Queensland Competition Authority

Final decision

Solar feed-in tariff for regional Queensland 2023–24

June 2023

Level 27, 145 Ann Street, Brisbane Q 4000
GPO Box 2257, Brisbane Q 4001
Tel (07) 3222 0555
www.qca.org.au

CONTENTS

1 ABOUT OUR REVIEW

1.1 What have we been asked to do?

The Minister directed us to:

- set a flat rate solar feed-in tariff to apply in regional Queensland for 2023–24
- consider if the pricing methodology we have previously used remains appropriate, in consultation with stakeholders.

We are directed this task under the *Electricity Act 1994* (Qld).[1]

1.2 Context of this review

A range of international and domestic factors contributed to sustained upward pressure on wholesale electricity prices in the National Energy Market (NEM) since the March quarter of 2022.[2]

Forecast increases to avoided wholesale energy costs in Queensland directly contributed to a 41 per cent increase in the 2022–23 regional solar feed-in tariff to 9.300 c/kWh. However, average residential feed-in tariffs in south-east Queensland (SEQ) decreased in 2021–22 (averaging 5.7 c/kWh, down from 6.2 c/kWh in 2020–21).

This divergence was highlighted in the Minister's cover letter, and we were asked to consider whether the avoided cost methodology continues to reasonably reflect actual avoided costs to retailers when they purchase energy from small customers (discussed in section 3.1).

1.3 Scope of this review

The purpose of our review is to set a flat-rate solar feed-in tariff for 2023–24, in accordance with:

- the Electricity Act, which requires us to have regard to:
  - the effect of the solar feed-in tariff on competition in the Queensland retail electricity market
  - any other matter in the Minister's direction
- the Minister's direction[3], including the terms of reference, which details matters we must consider this year, namely:
  - the period—the solar feed-in tariff must apply from 1 July 2023 to 30 June 2024
  - timeframes and consultation—we must consult with stakeholders and the final solar feed-in tariff must be published by 9 June 2023
  - the pricing methodology—we must set a flat-rate solar feed-in tariff using an 'avoided cost' methodology and consider if the approach used in previous years remains appropriate, or if a different methodology might better reflect avoided costs for 2023–24

[1] Electricity Act, s. 93.
[2] Further information on the market context can be found in section 3.3 of our draft decision.
[3] The delegation, including the terms of reference, is provided in Appendix A.

- the arrangements in place for Origin Energy to provide retail services to Queensland customers connected to the Essential Energy supply network in southern Queensland.

1.4 Review process and stakeholder consultation

We published our draft decision on 15 March 2023 and provided stakeholders with the opportunity to comment on the draft decision. We did not receive any stakeholder feedback on the draft methodology or approach used to set the draft solar feed-in tariff.[4]

All information relevant to our review is available on our website.

[4] We received one submission, which discussed topics related to solar feed-in tariff prices in SEQ, which are outside the scope of this decision process.

2 KEY ASPECTS OF OUR FINAL DECISION

We have set the solar feed-in tariff using an avoided cost methodology—that is, we based it on the costs retailers avoid by sourcing electricity from solar photovoltaic (PV) customers rather than by purchasing it from the National Electricity Market (NEM).

These avoided costs consist of:

- wholesale energy costs (section 4.2)
- other avoided costs relating to NEM fees, energy losses and irregular avoided cost pass-through items (section 4.3).

The approach we used to estimate these costs is broadly consistent with our previous decisions, with some refinements to reflect recent market developments. For instance, we used additional information to inform our wholesale energy cost estimates and other avoided costs (section 4.2 and 4.3 respectively).

The solar feed-in tariff will increase in 2023–24, predominantly due to the significant increase in forecast wholesale energy cost estimates.

> The regional solar feed-in tariff for 2023–24 is 13.441 c/kWh.
> This is 44.5 per cent higher than last year (9.300 c/kWh).

While we considered the solar feed-in tariff rates offered by retailers in SEQ, we do not think they necessarily reflect the avoided cost of purchasing electricity from the NEM—which is the methodology we are required to use to determine the regional solar feed-in tariff (discussed in section 3.1).

In the absence of any new and compelling information on alternative approaches, or comments from stakeholders, we are satisfied our methodology remains appropriate, because:

- it reflects the costs a regional Queensland retailer would avoid by sourcing electricity from solar customers, rather than by purchasing it from the NEM
- it provides fair and reasonable compensation to solar PV customers for the electricity they export to the electricity grid.

3 METHODOLOGY AND APPROACH

3.1 Review of the methodology

The Minister's direction asked us to review the methodology we use to determine the regional solar feed-in tariff, and to see if it was still reasonable. The Minister's cover letter noted an observed divergence between the 2022–23 solar feed-in tariff we set for regional Queensland and the average feed-in tariff offered by retailers in SEQ:

> The QCA identifies the average SEQ residential FiT in the June quarter was 5.7 cents per kilowatt-hour. In contrast, the regional FiT for 2022-23 is 9.3 cents per kilo-watt-hour.[5]

We were asked to consider whether the avoided cost methodology continues to reasonably reflect actual avoided costs to retailers when they purchase energy from small customers.

SEQ feed-in tariffs

We have considered whether SEQ market observations can provide meaningful insights on the divergence between solar feed-in tariffs offered in SEQ and the feed-in tariff we set for regional Queensland. Using recent market data from Energy Made Easy, an Australian Government price comparison service[6], we observed that:

- customers in the deregulated SEQ electricity market can access a wide range of solar feed-in tariffs
- the solar feed-in tariffs offered for residential customers ranged between 0 c/kWh and 20 c/kWh. In our 2021–22 SEQ solar market monitoring report we observed the range was 1 c/kWh and 15 c/kWh[7]
- the solar feed-in tariffs offered for small business customers ranged between 0 c/kWh and 21 c/kWh. In our 2021–22 SEQ solar market monitoring report we observed the range was 2.05 c/kWh and 11 c/kWh[8]
- generally, higher solar feed-in tariffs are bundled with relatively higher overall usage and supply electricity rates
- some retailers did not pay customers receiving the Queensland Government's Solar Bonus Scheme (SBS) feed-in tariff a voluntary retailer tariff offered to non-SBS customers
- some retailers attached other terms and conditions, such as limits on the size of a customer's solar photovoltaic (PV) system, or a lower feed-in tariff after a certain export limit is reached.

