ESSENTIAL SERVICES COMMISSION

Minimum feed-in tariff to apply from 1 July 2022

Draft decision

2 December 2021

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Contents

Summary

- Our draft decision is to set the minimum flat feed-in tariff rate for 2022-23 to 5.2 cents per kWh. This is 22 per cent lower than the current minimum feed-in tariff rate. This change is mostly driven by lower expected wholesale energy prices during the day.
- The draft minimum time-varying feed-in tariff rates range from 5.0 to 7.1 cents per kWh. They are lower than the current time-varying feed-in tariff rates.
- When we make our final decision in February 2022, we will use the most up to date data available. This could lead to the feed-in tariff rates for 2022-23 being higher or lower than our draft decision.
- Retailers can offer the flat feed-in tariff rate **and/or** time-varying feed-in tariff rates.
- Retailers may not offer feed-in tariff rates below the minimums we set, but they may offer higher feed-in tariff rates.

What is a feed-in tariff?

A feed-in tariff is the rate at which customers are credited when they export electricity from their small-scale solar, wind, hydro, biomass or battery facilities.

Victorian electricity retailers with 5,000 or more customers must offer at least the regulated minimum feed-in tariff rates (feed-in tariffs) to eligible customers. You are an eligible customer if you have a small renewable energy generation facility with a generating capacity of less than 100 kilowatts connected to the distribution system.

For simplicity, this draft decision refers to eligible customers as solar customers, given solar accounts for 99.9 per cent of small-scale renewable energy generation in Victoria.[1]

The costs we must include in the minimum feed-in tariffs are set in law

The minimum feed-in tariff reflects the value that solar customers provide to the energy market including the social benefits of lowering carbon emissions.

[1] Clean Energy Council, Postcode data for small-scale installations, accessed 21 September 2021, http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations#Installation-numbers-for-smallscale-systems-by-stateterritory.

The Electricity Industry Act 2000 requires us to determine one or more minimum rates for the electricity that solar customers export to the grid. We refer to these rates as the minimum feed-in tariffs. Retailers can pay solar customers higher rates, but they cannot pay less.

By no later than 28 February, we must set the minimum feed-in tariffs to apply for the next financial year.

The Electricity Industry Act 2000[2] sets out that in setting the minimum feed-in tariffs we must consider:

- prices in the wholesale electricity market
- avoided transmission and distribution losses
- the social cost of carbon and human health costs.

Further detail about the costs we must consider is in the chapter 'How we set the minimum feed-in tariffs'. The legislative framework for setting the minimum feed-in tariffs is set out in Appendix D.

We must protect the interests of both solar and non-solar customers

Under the Essential Services Commission Act 2001 and the Electricity Industry Act 2000, our objectives are to promote the:

- long term interests of Victorian consumers
- protections for customers, including in relation to assisting customers who are facing payment difficulties
- development of full retail competition.

Minimum feed-in tariffs set above the efficient value of solar exports would result in non-solar customers subsidising solar customers through higher electricity rates. This would not be consistent with our objectives.

Draft minimum feed-in tariffs for 2022–23

In setting the minimum feed-in tariffs to apply from 1 July 2022, we have used largely the same approach as in our previous feed-in tariff reviews. This approach is discussed in detail in the chapter 'How we set the minimum feed-in tariffs'.

The draft minimum flat feed-in tariff for 2022–23 is 5.2 cents per kWh. This is 22 per cent lower than the minimum rate for 2021–22. The draft time varying feed-in tariffs are also lower than for 2021–22. Table S.1 shows the details.

[2] Electricity Industry Act 2000, s. 40FBB(3)(a),(b) and (c).

Table S.1: Minimum feed-in tariffs to apply from 1 July 2022, excluding GST*

Flat rate	Time-varying rates (c/kWh) [3]		
All times	**Overnight** (Weekdays: 10pm-7am Weekends: 10pm-7am)	**Day** (Weekdays: 7am-3pm, 9pm-10pm Weekends: 7am-10pm)	**Early Evening** (Weekdays: 3pm-9pm Weekends: n/a)
5.2	7.1	5.0	6.9

* Feed-in tariffs of solar customers registered for GST are subject to GST.[4] Most residential solar owners are not registered for GST and GST will not apply to their feed-in tariffs.

Wholesale electricity costs are forecast to be lower

The drop in minimum feed-in tariffs is mainly due to lower forecast wholesale electricity prices during daylight hours for 2022–23.

Wholesale prices during the middle of the day have dropped significantly. This is when most solar is exported. Annual changes in the minimum feed-in tariffs largely mirror movements in forecast wholesale electricity prices, which account for about 50 to 70 per cent of the costs covered by the feed-in tariffs (see figure S.1).[5]

Our draft decision is based on forecasts of wholesale electricity prices in the futures market as of 1 October 2021. Lower demand for electricity – due to the effects of the pandemic and increased installations of rooftop solar – and ongoing investment in generation capacity are driving wholesale electricity prices lower.[6]

Wholesale electricity prices are at their lowest during the daf when solar exports are high, which leads to the feed-in tariff being lower during the day. Frontier Economics notes that all else being equal, 'with further entry of rooftop and utility-scale solar over time', we should see lower prices in the middle of the day and less high price events at the times solar is exporting.[7]

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[3] We have changed the labels for the feed-in tariff periods to 'overnight', 'day' and 'early evening' due to changing market conditions (discussed below).

[4] Australian Tax Office, Electricity and Gas Industry Partnerships, accessed 21 September 2021, https://www.ato.gov.au/business/gst/in-detail/gst-issues-registers/electricity-and-gas-industry-partnerships---issues-register/?page=1#1_Are_there_any_GST_implications_for_owners_of_grid_connected_solar_power_generation_equipment_in_respect_of_electricity_supplied_via_the_network.

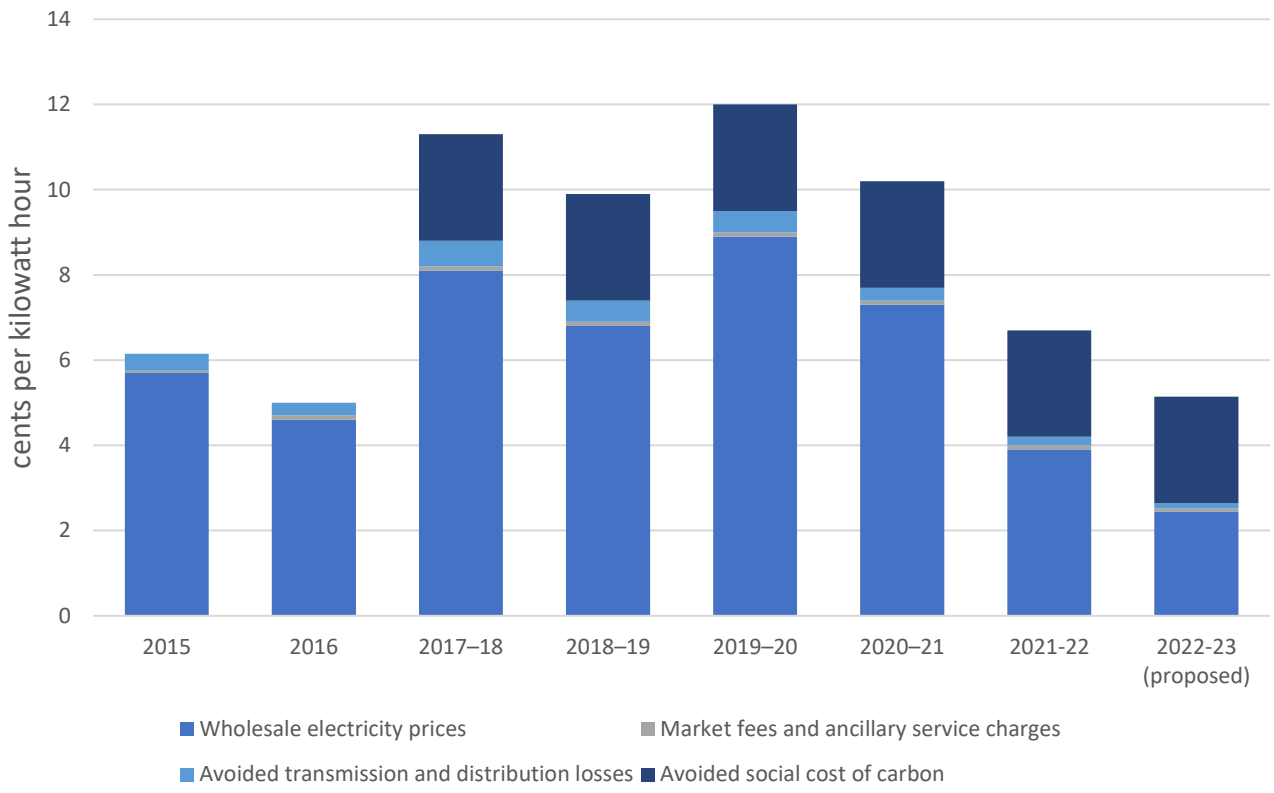
[5] Wholesale electricity prices accounted for almost 71 per cent of the 2020–21 feed-in tariffs, 60 per cent of the 2021–22 feed-in tariffs and 47 per cent of the draft feed-in tariffs for 2022–23.

