Submission to Australian Energy Regulator re Energex Tariff Structure Statement 2025-2030

ZERO EMISSIONS NOOSA

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1. INTRODUCTION

The Energex Tariff Structure Statement (TSS) for 2025-2030 is now available for comment on the Australian Energy Regulator (AER) website. This submission specifically addresses Energex tariff proposals for community batteries, and emphasizes that tariff proposals should not be considered in isolation from national and state statutory and policy frameworks: Further, that such tariff proposals should instead be carefully examined for how they complement and assist in the implementation of these goals for the renewable energy transition.

From this perspective we have concluded that there are grave shortcomings in the Energex storage tariff proposal, and seek a review by AER to address this matter.

This submission will therefore set the context for how we arrive at this conclusion by briefly discussing the following points:

a) The Noosa context;
b) The role of community batteries in the energy transition;
c) Current statutory targets at national and state level and policy statements from AEMO, AEMC, AER and Energex;
d) Review of storage tariff arrangements in other DNSPs;
e) The current storage tariff proposed by Energex and associated shortcomings;
f) Our recommendations for consideration by AER.

2. The Noosa Context

Zero Emissions Noosa Inc. is a not for profit community organisation which has the goal of net zero carbon emissions in the Noosa Shire, with a focus on reducing electricity and transport emissions by education and community initiatives.

We believe that community or neighbourhood front-of-meter storage batteries can play a significant role in the energy transition, and thus we have an interest in the storage tariff arrangements proposed by Energex in their TSS.

Whilst we support the roll out of a network of community batteries in the coming years, we have a specific interest with respect to the federally funded Noosaville community battery to be owned and operated by Noosa Council, in partnership with Yarra Energy Foundation and ZEN Inc.

The proposed Energex storage tariff would seriously impact on the financial viability of this battery. Equally importantly it would mean that opportunities to learn lessons for the future widespread roll-out of community batteries may be lost through the failure to offer an innovative trial tariff.

3. **The role of community batteries in the energy transition**

Given the widespread acceptance that solar PV must be ramped up to contribute to the energy transition[1], community batteries have two vital roles in the energy transition. These are:

a) Facilitating the maximum roll-out of solar PV by providing storage capability and thus avoiding system instability and solar curtailment which could otherwise occur;
b) Generating electricity from storage at peak demand times (eg early evening) and thus increasing the percentage of renewable energy at this time.

[1] See S. 4 below for details.

Consequential benefits of these two key roles are:

- alleviate export limits and facilitate the huge uptake of solar PV required for the energy transition;
- reduce losses, by keeping electricity generation, storage and consumption local
- provide network support services on the LV network, addressing the problems where they originate
- facilitate energy equity, by allowing non-solar customers to still benefit from the lower generation costs that rooftop solar PV provides
- defer network upgrade / augmentation costs; and
- contribute to the overall goal of reducing carbon emissions and meeting both State and Federal climate change targets.

In addition to these benefits, awareness is also emerging of the value proposition offered by community batteries due to their speed and flexibility in roll-out, when compared to the emerging social licence difficulties, high costs and extended timelines for larger high voltage connected renewable energy alternatives.

In summary, community batteries offer a service to DNSPs, and tariff arrangements should reflect that.

4. Current statutory targets at national and state level and policy statements from AEMO, AEMC, AER and Energex;

The following amendment to national energy laws should first be noted[2]:

> *On 19 May 2023, Energy Ministers agreed to amendments to the national energy laws to incorporate an emissions reduction objective into the National Electricity Objective, National Gas Objective and National Energy Retail Objective (the national energy objectives) respectively.*
>
> *These reforms deliver on one of the first key actions under the National Energy Transformation Partnership. **It will integrate emissions reduction and energy policy in the national energy laws, and provide greater clarity to Australia's energy market bodies** — the Australian Energy Market Commission (AEMC), the Australian Energy Market Operator (AEMO) and the **Australian Energy Regulator (AER)** and Western Australia's Economic Regulation Authority (ERA) — to consider emissions reduction in how they undertake their respective powers and functions.*(emphasis added)

Thus we propose that capacity for emissions reduction must be a key element to be considered by AER in reviewing tariff proposals.

Appendix 1 summarises the current statutory and policy framework with respect to renewable energy. The common thread running through these is the expectation and requirement for a massive increase in solar PV (DER). Below is a brief review of key elements:

[2] Amendment to national energy laws

AEMO draft Integrated System Plan

The draft 2024 Integrated System Plan published by AEMO forecasts a quadrupling of CER by 2050, with forecast total rooftop solar capacity growing to 72 GW. AEMO then discusses various types of storage, with community batteries coming under the "shallow storage" category[3] defined as "*grid-connected storage to dispatch electricity for less than four hours, valued for both their system services and their energy value".*

AEMO further notes the projected significant contribution to be made by shallow storage:

> *Intra-day shifting is achieved through both consumer-owned storage and shallow utility storage, with the latter also focused on power system services. In total, approximately 12.7 GW of utility-scale storage is forecast to be needed by 2030, with an optimal mix of 2.4 GW as deep, 3.6 GW as medium and 6.7 GW as shallow storage* (p.63)

Thus 53% of intra-day shifting is expected to be delivered by shallow storage by 2030.