QCA analysis

The data available suggests retailers in SEQ seek to maximise profits by using various pricing strategies to recover costs and target different customer segments. The solar feed-in tariffs offered in SEQ reflect the strategic imperatives of individual retailers, while they operate within the constraints of the DMO, rather than the avoided cost of purchasing electricity from the NEM.

---

[5] Minister's cover letter, Appendix A.
[6] *Energy Made Easy*, Australian Government, accessed 8 May 2023.
[7] QCA, *Solar feed-in tariffs in south-east Queensland – 2021–22*, October 2022, p. 4
[8] QCA, *Solar feed-in tariffs in south-east Queensland – 2021–22*, October 2022, p. 5

Such strategies result in a combination of supply, usage and feed-in tariff rates that are generally specific to each individual retailer.

As electricity retailers in SEQ are not required to use an avoided cost methodology to determine solar feed-in tariffs, it is difficult to make meaningful comparisons with the regional Queensland solar feed-in tariff we set.

Nonetheless, we are of the view the avoided cost methodology has contributed to the divergence between the regional solar feed-in tariff we set and those offered in the competitive SEQ market. We consider this divergence is because the avoided cost methodology estimates a solar feed-in tariff rate that reflects underlying costs—as opposed to a solar feed-in tariff rate of a retailer operating in a competitive market. For this reason, we do not consider SEQ market observations reasonably reflect the costs a retailer avoids when sourcing energy from a solar PV customer.

3.2 Overview of the avoided cost methodology

Generally, retailers on-sell solar electricity to other small customers, as solar PV systems tend to be in residential areas, and electricity (when exported to the distribution grid) typically travels to the closest household/small business where electricity is demanded. Thus, when retailers on-sell a unit of electricity from their solar customers to other customers, they avoid having to purchase that unit of electricity from the NEM.

The 'avoided cost' methodology estimates the value of an efficient feed-in tariff as the sum of the direct financial costs that a retailer avoids when it on-sells exported electricity from its solar PV customers to other customers. Retailers still incur other costs associated with providing retail electricity services to customers, including retail operating costs and network costs.[9]

Key inputs

Our draft decision was based on the avoided costs, which are:

- wholesale energy costs
- NEM management fees
- ancillary fees
- irregular cost pass-through items
- value of energy losses—transmission and distribution.

There are other costs retailers incur when on-selling exported PV electricity that it cannot avoid. These unavoidable retailer costs include:

- network costs in transporting exported PV electricity to other customers
- costs of complying with green schemes such as the Renewable Energy Target (RET)
- costs of maintaining prudential capital with AEMO.

As these costs are not avoided, we did not consider it would be appropriate to incorporate them into our avoided cost methodology to determine a regional solar feed-in tariff.

[9] Our rationale for applying the 'avoided cost' methodology is discussed in a previous QCA report. See QCA, *Estimating a fair and reasonable solar feed-in tariff for Queensland*, final report, March 2013.

3.3 Approach to additional matters in the terms of reference

3.3.1 Competition considerations

The terms of reference require that we consider the effect of the feed-in tariff on competition in the Queensland retail electricity market. We consider the policy intent of this requirement is to ensure that the feed-in tariff we decide does not impede the development of retail competition in regional Queensland.

Unlike in SEQ, competition in the small customer market has not developed in regional Queensland, primarily due to the subsidy arrangements with Ergon Energy Retail (the incumbent retailer in regional Queensland) that underpin the Queensland Government's uniform tariff policy.

We consider a mandatory feed-in tariff that is above the avoidable cost associated with on-selling solar PV electricity could make it difficult for other retailers (who are not subsidised by the government) to compete with Ergon Retail, thereby discouraging them from entering the market.

Our considerations on this matter in previous decisions remain relevant and applicable this year:

- The feed-in tariff should be based on the avoided costs of supply incurred in the Ergon Distribution pricing region with the lowest average cost of supply (i.e. east pricing zone, transmission region one).[10]
- Using the weighted-average avoided costs for all of Ergon Distribution pricing regions would impose a feed-in tariff that is above the efficient value of PV exports in the east pricing zone, where over 90 per cent of customers in regional Queensland reside.
- Given the concentration of customers in the east pricing zone, it is also the area where competition is most likely to develop initially, so implementing a feed-in tariff that is above the efficient level in the east pricing zone area could discourage new market entrants into regional Queensland and influence potential retailers' willingness to supply solar PV customers.

We have therefore used the avoided cost of supply in the Ergon Distribution east pricing zone, transmission region one as the basis for the 2023–24 regional solar feed-in tariff. We consider this approach sets a mandatory feed-in tariff that is not above the avoided cost associated with on-selling solar PV electricity in the region where competition is most likely to develop.

3.3.2 Arrangements for Queensland customers on the Essential Energy network

Origin Energy supplies around 5,700 customers in the Goondiwindi, Texas and Inglewood areas of southern Queensland who are connected to Essential Energy's distribution network. Some of these customers have accessed the mandatory feed-in tariff, as determined by us, since 2014–15. The terms of reference require that we consider this arrangement when deciding the feed-in tariff for 2023–24.