[6] Frontier Economics, Wholesale price forecasts for calculating minimum feed-in tariff: Draft report for the Essential Services Commission, October 2021, p.18.

[7] Frontier Economics, Wholesale price forecasts for calculating minimum feed-in tariff: Draft report for the Essential Services Commission, October 2021, p.19.

When we make our final decision in February 2022, we will update the feed-in tariffs to reflect wholesale electricity prices in the futures markets at that time.

Figure S.1: Components of the minimum flat feed-in tariff over time



Other feed-in tariff cost components are largely the same

Changes in the other feed-in tariff cost components, such as market fees and avoided transmission and distribution losses, were minor. We have kept the avoided social cost of carbon and human health costs at current levels. We will update all cost components when we make our final decision in February 2022 if more up to date data is available.

In later chapters, we explain the methodology we used in setting the minimum feed-in tariffs. We engaged Frontier Economics to model wholesale electricity prices for 2022-23. Its report is published on our website.

We must set feed-in tariffs that reflect efficient costs

Under the Essential Services Commission Act 2001, we must promote the long term interests of all Victorian consumers.[8] We cannot set the feed-in tariffs above the value that solar exports provide. We estimate this value using the efficient costs retailers avoid when they receive solar exports from their customers. If retailers had to pay more than the value of solar exports, then Victorians would pay more for electricity than they need to.

Retailers set their own prices for market offers. When costs go up industry wide, for example, due to higher feed-in tariff payments, new or expanded regulatory obligations, or higher electricity wholesale prices, retailers pass these costs on to customers in market offer prices.

The cost of buying electricity from the wholesale market in 2022-23 is forecast to be lower. Increasing the feed-in tariff when underlying costs are going down could lead to market offer prices being higher than efficient costs. This is not in the interest of all Victorian consumers.

The feed in-tariff should not be compared to retail rates

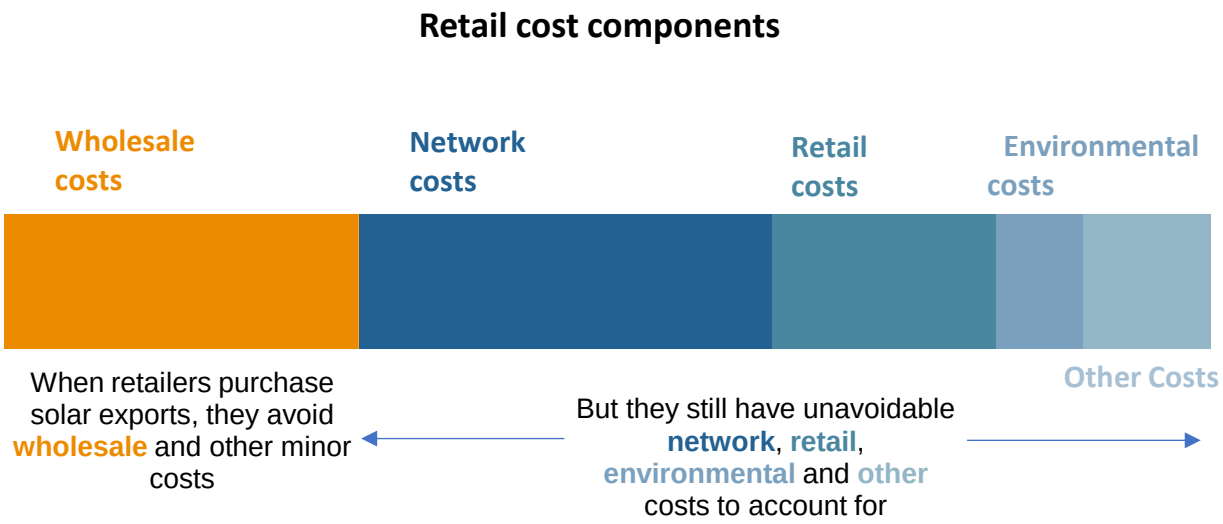
Solar customers are electricity generators. They are not electricity retailers. The minimum feed-in tariff is a payment solar customers receive for generating electricity.

Solar customers do not incur the costs that electricity retailers do. When retailers provide electricity to their customers, they must cover energy purchase costs from the wholesale market, the cost of hedging their energy purchase cost risks, the cost of transporting electricity, environmental compliance costs and overhead costs. These additional costs mean the minimum feed-in tariff will always be lower than the retail electricity tariff. Consequently, solar customers will get the greatest benefit from changing the timing of their use by, for example, running electricity intensive appliances like dishwashers and dryers when they would otherwise be exporting to the grid (typically between 10.30am and 4pm).

Figure S.2 below shows the retail cost of providing electricity and costs avoided with solar exports. It would not be appropriate for us to compensate solar customers for costs they do not incur when exporting electricity to the grid.

[8] Essential Services Commission Act 2001, s. 8.

Figure S.2: Retail cost of providing electricity and costs avoided with solar exports



We invite feedback on our draft decision

We seek stakeholder feedback on this draft decision. To help stakeholders plan how to take part in this review, table S.2 below provides the timeframes for consultation on the minimum feed-in tariff to apply from 1 July 2022.

Table S.2: Timeframes for the minimum feed-in tariff to apply from 1 July 2022

Key milestones	Date
Draft decision	2 December 2021
Submissions on draft decision close	10 January 2022
Final decision and final determination	23 February 2022
Price determination gazettal	24 February 2022
Minimum feed-in tariff 2022–23 takes effect	1 July 2022

Submissions should be made by **5 pm on 10 January 2022**. We may not be able to consider, or may not give the same weight to, submissions received after this date.

To make a submission on this paper please go to Engage Victoria's website: www.engage.vic.gov.au. Otherwise, please email us at fitreview@esc.vic.gov.au to discuss other options for making a submission.

All submissions come under the commission's submissions policy.[9] Submissions will be made available on the commission's website, except for any information that is commercially sensitive or confidential. Submissions should clearly identify which information is sensitive or confidential.

[9] The commission's submission policy can be found at www.esc.vic.gov.au/submissions.

Details of our minimum feed-in tariff draft decision

Our decision is to set two minimum feed-in tariffs to apply from 1 July 2022. These are:

- a minimum flat feed-in tariff
- a minimum time-varying feed-in tariff made up of overnight, day and early evening rates. [10]

Solar customers with a flat feed-in tariff get paid the same amount regardless of the time of day or day of the week. Solar customers with time varying feed-in tariffs get paid different amounts at different times of the day and week.

The proposed minimum flat feed-in tariff is lower

The proposed minimum flat feed-in tariff for 2022–23 is 5.2 cents per kWh, which is 22 per cent lower than the flat tariff that we set for 2021–22.

This is mostly because of lower daytime wholesale electricity prices, driven by increased supply of, and a reduced demand for, electricity. These changes have happened at the times when the supply of solar electricity is greatest, leading to lower solar-weighted forecast prices. See chapter 5 of Frontier Economics' report for further details.[11]

Table 1.1: Minimum flat feed-in tariff – 2022–23 (cents per kilowatt hour, solar weighted)

	Flat rate to apply at all times
Minimum feed-in tariff	5.2

Retailers who choose to offer a flat feed-in tariff must offer customers at least the minimum rate that we set in our final decision. Retailers can offer rates above this.

Currently, there are five Victorian retailers that offer a flat feed-in tariff that exceeds the 2021-22 minimum flat tariff of 6.7 cents per kilowatt hour – these offers range from 7 to 12 cents per kilowatt hour.

[10] We have changed the labels for the feed-in tariff periods to 'overnight', 'day' and 'early evening' due to changing market conditions.

[11] Frontier Economics, Wholesale price forecasts for calculating minimum feed-in tariff: Draft report for the Essential Services Commission, October 2021, chapter 5.

Some retailers have higher feed-in tariffs available under special plans or terms and conditions, for example if you also buy solar panels from that retailer or pay more on your import tariffs (see Appendix A for examples).

The proposed minimum time-varying feed-in tariffs are lower

Table 1.2 sets out the proposed time-varying feed-in tariffs for 2022–23 and the relevant time blocks, in which the time-varying feed-in tariffs apply. Retailers offering the time-varying feed-in tariff option must offer at least the minimum rate that applies in each time block, meaning they are free to offer rates above the minimum we set. So long as retailers meet the minimum rate at each point in time, there is significant flexibility for designing their own time-varying feed-in tariff profiles.