Policy Framework For AER

The AEMC website contains the following outline of the new rule changes that have an impact on the operation and expectations of AER for DNSPs:

> On 12 August 2021, the Australian Energy Market Commission (AEMC) made a final determination on updates to the National Electricity Rules (NER) and National Energy Retail Rules (NERR) to integrate distributed energy resources (DER) such as small-scale solar and batteries more efficiently into the electricity grid.
>
> The final determination makes way for a future of solar, batteries and electric vehicles, bringing power networks into the 21st century. **It recognises the significant uptake of solar PV and other DER by consumers and provides a long-term, sustainable plan to get more solar into the grid[4].**(emphasis added)

Subsequent to this determination, AER now requires network distributors to focus on tariff reform, stating: " We expect distributors to progress tariff reform by undertaking tariff trials to test more complex and innovative tariffs which could also enable new services."[5]

In the Explanatory Note, Tariff Reform and Integrating Distributed Energy Resources (DER)[6], the AER states:

> In the future, we expect distributors to focus on designing new and innovative tariffs that are informed by tariff trials. They should work with retailers, aggregators and governments to create new service models… In order for these reforms to happen, distributors should consult widely at every step. It is with consumer and other stakeholders' buy-in that the benefits of network tariff reform can be realised.

[3] AEMO, draft 2024 Integrated System Plan, p. 62 Note that there is a separate category for consumer owned batteries.
[4] https://www.aemc.gov.au/rule-changes/access-pricing-and-incentive-arrangements-distributed-energy-resources
[5] https://www.aer.gov.au/about/strategic-initiatives/network-tariff-reform
[6] AER, Tariff Reform and Distributed Energy Resources (DER), September 2021

In summary, it is the expectation of both AEMC and AER that DNSPs propose tariff arrangements which encourage system facilitation for the maximum uptake of distributed energy sources.

5. Review of storage tariff arrangements in other DNSPs

The Role Of Aer

The AER website states[7]:

> The AER works to ensure energy consumers have access to a reliable and secure market and that they pay no more than necessary for energy to their homes and businesses.
>
> We do this by setting the maximum amount of revenue that monopoly electricity networks and natural gas pipelines can earn from consumers.

However, we refer again to the AER Explanatory Note, Tariff Reform and Integrating Distributed Energy Resources (DER)[8], where the AER states:

> ***Distributors should view both tariff reform and network support service procurement as alternatives to expensive network investment****…. In the future, we expect distributors to focus on designing new and innovative tariffs that are informed by tariff trials.*
> (emphasis added)

A discussion paper commissioned by AER[9] reviews the concept of Local Use of System (LUOS) pricing:

> *If the network can demonstrate that a community battery only uses the local network, it is beneficial to price access to this asset at a reduced, Local Use of System (LUOS) level. … System costs are minimised when the load is near the generation. Hence, locating generation close to the load or providing a storage solution to achieve a temporary balancing of load and generation is beneficial to all parties, including the network. LUOS pricing can apply to balanced flows in community battery schemes or other local energy sharing schemes with DER (eg, vehicle-to-grid and VPP). ..****At the time of export congestion (solar peak), a local (community scale) storage system should be rewarded for alleviating the export constraint (LV export congestion cost). If later in the day it discharges during the peak demand period, it should be rewarded for the avoided consumption LRMC*** *('upstream' LRMC).*
> (emphasis added)

While a community battery would not exclusively charge from local generation, this paper thus recognises the system services that can be provided by community batteries and that tariff arrangements should reflect this. Below is a brief overview of how other DNSPs are already responding.

[7] https://www.aer.gov.au/about/aer/our-role
[8] AER, Tariff Reform and Distributed Energy Resources (DER), September 2021

[9] Network Tariffs for the DER Future, June 2022, p 17.

Current Trial Tariff Pricing Arrangements with other DNSPs

There is a wide variety of approaches by DNSPs with respect to community battery trial tariffs. Currently there are 8 DNSPs in Victoria, New South Wales and ACT with 5 AER approved community battery tariffs.

Appendix 2 details the varying tariffs currently in place in Victoria and NSW. The volumetric postage stamp fee varies across DNSPs, however as an indicator of tariff differences, the fixed daily or annual access charge varies widely, as detailed below:

- $165 per year (Powercor/Citipower/United Energy)
- $2477 (Ausgrid)
- $3102 (Jemena)
- $5770 (Essential Energy)

Tariffs again vary widely when it comes to load and generation functions of community batteries. Some reward both the load and generation facilities if occurring during designated periods, some reward only generation during evening peak period, and Ausgrid limits its rebate to one export and one demand rebate for up to 10 x 4 hour periods each. Some DNSPs have anecdotally stated the goal of cost neutrality for the batteries (no published reference available).

Whilst there will be sensible reasons for variation, we agree with the conclusion by Gridcog[10] that "some of these tariff designs are remarkably creative and complex". Gridcog went on to say

> *… we would love to see the Australian distributors becoming* less *creative, or at least a bit more consistent, and starting to adopt more evidence-based pricing models, rather than the current 'choose-your-adventure' we have in Australia, where every DNSP is different, and which has created whole cottage industries of tariff and billing validation and network tariff optimisation services*.

6. SUMMARY OF ENERGEX STORAGE TARIFF PROPOSAL

Following publication of the Energex TSS on the AER website, we were grateful for the opportunity to meet with the Energy Queensland (EQ) tariff team and clarify what is proposed. Appendix 3 provides detail. In summary, it would appear that the following arrangements are to apply.