These customers are supplied by Origin Energy at notified prices in much the same way as Ergon Retail supplies customers throughout the rest of regional Queensland. Like Ergon Retail, Origin Energy incurs a financial loss to supply these customers at notified prices (which are lower than

[10] East zone, transmission region one has the lowest average cost of supply among Ergon Distribution pricing regions that are connected to the NEM.

the actual cost of supply) and is therefore subsidised by the Queensland Government to compensate for this loss.

Transmission and distribution losses differ between the Ergon network area and Essential Energy area in southern Queensland. However, we consider that a single flat-rate feed-in tariff should also be available to customers in the Essential Energy area in southern Queensland. This is consistent with:

- our approach for previous decisions
- the intent of the terms of reference, which require a single feed-in tariff to be applied across regional Queensland the definition of the feed-in tariff in the *Electricity Act 1994* (Qld).[11]

3.4 Methodology for the final decision

The estimates of avoided costs that we use for feed-in tariff decisions are the same estimates developed by ACIL Allen for the purposes of setting some regulated retail prices (notified prices) for regional Queensland.[12] As these are the estimated costs a retailer incurs to purchase electricity from the NEM, they also represent a reasonable estimate of costs a retailer avoids when sourcing electricity from a solar PV customer. We also consider it gives customers fair and reasonable compensation for the electricity they export to the electricity grid.

We did not receive submissions commenting on, or providing alternatives to, the approach outlined in our draft decision.[13] Therefore, in the absence of new and relevant information, our final decision is to use the approach, methodology and inputs discussed in this chapter (with cost inputs updated for the latest market developments).

[11] Section 92 of the Electricity Act defines the feed-in tariff as an amount that must be credited by a prescribed retailer—that is, Ergon Retail and Origin Energy (only for Queensland customers on the Essential Energy network)—to a qualifying customer for each unit of electricity that is produced by a small PV generator and supplied to the network.

[12] A more detailed explanation of ACIL Allen's wholesale energy costs methodology is available in ACIL Allen, *Estimated energy costs*, final report for the QCA, May 2023.

[13] We received one submission on our draft decision; however, the submission discussed topics outside the scope of this review.

4 ESTIMATED SOLAR FEED-IN TARIFF FOR 2023–24

4.1 Feed-in tariff

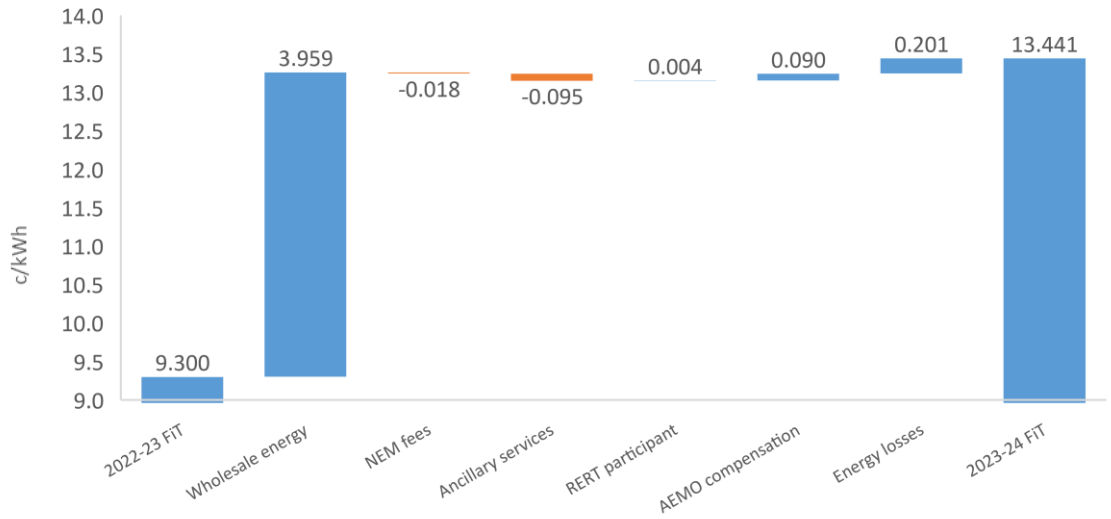
We have estimated the feed-in tariff for regional Queensland for 2023–24 at 13.441 c/kWh.[14] This is 44.5 % higher than the 2022–23 feed-in tariff of 9.300 c/kWh, due to the significant increase in estimated wholesale energy costs (table 1 and figure 1).

Table 1 Feed-in tariff for regional Queensland, 2022–23 and 2023–24

Avoided costs	*Feed-in tariff (c/kWh)*		*Change (c/kWh)*
	2022–23	*2023–24*	
Wholesale energy costs	8.461	12.420	3.959
NEM management fees	0.113	0.095	-0.018
Ancillary services fees	0.142	0.047	-0.095
June 2022 market events	N/A	0.090	0.090
RERT scheme [a]	N/A	0.004	0.004
Value of energy losses	0.584	0.785	0.201
Feed-in tariff	**9.300**	**13.441**	**4.141**

Estimates exclude GST. Totals may not add up due to rounding.
a Excluding RERT activation costs during June 2022 market events.
Source: ACIL Allen, Estimated Energy Costs, final report prepared for the QCA, May 2023; QCA calculations.

Figure 1 Changes in the components of the feed-in tariff for regional Queensland



Estimates exclude GST. Totals may not add up due to rounding.
Source: ACIL Allen, Estimated Energy Costs, report prepared for the QCA, May 2023; QCA calculations.

[14] This is slightly higher than the draft feed-in tariff of 12.952 c/kWh due to the use of updated market data.

Customers should not base decisions to install or upgrade solar PV systems on the expectation the feed-in tariff will remain at its current level in future years.

The feed-in tariff is largely influenced by annually updated forecasts of wholesale energy costs, which are driven by a variety of domestic and international factors.

The large increase we have forecast for next year are not locked in forever. If forecast wholesale energy costs return to lower levels, so will the solar feed-in tariff.