Table 1.2: Minimum time-varying feed-in tariffs – 2022–23 (cents per kWh, solar-weighted)

Time block	Overnight	Day	Early Evening
Minimum feed-in tariff	7.1	5.0	6.9
Time periods Weekdays:	10 pm – 7 am	7 am – 3 pm, 9 pm – 10 pm	3 pm – 9 pm
Time periods Weekend:	10 pm – 7 am	7 am – 10 pm	n/a

The minimum time-varying feed-in tariffs for 2022–23 are lower between 7am and 9pm (previously called shoulder and peak, now called day and early evening) than in 2021–22 for the same reasons that the flat tariff is lower: wholesale electricity prices have fallen most between those times. Feed-in tariffs overnight have risen slightly, although very little electricity is exported by solar customers overnight. This could change as household batteries become more common and consumers export excess electricity during these hours to benefit from the higher tariffs.

For 2022–23, the overnight period feed-in tariff is higher than the daytime tariffs. This result is brought about by the overnight period (10pm to 7am) capturing a small morning peak in electricity prices, and the lowest night-time prices are excluded since solar exports do not occur at night. The daytime periods also include a dip in national electricity market prices during the middle of the day (when electricity supply is plentiful and demand is stable), which also coincides with high quantities of solar exports.

We have renamed the tariff periods 'overnight', 'day' and ‘early evening’. Previously the tariff blocks were ‘off-peak’, ‘shoulder’ and ‘peak' respectively. The new labels are easier to understand. The old labels also no longer reflect market conditions due to changing consumption and export patterns. As solar generation has increased during daylight hours, wholesale prices have

decreased during day and early evening periods. As a result, solar weighted wholesale prices are now highest during the overnight period.

Components of the minimum feed-in tariff

When setting the minimum feed-in tariffs we must have regard to certain costs that retailers avoid when they receive solar exports.[12] These include:

- wholesale electricity prices
- market fees and ancillary service charges for participating in the National Energy Market
- network or line losses
- the avoided social cost of carbon and human health costs.

Annual movements in feed-in tariffs are affected primarily by changes in forecast wholesale electricity prices, which account for 50 to 70 per cent of the feed-in tariff[13]. Table 1.3 sets out how the various cost components contribute to the feed-in tariffs.

Table 1.3: Components of the 2022–23 minimum feed-in tariffs (cents per kWh)

Component	Flat	Overnight	Day	Early Evening
Wholesale electricity prices	2.44	4.27	2.23	4.03
Market fees and ancillary service charges	0.09	0.09	0.09	0.09
Value of avoided transmission and distribution losses	0.16	0.27	0.14	0.26
Value of avoided social cost of carbon	2.49	2.49	2.49	2.49
Value of avoided human health costs[14]	0	0	0	0
Total	**5.2**	**7.1**	**5.0**	**6.9**

Note: Table may not add due to rounding

[12] Electricity Industry Act 2000, s. 40FBB(3)(a),(b) and (c).

[13] Wholesale electricity prices accounted for almost 71 per cent of the 2020–21 feed-in tariffs, 60 per cent of the 2021–22 feed-in tariffs and 47 per cent of the draft feed-in tariffs for 2022–23.

[14] As explained in following sections, to reduce the risk of double counting and in the absence of a definitive and reliable quantification methodology and data source, we have assigned a value of zero.

How we set the minimum feed-in tariffs

Retailers avoid buying energy from large generators in the National Electricity Market when solar customers export electricity. The minimum feed-in tariff is an estimate of the price a retailer would pay if they bought electricity in the National Electricity Market instead of from solar customers. If we set the minimum feed-in tariff above this price, electricity retailers, and their customers, would be better off purchasing electricity from the National Electricity Market.

When solar customers export electricity into the grid they act like generators. When we set the minimum feed-in tariff, we start with the prices that large scale generators receive in the National Electricity Market for the energy they produce.

These prices are determined by the competitive market forces of supply of and demand for electricity. We then add amounts to this price to account for avoided market fees, energy saved by not transporting power long distances and the additional environmental benefits of green energy.

We have used this approach to determine the minimum feed-in tariffs applicable from 1 July 2022. This is largely the same approach we have used in previous feed-in tariff reviews. The main differences are that we have added additional market fees that have come into effect recently and updated our approach to network losses. Both of these changes slightly increase the feed-in tariff. Further details on the calculations can be found in Appendix C – Technical methodology.

The factors we must consider in setting the minimum feed-in tariff

The avoided costs included in the minimum feed-in tariff calculations are outlined in Figure 2.1. Under the Electricity Industry Act 2000, we must have regard to these costs when setting the minimum feed-in tariffs.[15]

In addition to the costs outlined in Figure 2.1, we must also consider the avoided human health costs attributable to a reduction in air pollution (to the extent that renewable energy generation displaces non-renewable energy generation) in calculating the minimum feed-in tariff. Currently we do not separately account for these costs, as discussed later in this chapter.

[15] Electricity Industry Act 2000, s. 40FBB(3).

Figure 2.1 – Costs retailers avoid when buying from solar customers

Wholesale electricity prices	Other fees and charges	Network or line losses	Social cost of carbon
Retailers buy electricity from the National Electricity Market to serve their customers. This cost is avoided when solar customers export to the grid.	When retailers buy energy from the National Energy Market they are charged fees by the Australian Energy Market Operator. Retailers avoid these when buying energy from solar customers.	Line losses occur when electricity is transported long distances through transmission and distribution networks. This is minimised when a small renewable generator exports to the grid.	Carbon emissions are reduced when energy is sourced from solar systems.

The steps for setting the minimum feed-in tariff

In line with previous years, we have used the following process to determine the minimum feed-in tariff and account for the factors outlined in Figure 2.1:

1. Develop a forecast of wholesale electricity prices for 2022-23:
    a. For the minimum flat feed-in tariff – using forecast wholesale prices, calculate the average value of wholesale electricity weighted by the export share during the hours that solar systems typically export to the grid.
    b. For the minimum time-varying feed-in tariffs – using forecast wholesale prices, calculate the average value of wholesale electricity weighted by export share, as above, for each time block under this tariff structure.
    c. Add in the benefit of market fees and ancillary service charges retailers avoid when they get electricity from solar customers instead of from the wholesale market.
2. Increase the resulting values to account for energy saved by not transporting the energy long distances from large scale generators (network losses).

3. Add in the value associated with avoiding carbon emissions and other pollutants when energy is produced by solar customers.[16]

Except for the different time periods used to calculate the wholesale component of the feed-in tariff, all other elements of the above methodology apply to both the flat and time-varying tariffs.

We used the futures market to forecast wholesale electricity prices

When retailers get energy from solar customers, they avoid paying the wholesale price for that energy. So, calculating the minimum feed-in tariff requires that we estimate the wholesale price of energy in the National Electricity Market.

We have used a futures market approach to forecast wholesale prices. This is the same approach we used in our 2019-20, 2020–21, and 2021–22 minimum feed-in tariff decisions (see Appendix C – Technical methodology for more information) and our Victorian Default Offer decisions.[17]

The market's expectation of what wholesale prices will be in 2022–23 is best represented by Victorian baseload swap futures contracts that are traded on the Australian Securities Exchange.

Many stakeholders support our approach of using the futures market method. We acknowledge that some stakeholders did not support our approach, although they sometimes failed to give reasons for doing so, while others suggested linking the feed-in tariff to the retail electricity tariff was a more appropriate methodology. We have addressed stakeholders' feedback on this in previous decisions.[18]

We will update our wholesale price forecasts for our February 2022 final decision, to reflect market expectations at that point in time. This may result in a difference between the estimates contained in this draft decision, and the final decision in February 2022.

Calculating wholesale costs for the minimum flat feed-in tariff

Unmodified futures prices are not appropriate for setting the feed-in tariffs because feed-in tariff exports from solar panels happen during the day.

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[16] The Victorian Government provides these values in an Order in Council, which are then included in our modelling.

[17] Essential Services Commission, Victorian Default Offer to apply from 1 July 2019: Advice to the Victorian Government. May 2019; Essential Services Commission, Victorian Default Offer to apply from 1 January 2020: Final report, November 2019; Essential Services Commission, Victorian Default Offer 2021: Draft Decision, September 2020.

[18] Essential Services Commission 2020, Minimum electricity feed-in tariffs to apply from 1 July 2020: Final Decision, 25 February; Essential Services Commission 2019, Minimum electricity feed-in tariffs to apply from 1 July 2019: Final Decision, 28 February; Frontier Economics 2020, Wholesale Price Forecasts for Calculating Minimum Feed-in Tariff: Final Report for the Essential Services Commission, 24 February.

To estimate the average wholesale price when solar energy is being exported to the grid, we use prices from times when exports occur. Because of this, our estimates of wholesale costs reflect the average value of electricity produced by solar systems.

