

Solar feed-in benchmark ranges for 2024-25

Final Report

May 2024

Energy »

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present.

We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

Tribunal Members

The Tribunal members for this review are: Carmel Donnelly PSM, Chair Jonathan Coppel Mike Smart

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The Independent Pricing and Regulatory Tribunal

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1 Solar feed-in tariff benchmark ranges for 2024-25

Solar panels can provide consumers with significant savings on their electricity bills. A typical consumer in NSW can save more than \$520^a per year on their electricity bills by using the solar electricity they generate, instead of buying electricity from their retailer.

Consumers can further reduce their electricity bills through solar feed-in tariffs. Solar feed-in tariffs allow consumers to earn money for the excess electricity they generate that is exported to the grid. We estimate a typical consumer can earn around \$210° credit on their electricity bill each year from feed-in tariffs.°

Since 2012, IPART has been asked by the NSW Government to set annual solar feed-in tariff benchmark ranges.^d These benchmark ranges provide a guide to consumers about the value of the solar feed-in tariffs they can expect to be paid by their retailer for the solar electricity they export to the grid. These benchmark ranges help consumers to:

- understand whether they are getting a reasonable solar feed-in tariff from their retailer
- understand the short-term financial returns available from investing in solar panels and/or battery storage systems.

Our all-day (or flat rate) solar feed-in tariff benchmark range for 2024-25 is 4.9 to 6.3 c/kWh. This is lower than the benchmark range we set for 2023-24.^e This is because the wholesale price of electricity, at the times that solar is exporting to the grid, is expected to be lower for 2024-25, compared to 2023-24.

As the number of households and businesses in NSW with solar panels continues to increase, the value of solar exports is likely to continue to decrease.⁴ This is because the demand for electricity from the grid during daylight hours will continue to fall as consumers are able to use the electricity they generate, while the supply of cheap solar electricity continues to increase as excess solar energy is exported to the grid. However, consumers with solar panels will continue to make savings on their bills by using the electricity they generate, which is the key benefit of having solar panels.

We have also set time-dependent solar feed-in tariffs.⁹ These benchmark ranges guide consumers about the value of their exports at different times of the day.

^a A typical customer is assumed to have an annual electricity usage of 3,911 kWh, be in the Ausgrid network and have a 5-kW solar system. We also assume they consume 30% of the solar electricity they generate and have a consumption charge of 0.32 c/kWh (which is the median consumption charge in the Ausgrid network as of 30 April 2024).

^b This figure of \$210 is inclusive of GST. Households receiving solar feed-in tariffs are generally not required to pay GST on solar feed-in tariff payments from their retailer. However, if the solar panel owner is registered for GST and the supply is made as part of carrying on their enterprise, it is a taxable supply and they will be required to pay GST.

^c A typical customer is assumed to have an all-day solar feed-in tariff of 5.6 c/kwh (the midpoint of our solar feed-in tariff benchmark range for 2024-25). Our remaining assumptions for a typical customer are consistent with those in footnote a.

^d The historical feed-in tariff benchmark ranges we have set are available on our website. See Solar feed-in tariffs.

e Our all-day solar feed-in tariff benchmark range for 2023-24 is 7.7 to 9.4 c/kwh.

^f See Information Paper: The long term value of solar exports, pages 3 to 4, for further detail on the reasoning for the ongoing decline in the value of solar exports (which is reflected in our solar feed-in tariffs).

^g The Terms of Reference (Appendix C) require us to set both an all-day solar feed-in tariff benchmark range and benchmark ranges that vary across different times of the day.

Our time-of-day benchmark ranges extend from 4.7 to 6.0 c/kwh between 6 am and 3 pm, when the majority of solar exports occur, to 18.4 to 22.0 c/kwh from 6 pm to 7 pm, when little solar energy is exported and demand for energy peaks. Our time-dependent benchmark ranges are shown in Figure 1 below.

To obtain the higher time-of-day solar feed-in tariffs, consumers would need to be on an electricity plan that offers time-dependent tariffs and be able to store the excess electricity they generate, for example through a battery storage system, to export it later. However, as of April 2024, there were only 2 energy plans available in NSW that offered time-of-day solar feed-in tariffs.¹



Figure 1 Time-of-day solar feed-in tariff benchmark ranges for 2024-25

In making our final decisions for the solar feed-in tariff benchmarks for 2024-25, we released an Information Paper and sought targeted feedback on our methodology for setting the benchmark ranges. While one submission supported the existing methodology, the remaining 3 submissions raised the concern that retailer solar feed-in tariffs or our benchmark ranges are too low and suggested changes to specific components of our methodology. We will consider these issues and suggestions when we undertake a full review of our methodology in September 2024.