An annual access charge of $6513 will apply, **the highest of any DNSP**. The only reward for the services that a community battery can supply will be a Critical Peak Period Reward of $1.66/kW for a maximum period of 40 hours per year at the discretion of Energex. Charges will apply for operation of the battery during Critical Peak Periods for either import or export, limited to 40 hours, again at the discretion of Energex. **There is no equivalent to the storage and discharge rebates offered by several other DNSPs.**

For an average sized Low Voltage community battery, within a LV network with no current network constraint, it is unlikely a Critical Peak Period would be declared by Energex for a few years, costing the owner $7-8,000 per annum, which, added to asset running costs, makes the project unfeasible.

[10] https://www.gridcog.com/blog/network-pricing-signals-for-community-batteries-which-network-offers-the-best-tariff

A 12 month tariff trial is proposed for 1 July 2024 to 30 June 2025 for installations to be designated by Energex. While the overall indicative prices are for the 2025-2026 year, and will increase year on year, advice from EQ is that they believe the 25-26 charges will apply for the tariff trial year.

Problems with the Energex Approach

The tariff proposals described above exhibit a limited understanding of the value of community batteries in the energy ecosystem and for electricity costs generally.

It should be understood that **no community battery industry will develop in the Energex network under their proposed tariff structure because the community battery business would not be able to financially sustain operations.**

We believe the proposed tariff arrangement exhibits two major shortcomings:

1) **Capital Expenditure in Response to growth of solar PV in coming period.** Energex notes on numerous occasions through their TSS documentation that they anticipate huge growth in solar PV, and that they will need to anticipate and plan for the system impacts of this growth . (See Appendix 4 for examples.) They identify capital expenditure of $56 million for the 2025-30 period to respond to these issues through capital infrastructure investment.

   We estimate that the capital spend relating to DER will be approximately $37 million during 2020-25. This will increase to $56 million for 2025-30. ***One factor driving this increase is the increasing level of energy exports from homes and businesses and more two way flows of energy.*** *Therefore, we need to upgrade our protection systems to isolate our network when there is a fault in this new dynamic.* [11](emphasis added)

   Disappointingly, we were unable to find any serious analysis of the valuable contribution that local community batteries could make in responding to these issues through storage during peak daylight hours of solar PV generation, effectively avoiding curtailment of solar PV. Further, despite significant discussion on the issues of voltage instability and reverse flows, there is no discussion of the role that community batteries could play in alleviating these issues.

2) **Failure to value the contribution that community batteries can make in increasing the amount of renewable energy in electricity consumption.** The well-known "duck curve" illustrates both the contribution of solar PV to electricity consumption, and the fact that solar PV is unable to shift the percentage of fossil fuels in the evening peak demand period. This is recognised by Energex[12]:

   Looking forward, system maximum demands are expected to occur outside of the solar PV generation times and, as a result the continued growth of solar PV, will not have any real effect on the annual peaks in future years.

   However, community batteries working in partnership with locally generated solar PV can store excess solar power during daylight hours and distribute back into the community during the evening peak demand period.

[11] Energex, **Overview - Energex Regulatory Proposal for 2025-30, p. 27**

[12] **Energex - Tariff Structure Statement – Explanatory Statement,** p. 24

In summary, despite this two-fold key contribution that community batteries can make in the energy transition, EQ has failed to develop a trial tariff structure that could be tested for how it would incentivise their roll-out. Further, no reason is given for the very high annual fixed charge starting at $6513 and rising to $7223 in 2029-30.

Moreover, this failure to recognise and value the contribution of community batteries also appears to indicate that Energex does not understand that its tariff structures can have an impact on how and whether the Queensland Government's targets for renewable energy can be met.

7. RECOMMENDATIONS FOR AER IN RESPONSE TO ENERGEX TSS

Given the concerns outlined above, we request AER to undertake the following action:

That AER ask Energex to revisit its proposed storage tariffs, and develop a revised storage tariff which recognises and values the system services that community batteries can deliver in the energy transition, including review of the fixed annual charge. This review should be undertaken in consultation with community battery proponents and enable a suitable trial tariff to be ready for January 2025.

We further advise AER that we will also be raising these concerns directly with EQ, and with Australian and Queensland Energy Ministers.

APPENDIX 1
SUMMARY OF NATIONAL AND STATE RENEWABLE ENERGY LEGISLATION AND POLICY

1. National Electricity Law

As referenced in the body of this submission, amendments to the above came into force in September 2023, with effect to include an emissions reduction objective in the legislation, with AER required, amongst others, to note and demonstrate compliance with this objective.

2. Australian Government policy

In 2022, the Australian Government formally lodged the 43% emissions reduction target by 2030 in an enhanced Nationally Determined Contribution under the Paris Agreement. The government then legislated this target and net zero by 2050 in the Climate Change Act 2022.

The Australian Government's Powering Australia[13] plan, allocated funding of $224.3 million over 4 years in the 2022-23 Budget to deploy 400 Community Batteries across Australia to reduce bills, cut emissions and ease pressure on the grid.

This package included $29M for 58 community batteries at designated locations around Australia to be managed by DCCEEW, and a further $171 million allocated to ARENA to deliver at least 342 batteries. Noosa Council applied for, and was successful in getting approval for, a community battery in a Noosaville location.