Calculating wholesale costs for the minimum time-varying feed-in tariffs

We determine both a minimum flat feed-in tariff and minimum time-varying tariffs. We allow retailers to choose whether to offer customers time-varying feed-in tariffs, a flat tariff or both.

Although they have been relabelled the time blocks for 2022–23 remain the same as past years. These are set out in table 2.1.

Table 2.1 – Time block structure for the time-varying feed-in tariff

Period	Weekday	Weekend
Overnight	10pm-7am	10pm-7am
Day	7am-3pm, 9pm-10pm	7am-10pm
Early Evening	3pm-9pm	n/a

The same forecast wholesale prices for 2022–23 are used for calculating the flat feed-in tariff and time varying feed-in tariffs. But for the time varying feed-in tariff, we calculated the weighted average value of wholesale electricity for each time block.

Market fees and ancillary service charges

When retailers buy energy from the wholesale spot market, they must pay market fees and ancillary service charges to the Australian Energy Market Operator (market operator).[19]

Retailers avoid these fees when they buy electricity from solar customers. These cost savings increase the value of energy produced by solar customers. Including these savings in the value of the feed-in tariff is consistent with the approach we have used in past reviews.

The fees levied by the market operator are set for each year through its annual budgeting process. However, the market operator has not provided an estimate of the fees for 2022–23. We have used the market operator's budget 2021–22 fees for retailers as a proxy for 2022-23 in this review. If a new estimate of the fees for 2022–23 becomes available before the release of our final decision in February 2022, we will use it in our feed-in tariff calculation.

[19] The Australian Energy Market Operator manages electricity and gas systems and markets across Australia. This includes the National Energy Market (NEM), which connects the power systems of Queensland, New South Wales, the Australian Capital Territory, Victoria, South Australia and Tasmania.

In the 2021-22 financial year, the market operator started to levy new fees to recover the costs of the Five-Minute and Global Settlement upgrades.[20] We have included an upward adjustment to the feed-in tariff for these new fees in our draft decision.

The amount of market fees and ancillary service charges will be updated if newer data is available when we make our final decision in February 2022.

Network or line losses

Most of the generators in the National Electricity Market are far away from the points where energy is consumed (households and businesses) so the energy produced by these generators must travel a long distance through the grid (transmission and distribution network).

When energy moves through the grid, some of it is lost as heat. We refer to this as 'network losses' or 'line losses'. The magnitude of network losses depends on the location of the generation facility and factors like the quality of the line.

Energy produced by solar systems is typically generated close to the point of consumption, so less energy is lost because it travels a shorter distance along the grid. We incorporate the smaller magnitude of network losses when energy is bought from solar customers by using a loss factor which we apply to the (avoided) cost of wholesale energy.

We have used the market operator's estimates of distribution loss factors and marginal loss factors for 2021–22 to develop a loss factor for Victoria. Further details on the calculation of network losses and market fees can be found in Appendix C – Technical methodology.

If more up to date data is available when our final decision is released in February 2022, we will update the value of network losses.

Our assumptions for social cost of carbon and human health costs remain

Social cost of carbon

Energy sold in the National Electricity Market is generated using a variety of fuel sources and technologies. These include coal, natural gas, biomass, wind, solar and hydro-electric power.

The damage caused by emissions released using fossil fuel fired generation (such as gas or coal) imposes a cost on society (known as the social cost of carbon). Carbon emissions are reduced

[20] Australian Energy Market Operator 2021, 2021-22 AEMO Budget and Fees, accessed 18 October 2021, https://aemo.com.au/-/media/files/about_aemo/energy_market_budget_and_fees/2021/aemo-2021-22-budget-and-fees.pdf?la=en.

when energy is sourced from solar customers in place of fossil fuel generators. The avoided social cost of carbon reflects the value of these emissions reductions.

The Victorian Government's Order in Council published in February 2017 specifies a methodology and factors for determining the avoided social cost of carbon which we must have regard to when setting the feed-in tariff.[21]

The Order in Council methodology results in an avoided social cost of carbon of 2.5 cents per kWh of electricity exported to the grid by solar systems. This is the same value as for previous years.

This value is incorporated into the calculation of both the flat feed-in tariff and time-varying feed-in tariffs for 2022–23 (more details can be found in Appendix C – Technical methodology).

Human health costs

The human health costs are the estimated costs of air pollution associated with electricity generation that is in addition to carbon emissions.[22] There is no Order in Council that specifies a factor or method for determining the avoided human health costs attributable to a reduction in air pollution. They are also not priced in the National Electricity Market. Currently we do not separately account for these costs.

We have been monitoring information on the associated health benefits since our inquiry into the energy value of distributed generation in 2016.[23] At that time we acknowledged there are human health costs, but due to a lack of sufficient evidence and data we could not reliably place a monetary value on them. We are still of the same view now.

So, our draft decision is to set the avoided human health costs at 0 cents per kWh, but we will continue to review the available information on these costs.

Methods for assessing human health costs

There are a variety of different methodologies to price the avoided human health costs attributable to the reduction in air pollution, with no one widely accepted or definitive. These methodologies fall into two broad categories measuring:

1. the costs of avoiding the pollution (abatement costs)

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[21] Victorian Government 2017, Victoria Government Gazette No. S 36, Tuesday 21 February 2017, Order specifying a methodology and factors for the determination of the avoided social cost of carbon (Order in Council).

[22] Victorian Government 2016, Energy Legislation Amendment (Feed-in Tariffs and Improving Safety and Markets) Bill 2016, Explanatory Memorandum, p. 4.

[23] Essential Services Commission 2016, The energy value of distributed generation, August 2016, pp. 62-63, https://www.esc.vic.gov.au/sites/default/files/documents/Distributed-Generation-Inquiry-Stage-1-Final-Report-Energy-Value-FINAL-20160916.pdf.

2. the damages caused by the pollution (damages costs).

Both approaches return a range of estimates. From available estimates, using these approaches the health costs could range from 0.0 to 5.0 cents per kWh (noting most results are clustered at the lower end of this range between 0 and 1.3 cents).[24]

The higher estimates are based on international damages costs studies adapted for Victoria.[25] For damages costs estimates location is very important. The dispersion of pollutants depends heavily on local conditions. No research at the necessary level of detail has been published on the dispersion of pollutants from fossil fuel generation in Victoria. Coal generation in Victoria is located in the Latrobe Valley. This is a relatively long distance from Victoria's largest population centres. In many other parts of the world the distance between generation and its main consumption point is not as large.

If an abatement costs approach is used there can be an overlap between the avoided health costs and the social cost of carbon. Abatement of fossil fuel generation is paid for through the social cost of carbon. Both carbon emissions and other harmful pollutants are avoided when this abatement takes place. If we pay to avoid carbon pollution we can also be covering the cost of avoiding other pollutants that would have been generated along with that carbon. So, depending on how the social cost of carbon is calculated, paying for the avoided human health costs could lead to paying for a reduction in pollution twice.

Once the health costs of fossil fuel generation are established, it is then necessary to assess how much fossil fuel generation is displaced by solar exports to find the **avoided** human health costs. Over time, as renewables account for a larger proportion of total generation capacity, we would expect the amount of fossil fuel generation displaced by roof-top solar to decrease. We have already started to see rooftop solar begin to displace grid-scale renewables at some times. For example, the Australian Energy Market Operator has noted that during daytime hours, grid scale solar and wind farms are increasingly not dispatching their power to avoid negative prices.[26]

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[24] ATSE, The hidden costs of electricity: Externalities of power generation in Australia, p. 46 (https://www.atse.org.au/wp-content/uploads/2019/01/the-hidden-costs-of-electricity.pdf); Department of Environment, Land, Water and Planning 2019, Estimating the health costs of air pollution in Victoria, pp. 3-5, https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0022/421717/Final_Health-costs-of-air-pollution-in-Victoria.pdf.

[25] PAE Holmes with NSW EPA, 2013, Methodology for valuing the health impacts of changes in particle emissions – final report, p.10, www.epa.nsw.gov.au/~/media/EPA/Corporate%20Site/resources/air/HealthPartEmiss.ashx .

[26] Australian Energy Market Operator, Quarterly Energy Dynamics Report: Q3 2021, p. 15.

Damages costs

Under a damages costs approach the avoided human health costs are calculated as the estimated health costs of pollution from electricity generation. The costs of the damages vary significantly according to where the generation, and therefore pollution, occurs.[27]

For instance, if generators are in a densely populated area, there will be higher health costs associated with the generation. More people will be adversely affected by the pollution created by the generation. In contrast, if the generation occurs in a low population area, there will be lower overall health costs.

Abatement costs

An alternative is to use the cost of avoiding pollution. Under this method, the value of avoided human health costs is measured by the cost of avoiding pollution. This approach can be especially helpful when abatement costs are known but damages costs are not.