Final decisions

	1.	The all-day solar feed-in tariff benchmark range is 4.9 to 6.3 c/kWh for 2024-25.
(a)	2.	The time-dependent feed-in tariff benchmark ranges for 2024-25 are set out in Figure 1 (and shown in Table 3 in Chapter 5).
(B)	3.	We will undertake a full review and further consultation on our methodology for setting the solar feed-in tariff benchmark ranges in September 2024. We will use this updated methodology to set our benchmark ranges for 2025-26 and 2026-27.

2 What we have been asked to do

The NSW Government has asked IPART to provide advice on the value of solar exports since 2012. In September 2023, the NSW Government provided IPART with a Terms of Reference to continue this role for the next 3 financial years (2024-25 to 2026-27). See Appendix C.

The Terms of Reference require us to set annual benchmark ranges for an all-day solar feed-in tariff and feed-in tariffs for different times across the day. In doing so, we are required to consider the following key parameters:

- there should be no resulting increase in retail electricity prices
- the voluntary benchmark range should operate in such a way as to support a competitive retail electricity market in NSW
- the voluntary benchmark range should be fit-for-purpose and consider network charges for solar exports and demand charges, and how retailers reflect these in their tariffs.

We consider the first parameter means we cannot set the solar feed-in tariff benchmark higher than the price a retailer would pay to purchase that electricity from the National Energy Market. If we did, this would likely result in electricity retailers passing on this increase in costs, which would result in higher retail electricity prices.

We consider the second parameter means we must set the benchmark ranges in a way that will not distort the competitive process nor incentives in the market.

The third parameter recognises that the tariff structures charged by retailers have changed in recent years and are continuing to do so. In September 2024, we will consult on and assess whether our methodology should be amended to account for these changing tariff structures (see Section 2.1 below).

In addition to setting the solar feed-in tariff benchmark ranges, we are also required to:

- Publish consumer Fact Sheets on the all-day solar feed-in tariff benchmark range and time-of day solar feed-in tariff benchmark ranges for 2024-25. These Fact Sheets are available on the IPART website.
- Report on the feed-in tariffs currently being offered by each retailer and note whether they are within the benchmark range. We have published an interactive dashboard on the IPART website that shows the solar feed-in tariffs on offer and whether they are within our benchmark range for the relevant year.

2.1 We will consult on our methodology in September 2024

In past reviews, we have consulted on the methodology to set our benchmark range at the start of the review and then applied this methodology for the next 3 financial years.

In this review period, significant changes are being made to how the energy market operates and how network tariffs are structured. In particular, from 1 July this year, Distributed Network Service Providers will be able to charge or provide rebates for the export of solar electricity into the grid. We provide further explanation of these charges and rebates in Chapter 7.

However, as these network charges are not yet in place, there is limited information about how these changes will affect the value of solar exports. Once these new network charging arrangements are in place, we will have a better understanding of how they will affect the costs of exporting solar and how they will interact with solar feed-in tariffs. As a result, stakeholder consultation for this review is being held in 2 stages.

The first consultation was in February to March 2024. We released an Information Paper that sought targeted feedback on whether our existing methodology for calculating the solar feed-in tariff benchmark range remains appropriate to continue to apply in 2024-25. We provide a summary of the submissions we received as part of this consultation and how we have considered them in Chapter 3.

We will conduct our second round of consultation in September 2024, once network charges for solar exports are in place. This consultation will accompany a full review of our methodology and will focus on:

- how retailers are incorporating network charges for solar exports and demand charges into their tariffs and whether we need to adjust our benchmark ranges to account for this
- how we forecast the wholesale value of electricity and whether our approach remains appropriate
- whether there are other avoided costs^h that we should factor in when calculating our solar feed-in tariff benchmark ranges.

We provide an overview of our timeline for the Solar feed-in benchmark range review below.

Figure 2 Timeline for the Solar feed-in tariff benchmark range review



^h Avoided costs are the incremental cost a retailer must incur to purchase an additional kilowatt of electricity.

3 What we heard from stakeholders

In February 2024, we released an Information Paper and invited targeted feedback on whether our existing methodology remains appropriate to continue to apply in 2024-25. We received 4 submissions to this Information Paper: one from Origin Energy (an energy retailer) and 3 from individuals.

Origin submitted that our existing methodology is appropriate for determining the 2024-25 benchmarks. However, Origin considered that while that our approach remains appropriate, the methodology to calculate the solar multiplier could be adjusted.² Origin proposed 2 alternative methods for calculating the solar multiplier more accurately. These were using only the most recent year of data or adopting a forward-looking approach for the coming year. The submission noted potential disadvantages with each approach.³ We consider there is potential value in adopting a forward-looking approach when calculating the solar multiplier¹, however we will consult on this proposal further when we conduct a full review of our methodology in September 2024.