In its first round call for expressions of interest, ARENA received 140 eligible applications, with a total grant request of $1.3 billion. ARENA noted that this represented more than 10 times the $120 million funding available under Round 1[14].

3. Australian Energy Market Operator (AEMO)

The role of AEMO is to manage electricity and gas systems and markets across Australia, helping to ensure Australians have access to affordable, secure and reliable energy. AEMO have recently released their draft 2024 Integrated System Plan which acknowledges the need for a four-fold increase in DER and discusses various types of storage to assist with this goal. Community batteries fit within the "shallow storage" category[15]:

> *Shallow storage: grid-connected storage to dispatch electricity for less than four hours, valued for both their system services and their energy value.*

AEMO specifically noted the importance of intra-day shifting and the projected significant contribution by shallow storage:

[13] Powering Australia Plan – Australian Government Department of Climate Change, Energy, the Environment and Water

[14] https://arena.gov.au/news/strong-demand-for-community-batteries-across-australia/

[15] AEMO, draft 2024 Integrated System Plan, p. 62 Note that there is a separate category for consumer owned batteries.

> *Intra-day shifting is achieved through both consumer-owned storage and shallow utility storage, with the latter also focused on power system services. In total, approximately 12.7 GW of utility-scale storage is forecast to be needed by 2030, with an optimal mix of 2.4 GW as deep, 3.6 GW as medium and 6.7 GW as shallow storage*

Thus 53% of intra-day shifting is expected to be delivered by shallow storage.

4. Australian Energy Market Commission (AEMC)

The role of the AEMC is to make rules which govern the electricity and natural gas markets, including the retail elements of those markets. The objective of the AEMC's work is to promote efficient, reliable and secure energy markets which serve the long-term interests of consumers.

In 2021, the AEMC announced new rules to respond to the growth of solar PV[16]. The purpose of these rules was to recognise the significant uptake of solar PV and other DER by consumers and provide a long-term, sustainable plan to get more solar into the grid and reduce solar wastage. While not specifically referencing community batteries, the rules were intended to place clear obligations on distribution businesses to support energy flowing both ways.

5. Australian Energy Regulator (AER)

The role of the AER is to regulate energy networks and the wholesale and retail markets in Australia to ensure they are secure, reliable and affordable for consumers. In response to the above rule change, the AER released an Explanatory Note on Tariff Reform and Integrating DER[17]. Again, while not explicitly dealing with community batteries, the AER stated: "In summary, it is the expectation of both AEMC and AER that DNSPs propose tariff arrangements which encourage system facilitation for the maximum uptake of distributed energy sources."

6. Queensland Government policy

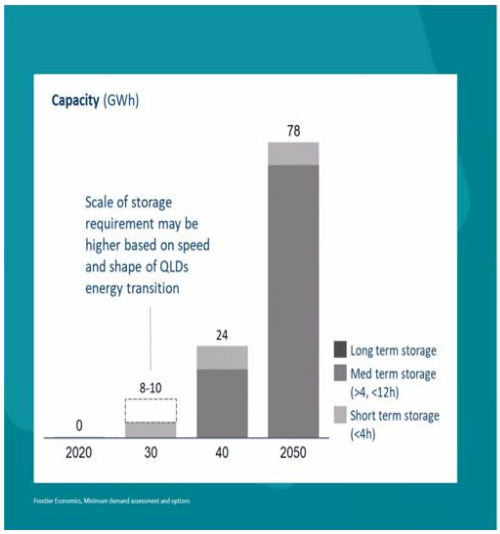
In October 2023, the Queensland Government introduced the Energy (Renewable Transformation and Jobs) Bill 2023 into Parliament. Renewable energy targets will be enshrined in law, ensuring Queensland will be powered by 50 per cent clean energy by 2030, 70 per cent by 2032 and 80 per cent by 2035[18]. Premier Miles subsequently amended these targets by his announcement in December 2023 of a new emissions reduction target of 75% below 2005 levels by 2035[19].

This follows on from the 2022 Queensland Government adoption of the Energy and Jobs Plan[20] which envisages Queensland's electricity system in 2035, as a "smarter grid to support over 11 GW of rooftop solar and around 6 GW of batteries in homes and businesses" and increased renewable energy targets.

[16] AEMC, August 2021.
[17] AER Explanatory Note, September 2021.
[18] https://statements.qld.gov.au/statements/98991
[19] Note that these legislated goals were enacted in the Queensland Parliament on 18 April 2024.
[20] Queensland Energy and Jobs Plan (September 2022)

Action 1.3 in the plan affirms the importance of storage (p. 26): “As Queensland progresses toward its renewable energy target, batteries, firming and other storage options will become increasingly important for a reliable system.” $500 million is to be allocated to “support deployment of network batteries of different scales to provide additional energy storage to store excess rooftop solar and improve network resilience. “

Importantly, an Energy Storage Strategy is also to be released in 2024.



Modelling shows Queensland requires at least of 8GWh of energy storage by 2030 to maintain security of supply...

and up to 16GWh to maximise the energy delivered from rooftop and large-scale solar.

Prior to announcement of the new targets, modelling results as shown in Figure at left had recognised the huge requirement for storage during energy transition to meet the then Queensland Government 50% renewable energy target by 2030.

If we take the Noosa LGA grid electricity consumption as a percentage of the total grid electricity consumption in Queensland, this percentage corresponds to 65 - 130MWh of storage for the Noosa LGA. Not all of this storage would be needed locally, but it does highlight the enormous opportunity for significant amounts of local storage close to the generation source.

