# Solar feed-in tariff benchmarks

IPART's approach 2021-22 to 23-24

**Information paper for households**

**16 February 2021**

Solar panels provide numerous benefits to consumers and assist with reducing carbon emissions to help meet the NSW Government's target of net zero emissions by 2050.

Customers with solar panels can make significant savings off their bills when they generate electricity themselves, instead of buying it from their retailer. Another benefit is the feed-in tariff paid by their retailer for the excess electricity they export to the grid.

In NSW, retailers can choose whether or not to offer solar feed-in tariffs to their customers and decide what rate they will offer.

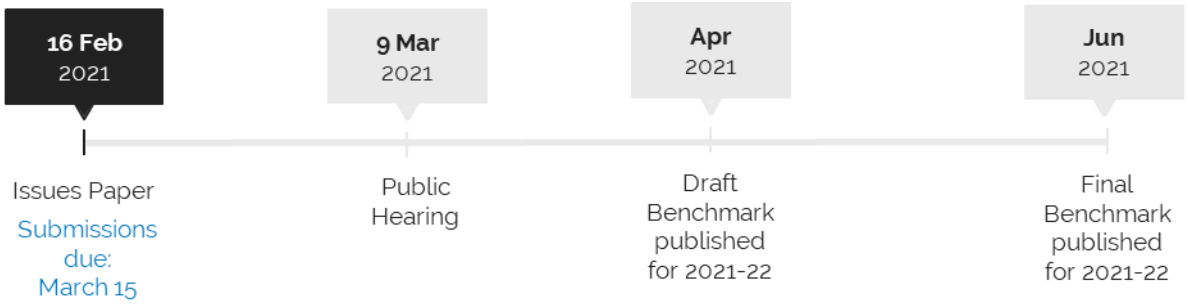
To guide households and retailers on a reasonable rate for the feed-in tariff, the NSW Government asks IPART to set benchmarks.

## What we want to know

We are currently consulting on our approach to setting the annual solar feed-in benchmarks for the next three years.

We would like to hear about customers' experiences investing in solar panels and batteries, exporting electricity to the grid, and how they are paid for these exports. We have also released an Issues Paper that focuses on how we should calculate the value of solar energy when we set the benchmark.

Anyone interested can register for our online public hearing on **9 March 2021** to discuss these issues, and we will be accepting written submissions until **15 March 2021** through our website.



**We are seeking comment on the following:**

1 Is there enough information for customers to make the best financial decisions (given their consumption profiles) on:

- whether to invest in solar systems?
- the size of the system most suitable for them?
- the retail offer they should choose?

2 Are retailers providing new types of offers to households that can help them optimise the times that their energy is used, exported, or stored, for the benefit of these households, and other customers? Are customers interested in getting different prices for solar at different times across the day, depending on how much it is worth at the time?

3 Are there any barriers for customers installing batteries? What options are available to customers?

**4** Are consumers facing any problems getting paid for their solar exports? For example, are smart meter installations timely? Are consumers able to export all the solar electricity that they wish to export? Is there adequate notice about solar feed-in rates changing?

## How does IPART set the solar feed-in benchmarks?

IPART sets the benchmark rates for solar households at the same price as what it would cost retailers to buy electricity from large generators at the times that solar is exporting to the grid.

The main input to our feed-in tariffs is the average forecast wholesale price for the next year. The wholesale value fluctuates with supply and demand each year, and so we update the benchmark range each financial year to reflect these changes.

We then adjust this forecast based on whether the prices are likely to be slightly higher or lower than average at the times that solar is exporting to the grid. We also increase this value because electricity from solar panels is typically consumed very close to the source. This makes it slightly more valuable than electricity generated further away, because less electricity is lost as it is transported over the network.[1] In addition, retailers do not have to pay fees and charges on solar electricity, so we also add these avoided costs to the benchmark.

The benchmark feed-in tariff across the whole day is currently 6.0 to 7.3 c/kWh. The forecast wholesale prices are currently lower than our forecasts for this year, so the benchmark is likely to fall in 2021-22. This is being driven by falling electricity demand and more renewable generation coming into the market. However, many customers will be better off overall, as retail prices are also forecast to fall.[2] It is also likely that some retailers will continue to offer solar-feed in tariffs that are higher than our benchmark, as they have done in previous years. We will use the most up to date forecasts when we release the benchmark in June.