The remaining 3 stakeholder submissions suggested changes to our methodology or raised concerns with specific components of our methodology. We have not made changes to our methodology as a result of these submissions for the reasons outlined in Table 1 below.

Proposed change to the methodology or issue raised in the stakeholder submission	Our response
One submission considered that for each year the solar feed-in tariff benchmark is lowered, it will drive down the calculation of the solar multiplier the following year. This will result in a feedback loop that is undesirable for renewable generators. This submission also proposed that IPART should consider introducing 2 solar feed-in tariffs; one tariff for solar exports consumed in the local subnet and another for solar exports feeding into the wider grid. The submission proposed the local feed-in tariff should be set mildly above the cost of generation, while a lower feed-in tariff could be	The solar multiplier is the ratio of the average solar- weighted price to the average time-weighted price. We use a weighted average of the most recent 3 years of data when calculating the solar multiplier and we give more weight to the most recent year of data. The solar multiplier has fallen in recent years (see Figure 4). This has been driven by an increasing number of houses and businesses in NSW with solar panels, which is resulting in lower wholesale electricity prices at the time solar is exporting.

Table 1 Issues raised in stakeholder submissions and our response

available to consumers who export to the grid.

This would mean our solar multiplier would more closely align to the coming financial year when we forecast wholesale electricity prices.

Proposed change to the methodology or issue raised in the stakeholder submission

Our response

We do not consider that a lower benchmark range or solar multiplier drives down the value of the solar multiplier in the following year. Further, using a weighted average of the most recent 3 years of data has meant our solar multiplier is higher than it would be otherwise. This is because if we used only the most recent year of data a lower solar multiplier would result, which reflects an ongoing downward trend in wholesale electricity prices at the times solar is exporting.

We do not consider that 2 separate solar feed-in tariff benchmark ranges (one for the local subnet and one for the wider grid) should be introduced. This is because the value of a customer's solar exports (which is what we base our estimate of the solar feed-in tariff benchmark range on) is the same to a retailer regardless of where the electricity is consumed.

One submission raised the concern that retailers are reducing their solar feed-in tariffs (due to excess solar energy being exported during the day), while they are simultaneously charging business customers demand charges, when their energy consumption is higher than a certain level during the day.

Another submission raised the concern that energy bills are not transparent and higher solar feed-in tariffs may be associated with higher supply service charges.

This submission also raised the concern there is a potential exaggeration of the costs associated with the export of solar energy back into the grid.

Our solar feed-in tariff benchmark range is a voluntary guide. Retailers are not required to follow benchmark range and as a result, may lower their solar feed-in tariffs.

In the second half of 2024, we will consider whether our solar feed-in tariff methodology needs to be adjusted to take into account changing tariff structures, including demand charges.

In response to this concern, we have analysed whether higher solar feed-in tariffs are associated with higher supply service charges and higher total energy bills for a typical customer.

We did not find a relationship between higher solar feed-in tariffs and higher supply service charges or higher total bills. We provide further detail of this analysis in Appendix A.

As discussed in Section 2.1, network charges for solar exports come into effect from 1 July 2024. We will consider whether we need to amend our methodology to account for these charges when we consult in September 2024 (once these charges are in-place and more information is available).

Source: Name suppressed (W24/650) Submission to IPART Information Paper, March 2024, p 1; Name suppressed (W24/703) Submission to IPART Information Paper, March 2024, p 1; M. Scott Submission to IPART Information Paper, March 2024, p 1.

4 We have set an all-day solar feed-in tariff benchmark range

Most retailers in NSW offer flat-rate solar feed-in tariffs.¹ To help inform customers of an all-day (flat rate) price they could expect to receive for solar electricity exported to the grid, we publish an all-day benchmark range each year.

We set the all-day benchmark range based on our forecast of the cost that retailers avoid when they supply solar energy to a customer. When solar energy is exported to the grid and supplied to a customer, a retailer avoids the cost of purchasing that electricity from the National Energy Market.

We use NSW baseload electricity futures contracts traded on the Australian Securities Exchange (ASX) to estimate the wholesale electricity price in the next financial year. We average the latest 40 days of forecast wholesale spot prices to establish one end of the range,^k and also take a volume-weighted average of all historical trades available to establish the other end of the range.¹ We then adjust this price range by our solar multiplier to account for the fact that wholesale prices are lower at the times solar is exporting (which primarily occurs between 6am and 3pm).