The impacts of the transition on the customer connected parts of the network are largely out-of-scope for the Queensland Energy and Jobs Plan but we see much work needed for the distribution networks.

7.Energex

Energex must comply with both AEMC and AER requirements. It also produces a Distribution Annual Planning Report (DAPR) each year and has also published a Demand Management Report. In addition, its 2025-2030 Tariff Structure Statement (TSS) has now been submitted to the AER. In essence, the following points can be made:

- Energex recognises the significance of both current and predicted growth of rooftop solar PV in planning for system stability;
- Energex outlines a number of measures for responding to this situation;
- Community batteries receive little attention as a possible response measure, despite Queensland Government and Ministerial statements regarding the role of storage.
- Proposed tariffs for 2025-2030 raise grave concerns regarding their capacity to facilitate the uptake of community batteries

APPENDIX 2

DETAILS OF TARIFF ARRANGEMENTS IN PLACE FOR COMMUNITY BATTERIES

Victoria (Powercor/United Energy/Citipower

A non-distributor owned community battery will incur the following trial tariff network charges which exclude GST.

Time band	Fixed (cents/day)	Import rate (cents/kWh)	Export rate (cents/kWh)
10am – 3pm	45	-1.5	0
4pm – 9pm		25	-1.0[1]
All other times		0	0

All times are in local time
Same rates apply every day of the year
A positive rate is a charge, and a negative rate is a rebate

As the Gridcog analysis states, "This tariff eschews all complex demand elements and is an extremely simple time of use volumetric energy tariff with a low fixed supply charge. One important note is that this tariff is limited to a maximum battery size of 240 kVA."

Under this arrangement, the community battery is rewarded by a rebate of 1.5 cents/kWh for importing (storing) power during peak output time (10am-3pm) for solar PV. Normally the battery would not be exporting power during this time, but the tariff provides that there is no fee (positive or negative) for exporting (discharging) power at this time, which perhaps may be required for contingency purposes to keep the network in voltage balance.

In contrast, during the peak electricity demand time of 4pm-9pm, the battery would incur a cost of 25 cents/kWh if it was to draw power from the grid, but would receive a rebate of 1.0cents/kWh if it exports power to the grid.

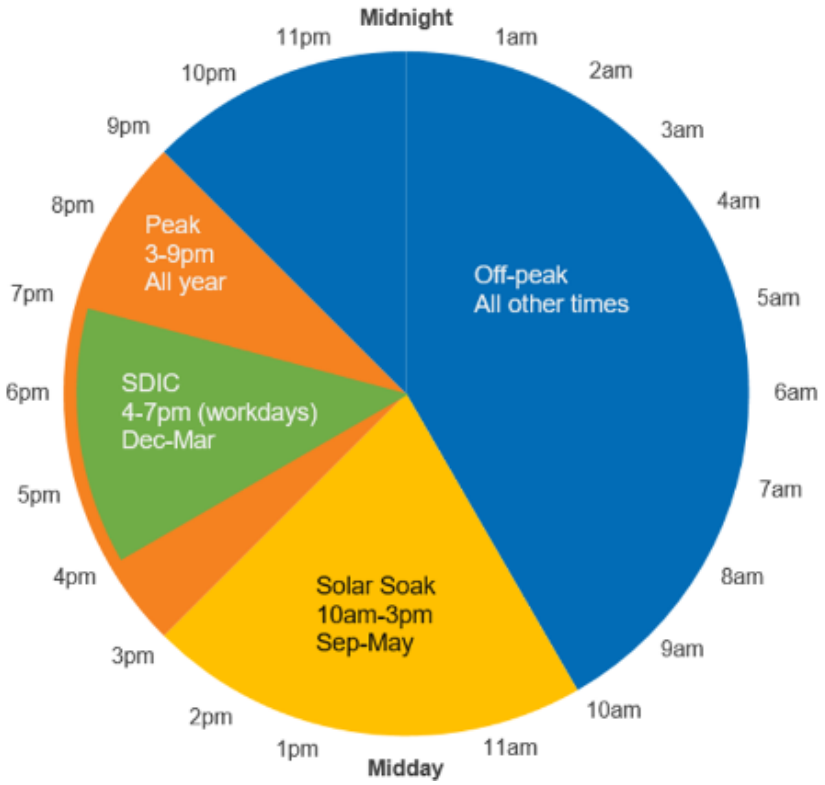
The daily fixed charge of 45 cents/day would be equivalent to $165 per year.

Victoria (Jemena)

Jemena has a tariff of 4.502 cents/kWh when drawing from the grid during peak consumption times (3-9pm all year), a storage rebate of 1.5 cents/kWh during the solar soak period of 10am-3pm September to May, and an export rebate of 1.5 cents/kWH during the peak export period of 3pm-9pm. A fixed annual charge of $3012 has been set.