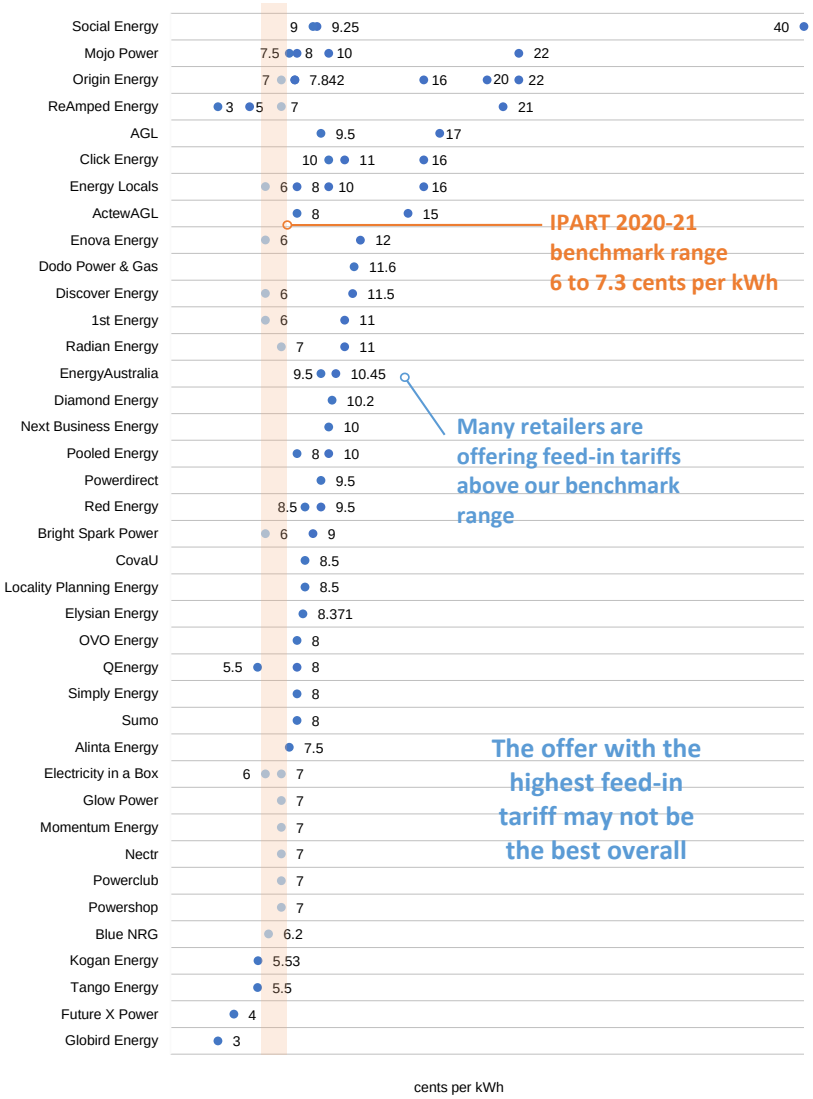
1 Solar exports reduce these losses by around 6%. IPART, Solar feed-in tariff benchmark, Final Report, April 2020, p 11.
2 AEMC, Residential electricity price trends report - End-year 2020, 21 December 2020, pp 3-6 and pp 9-11.

## Current feed-in tariffs available to consumers

All retailers in NSW offer solar feed-in tariffs, and many are offering feed-in tariffs above IPART's benchmark – see Figure 1 below. However, the offer with the highest feed-in tariff may not be the best overall deal, especially if a household still buys a significant proportion of electricity from the grid. Therefore, households should consider all aspects of an energy offer, including usage and fixed charges, feed-in tariffs and other terms and conditions.

IPART has an Excel tool to help compare bills for offers with different feed-in tariffs and retail prices.

**Figure 1 Solar feed-in tariffs available in NSW – January 2021**




**Note:** Actew AGL does not supply in the Ausgrid network and Pooled Energy does not supply in the Essential Energy network. Some tariff offers include declining block tariffs where premium feed-in tariffs are only paid to a limited quantity of exports each period. Other offers may only pay premium feed-in tariffs during a time limited (or quantity limited) benefit period after which retailers will pay lower feed-in tariffs.

**Data source:** Energy Made Easy and IPART analysis.

## New types of offers are becoming available for solar customers

Most retailers offer set feed-in tariffs which are adjusted periodically (typically yearly). However, new types of offers are starting to be offered to solar customers in NSW with different pricing options. As the costs of batteries fall, there are opportunities for new business models to reward customers with solar PV and battery systems for offering supply at different times. This would not only benefit these customers but can also help to reduce energy costs on the system at peak times, which would lower costs to consumers more generally.

We provide below some examples of new offerings in the NSW market.

### Amber Electric real-time solar feed-in tariff

From October 2020 Amber Electric began offering customers a real-time feed-in tariff which is adjusted every 30 minutes and is the same amount that Amber Electric pays generators for their energy.[3] This means that the feed-in tariff that customers can receive for their exports can vary from -$1 to $15/kWh (which are the minimum and maximum wholesale spot prices in the NEM).[4]

Amber Electric's retail tariffs are also adjusted every 30 minutes in line with changes in the wholesale spot price.[5] It gives customers prior notice about forecast price spikes (through phone, text or email) so that they are able to shift their non-essential usage. It also guarantees that customers will never pay more than the government's Default Market Offer over a 12 month period.