We then increase this range by a distribution loss factor. This accounts for the fact that transmission and distribution losses occur when energy is produced by large generators and travels long distances to reach customers. Retailers avoid these losses when they supply customers with local solar exports, meaning less electricity is required to be supplied to meet the same level of demand.

We then add back National Energy Market fees and charges which retailers do not have to pay if energy is supplied from another customer's solar exports. We provide further detail on our methodology to estimate the value of solar exports in <u>Appendix B</u>.

Using this methodology, we calculated the all-day solar feed-in benchmark range is 4.9 to 6.3 c/kWh for 2024-25.

4.9 – 6.3 c/kWh 2024-25 final all-day feed-in tariff benchmark range

^j As of 30 April 2024, 29 retailers offered energy plans for NSW on Energy Made Easy. Of these, 23 offered all-day solar feed-in tariffs.

^k We adjust this 40-day average downward by 5%, reflecting that contracts typically trade at a premium to spot prices.

¹ The volume-weighted average of all historical trades reflects retailers' actual practices in purchasing wholesale electricity to hedge wholesale spot price risk. We do not adjust this end of the range downward by 5%.

We show the individual components of the all-day solar feed-in tariff benchmark range in Table 2 below.

Table 2 Components for the all-day solar feed-in tariff benchmark range

Benchmark component	2022-23	2023-24	2024-25
Forecast wholesale electricity price range	7.6 to 12.7 c/kWh	11.6 to 13.6 c/kWh	9.2 to 11 c/kWh
ASX futures baseload contracts for the 12- month period 2024-25 using the 40-day average price (including 5% adjustment to remove contract premium)	12.7 c/kWh	11.6 c/kWh	9.2 c/kWh
ASX futures baseload contracts for the 12- month period 2024-25 using a volume- weighted average of all historical trades	7.6 c/kWh	13.6 c/kWh	11 c/kWh
Solar multiplier range	0.76 to 0.77	0.62 to 0.65	0.50 to 0.54
Ausgrid	0.76	0.62	0.50
Endeavour Energy	0.77	Not available ^a	0.51
Essential Energy	0.76	0.65	0.54
Network loss factor	1.06	1.05	1.05
NEM fees and ancillary charges	0.11 c/kWh	0.11 c/kWh	0.06 c/kWh
Solar feed-in tariff benchmark range	6.2 to 10.4 c/kWh	7.7 to 9.4 c/kWh	4.9 to 6.3 c/kWh

a. In our 2023-24 benchmark, we based the solar multiplier estimate on Ausgrid and Essential Energy data only, due to data quality issues.

4.1 Our benchmark range for 2024-25 has decreased from 2023-24

Our all-day benchmark range for 2024-25 is lower than the benchmark range of 7.7 to 9.4 c/kWh for 2023-24. This is due to 2 main reasons.

First, our forecast of the wholesale price of electricity is lower for 2024-25 compared to 2023-24. This forecast has a material impact on our benchmark ranges. Figure 2 below compares the forecast wholesale electricity prices for 2023-24 and 2024-25. It shows that the average forecast prices for 2024-25 are around 2.5 cents lower per kilowatt-hour compared to the previous year.^m These forecast prices have fallen mainly due to increasing solar penetration from rooftop solar and large-scale renewable projects, which have reduced demand for grid electricity during the day.

In addition, coal and gas shortages in 2022 caused wholesale electricity prices to peak in September 2022, which put upward pressure on the forecast of wholesale prices for 2023-24. However, coal and gas prices have declined from their peak, and fewer price spikes have been observed in the market. This stabilisation has been reflected in the current forecast of wholesale electricity prices for 2024-25.

^m While forecast wholesale electricity costs have decreased and this has lowered our solar feed-in tariff benchmark ranges for 2024-25 (compared to 2023-24), this reduction may not result in lower retail electricity prices. Retailers incorporate a range of other costs into their pricing, including network costs, environmental obligations and operational costs. In particular, network costs have increased for 2024-25, and as a result, this may offset some or all of the reduction in forecast wholesale electricity costs. For further information, see the Australian Energy Regulators Default Market Offer Draft Determination for 2024-25.



Figure 3 Forecast average wholesale electricity prices for FY24 and FY25 (c/kWh)

Note: This figure only displays 12 months of prices for each year. However, forecast prices may be traded on the ASX for several years leading up to the relevant financial year.

Source: Refinitiv trade data for 2023-24 and 2024-25; IPART analysis.

Second, our benchmark for 2024–25 has been further reduced by a lower solar multiplier for 2024–25 compared to 2023–24. The solar multiplier is the ratio between historical wholesale prices through the day and historical wholesale prices when solar is exporting to the grid. We calculate the solar multiplier using 3 years of historical data, giving more weight to the most recent year.