Abatement costs have been adopted by some other jurisdictions as a possible way of measuring the social cost of carbon or human health costs when damages costs are unknown or uncertain.[28]

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[27] Department of Environment, Land, Water and Planning 2019, Estimating the health costs of air pollution in Victoria, pp. 3-5, https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0022/421717/Final_Health-costs-of-air-pollution-in-Victoria.pdf.

[28] Department of Energy and Climate Change 2009, Carbon Valuation in UK Policy Appraisal: A Revised Approach, July 2009, pp. 10-11, DECC report (publishing.service.gov.uk).

Appendix A – What is a feed-in tariff?

What is a feed-in tariff?

The feed-in tariff is the credit paid by a relevant retailer to each customer per kilowatt hour (kWh) of electricity exported to the grid.[29] We set the minimum feed-in tariffs that energy retailers must pay customers for feeding their energy back into the grid.[30]

The minimum feed-in tariff applies to small renewable energy generation facilities with capacities of less than 100 kilowatts (kW), producing electricity using renewable energy sources such as wind, solar, hydro or biomass.[31] An important exception is that a 'small renewable energy generation facility' does not include a generating facility that is under the premium or transitional solar feed-in tariff scheme.[32]

Further, the Governor in Council, by order published in the Government Gazette, can specify a facility or class of facility that generates electricity in any way as a small renewable energy generation facility.[33] No order has been issued about this matter to date.

Retailers may offer rates above the minimum feed-in tariffs and can offer either a flat tariff and/or a time-varying tariff. Since 2018–19, the commission has set the minimum tariffs for both the flat and time-varying feed-in tariffs that a retailer can offer.

Customers on the flat feed-in tariff are paid the same amount for their exports regardless of the time of day the energy exported back to the grid.

The time-varying feed-in tariff is a day, early evening and overnight structure of rates and is intended to reflect more precisely the underlying value of electricity, which is based on wholesale electricity market prices.

The wholesale spot price of electricity is determined through an auction, which is conducted every five minutes by the Australian Energy Market Operator. However, due to a lack of historical data on five-minute settlements, we are continuing with the average price generators are paid every half

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[29] A relevant retailer is a person that holds a licence to sell electricity and sells to more than 5,000 customers. See section 40F Definitions of the Electricity Industry Act 2000.

[30] Electricity Industry Act 2000, s.40F(1). The relevant electricity retailer is a person that holds a licence to sell electricity and sells to more than 5,000 customers.

[31] Electricity Industry Act 2000, s. 40F(1).

[32] Electricity Industry Act 2000, s. 40F(1).

[33] Electricity Industry Act 2000, s. 40F(2).

hour in our future's market approach to forecasting wholesale energy prices for 2022–23. Currently, the process is repeated six times each half hour and we use the average of the six prices for the electricity they generate during that half hour.

Figure A.1 and A.2 show the minimum flat and time-varying feed-in tariffs proposed for 2022–23, on both weekdays and weekends.

Figure A.1 – Minimum time-varying and flat feed-in tariffs, 2022–23 (weekday)

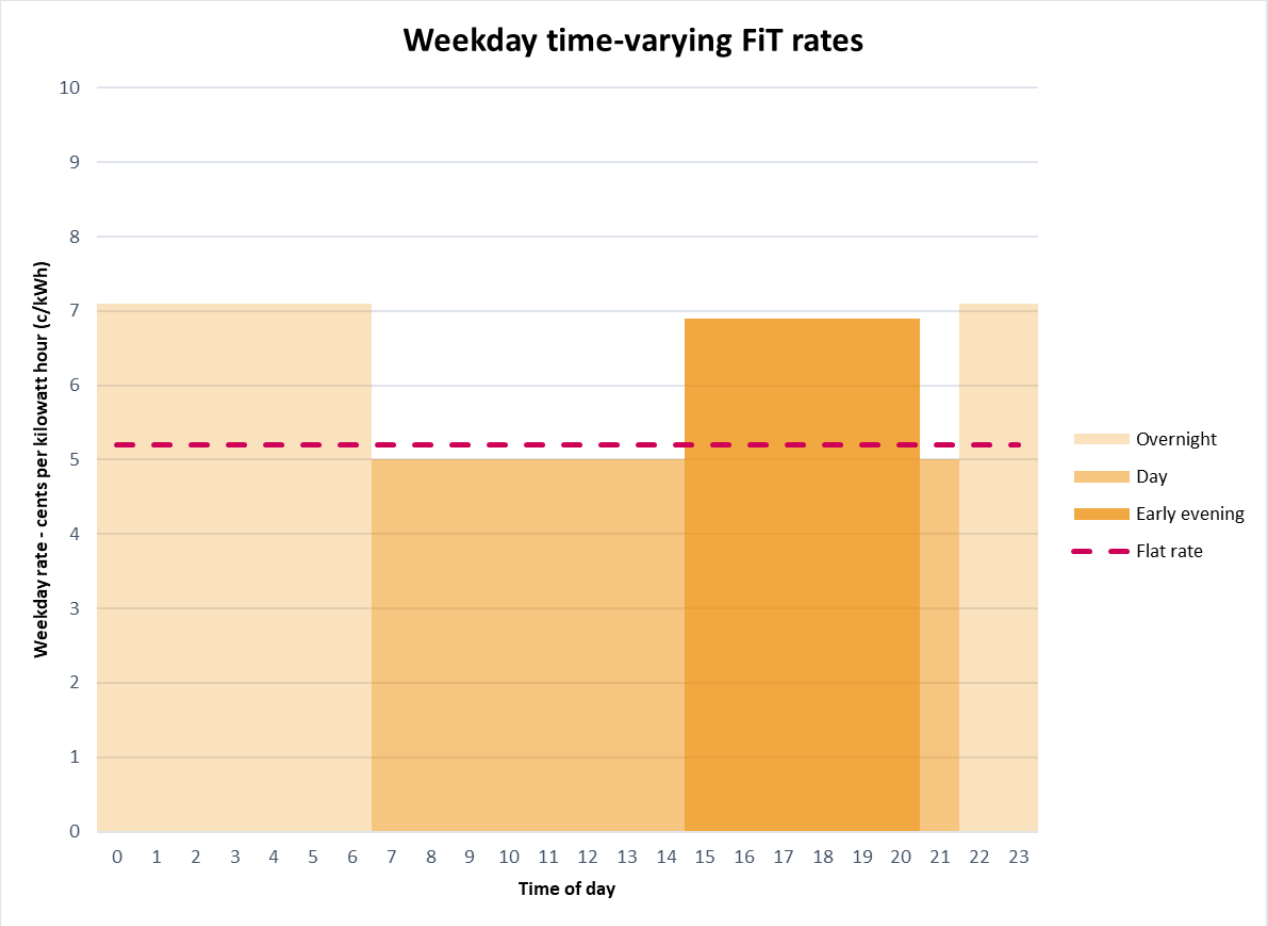
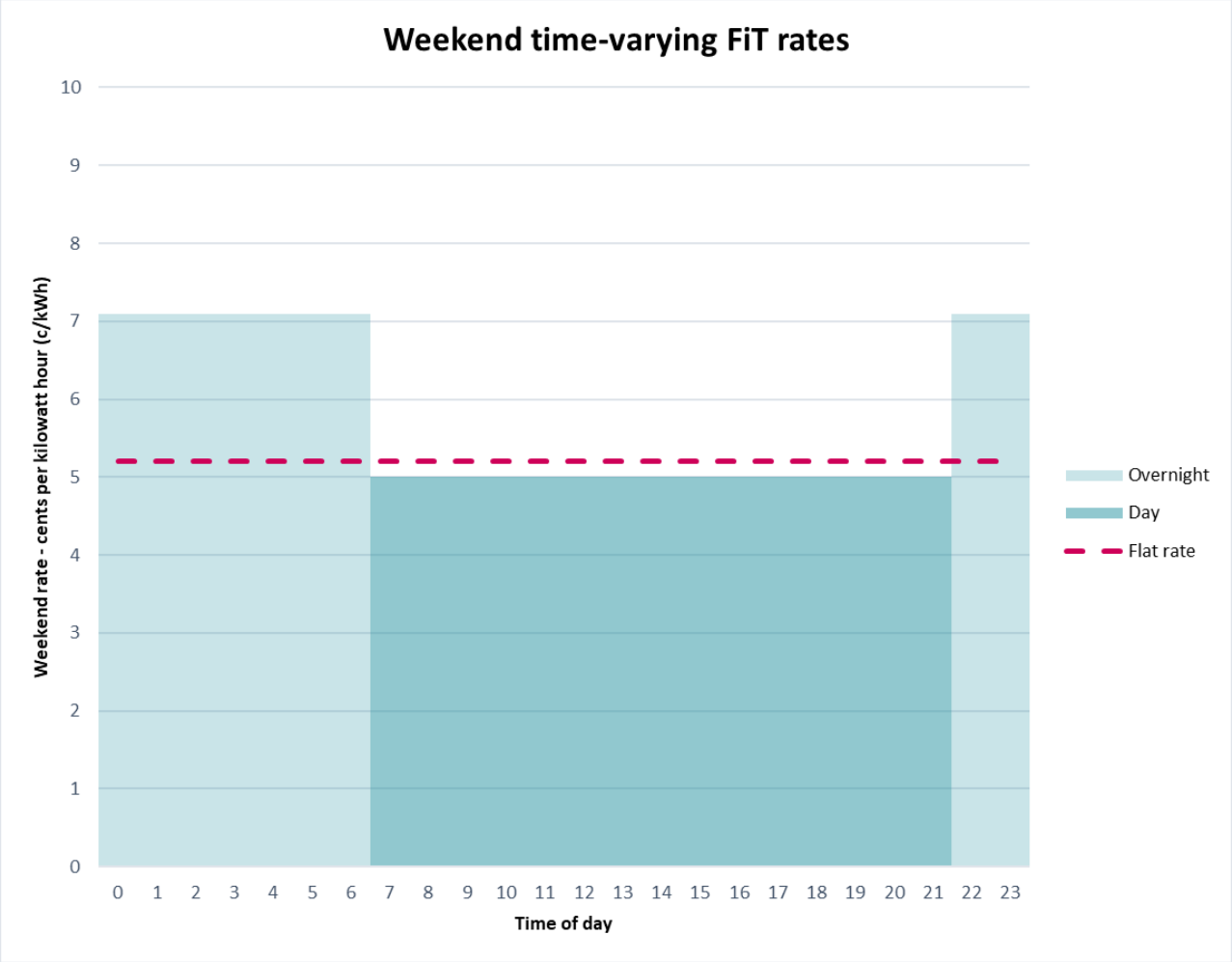