4.2 Avoided wholesale energy costs

Our approach to estimating avoided wholesale energy costs is to continue basing avoided costs on the hedged wholesale cost of energy, with refinements to aspects of our estimation approach to reflect recent market developments. This approach is consistent with the methodology used for the purpose of setting notified prices.

Hedged wholesale energy costs

We use the 'hedged' wholesale energy cost estimates to set regulated retail electricity prices (notified prices) and the solar feed-in tariff. Hedged wholesale energy costs refer to the actual costs that a retailer incurs when purchasing electricity from the NEM and include the costs of managing exposure to wholesale price risk.

The NEM is a volatile market where half-hourly spot prices can range from –$1,000/MWh to $15,500/MWh.[15] Consequently, retailers adopt a range of strategies to reduce or hedge the volatility in spot price movements (i.e. spot price risk) when purchasing electricity from the NEM, including:

- pursuing a hedging strategy by purchasing financial derivatives—such as futures, swaps, caps and options
- entering long-term power purchase agreements with generators
- investing in their own electricity generators.

Generally, pursuing the above strategies enable retailers to lock in a price, or a maximum price (in the case of caps), for the majority of the electricity requirements[16] at which electricity will be exchanged at a future date. Consequently, the costs that retailers incur when sourcing electricity from the NEM are based on the prices locked in using the above strategies.

[15] The minimum spot price (market floor price) and the maximum spot price (market price cap) are defined in chapter 3 of the National Electricity Rules. The market price cap is published by the Australian Energy Market Commission every February and is effective from 1 July. For more information, see www.aemc.gov.au.

[16] Given that the future electricity demand of a retailer is not perfectly predictable, it is not always possible for a retailer to perfectly match its demand with hedging strategies.

Therefore, the hedged wholesale energy cost currently represents a reasonable estimate of the direct financial costs that a retailer avoids when it on-sells exported electricity from its solar PV customers to other customers.

Methodological refinements

This year, some other matters are relevant to estimating wholesale energy costs. We consider it is necessary to include these matters in our estimates to better reflect the latest market developments. These matters include:

- incorporating smart meter demand profiles to supplement the Ergon Net System Load Profile (NSLP)
- improving our estimation of the costs that retailers face when trading in ASX options to manage spot price volatility
- assessing the potential impacts of the temporary price caps for gas and coal.

Smart meter demand profiles

The Ergon NSLP approximates how much electricity is consumed by customers who use accumulation meters[17] in the Ergon network area, for each half hour of the day. In past reviews, we considered the consumption profile of the Ergon NSLP was the most appropriate basis to estimate the avoided wholesale energy costs for the feed-in tariff for regional Queensland, as most small customers in regional Queensland remained on accumulation meters.

Recent policy reforms, such as the Australian Energy Market Commission's (AEMC) Power of Choice reforms in 2017, have resulted in an increasing number of smart meter installations.[18]

The increasing number of smart meters means that demand profiles based on only accumulation meters (i.e. the Ergon NSLP) would likely misrepresent the consumption pattern of electricity, where the penetration of smart meters is material. To address this issue, we have combined the relevant smart meter profiles with the Ergon NSLP when estimating wholesale energy costs. We consider this is consistent with what retailers do in practice, when developing their hedging strategies.

ASX contract prices

The approach we have previously used to estimate ASX contract prices included options traded by using a simplified approach, where options were approximated using the volume of options traded and ASX daily settlement prices for base contracts.

However, recent market volatility has prompted us to consider refining this approach. To reflect the costs of trading in options more accurately, we have incorporated the strike prices, premiums and trade volume of options.

Impact of temporary price caps

In December 2022, the Australian and Queensland governments partnered together to place temporary price caps on gas and coal prices.[19] Under the Energy Price Relief Plan, wholesale gas

[17] Unlike smart/digital meters, accumulation meters do not record when during the day electricity was consumed or how much was consumed at that time. To allow for half-hourly settlement within the NEM (with different spot prices and volumes for each half hour), AEMO uses the NSLP to approximate the amount of electricity consumed by customers on accumulation meters in a region, for each half hour of the day.

[18] More information on how these reforms impact regional customers is available on the Ergon Energy website.

[19] Australian Government, *Measures to mitigate global energy price crisis*, energy.gov.au website, 14 December 2022, accessed 2 February 2023.

and coal prices for electricity generation would effectively be capped at $12/GJ and $125/tonne respectively (for at least 12 months).

Our wholesale energy cost methodology captures the potential impacts of these caps through our spot price analysis and the incorporation of ASX contract prices (until 10 May 2023 inclusive).

Further information on the wholesale energy cost estimation methodology is available in ACIL Allen's final estimated energy costs report.[20]

Wholesale energy cost estimate

Based on the above discussed methodology, we have estimated the avoided wholesale energy costs to be 12.420 c/kWh, which is 46.8 per cent higher than it was for the 2022–23 decision.

This primarily reflects a substantial increase in the trade-weighted ASX contract prices for base and cap contracts—which is driven by market participants expecting higher spot prices and greater price volatility, likely due to:

- higher gas and coal prices—thermal generators have been facing higher fuel costs due to the war in Ukraine and energy sanctions imposed on Russia (a major global oil, gas and thermal coal producer). These developments have added further uncertainty to energy markets already impacted by global supply constraints[21] (due to the covid-19 pandemic), which led to high and volatile gas and coal prices[22]
- uncertainties associated with the availability and reliability of coal-fired power plants and their impacts on the supply–demand balance in the Queensland NEM region:
  - Kogan Creek began a scheduled outage in September 2022 for a major overhaul, but its return to service was delayed for more than a month due to additional repairs[23]
  - Callide C (unit 3) has experienced a forced outage since October 2022. The operator (CS Energy) initially advised the unit was expected to return to service in February 2023, but delayed this from June to September 2023. CS Energy also delayed the return to service of Callide C (unit 4) from May to October 2023.[24]
  - These outages reduced the average available capacity by around 864MW in Q4 2022.[25]

These market conditions directly impact the costs retailers incur when purchasing electricity in the NEM.