The solar multiplier has fallen from 0.62 last year to around 0.50 for 2024–25 (Figure 4). This has reduced our benchmark range by around 0.4 c/kWh.ⁿ This means that the average wholesale price of electricity during daylight hours (when solar electricity is being exported to the grid) is around half the average wholesale price of a full day (24-hour period). As a result of the lower solar multiplier, even if the forecast wholesale electricity prices for 2024–25 were not decreasing, our solar feed-in tariff benchmark for 2024–25 would still be lower than last year.

ⁿ We have estimated this figure of 0.4 c/kWh by taking the difference between the midpoints of our benchmark range for 2023-24 (7.7 to 9.4 c/kWh) and 2024-25 (4.9 to 6.3 c/kWh) and then subtracting the 2.5 c/kWh reduction in the benchmark which we estimate is due to lower wholesale electricity prices and the 0.05 c/kWh reduction in the benchmark which is due to reduced NEM fees and ancillary charges (0.11 c/kWh in 2023-24, compared to 0.6 c/kWh in 2024-25).



Figure 4 Solar multipliers for Ausgrid, Endeavour Energy and Essential Energy

Source: Net solar exports data from Ausgrid, Endeavour Energy and Essential Energy; IPART analysis.

5 We have set time-of-day solar feed-in tariff benchmark ranges

The Terms of Reference also require that we set time-dependent benchmark ranges. These benchmark ranges reflect the value of wholesale electricity across different times of the day.

As of 30 April 2024, only 2 retailers in NSW were offering solar feed-in tariffs that vary based on the time of day. These were Amber Electric^o, which offers a solar feed-in tariff that tracks the wholesale electricity price in the National Electricity Market, and Energy Locals^p which offers a solar feed-in tariff of 30 c/kwh for energy exported between the peak times of 2pm to 8pm.⁴

The number of retailers offering time-dependent solar feed-in tariffs may increase with the introduction of network charges for solar exports (which provide a charge or rebate to consumers based on the time their solar energy is exported) and as the number of households with battery storage systems increases.

Time period	2023-24 (c/kWh)	2024–25 (c/kWh)	% of solar exports ^a
6 am to 3 pm	7.2 to 8.7	4.7 to 6.0	89.73
3 to 4 pm	9.9 to 11.7	6.9 to 8.8	6.7
4 to 5 pm	12.2 to 14.9	8.1 to 10.1	2.75
5 to 6 pm	12.1 to 15.3	9.4 to 11.9	0.6
6 to 7 pm	23.2 to 27.3	18.4 to 22.0	0.06
7 to 8 pm	14.9 to 17.5	12.6 to 15.1	0.01
8 pm to 6 am	11.2 to 13.2	9.6 to 11.5	O.14

Table 3 Benchmark ranges for time-dependent solar feed-in tariffs

a: % of solar exports is based on data from 2022-23.

We have set prices for different times based on how much price variation occurs throughout the day. Very little price variation occurs in the earlier part of the day between 6 am and 3 pm. Therefore, we have set one price for this time. On the other hand, prices vary a lot between 3 pm and 8 pm so we have set hourly benchmarks for these times. This is consistent with our previous approach.

We have also set a benchmark tariff for 8 pm to 6 am, even though almost no solar exports occur during this time. However, these benchmark ranges provide a price for solar exports from batteries that can occur at any time.

To join the Amber Energy electricity plan with this solar feed-in tariff offer, customers are required to pay a monthly subscription fee of \$19.

Source: Amber Energy, What is Amber's Subscription Fee?, May 2024

P To join the Energy Locals electricity plan with this solar feed-in tariff offer customers are required to pay a monthly membership fee of \$16.49 and have a Tesla Powerwall battery installed. Source: Energy Locals, *Terms and Conditions: Tesla Energy Plan*, May 2024

6 How solar feed-in tariffs offered by retailers compare to our benchmark ranges

Most retailers in NSW offer solar feed-in tariffs for their residential and small business customers. As of 30 April 2024, almost all solar feed-in tariffs available on Energy Made Easy were all-day tariffs, ranging from 1 to 22 c/kWh (Figure 4). However, only 8 of 23 retailers were offering an all-day tariff in or above our benchmark of 7.7 to 9.4 c/kWh for 2023-24.

Not all tariffs are available to all customers. Many tariffs above our benchmark are only available under a capped or tiered-block plan. This means the customer receives a premium price for only a limited quantity of solar exports per period (for example, 3 kWh each day), followed by a lower price or no payment at all. Some plans also impose conditions that customers must meet to be eligible. For example, a customer may be required to install solar panels sold by the retailer.