Community battery – network tariff applicable from 1 July 2023 – 30 June 2024

Tariff component	Fixed charge	Peak consumption	Off-peak consumption	Solar soak consumption	Peak export
Unit	$/year	c/kWh	c/kWh	c/kWh	c/kWh
Rate	3,012.603	4.502	0.000	-1.500	-1.500



New South Wales (Ausgrid)

	Applicable time	Consumption charge	Export reward / charge
Peak demand	Up to 10 4-hour events per year	Demand LRMC estimate 141 c/kWh	Demand LRMC estimate *-141 c/kWh*
Peak export	Up to 10 4-hour events per year	Export LRMC estimate -75 c/kWh	Export LRMC estimate *75 c/kWh*
Anytime	When adding load to LV transformer	*Off peak charge 1.6 c/kWh (2021-22)*	0 c/kWh
LUOS	All other times	0 c/kWh	0 c/kWh
Fixed charge	Balancing charge to make battery revenue neutral if supporting network *$1.72/kW/month (approx)*		

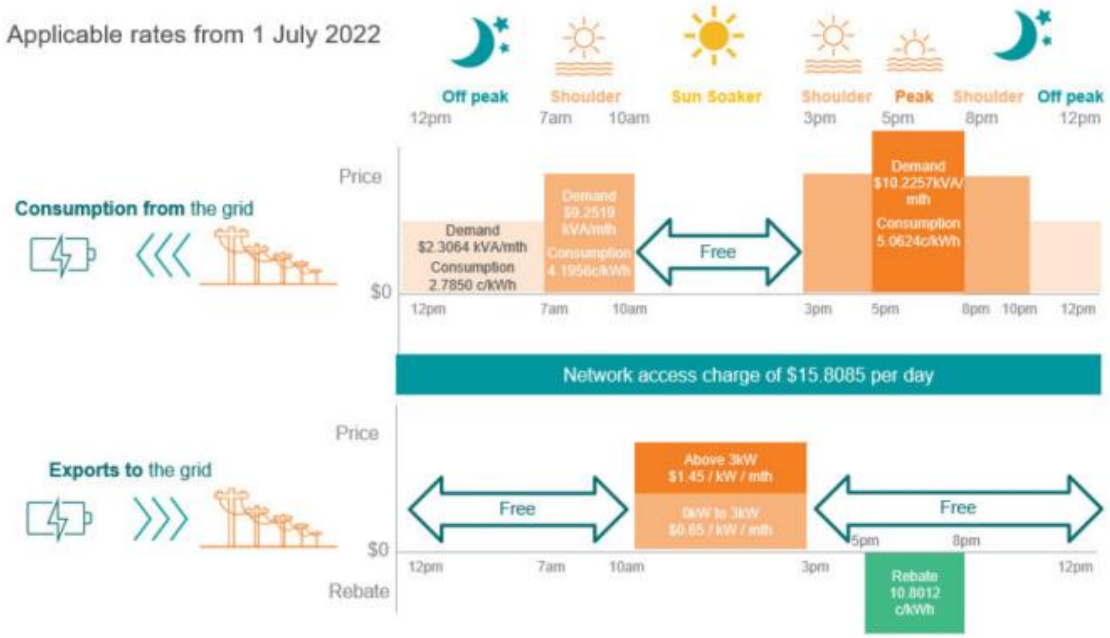
Gridcog says of this tariff arrangement: "The Ausgrid tariff is primarily based around pre-defined peak demand and export events – not dissimilar to AusNet critical peak events. At this stage Ausgrid has not provided further guidance on the timing or trigger of these windows, so we've assumed they correlate closely with NSW total system peaks." It would appear that the fixed charge that would apply to a 120 kW battery (size of Noosaville battery) would be $2477 per annum.

New South Wales (Essential Energy)

The Gridcog analysis says of the Essential Energy tariff: "Essential Energy has implemented a fairly complex time of use tariff based around a core sun soaker window which encourages the battery to charge and has steep charges to discourage discharging to the grid." There does not appear to be any incentive for charging during the "sunsoaker" period of 10am-3pm, but a rebate of 10.8012 cents/kWh applies for a battery discharging between 5pm-8pm. A network access charge of $15.8085 per day, or $5770 per annum applies.

Energy consumed from the network	☑ Network access charge ☑ Consumption charge: Cents per kWh rate based on time of day ▪ Peak 5–8pm ▪ Shoulder 7am – 5pm and 8–10pm ▪ Off peak – 8pm – 7am ▪ **Free** between 10am and 3pm ☑ Demand charge: Dollars per kVA based on the highest measured half-hour kVA demand registered in each of the peak, shoulder and off-peak periods during the month
Energy exports into the network	☑ Demand charge (exports): Stepped $/kW capacity payment is based on the relevant band that the **highest level of energy exported (kW) into the network between 10am and 3pm in the month** falls into ▪ Band 1 rate applies to the first 3kW exported ▪ Band 2 rate applies to kW exported above 3kW ☑ Rebate (exports) option 1: ▪ c/kWh payment from Essential Energy for exports into the network between 5pm and 8pm ☑ Exports at all other times are free

Graphic of the proposed battery tariff and indicative prices



ACT (Evoenergy)

We are unable to cite specific charges which apply to community batteries located in residential areas, as these are redacted in the Evoenergy submission on the AER website. However, we can note that their submission includes provision for the following:

- Peak Demand Charge
- Net consumption charge
- Export critical peak rebate/charge
- Capacity charge
- Avoided / Incurred TUOS Charge

Gridcog says of this tariff structure:

> Evoenergy have implemented every type of tariff structure seen above – they've combined volumetric energy charges with demand charges, a rolling peak demand charge and export events like the Ausgrid tariff.
>
> To make things even more complex the pricing varies not just by location of the battery, but also based on whether the connection is LV or HV, and the specific connection point (which determines TUOS charges).