[20] ACIL Allen, *Estimated energy costs*, final report for the QCA, May 2023.

[21] Ng, J, 'Commodities soar as war builds anxiety over supply shortages', *Bloomberg*, 4 March 2022, accessed 31 January 2023.

[22] Domestic prices of coal and gas are influenced by international prices because some producers may have the option of exporting these resources and receiving international prices. As such, thermal power stations compete with international buyers and this affects the fuel costs of these generators.

[23] CS Energy, *Kogan Creek power station overhaul extended*, news release, 12 October 2022, CS Energy website, accessed 31 January 2023.

[24] Callide C (unit 4) has been unavailable since May 2021 following a major explosion (CS Energy, *Updated return to service date for Callide C units*, news release, 23 December 2022, CS Energy website, accessed 31 January 2023). CS Energy, *Updated return to service date for Callide C units*, news release, 8 March 2023, CS Energy website, accessed 9 March 2023.

[25] For Q4 2022 AEMO reported an average output of 4,616MW for black coal in Queensland. See AEMO, *Quarterly Energy Dynamics Q4 2022*, January 2023, p 20–21.

4.3 Other avoided cost components

While avoided wholesale energy costs are the primary driver of the feed-in tariff rate, there are other costs that a retailer avoids when sourcing electricity from solar PV customers rather than the NEM. These are:

- NEM management fees—paid to AEMO to cover operational expenditure as well as costs associated with full retail contestability
- ancillary fees—paid to AEMO to cover the costs of services used by AEMO to manage power system safety, security and reliability
- irregular avoided cost pass-through items—required to be paid under a regulatory or legislative requirement set out in the regulatory framework for specific, but infrequent, events.
- value of energy losses—incurred during the transmission and distribution of electricity to customers.

4.3.1 NEM management and ancillary services fees

Retailers purchasing electricity from the NEM are required to pay NEM management fees and ancillary services charges to AEMO.

NEM management fees are levied by AEMO to cover its costs related to operating the NEM, full retail contestability and the funding of Energy Consumers Australia. Ancillary services charges cover the costs of services used by AEMO to manage power system safety, security and reliability. These services maintain key technical characteristics of the electricity grid, including standards for frequency, voltage, network loading and system restart processes.

NEM management fees and ancillary services fees are paid based on the net energy purchased by retailers. The net energy purchased is measured by AEMO at the regional reference node. Retailers therefore avoid paying these fees when they avoid purchasing energy from the NEM by on-selling solar PV electricity.

To estimate these avoided costs, we have used the NEM management and ancillary services fees estimated by ACIL Allen in calculating notified prices for the applicable tariff year. ACIL Allen's methodology estimates:

- the NEM fees using the latest data from AEMO, including historical fees and projected changes in costs
- the ancillary services fees using the average ancillary service payments [26] observed over the preceding 52 weeks.

Cost estimate

NEM fees for 2023–24 are estimated to be 0.095 c/kWh, which is 15.6 per cent lower than the estimates for 2022–23. This decrease primarily reflects a decrease in costs to operate the NEM.

Ancillary services charges for 2023–24 are estimated to be 0.047 c/kWh, which is 67.2 per cent lower than the estimates for 2022–23. Ancillary service costs have declined due to lower costs

[26] AEMO provides data on weekly settlements for ancillary service payments in each interconnected region within the NEM.

for frequency control ancillary services (FCAS)[27] in Queensland. The completion of upgrades for the Queensland to New South Wales interconnector in July 2022 contributed to lower FCAS; therefore, ancillary costs returned to more normal levels.

4.3.2 Avoided irregular cost pass-through items

We have included irregular avoided cost pass-through items in our avoided cost methodology. These cost items are levied under a regulatory or legislative requirement set out in the regulatory framework for specific, but infrequent, events. Like NEM management and ancillary services fees, these costs are based on the net energy purchased by retailers from the NEM.

Examples of irregular cost pass-through items include costs associated with the June 2022 events.

June 2022 events

In June 2022, sustained high spot prices triggered the $300/MWh price cap for all regions of the NEM. Generators withdrawing capacity from the NEM resulted in a lack of reserve energy in the network, which—if left unchecked—could have resulted in customer load-shedding during peak demand periods to maintain the reliability of electricity supply. AEMO suspended the spot market in all regions of the NEM between 15 and 23 June 2022, so that prices were determined according to the published market suspension pricing schedule.

To maintain sufficient supply of electricity in the NEM, AEMO activated the Reliability and Emergency Reserve Trader (RERT) scheme and directed generators to supply energy into the NEM.

Reliability and Emergency Reserve Trader scheme

The RERT scheme is a mechanism that allows AEMO to contract for emergency reserves, such as a generation or demand response (not otherwise available in the NEM) when there is a critical shortfall in reserves. This mechanism provides AEMO with flexibility to manage power system reliability when available electricity supply in the market cannot meet forecast demand, while minimising the costs to consumers. When the RERT mechanism is activated, AEMO compensates users who participate in the emergency response.[28]

Direction compensation

AEMO can issue 'directions' to generators to maintain or restore power system security or reliability under the National Electricity Law and clause 4.8.9 of the National Electricity Rules (NER).

Where the cost of supplying electricity was higher than the $300/MWh price cap during this period, generators were eligible for compensation payments to ensure they did not incur a loss (in accordance with guidelines developed by the AEMC[29]).

Retailers incur fees levied by AEMO to cover the costs of these market interventions, which are paid based on the net energy purchased by retailers. The net energy purchased is measured by AEMO at the regional reference node. Retailers therefore avoid paying these fees when they avoid purchasing energy from the NEM by on-selling solar PV electricity.