In Figure 4 below, we show the solar feed-in tariff offers available as of 30 April 2024 and how they compare to our benchmark range for 2023-24.

We have also published a dashboard on the IPART website which shows the solar feed-in tariffs available in the market, our benchmark range for the relevant year and the conditions attached. This new dashboard allows consumers to see how their solar feed-in tariff compares to offers in the market and if there may be a better solar feed-in tariff available.

Figure 5 Solar feed-in tariffs available in NSW as at 30 April 2024 and IPART's benchmark range for 2023-24

Energy Locals	• 5							30 (
ENGIE	• 5.5		• 12	• 15		• 19.5 •	22	
Origin Energy	7 •	• 8	12 • •	13.4	• 17	• 20 •	22	
AGL	• 5 •	7 •	10	• 15				
Red Energy	6●●	7	• 12					
EnergyAustralia	7.6	• 8.4	• 12					
Globird Energy	• 1 • 5		• 12					
ActewAGL	• 6	• 8 •	10 • 12					
Sumo	• 3 8	• 8.1						
Momentum Energy	•	7						
Next Business Energy	•	7						
Alinta Energy	• (6.7						
Dodo Power & Gas	• 6.	2						
Dodo	• 6.	2						
1st Energy	• 6							
CovaU	• 5.5							
Diamond Energy	• 5.2	+			IPAR benc	I 2023 hmark	(range	
OVO Energy	● 3 ● 5				7.7 to	9.4 c	/kWh	
Powershop	• 1.4 • 5							
Kogan Energy	• 5							
Blue NRG	• 5							
Future X Power	• 3							
Sonnen	• 2.6							
	5	10		15		20	25	<i></i>
0	5	cents r	er kWh	10		20	20	5

Note: Amber Electric offers a solar feed-in tariff that tracks the wholesale electricity price across the day. As there is no single value for the wholesale electricity price, they have not been included in Figure 4. Source: Energy Made Easy solar offers as of 30 April 2024; IPART analysis.

7 Network charges for solar exports will apply to customers who opt-in from 1 July 2024

Network charges for solar exports are a new tariff structure that will apply from 1 July 2024. These charges aim to send price signals to consumers about when it is beneficial (and not beneficial) for the grid to receive energy generated by distributed energy resources like solar panels.^q

Table 4 shows the network charges for solar exports that will apply to customers who opt-in to energy plans with these new tariffs from 1 July 2024.^r From 1 July 2025, some Distributed Network Service Providers will assign export charges to new small customers who have an approved connection and export capability.^{s. 5}

Network charges for solar exports consist of:

- A charge for exports applied during the day between around 10 am and 3 pm.^t This signals the times when solar exports would not benefit the network because there is too much supply. At these times, it is better for customers to use or store their solar-generated electricity.
- A rebate for exports applied in the evening between around 4 pm and 8 pm. This signals when demand is high and rewards customers for exporting solar energy into the network.
- Basic export level an export threshold (in kWh) up to which customers can export to the grid without charge.

Table 4 Network charges for solar exports by Distributed Network Service Provider, 2024-25

Provider	Export charge	Export charge time	Export rebate	Export rebate time	Basic export level ª
Ausgrid	0.90 to 1.17 c/kWh	10 am to 3 pm	1.84 to 2.33 c/kWh	4 pm to 9 pm	6.85 kWh/day
Endeavour Energy	Not yet published	10am to 2pm	Not yet published	4pm to 8pm	4.8 kWh/day
Essential Energy	Tiered export charge with a maximum amount per month.	10 am to 3 pm	5 c/kWh	5 pm to 8 pm	1.5 kWh/hour

a. Endeavour Energy and Ausgrid have annual basic export levels of 2,500 and 1,750 kWh respectively. On a per-day basis this is 6.85 kWh/day and 4.8 kWh/day.

^q Distributed energy resources refer to generation units that are located on the consumer's side of the meter. Examples of distributed energy resources include rooftop solar panels, wind generating units, battery storage and batteries in electric vehicles used to export power back to the grid.

^r Essential Energy's export tariffs will be set to \$0 for 2024-25. From 1 July 2025, export pricing will then commence for customers in the Essential Energy network.

⁵ All customers will be reassigned to export tariffs in the 2029-34 regulatory control period, but the timing and details vary by Distributed Network Service Provider. From 1 July 2025, Ausgrid will assign export tariffs to all new and existing residential and small business customers who have an approved network connection with export capability. From 1 July 2025, Endeavour Energy will assign export tariffs to all new customers, however they will be able to opt-out. From 1 July 2025, Essential Energy will assign new small customers with new connections, meter changes or new NER connection to export tariffs, while all existing customers will have export tariffs assigned from 1 July 2028.