### Social Energy enhanced solar and battery feed-in tariffs

Social Energy is a UK-based company that entered the Australian market in late 2020.[6] Customers that have a battery system with their solar panels are offered 40 cents per kWh for the first 300kW of energy exported each quarter, after which a lower tariff is offered.[7] For a typical customer, this would apply to around two thirds of their exports.[8] The retailer intends to access the solar energy stored in customers' batteries for its virtual power plant to trade in the NEM at times of peak demand.[9]

In the UK, Social Energy has a smart energy trading network for its solar PV and battery storage customers. Through its Social Energy app, customers are able to sell their exports to the UK National Grid, or swap and trade their solar energy with other Social Energy customers.[10]

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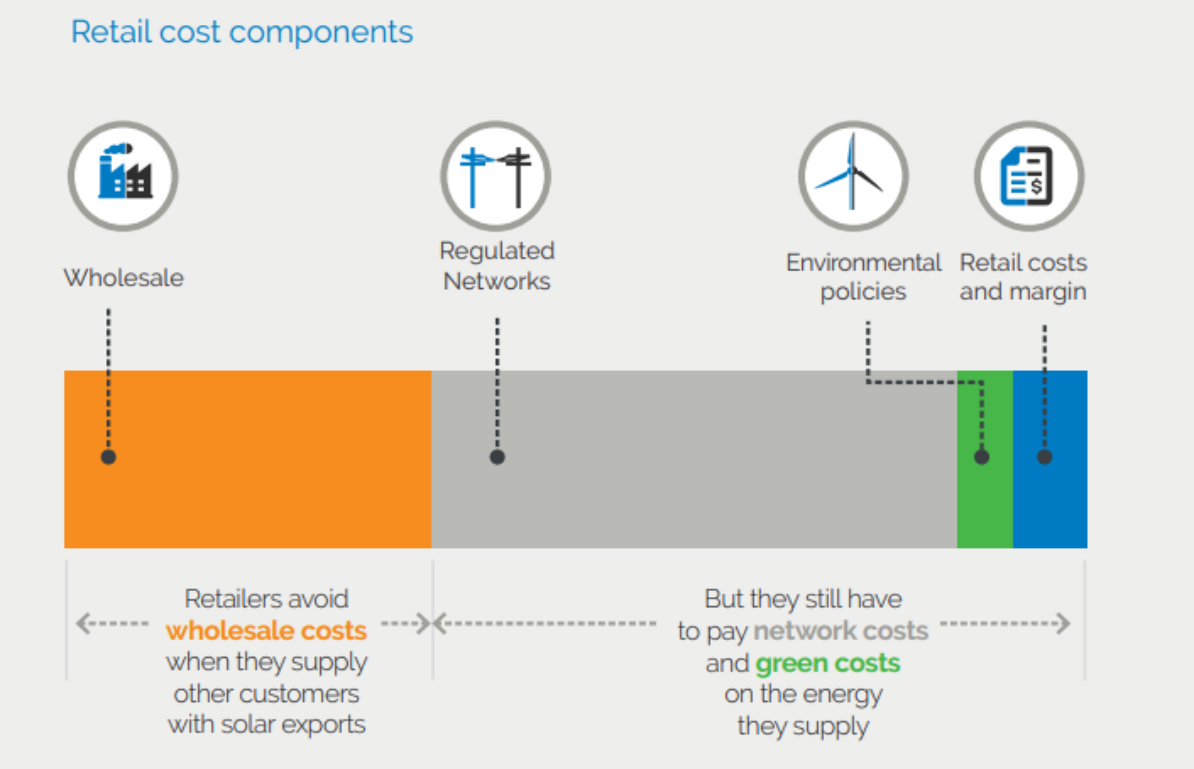
3 Amber Electric, What is Amber's Feed-in Tariff?, accessed 2 February 2021.
4 Amber Electric, What are the lowest and highest possible real-time FiTs with Amber?, accessed 2 February 2021.
5 Amber Electric, How it works, accessed 2 February 2021.
6 The AER approved Social Energy's electricity retailer authorisation application in November 2020 (see AER, Social Energy Australia Pty Ltd – authorised electricity retailer, November 2020).
7 Social Energy, Energy Supply – Our pricing, accessed 2 February 2021.
8 For example, average daily electricity usage is about 15 kWh in Ausgrid's area (Ausgrid average electricity consumption by LGA 2019, accessed 2 February 2021). A 5kW solar system can produce about 20kWh of electricity per day in Sydney (average daily production is about 4 times its size, Clean Energy Council, Guide to installing solar PV for businesses in NSW, p 6). Therefore, a customer with a battery could export 5 kWh per day or 450 kWh over a quarter.
9 One step off the grid, Social Energy launches solar and battery VPP-based retail offer in Australia, November 2020, accessed 2 February 2021.
10 Project Solar UK, What is Social Energy?, accessed 2 February 2021.