[27] FCAS is a process used by AEMO to maintain the frequency of the electricity system within the normal operating band around 50 cycles per second.
[28] We have also included RERT costs for activation events outside of the June 2022 period.
[29] AEMC, *Compensation guidelines*, final guidelines, 21 October 2021.

We have included these irregular cost pass-through items in our solar feed-in tariff approach, as we consider it is reasonable to consider the direct financial cost when it:

- is incurred by electricity retailers sourcing electricity from the NEM
- can be avoided by electricity retailers if they purchased energy from solar PV customers rather than the NEM
- has not already been accounted for in our avoided cost methodology.

Satisfying these criteria also ensures the June 2022 irregular cost pass-throughs are for costs:

- borne by all retailers as part of normal operations to supply retail electricity
- avoided by sourcing energy from solar PV customers.

Cost estimates

We have assessed the value of the June 2022 pass-through events using the associated framework for levying costs and fees, such as those documented transparently by AEMO.

Using the latest information regarding the June 2022 NEM events published by AEMO, the total cost to date for Queensland is $45 million, which—when recovered across the customer load—equates to 0.09 c/kWh.

We have also included RERT costs for activation events outside of the June 2022 period, which are estimated to be 0.004 c/kWh.

A more detailed discussion on this matter is included in ACIL Allen's report.[30]

4.3.3 Value of energy losses

One benefit of distributed generation[31], including solar PV, is that it reduces the need to transport energy across long distances and therefore largely avoids costs associated with transmission and distribution losses. Retailers are therefore able to avoid energy losses when they on-sell PV exports. The value of these avoided losses should be included in the feed-in tariff.

To estimate the value of avoided energy losses, we have adopted the loss factors for the Ergon area, as used in the 2023–24 tariff year notified prices. These loss factors are:

- the average energy-weighted transmission loss factor—estimated by ACIL Allen, using the loss factors and energy consumed at each of the Transmission Node Identities (TNIs)[32] provided by AEMO
- the distribution loss factor for small customers, published by AEMO.

The distribution loss factor is multiplied by the average weighted transmission marginal loss factor to arrive at the total combined loss factor.

Cost estimate

Based on the above discussed methodology, we have estimated a total combined loss factor of 1.062, which translates to an energy loss of 6.2 per cent (table 2). The calculated losses in this report are based on loss factors published by AEMO in March and April 2023.

---

[30] ACIL Allen, *Estimated Energy Costs*, final report prepared for the QCA, May 2023.

[31] Distributed generation is electrical generation and storage performed by a variety of small, grid-connected or distribution-system-connected devices.

[32] TNIs are metered connection points that link the transmission network to the distribution network.

The value of avoided energy losses is estimated by multiplying the avoided wholesale energy costs, NEM management fees, ancillary services fees, and irregular cost pass-through items with the percentage energy loss. This results in an estimated value of energy losses of 0.785 c/kWh for the 2023–24 feed-in tariff.

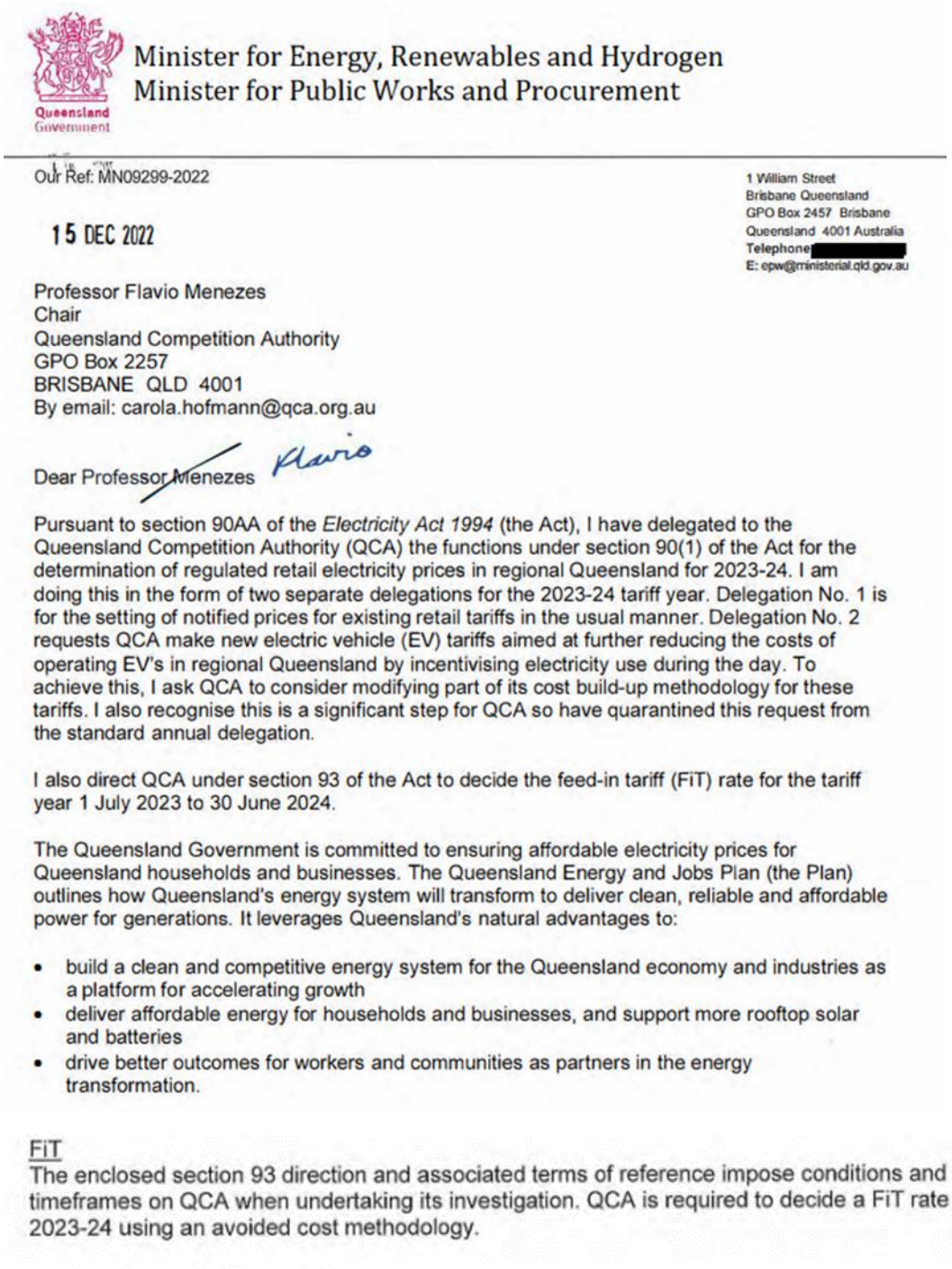
Table 2 Loss factors for small customers in Ergon east pricing zone, 2023–24