^t These charge and rebate times are based on Ausgrid's Final Tariff Structure Statement for 2024-29. Essential Energy's and Endeavour Energy's charge and rebate times differ by up to one hour.

Source: Ausgrid, Ausgrid Tariff Structure Statement Compliance Document 2024-29, pp. 13-14; Essential Energy, Essential Energy 2024-29 Revised Tariff Structure Statement, pp. 23, 36; Endeavour Energy, Endeavour Energy 2024-29 Revised Tariff Structure Statement, pp. 14, 22.

These charges and rewards are paid to or received by retailers on behalf of their customers. Retailers can choose how to pass these through to their customers. For example, Amber Electric has recently conducted a trial plan that incorporated Essential Energy's 'Sun Soaker' tariff. This trial plan commenced in September 2023. Under this plan, network charges and rebates for solar exports are passed directly through to customers. This means solar customers received an additional 13.5 c/kWh for exporting during 5 pm and 8 pm and were charged an additional fee for exporting more than 1.5 kW between 10 am and 3 pm.⁶

A Appendix: Analysis of solar feed-in tariffs, supply charges and total bills

As discussed in Table 1, one submission raised the concern that energy bills are not transparent and higher solar feed-in tariffs may be associated with higher supply service charges.

To investigate this this concern, we have conducted 2 sets of analysis which we discuss below.

First, we analysed whether a higher solar feed-in tariff is associated with a higher supply service charge. We conducted this analysis across the 3 Distributed Network Service Providers in NSW (Ausgrid, Endeavour Energy and Essential Energy).

Figure A.1 shows the relationship between supply service charges and solar feed-in tariffs offered in the areas serviced by each Distributed Network Service Provider.

For each distribution network, we found no material relationship between higher supply charges and higher solar feed-in tariffs. This can be seen by the relatively flat distribution of offers in each of the panels in Figure A.1 below.



Figure A.1 Comparison of solar feed-in tariffs and supply charges

Source: Energy Made Easy, IPART analysis.

However, what matters most to a customer is not just the supply service charge, but their total annual electricity bill. As a result, we also analysed whether electricity plans with solar feed-in tariffs are associated with higher overall annual electricity bills.

Figure A.2 shows the relationship between estimated annual bills (for a typical consumer) and solar feed-in tariffs for the areas serviced by each Distributed Network Service Provider.

We found that for a typical customers' standard level of consumption for each network,^u the annual bills for customers with solar feed-in tariffs are generally in the same range as for customers without solar feed-in tariffs. This can be seen by comparing the range of the light blue and dark blue datapoints in Figure A.2. We also did not find a material relationship between higher total annual bills and higher solar feed-in tariffs.

However, we note, that a small subset of plans with solar feed-in tariffs in the Ausgrid and Endeavour Energy networks, did have higher overall costs. However, because customers with solar feed-in tariffs receive credits on their electricity bills for the solar that they export back to the grid, their annual electricity bill will be lower than what is shown by Figure A.2.





Note: A typical residential customer on a market offer with a single-rate tariff. The total annual bill amount assumes a typical level of consumption for a customer in that network. To enable a consistent comparison across plans with and without solar feed-in tariffs, the annual bill estimate does not take into account any solar feed-in tariffs the customer with solar panels would be expected to earn. Source: Energy Made Easy offers, IPART analysis.

^u 3,911 kWh for the Ausgrid distribution network, 4,913 kWh for the Endeavour Energy distribution network and 4,613 kWh for the Essential Energy distribution network.

B Appendix: How we calculate the solar feed-in tariff benchmark ranges

We set our solar feed-in tariff benchmark ranges equal to our forecast of what it would cost retailers to buy electricity from the National Electricity Market at the times that solar is exporting to the grid. We provide detail on our methodology to set the solar feed-in benchmark ranges below.