## The feed-in tariff reflects the wholesale cost savings to retailers

Most customers pay around 20 to 30 c/kWh for the electricity that they buy from their retailer. When they instead use the electricity from their panels, customers avoid paying these retail charges, which results in significant savings off their bills.

When customers generate more electricity than they use, we estimated that the value of the excess electricity exported back to the grid is 6.0 to 7.3 c/kWh for 2020-21 (equal to our current solar-feed in benchmark). This reflects the savings to retailers because they do not have to buy this electricity from the wholesale market. But the wholesale component accounts for around a third of the total costs of supplying electricity.

Retailers still incur network and green scheme costs when they supply these solar exports to other customers. This means that the savings to retailers from solar energy are less than the value of retail prices.



## IPART's benchmark keeps retail tariffs low

If IPART set a higher benchmark, it would not mean that retailers would have to pay customers more for their solar energy because offering a feed-in tariff is voluntary for retailers. For our benchmarks to be useful to customers, it should reflect what retailers are actually likely to pay their customers, based on how much the solar electricity is worth to them.

But if IPART did set a higher benchmark, and all retailers paid a higher feed-in tariff, this would result in higher costs to retailers, which would mean that they would have to increase their prices. For example, if all retailers paid a feed-in tariff of 15 c/kWh (around double the current benchmark), the average annual household bill would need to increase by around $25 (to recover additional costs of $90 million each year).

The average bill for a typical solar customer is around $1,000 lower than customers without solar panels (not including revenue earned from solar feed-in tariffs) because of the savings they can make using their solar electricity instead of having to buy it from their retailer.[11]

Households without solar panels should not have to pay more to reduce the bills of customers with solar panels. This would disadvantage the households who are unable to install a solar system themselves (for example, because they rent or they cannot afford the upfront costs).

## Solar customers receive upfront subsidies to reflect avoided carbon emissions

Solar customers currently receive an upfront subsidy for installing their panels under the Small Scale Renewable Energy Scheme (SRES) to reflect the avoided costs of carbon emissions. For a 5 kW solar system installed in Sydney, the subsidy is currently worth around $2,600.

All electricity customers pay an average of around $41 per year to customers with solar panels to subsidise these costs. Customers also pay another $55 per year (for an average bill) for other 'green costs' (including subsidies for the Renewable Energy Target, the climate change fund, and the Energy Saving Scheme).[12]

Because solar customers already receive this subsidy, we have not factored in the avoided costs of carbon emissions into the feed-in tariff benchmark.

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11 Based on the avoided costs of buying 3,650 kWh from the retailer at 27.5 c/kWh for a customer with a 5 kW solar panel system (we have also assumed that the system produces 20 kWh per day on average and that 50% of the electricity generated is consumed with the remainder exported). (Clean Energy Council, Guide to installing solar PV for businesses in NSW, p 6 – average daily production of electricity from solar panels is about 4 times their size).
In our 2020-21 solar feed-in tariff benchmark report, we stated that the average bill for a typical solar customer would be lower by $455 based on a 3 kW solar system.

12 AEMC, Residential electricity price trends report - End-year 2020, 21 December 2020, p 16.

## Solar panels can both reduce and increase network costs

Solar panels have the potential to lower network costs by deferring network expenditure where it reduces demand on the network at peak times. However this only occurs on limited parts of the network.

In many parts of the network, the peak occurs in the late afternoon when the proportion of exports is very low. In these areas solar exports are unlikely to contribute to meeting peak demand on the distribution and transmission networks, and therefore unlikely to defer network costs. In other areas, large volumes of solar exports may have the potential to impose higher network costs due to additional investment required to support the bi-directional flows of electricity to handle the volume of solar exports. Because of this significant variation in potential network benefits and costs between locations, across times, and between years, we do not factor it into our feed-in tariff.

## The feed-in tariff reflects the market price of wholesale electricity

Solar panels can help reduce wholesale prices during the day by increasing the supply of electricity in the market. But this can cause other generators to exit the market faster, leading to higher prices in the medium term, particularly in the evening when the sun goes down.

Like the other generators that impact prices, solar customers do not get a higher or lower tariff to reflect their impact on wholesale prices. For example, a new gas generator or wind turbine that contributes to reduced wholesale spot prices does not receive any additional payment to reflect the lower wholesale price. It takes the same market price as all other generators, and so all customers benefit from lower prices. Likewise, a customer who consumes electricity by switching on an appliance and thereby increasing the market demand for electricity and electricity prices for all customers is not required to compensate the other customers for these higher prices. These are normal outcomes of a competitive market.