APPENDIX 3
PROPOSED ENERGEX COMMUNITY BATTERY TARIFF

Indicative Network Use of System (NUOS) prices for 2025-26 and 2029-2030

	Fixed Network Access Charge	Energy Consumption (volume - $/kWh)				Export		
		Anytime	Peak	Off-Peak (11am-1pm)	Shoulder (midnight to 11am, 1pm to midnight)	Critical Peak Period Import Charge ($kVA) (maximum 40 hours per year and at discretion of DNSP)	Critical Peak Period Export Charge ($/kW) (maximum 40 hours per year and at discretion of DNSP)	Critical Peak Period Reward Charge ($/kW)(maximum 40 hours per year and at discretion of DNSP)
2025-2026								
Large Dynamic Price Storage	$17.844 per day ($6513 per annum)	No rate specified	0.00972	0.00972	0.00972	$1.494	$0.071	-$1.66
Large Dynamic Flex Storage	$17.844 per day ($6513 per annum)	No rate specified	0.00972	0.00972	0.00972	-	-	-$1.66
2029-3030	This rate rises to $19.791/day ($7223 in 29-30)		0.01226	0.01226		$1.668	$0.079	-$1.853

Definition of Critical Peak Period (TSS, p. 22)

A critical peak period may occur for import (CPPI), export (CPPE) or export reward (CPPR). These periods may occur individually or concurrently. Each form of Critical Peak will include its own Critical Peak Cap, nominally set at 40 hours (80 periods) per year. A Critical Peak Period may be called across the Network or local Network, at anytime, for a duration of between 30-minutes (1 period) and five hours (10 periods), capped at 40 hours (80 periods) per year.

APPENDIX 4
EXTRACTS FROM ENERGEX TSS DOCUMENTS

Energex, Blunomy Distributed Energy Forecasts for Energex and Ergon Energy Network, May 2023

The share of customers with a solar PV system installed is forecast to rise from around 33% at the end 2022 to over 70% by the end of 2036, in the medium uptake scenario. Of these customers with a solar PV system installed, it is forecast that over four per cent will also have a behind-the-meter battery installed by 2036. (p5)

Energex, **Overview - Energex Regulatory Proposal for 2025-30**

We estimate that the capital spend relating to DER will be approximately $37 million during 2020-25. This will increase to $56 million for 2025-30. **One factor driving this increase is the increasing level of energy exports from homes and businesses and more two way flows of energy.** Therefore, we need to upgrade our protection systems to isolate our network when there is a fault in this new dynamic. P. 27

While we seek to integrate the connection of more micro embedded generators, we must also manage the impacts of these systems on our network. The rapid growth in generation from house rooftops during daylight hours is resulting in the need to manage the challenge of minimum demand, which is when generation from rooftop solar and batteries matches or exceeds demand on the network. Minimum demand can impact local power quality and can be harmful to customers' appliances and the network. **We must therefore deploy solutions that will keep the lights on for our customers and communities and limit the need for costly network investment, while at the same time enabling greater volumes of generation**.p. 31 (emphasis added)

We are forecasting that for 2025-30 solar uptake is likely to remain strong and could grow by up to 8% annually. The increasing penetration of rooftop solar is expected to cause minimum demand to fall by an average of 400MW annually…However, as it will not always be possible to avoid the need for network investment, we have forecast that we will need to spend $56 million to upgrade the network in certain areas to handle the high volume of energy that is expected to be exported into the grid and allow customers to benefit from their investments. P.32

The rapid growth of solar generation from house rooftops and solar farms during daylight hours is resulting in the need to manage a new challenge of minimum demand on the network. Minimum demand can best be described as the lowest energy demand across an electricity network at a point in time. Significant drops in minimum demand cause issues around local power quality that can be harmful to customer appliances as well as the network. **On some days, in some parts of our network, solar exports are greater than demand from the grid, which creates reverse power flows. This requires investment in infrastructure to manage the energy being exported to the grid and ensure the lights stay on.**p. 38 (emphasis added)

Energex - Tariff Structure Statement – Explanatory Statement

On 12 August 2021, the Australian Energy Market Commission (AEMC) made a final determination on updates to Chapter 6 of the National Electricity Rules (NER) and National Energy Retail Rules (NERR) to integrate distributed energy resources (DER) such as small-scale solar and batteries more efficiently into the electricity grid. **This included clear obligations on networks to support energy flowing in both directions and clarification that export services are a core distribution service**.p. 18

Following the rule change, the AER released Export Tariff Guidelines and explanatory statement in May 2022. The Guidelines provide information and guidance on the process for the development and approval of export tariffs.p. 19

The common 'peak periods' often define times of likely future investment. As more and more customers connect to our network and more appliances are used in the peak demand window, the likelihood that we will need to invest in additional network infrastructure to support growth in this period also increases. P. 23 (emphasis added)

Looking forward, system maximum demands are expected to occur outside of the solar PV generation times and, as a result the continued growth of solar PV, will not have any real effect on the annual peaks in future years.(p. 24)

Left unmanaged, lower minimum demands (particularly when experienced with high demands at other times) can create issues around local power quality that can be harmful to customer appliances as well as the network. We are also experiencing day-time minimum demand windows which are creating reverse power flows in localised parts of our networks. Reverse flows can impact power system security, threatening its ability to withstand major events. We may need to invest in more infrastructure to manage the additional energy being exported to the grid. Alternatively, we can look at options that 'soak-up' the generation from solar and put it to good use for customers