Figure A.1 – Minimum time-varying and flat feed-in tariffs, 2022–23 (weekend)



What is our role?

The Essential Services Commission is required under the Electricity Industry Act 2000 to determine the minimum rate or rates an electricity retailer must pay its customers, who are small renewable energy generators, for electricity they produce and export to the grid.[34]

When making the determination for the minimum feed-in tariff the commission must consider its objectives under the Essential Services Commission Act 2001, which are:

to promote the long-term interests of Victorian consumers

to have regard to the price, quality, and reliability of electricity.[35]

[34] Electricity Industry Act 2000, s. 40FBB.

[35] Essential Services Commission Act 2001, s. 8.

We must also pursue our objectives under the Electricity Industry Act 2000. Those most relevant to our role in setting the minimum feed-in tariff are:

- to promote the development of full retail competition
- to promote protections for customers, including in relation to assisting customers who are facing payment difficulties.[36]

In addition to matters we must consider in seeking to achieve our objectives under the Essential Services Commission Act 2001[37], the commission must also consider specific factors in determining the minimum feed-in tariff under the Electricity Industry Act 2000.[38] These factors are:

- the prices of electricity in the wholesale electricity market
- any distribution and transmission losses that are avoided in Victoria, because of small renewable energy generation
- the avoided social cost of carbon and avoided human health costs which can be attributed to reduced air pollution caused by small renewable energy generators.

The Electricity Industry Act 2000 allows the Governor in Council to issue an order specifying a methodology or factors for determining the avoided social cost of carbon and avoided human health costs.[39] An order made in 2017[40] sets out factors and methodologies for determining avoided social cost of carbon including:

- methodologies for determining the number of units of carbon dioxide equivalent (CO_2e) reduced per unit of electricity exported from a small renewable energy generator
- the monetary value for each unit of CO_2e that is reduced because of the exports of a small renewable energy generator.

The order did not specify factors or methodologies for determining the avoided human health costs caused by a reduction in air pollution.

Each year, the commission determines the minimum feed-in tariffs for the forthcoming financial year. The feed-in tariffs described in this document will apply from 1 July 2022 to 30 June 2023.[41]

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[36] Electricity Industry Act 2000, s. 10.

[37] Essential Services Commission Act 2001, s. 8A.

[38] Electricity Industry Act 2000, s. 40FBB(3).

[39] Electricity Industry Act 2000, s. 40FBB(3B).

[40] Victorian Government 2017, Victoria Government Gazette No. Section 36, Tuesday 21 February 2017.

[41] Amendments to Energy Legislation Amendment (Feed-in Tariffs and Improving Safety and Markets) Act 2017, assent date 14 February 2017, requires the commission to set one or more rates (Section 40FBB(2) of the Electricity Industry

Why is the retail rate higher than the feed-in tariff?

We set the minimum feed-in tariff based on the value of solar exports. Under the Electricity Industry Act 2000, this means considering the costs retailers avoid when they purchase electricity from solar customers rather than from the National Electricity Market, plus the avoided social cost of carbon.[42]

Retail rates are made up of the energy purchase cost, the cost of transporting electricity, environmental compliance costs and retailers' overhead costs.

If retailers paid solar customers more than the efficient costs they avoid when they buy solar exports, retail tariffs would be higher than the efficient level.[43] If retail tariffs were higher than the efficient level, because the feed in tariff was also above the efficient level, non-solar customers would effectively be subsidising solar customers.

Our draft decision is in the long term interest of all Victorians. Solar customers benefit from self-consuming the electricity they produce and will get the value of their solar exports without non-solar customers subsidising them through inefficiently high retail rates. Cross-subsidies to solar customers may also cause unnecessary hardship or costs for customers that cannot invest in solar systems.

What offers are currently in the market?

All relevant Victorian energy retailers are required to provide at least the minimum feed-in tariffs on all offers.[44] Retailers are free to offer a feed-in tariff above the minimum tariffs we set. We surveyed the flat feed-in tariffs available in the market in October 2021, see Figure A.3.[45]

Act 2000) by 28 February in the financial year preceding the financial year in which it is to apply; previously determinations applied to the following calendar year.

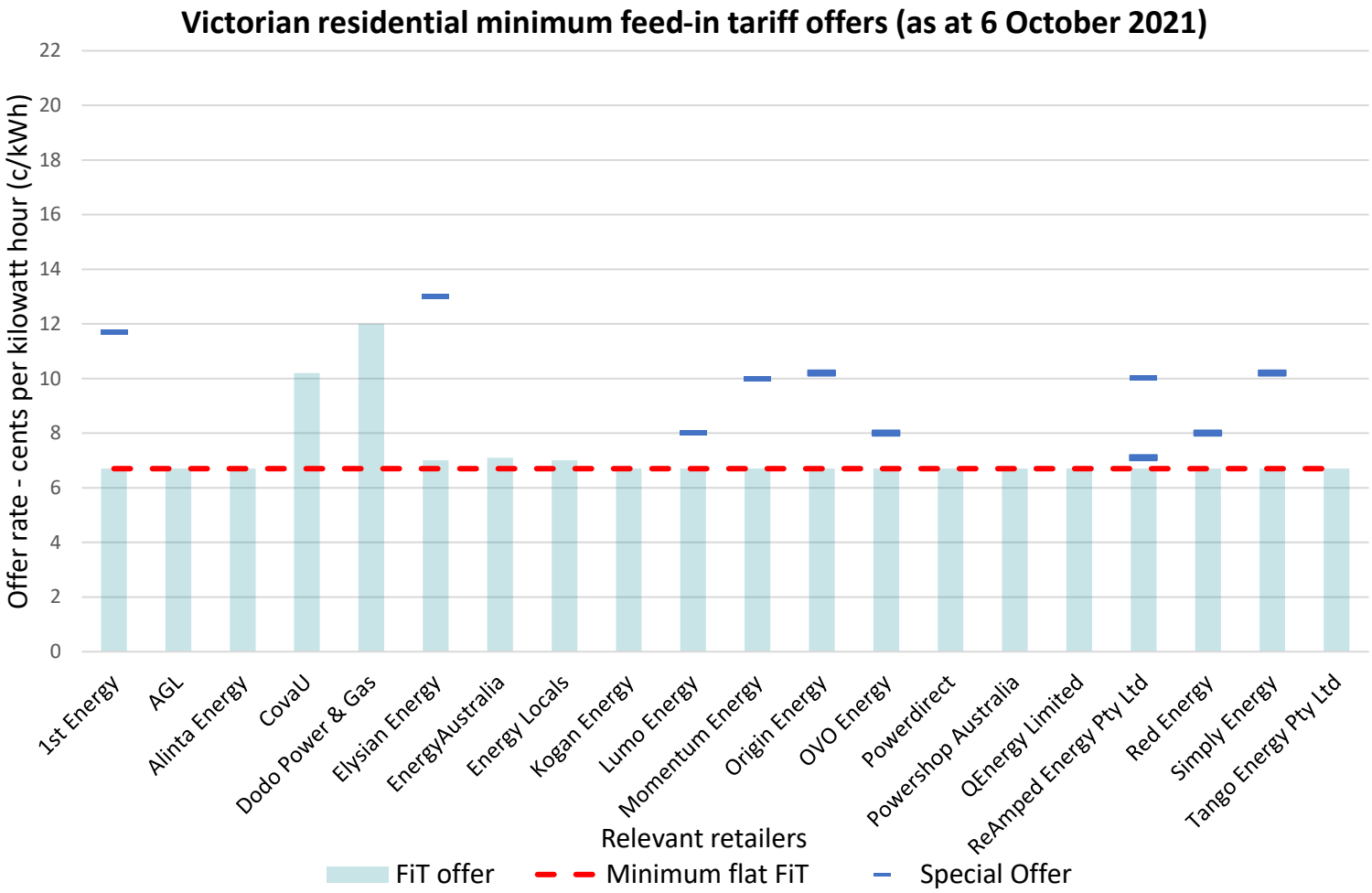
[42] Electricity Industry Act 2000, s. 40FBB(3)(a),(b) and (c).