Calculation of total combined loss factor		
Transmission marginal loss factor (A)	**Distribution loss factor (B)**	**Total combined loss factor (A*B)**
0.971	1.094	1.062

APPENDIX A: MINISTER'S DELEGATION

Cover letter

The following excerpts from the Minister's cover letter relevant to this review[33]:



Minister for Energy, Renewables and Hydrogen
Minister for Public Works and Procurement

Queensland Government

Our Ref: MN09299-2022

15 DEC 2022

1 William Street
Brisbane Queensland
GPO Box 2457 Brisbane
Queensland 4001 Australia
Telephone [redacted]
E: epw@ministerial.qld.gov.au

Professor Flavio Menezes
Chair
Queensland Competition Authority
GPO Box 2257
BRISBANE QLD 4001
By email: carola.hofmann@qca.org.au

Dear Professor Menezes Flavio

Pursuant to section 90AA of the *Electricity Act 1994* (the Act), I have delegated to the Queensland Competition Authority (QCA) the functions under section 90(1) of the Act for the determination of regulated retail electricity prices in regional Queensland for 2023-24. I am doing this in the form of two separate delegations for the 2023-24 tariff year. Delegation No. 1 is for the setting of notified prices for existing retail tariffs in the usual manner. Delegation No. 2 requests QCA make new electric vehicle (EV) tariffs aimed at further reducing the costs of operating EV's in regional Queensland by incentivising electricity use during the day. To achieve this, I ask QCA to consider modifying part of its cost build-up methodology for these tariffs. I also recognise this is a significant step for QCA so have quarantined this request from the standard annual delegation.

I also direct QCA under section 93 of the Act to decide the feed-in tariff (FiT) rate for the tariff year 1 July 2023 to 30 June 2024.

The Queensland Government is committed to ensuring affordable electricity prices for Queensland households and businesses. The Queensland Energy and Jobs Plan (the Plan) outlines how Queensland's energy system will transform to deliver clean, reliable and affordable power for generations. It leverages Queensland's natural advantages to:

- build a clean and competitive energy system for the Queensland economy and industries as a platform for accelerating growth
- deliver affordable energy for households and businesses, and support more rooftop solar and batteries
- drive better outcomes for workers and communities as partners in the energy transformation.

FiT

The enclosed section 93 direction and associated terms of reference impose conditions and timeframes on QCA when undertaking its investigation. QCA is required to decide a FiT rate for 2023-24 using an avoided cost methodology.

[33] The Minister's cover letter contains matters relevant to the solar feed-in tariff review and notified prices review (which is undertaken separately).

However, I note in QCA's recent monitoring report on solar FiTs in SEQ for 2021-22 (October 2022), QCA identifies the average SEQ residential FiT in the June quarter 2022 was 5.7 cents per kilowatt-hour. In contrast the regional FiT for 2022-23 is 9.3 cents per kilowatt-hour. I ask QCA to consider if the methodology used in previous years remains appropriate and continues to reasonably reflect actual avoided costs to retailers when purchasing energy from small customers. I anticipate this will necessitate public consultation in deciding the 2023-24 FiT.

Public consultation has long formed a vital part of QCA's process for determining retail electricity prices. The terms of reference of both delegations set out the consultation needs and requires QCA to publish its draft determinations in February 2023 and its final determinations by 9 June 2023. I anticipate the processes for both delegations will run simultaneously and appear seamless to stakeholders.

Regional customers continue to benefit from the electricity cost protection provided by UTP and the benefits of Queensland-owned assets. The Plan is a plan for all Queenslanders – a Plan for the future that will deliver clean, reliable and affordable power for generations and position the State for growth and prosperity.

The Department of Energy and Public Works (DEPW) will be available to consult with QCA on the 2023-24 price determination and Tariff Schedule. If you need more information or help with this matter, [redacted] Executive Director, Energy, DEPW can be contacted on [redacted] or email [redacted].

Yours sincerely

Mick de Brenni MP
Minister for Energy, Renewables and Hydrogen
Minister for Public Works and Procurement

Encl. Section 90AA Delegation No. 1 and Terms of Reference
Section 90AA Delegation No. 2 and Terms of Reference
Section 93 Direction and Terms of Reference

Terms of reference

ELECTRICITY ACT 1994
Section 93

As the Minister for Energy, Renewables and Hydrogen, pursuant to section 93 of the *Electricity Act 1994* (the Act), I hereby direct the Queensland Competition Authority (QCA) to decide a flat rate feed-in tariff for the 2023-24 tariff year.

The following are the Terms of Reference pertaining to this direction.

