energy Saver tariffs, but **the cheaper Energy Saver 1 is still listed as coming on overnight**.

	Fixed dollar per day charge	Flat cents per kWh rate
Energy Saver 1	Applies	Consumption charging flat cents per kWh rate between five and nine hours overnight on weekdays and extra hours at the weekend, except where the load is controlled by a clock
Energy Saver 2	Applies	Consumption charging flat cents per kWh rate between 10 and 18 hours a day on weekdays and extra hours at weekends, except where the load is controlled by a clock

A new Tariff Structure Statement provides an excellent opportunity to change the Energy Saver 1 to define it as being available for five to nine hours per day when network congestion and energy prices are at their lowest. Consumers would benefit because water heaters would be switched on when prices are lowest, allowing the savings to be passed on to them. The environment would benefit because, as shown in the table above, low prices normally correspond to cheap renewable generation, not coal-fired power. Networks would also benefit from being able to manage loads to minimise congestion. Equally importantly, this could be implemented without any expensive changes to existing electricity meters.

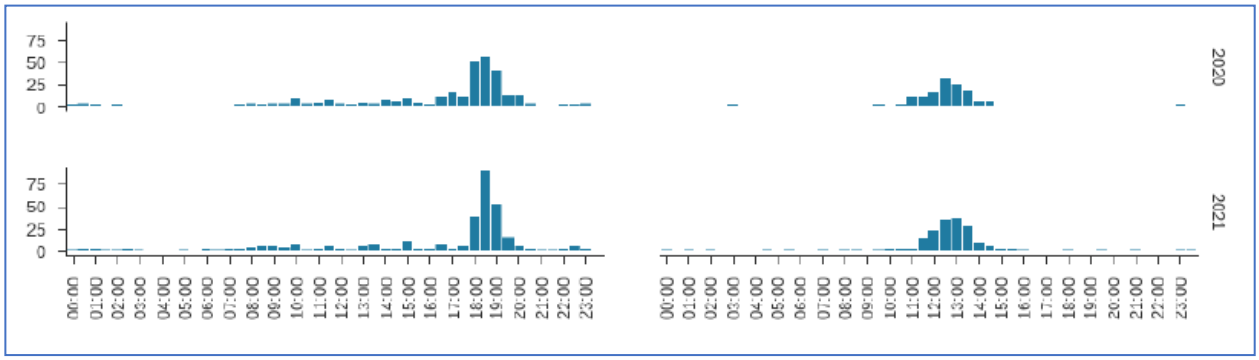
2) New time of day Tariff structure, including solar export charges, optional from 2024-25, the default for new connections from 2025-26.

Table 3 Essential's proposed two-way pricing

Proposed tariff(s)	Assignment	Basic Export Level	Export charge and rewards (NUoS)
Residential and small business sun-soaker, two-way tariff	Opt-in for existing customers from July 2024, opt-out for new/upgrading customers from 2025. From 1 July [year]following new billing capabilities or 1 July 2028 (whichever comes sooner), all customers assigned to two-way tariff	1.5kW	Residential Export reward 5pm-8pm: 13.6740c/kWh. Small business export reward 5pm-8pm: 14.2822 c/kWh. Export charge: monthly demand charge based on maximum kW exported in a half hour period between 10am -3pm (Band 1, 1.5kW – 3kW): 0.8145 $/kW; Band 2, exporting over 3kW): 0.9365 $/kW.[78]

Source: AER analysis

Table 3 (above) is from Section 6.2.4 of AER's Issues paper for Essential Energy. It would be helpful to explain whether a household exporting no more than 1.6 kW in any half hour period per month will be charged (1.6-1.5)*$0.8145 = $0.08 per month or 1.6*$0.8145 =$1.30 per month, i.e. 4.3 cents/day.



Page 23 of Essential Energy's Tariff Structure Explanatory Statement (TSES) shows the distribution of maximum (above, left) and minimum (right) demand in 2020 and 2021 (to September). There is no evidence that demand peaks in the morning. Moreover, Table 1 above shows that wholesale prices in NSW are generally lower from 7 to 9 am than overnight. Given that retailers usually adopt Essential

Energy's price categories, the need for a 7-10 am peak in the Sun Soaker tariff needs to be justified and otherwise removed. Similarly the need for peak periods at weekends should also be justified in terms of demand and network congestion. Finally, the need for residential export pricing should be reviewed in the light of the how retailers are likely to bundle these prices into their charges. Page 41 of the TSES reports that some retailers "*consider that the stepped demand charge would be difficult (or impossible) to build in their billing systems. Another considered its billing system could be configured, but the costs and benefits of doing this would depend on the scale of tariff take-up*". Perhaps retailers will be able to pass on Essential Energy's charges directly to consumers. If not, the complexity of the charge, the relatively low long-run-marginal cost (0.94 cents per kW per month, TSES, p20) to Essential Energy and the fact that customers with solar systems are likely expected to pay more if they switch to Sun-Soaker than if they remain on their current time-of-use tariff (TSES, p42) suggests that charging for solar exports might end up discouraging customers from switching to this tariff, despite the fact that, even without export pricing, it seems to better reflect the long-run-marginal costs to Essential Energy.

3) Minimize network costs by exploring battery options

Batteries as virtual power lines could be a quick solution to solve some transmission problems and accommodate wind and solar, according to Rachel Williamson, Renew Economy, 8 May 2023, (https://reneweconomy.com.au/big-batteries-as-virtual-power-lines-could-be-quick-solution-to-unleash-wind-and-solar/)

Such benefits are likely to accrue from community batteries, as well as grid-scale batteries. Essential Energy should continue to investigate the potential for batteries to reduce costs and reduce global warming by storing surplus renewable energy instead of allowing it to be wasted. This is in keeping with the aims of Essential Energy's owners, the NSW Government. Some assistance might be available from the Federal Government, under if programs such as the Community Batteries for Household Solar Program, intended to support the deployment of community batteries across Australia to lower bills, cut emissions and reduce pressure on the electricity grid - https://arena.gov.au/funding/community-batteries-round-1/

4) If possible, minimize total costs to consumers by developing and encouraging 'peer-to-peer' energy trading, especially in Renewable Energy Zones (REZ)

It's the total electricity bill that matters most to energy users, not Essential Energy's share. Investment of $10 billion in the New England REZ is expected to generate $32 billion of electricity, with times when generation exceeds the capacity of the transmission link to the Hunter Valley which is due to open in 2027.

Cities such as Armidale, which are close to the New England REZ and therefore expected to have low transmission costs, could be used to test the concept of peer-to-peer trading with renewable energy developers, or associated entities. The model for a community power deal could incorporate some of the features of the renewable energy deals pioneered in the ACT. The NSW Government (owner of Essential Energy) has launched an $8 million pilot project to decarbonise three local communities. A trial in a regional city such as Armidale could represent a win-win outcome, because the resulting climate benefits would be accompanied by reductions wood heater pollution, estimated to cost over $32 million per year (more than $10,000 per wood heater per year).