Table B.1. Our methodology to calculate the solar feed-in tariff benchmark ranges

Step	What we do
Step 1. Forecast the average NSW wholesale electricity price for the next financial year	• We forecast the average NSW wholesale electricity price on the National Electricity Market (NEM) for the next financial year using NSW baseload electricity futures contracts traded on the Australian Securities Exchange (ASX).
	• We take a 40-day average of the latest market information on forecast wholesale spot prices to establish one end of the range. We adjust this 40-day average downward by 5%, reflecting that contracts typically trade at a premium to spot prices.
	• We also take a volume-weighted average of all historical trades available to establish the other end of the range to reflect retailers' actual practices in purchasing wholesale electricity to hedge wholesale spot price risk. We do not adjust this end of the range downward by 5%.
Step 2. Apply the solar multiplier	 We calculate a 'solar multiplier' to adjust this forecast benchmark price range to account for whether wholesale electricity prices are likely to be higher or lower than the average price at the times when solar exports occur. Generally, wholesale prices in the NEM are lowest in the middle of the day when solar generation is high as this meets a large proportion of demand, and highest in the evening when demand is high and there is little solar energy exported to the grid. To calculate the solar multiplier, we calculate the ratio of the average solar-weighted price to the average time-weighted price using the most recent 3 years of historical wholesale spot prices and net solar export data.^v We calculate individual solar multipliers for different network areas, and reflected the variations within our benchmark range.

^v For the purposes of setting our solar feed-in tariff benchmarks we are focusing on customers' net solar exports – the unused electricity that is exported to the grid. This is the volume of electricity for which customers will earn feed-in tariff revenue, depending on the retailers' specific offers.

Step	What we do
Step 3. Increase the value by an avoided loss factor	 We increase the value of the range by multiplying it with an avoided loss factor. When electricity is purchased from the NEM and flows through the transmission and distribution networks some of it will be lost. However, given that solar exports are located closer to where it will be used by other customers, less needs to be purchased by retailers to meet the same level of demand.
Step 4. Add back the value of NEM fees and charges	• We add back the value of the NEM fees and ancillary service charges that retailers avoid paying when they supply customers with other customers' solar exports because these charges are levied on retailers' net purchases.

C Appendix: Terms of Reference

The investigation and determination by IPART of an annual benchmark range for feed-in tariffs for financial years 2024-25, 2025-26 and 2026-27

Reference to IPART under section 9 of the Independent Pricing and Regulatory Tribunal Act 1992

With the approval of the Hon. Christopher Minns MP, Premier of NSW and Minister administering the Independent Pricing and Regulatory Tribunal Act 1992 (IPART Act), pursuant to section 9(2) of the IPART Act, the Independent Pricing and Regulatory Tribunal (IPART) will enter into arrangements with the Office of Energy and Climate Change (OECC) to investigate and determine:

- the voluntary benchmark range for solar feed-in tariffs paid by retailers for electricity produced by complying generators and supplied to the distribution network
- time dependent benchmark ranges paid by retailers for electricity produced by complying generators and supplied to the distribution network during different times of the day.

Conduct of investigation

In conducting this investigation, IPART is to consider the following key parameters:

- There should be no resulting increase in retail electricity prices.
- The benchmark range should operate in such a way as to support a competitive retail electricity market in NSW.
- The benchmark range should be fit-for-purpose and consider network charges for solar exports and demand charges, and how retailers reflect these in their tariffs.

In conducting this investigation, IPART may incorporate:

- half-hourly solar export data reflecting customers in all three network areas
- forecast electricity wholesale prices for the financial year of the determination
- any other matter IPART considers relevant.

Reporting

IPART is to:

- report on the standard and time-of-use feed-in tariffs offered by each retailer at the time of writing its report
- note whether that tariff was within the benchmark for the preceding financial year
- provide factsheets that assist consumers to understand feed-in tariffs.

Consultation

In preparing its report on the voluntary benchmark range, IPART may consult on any matter that it regards as material.

Timing

The dates below are set to allow electricity retailers enough time to update their solar feed-in tariff pricing by 1 July each year.

IPART is to provide its benchmark range determination by 30 June 2024 for financial year 2024-25
and by 30 April in 2025 and 2026 unless the Minister advises IPART of a change to the Terms of
Reference by the October prior to the commencement of the next determination.

Signed:

Penny Sharpe MP MAC Minister for Climate Change, Minister for Energy, Minister for the Environment, Minister for Heritage

22/9/23 Date:

- ¹ IPART analysis of Energy Made Easy solar offers as of 30 April 2024
- ² Origin Submission to IPART Information Paper, March 2024, pp 1-2.
- ³ Origin Submission to IPART Information Paper, March 2024, p 1.
- ⁴ IPART analysis of Energy Made Easy solar offers as of 30 April 2024

⁵ Ausgrid, Tariff Structure Statement Compliance Document, April 2024, p 40; Endeavour Energy, Tariff Structure Statement2024-29 Regulatory Control Period, April 2024, p 32; Essential Energy, Planning for the future: Essential Energy 2024-29 revised tariff structure statement, April 2024, p 33.

 ⁶ Amber, New Essential Energy Tariff-Bonus Feed-in Tariff for those in the Essential Network, accessed 9 May 2024.

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