[43] Australian Competition and Consumer Commission, Restoring electricity affordability and Australia's competitive advantage: Retail Electricity Pricing Inquiry—Final Report, June 2018, p. v.

[44] The relevant electricity retailer is a person that holds a licence to sell electricity and sells to more than 5000 customers in Victoria. See section 40F Definitions of the Electricity Industry Act 2000. Not all Australian states mandate a feed-in tariff.

[45] Publicly available information submitted to the government energy price comparator website Victorian Energy Compare as of 6 October 2021, https://compare.energy.vic.gov.au/.

Figure A.3 – Residential feed-in tariff offers available in October 2021



Source: Victorian Energy Compare, accessed 6 October 2021, https://compare.energy.vic.gov.au/.

Our research found five retailers offering flat feed-in tariffs higher than the current minimum 6.7 cents per kWh offering approximately 7.1 cents per kWh. Three of these retailers offered a feed-in tariff that was only slightly higher than the minimum, while CovaU offered a feed-in tariff of 10.2 cents per kWh (the minimum flat feed-in tariff for 2020-21) and Dodo Power & Gas offered a feed-in tariff of 12 cents per kWh (the minimum flat feed-in tariff for 2019-20). Retailers could also offer higher feed-in tariffs throughout the year.

We found some retailers offer higher feed-in tariffs on certain plans or under special terms and conditions. For example, some retailers will offer customers higher feed-in tariffs if they export lower amounts of electricity, or if they purchase solar panels from the retailer.

EnergyAustralia is the only retailer to offer a time-varying feed-in tariff and a flat feed-in tariff as part of their electricity plans for Victorian customers. We will continue to monitor whether more retailers offer a time-varying feed-in tariff in the future.

Changing the premium feed-in tariff (60 cents per kWh, now closed to new customers), or any bonus that retailers may offer above the minimum feed-in tariff, is outside the scope of our role to set minimum feed-in tariffs.

How has the feed-in tariff changed over time?

The feed-in tariff has developed significantly since it started in 2008. Table A.1 below sets out the schemes that pre-date the minimum feed-in tariff.

Table A.1 – Current and closed feed in tariff schemes[46]

Tariff	Minimum Rate	Closed to New Applicants	Scheme End Date
Premium Feed-in Tariff for solar (PFiT)	60 cents per kWh	29 December 2011	2024
Standard Feed-in Tariff (SFiT)	"One for one", based on the customer's retail electricity rate	31 December 2012	31 December 2016
Transitional Feed-in Tariff for solar (TFiT)	25 cents per kWh	31 December 2012	31 December 2016
Minimum Feed-in Tariff	Updated annually (6.7 cents per kWh for 2021-22)	Ongoing	Ongoing

Premium feed-in tariff

In order to provide an incentive for households, small businesses and community groups to invest in small-scale solar systems, a premium feed-in tariff of at least 60 cents per kilowatt hour was also provided to customers from late 2009. This scheme closed to new applicants at the end of 2011, although customers signed up to premium scheme will remain eligible to receive the premium rate until 2024.[47]

[46] Department of Environment, Land, Water and Planning, Closed feed-in tariff schemes, accessed 4 October 2021, https://www.energy.vic.gov.au/renewable-energy/victorian-feed-in-tariff/closed-feed-in-tariff-schemes.

[47] Department of Environment, Land, Water and Planning, Standard feed-in tariff and transitional feed-in tariff, accessed 28 September 2021, https://www.energy.vic.gov.au/renewable-energy/victorian-feed-in-tariff/standard-feed-in-tariff-and-transitional-feed-in-tariff.

Standard feed-in tariff

Initially, the standard feed-in tariff was offered to customers from January 2008 until it was closed to new applicants at the end of 2012 and ended in 2016. The standard feed-in tariff provided a 'one-for-one' rate for excess renewable electricity generated by eligible properties across Victoria, based on the retail electricity rate paid by the customer.

Transitional feed-in tariff

The transitional feed-in tariff replaced the premium feed-in tariff in 2011 and closed to new customers at the end of 2012. This scheme provided customers with a minimum credit of 25 cents per kilowatt hour until the scheme ended on 31 December 2016.[48]

Minimum feed-in tariff

From 2014, the Essential Services Commission has determined the minimum feed-in tariffs that can be offered to customers by electricity retailers.

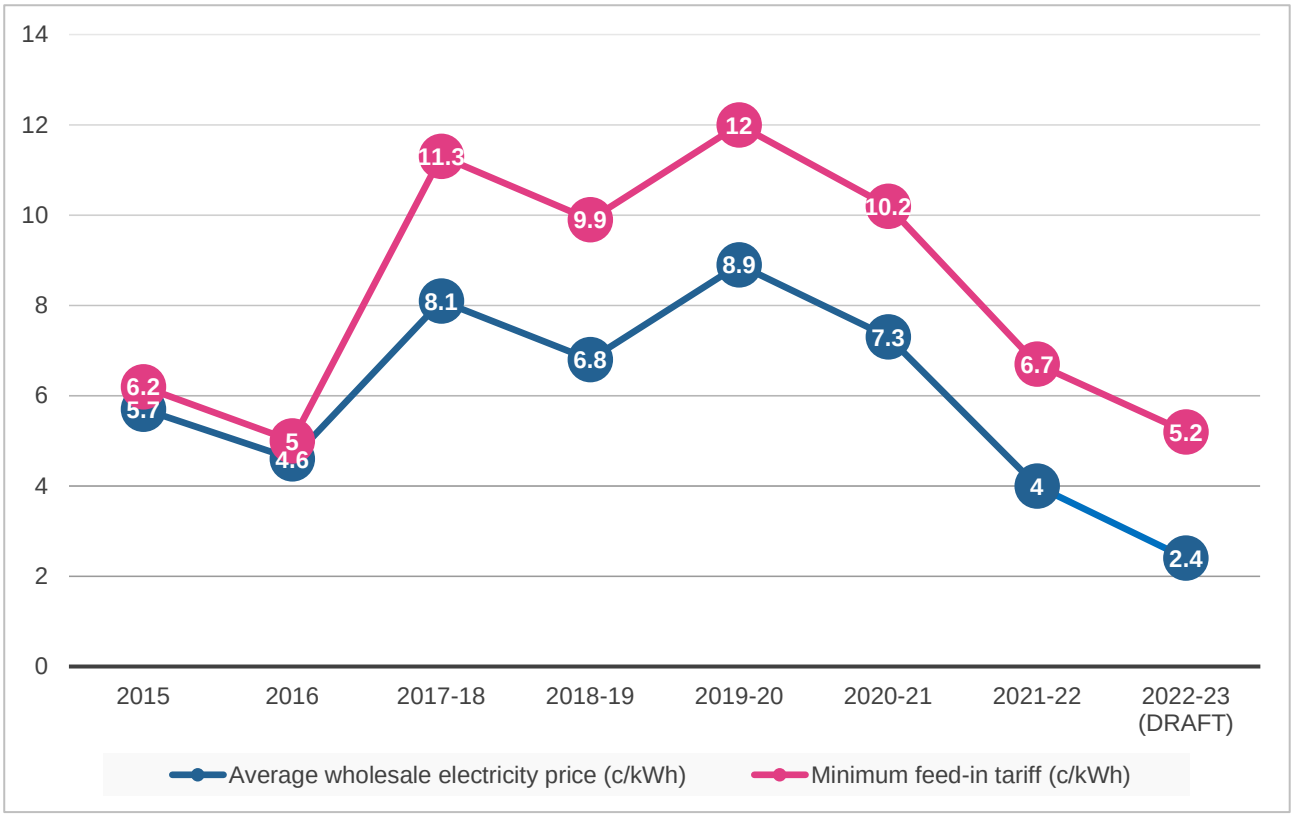
The Essential Services Commission must set the minimum feed-in tariffs based on costs set out in legislation. These costs represent the value of exports to society including wholesale prices and avoided distribution and transmission losses.