…The Queensland Energy and Jobs plan recognises the increasing contribution that customer energy resources will make to future energy systems and markets, providing an opportunity for customers to participate in a number of ways. **As a minimum we recognise that pricing arrangements will need to adapt to a more complex grid supplying the energy system of the future and the markets that support this energy system.p. 27** (emphasis added)

STORAGE TARIFFS

We received strong feedback from these customers prior to the release of our Draft Plan regarding better pricing arrangements to cater for greater levels of storage investment across our network. There were concerns that our existing structures did not cater for the unique nature of these investments. Customers encouraged us to view what other network businesses have delivered in response to the differing characteristics of this type of customer.

We engaged with customer representatives on the conditions of the tariffs as well as a structure and price that reflects the mixed nature of this customer type which will incentivise storage to 'soak up' solar in the middle of the day and export at times most likely to avoid or defer future network investment. (P. 59) **We do not believe that the proposed tariff reflects representations from ourselves and others or indeed that it would incentivise storage in the future.**

This Storage tariff is not to be confused with the Low Voltage two-way network tariff operating between 1.5kW and 30kW of Export. Our TSS proposes the introduction of storage specific tariffs to cater for customers that combine both load and generator characteristics. The tariff is largely built on storage tariffs which were offered to customers in Ausgrid's network following positive consultation with customers and which since has been largely accepted by the AER**. No reason is given as to why Ausgrid, rather than other DNSP tariffs, was chosen.**

The proposed tariffs will include both import and export elements directly linked to localised and system constraints. Our proposed approach is to develop similar structures that incorporate both critical peak pricing and flexible load elements. p. 59

Recognising the network benefits of load and generation flexibility and the potential for future cost avoidance through the operation of a DOE, Distribution Use of System rates for import and export demand during a Critical Peak Period Import or Export will be initially set to zero. The structure includes a rebate price mechanism that may be exercised by the network for up to 40 hours per year for export based on day ahead time indicators. Exercise of the mechanism (based on critical peak event criteria which will be defined in the pricing proposal) is at the discretion of the network. Details of critical peak event criteria is outlined below. We will look to trial similar structures in the last year of the 2020-25 regulatory control period. Additional time of use energy charges are included for the purposes of transmission and jurisdictional scheme pass through. P. 60

Energex – Tariff Structure Statement – Compliance Statement – January 2024

3.3 Dynamic Network (Storage) Tariffs

In instances where customers take load from the network solely for the purpose of storage to export back into the grid, customers blur the boundary of load and generation customers. We noted that other network businesses have recognised the differing characteristics of this type of customer delivered and adopted tariffs specifically recognising these characteristics. On this basis we engaged with customer representatives on the conditions of the tariffs as well as a structure and price that reflects the mixed nature of this customer type which will incentivise storage to 'soak up' excess solar in the middle of the day and export at times most likely to avoid or defer future network investment.

From 1 July 2025 we will introduce a storage tariff for this emerging customer type. These network tariffs are by application and acceptance. Assignment to the tariff is at discretion of the network, with eligibility criteria including:

• SAC Tariff Class above 30kW export capacity; or

• CAC Tariff Class;

Two optional tariffs, the Dynamic Flex Storage and Dynamic Price Storage, will be introduced from 1 July 2025 at different voltage connections for customers who meet the above criteria. However, assignment of a customer to move to such a tariff will be at the discretion of the network based on availability of technical and operational considerations to assign the customer to the tariff in their location. Internal systems and processes to enable pricing of critical events need to be further developed before these tariffs will be available at scale. On this basis, we expect that storage customers will be able to access only the flex tariff as an option in the first years of the period. To the extent that the dynamic tariffs are not available to the customer, **the default tariff relevant to the tariff class will apply.**

Dynamic Flex Storage

The Dynamic (flex) storage tariff focusses on dynamic control of import and export with a notional fixed charge. The structure assumes customer adoption of a Dynamic Connection which employs the use of a Dynamic Operating Envelope (DOE) on both Import and Export aspects of the tariff. A Dynamic Connection is one that meets both the connection standards for a Dynamic Connection and also a Dynamic Connection contract. **Recognising future cost avoidance through the operation of a DOE, Distribution Use of System**

rates for import and export demand during a critical peak period Import or Export will be initially set to zero.

The structure includes **a rebate price mechanism that may be exercised by the network for up to 40 hours per year.** Exercise of the mechanism (based on critical peak event criteria which will be defined in the network tariff guide) is at the discretion of the network. Details of critical peak event criteria is outlined in Section 3.3.1. We will look to trial similar structures in the last year of the 2020-25 regulatory control period. Additional time of use energy charges are included for the purposes of transmission and jurisdictional scheme passthrough.

Dynamic Price Storage

The Dynamic (price) storage tariff will only be available at the discretion of the network. The tariff focusses on a locational and time specific signal for export or import at times of constraint in a way that encourages avoidance of import or export at the critical event. Given the elastic nature of storage, we expect that in most circumstances the storage will operate in a similar way as under a flex tariff. Mechanisms for critical event charges or rebates will be developed and likely implemented midperiod – at least in pilot form before offering at scale. (pp.20-21)