Terms of Reference

Matters to consider
In accordance with section 93(2) and 93(3) of the Act, in deciding the feed-in tariff the QCA must consider the following:

1. The flat rate feed-in tariff should be decided using an 'avoided cost' methodology.
2. If the methodology used in previous years remains appropriate or if a different methodology might better reflect avoided costs for 2023-24.
3. The effect of the feed-in tariff on competition in the Queensland retail electricity market.
4. The matters described below:
   - The arrangements in place for Origin Energy to provide retailer services to Queensland customers connected to the Essential Energy supply network in southern Queensland
   - Any other matter the QCA considers relevant.

Application of the feed-in tariffs

The flat rate feed-in tariff is to apply for the period 1 July 2023 to 30 June 2024.

Consultation

Public consultation to decide the 2023–24 flat rate feed-in tariff should be undertaken by the QCA.

Timing

The QCA is to decide the flat rate feed-in tariff and, in accordance with section 94 of the Act, announce the flat rate feed-in tariff on the QCA's website and publish the feed-in tariff via Gazette Notice no later than 9 June 2023.

This delegation is made by **The Honourable Mick de Brenni MP**, Minister for Energy, Renewables and Hydrogen and Minister for Public Works and Procurement:

Signed:

The Honourable Mick de Brenni MP
Minister for Energy, Renewables and Hydrogen and
Minister for Public Works and Procurement

Dated: 14/12/2022

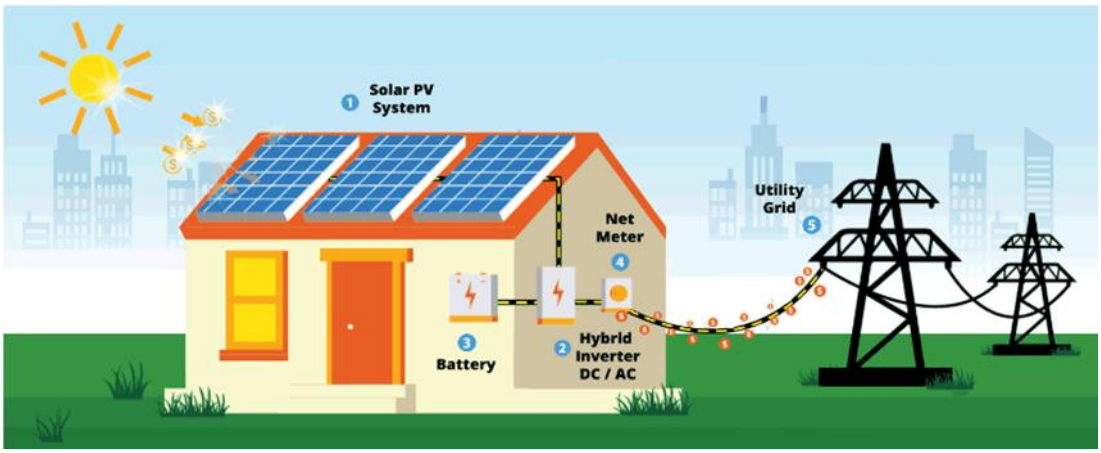
Page 1 of 1

APPENDIX B: BACKGROUND

Solar feed-in tariffs

When a solar PV system produces more electricity than the premises is using, the surplus electricity can be exported, or 'fed', into the electricity network. Figure 2 shows how a simple solar PV system works.

Figure 2 Solar PV system



Note: Batteries are optional add-ons that can store surplus electricity generated by solar PV systems.

Source: Climatebiz – How do solar panels work: step by step.

A solar feed-in tariff is the price in cents per kilowatt hour (c/kWh) that a retailer pays customers for these exports. A flat-rate feed-in tariff pays the same rate throughout the day for surplus electricity exported to the grid.

Solar Bonus Scheme

The Queensland Solar Bonus Scheme is a Queensland Government scheme that pays eligible small customers[34] a prescribed flat-rate feed-in tariff for surplus electricity generated from solar PV systems.

Customers who applied for the scheme before 10 July 2012 and maintain their eligibility receive a feed-in tariff of 44 c/kWh until the scheme expires on 1 July 2028. Customers who applied from 10 July 2012 onwards received a feed-in tariff of 8 c/kWh until this feed-in tariff expired on 30 June 2014. The scheme was then closed to new customers.

The 8 c/kWh feed-in tariff was replaced on 1 July 2014 by a mandatory flat-rate feed-in tariff for regional Queensland, which we determine each financial year under the direction from the Minister.

Reviewing or changing the terms and conditions attached to the scheme, or its expiry date, is not within the scope of this review.

Comparing solar feed-in tariffs and retail prices

We are mindful that electricity prices are a primary concern for most stakeholders, along with the level of the feed-in tariff. We frequently receive queries as to why the feed-in tariff is not set at the same level as electricity prices so that it is a 'one-for-one' feed-in tariff.

[34] A small customer is a residential customer or a business customer that consumes less than 100 MWh per year (as defined in the National Energy Retail Law, s. 5 and National Energy Retail Regulations, s. 7).

The actual value of electricity generated by PV units is considerably less than the retail price, because when retailers source energy from PV customers, they only avoid some of their normal business costs (such as the cost of purchasing electricity from the NEM and the value of energy losses).

Retailers still incur normal business costs, including retail operating costs and network charges. Therefore, a 'one-for-one' feed-in tariff would require the retailers to subsidise solar PV customers; and the cost of the subsidy would then need to be recovered through higher electricity prices.[35]

For most customers, as the price paid for electricity from the grid is higher than the price received for solar exports, a primary benefit of solar panels is realised when solar energy, rather than electricity sourced from the grid, is used to power their home and daily activities.

[35] For more detail, see Queensland Productivity Commission, *Solar feed-in pricing in Queensland,* final report, June 2016, pages 36–38 (particularly figure 17).