These minimum feed-in tariffs are updated on an annual basis to account for changes in costs over time. From 2017-18, legislation required that we take the avoided social cost of carbon (set at a rate of 2.5 cents per kWh) into account when determining the minimum feed-in tariff.

Figure A.4 below shows the introduction of the 2.5 cents per kWh for the social cost of carbon in 2017.

[48] Department of Environment, Land, Water and Planning, Premium feed-in tariff, accessed 28 September 2021, https://www.energy.vic.gov.au/renewable-energy/victorian-feed-in-tariff/premium-feed-in-tariff

Figure A.4: Minimum feed-in tariff and wholesale electricity prices (cents per kWh)



In 2018-19, the Essential Services Commission introduced a minimum time-varying feed-in tariff, intended to reflect the underlying value of electricity more precisely as demand changes over the course of the day, as an alternative to the minimum flat feed-in tariff that was already in place. Retailers can choose to offer either flat, time-varying, or both feed-in tariffs to customers.

Appendix B – Feed-in tariffs across time and place

Comparison of 2022-23 minimum feed-in tariff with historical rates

Table B.1: Minimum flat feed-in tariff: 2015 – 2022 (cents per kWh)

Tariff component	2015[49]	2016[50]	2017–18[51]	2018–19[52]	2019–20[53]	2020–21[54]	2021-22[55]	2022-23 (proposed)
Forecast solar-weighted average wholesale electricity price	5.7	4.6	8.1	6.8	8.9	7.3	3.9	2.44
Market fees and ancillary service charges	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.09
Value of avoided transmission and distribution losses	0.4	0.3	0.6	0.5	0.5	0.3	0.2	0.16
Value of the avoided social cost of carbon	n/a	n/a	2.5	2.5	2.5	2.5	2.5	2.5
Minimum feed-in tariff	**6.2**	**5.0**	**11.3**	**9.9**	**12.0**	**10.2**	**6.7**	**5.2**

[49] Essential Services Commission 2014, Minimum feed-in tariff 2015: final decision, August 2014, p. 24.

[50] Essential Services Commission 2015, Minimum electricity feed-in tariff to apply from 1 January 2016 to 31 December 2016: final decision, August 2015, p.17.

[51] Essential Services Commission 2017, Minimum electricity feed-in tariff to apply from 1 July 2017: final decision, February 2017, p. 9.

[52] Essential Services Commission 2018, Minimum electricity feed-in tariffs to apply from 1 July 2018: final decision, 27 February 2018, p. 20.

[53] Essential Services Commission 2019, Minimum electricity feed-in tariffs to apply from 1 July 2019: final decision, 28 February 2019, p. 28.

[54] Essential Services Commission 2020, Minimum electricity feed-in tariff to apply from 1 July 2020: final decision, 25 February 2020, p. 31.

[55] Essential Services Commission 2021, Minimum electricity feed-in tariff to apply from 1 July 2021: final decision, 25 February 2021, p. 14.

Table B.2: Minimum time-varying feed-in tariffs: 2018 – 2022 (cents per kWh)[56]

Period	2018–19[57]	2019–20[58]	2020–21[59]	2021-22[60]	2022-23 (proposed)
Early evening	29.0	14.6	12.5	10.9	6.8
Day	10.3	11.6	9.8	6.1	5.0
Overnight	7.1	9.9	9.1	6.7	7.1

Comparison of feed-in tariffs with other jurisdictions

Feed-in tariffs are regulated in all other Australian jurisdictions except for South Australia, the Australian Capital Territory and South East Queensland.

In Victoria and Tasmania retailers can offer higher than the regulated rate.[61] In Western Australia, the Northern Territory and Regional Queensland, a set rate is mandated.[62] [63] [64] New South Wales does not regulate feed-in tariffs but the Independent Pricing and Regulatory Tribunal (IPART), on request by the NSW government, sets a benchmark range annually as a guide.

[56] Optional time-varying feed-in tariffs were introduced in 2018–19. The time-varying feed-in tariff for 2018–19 and 2019–20 was time-weighted while the 2020–21 and 2021–22 rates are solar-weighted.

[57] Essential Services Commission 2018, Minimum electricity feed-in tariffs to apply from 1 July 2018: final decision, 27 February 2018, p. 20.

[58] Essential Services Commission 2019, Minimum electricity feed-in tariffs to apply from 1 July 2019: final decision, 28 February 2019, p. 28.

[59] Essential Services Commission 2020, Minimum electricity feed-in tariff to apply from 1 July 2020: final decision, 25 February 2020, p. 31.

[60] Essential Services Commission 2021, Minimum electricity feed-in tariff to apply from 1 July 2021: final decision, 25 February 2021, p. 15.

[61] Office of the Tasmania Regulator, Feed-in Tariffs, accessed 13 October 2021, https://www.economicregulator.tas.gov.au/electricity/pricing/feed-in-tariffs#:~:text=Feed%2Din%20tariff%20rate%20from,than%20the%202019%2D20%20rate.

[62] Western Australia Government, Energy Buyback Schemes, accessed 13 October 2021, https://www.wa.gov.au/organisation/energy-policy-wa/energy-buyback-schemes.

[63] Northern Territory Government, Changes to Feed in Tariffs, accessed 13 October 2021, https://industry.nt.gov.au/__data/assets/pdf_file/0008/811628/changes-to-feed-in-tariffs-fact-sheet.pdf.

[64] Queensland Competition Authority, Regional Queensland solar feed-in tariff 2020-21, accessed 13 October 2021, https://www.qca.org.au/project/customers/solar-feed-in-tariffs/regional-queensland-feed-in-tariff-2020-21/.

Other states regulate their feed-in tariffs based on wholesale electricity prices

Different states have slightly different methodologies for calculating their regulated feed-in tariffs, but all set their rates primarily on forecast wholesale electricity prices (see Table B.3).

Wholesale electricity price component

New South Wales

New South Wales' methodology is very similar to Victoria's when forecasting future wholesale electricity prices. IPART sources price data from NSW baseload electricity futures contracts from the ASX for the previous 12 months. These values are averaged over 40 trading days to establish the top end of the benchmark range and are then reduced by 5 per cent for a contract premium. A volume weighted average of all historical trades available is used to establish the lower end of the range. These two approaches to setting each end of the benchmark range are used to represent the variation in price setting methodologies used by retailers, which can be based on either the market price of electricity or the actual cost avoided by purchasing solar exported electricity. A solar multiplier is then applied to adjust the forecast price to account for variation in the wholesale electricity price when solar exports occur.[65]

Queensland

In Regional Queensland, the Queensland Competition Authority approximates the half-hourly usage of customers by considering the distribution network system load profile. They use this data and the trade-weighted average of the ASX Energy daily settlement prices of base, peak and cap contracts to estimate wholesale electricity costs. The wholesale electricity price for the upcoming period is then forecast by a third-party consultant through multiple simulations to cover a wide range of demand outcomes and potential risks.[66] Feed-in tariffs in the southeast Queensland electricity market are deregulated.

Tasmania

To set the feed-in tariff at the appropriate rate, Tasmania uses the wholesale electricity price determined by the Tasmanian Economic Regulator for standing offer prices. However, if there is a

[65] IPART, Solar feed-in tariff benchmarks Final Report June 2021, accessed 13 October 2021, https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Final-Report-Solar-feed-in-tariffs-benchmarks-2021-22-June-2021.PDF.

[66] Queensland Competition Authority, Regional Queensland 2021-22 Solar feed-in tariff Determination, accessed 13 October 2021, https://www.qca.org.au/wp-content/uploads/2021/06/solar-feed-in-tariff-2021-22-report-1.pdf.

Wholesale Electricity Price Order issued by the Treasurer, that wholesale electricity price is used to set the feed-in tariff.[67]

Other jurisdictions

From our research, there is less publicly available data on the methodology adopted by Western Australia and the Northern Territory. Western Australia has introduced a time of export payment system to reflect the variation in the wholesale cost of electricity. Their new initiative, the Distributed Energy Buyback Scheme adopted in 2020, was introduced to 'better represent the actual cost of electricity at different times of day.'[68] The Northern Territory also seeks to provide a feed-in tariff which mirrors forecast wholesale electricity prices. The feed-in tariff is set, 'equivalent to the value of electricity exported to the grid'.[69]

Other components

New South Wales, Queensland and Tasmania also explicitly factor in other costs to set the feed-in tariff. These include avoided network losses, avoided national energy market costs, and avoided ancillary costs.

Network costs, which are paid by retailers to the utilities that maintain and operate distribution networks, are an unavoidable cost for retailers. Our research indicates it is not added as a cost when setting feed-in tariffs in any jurisdiction.

Victoria is the only state with a social cost of carbon component

Victoria is the only jurisdiction which must consider the avoided social cost of carbon and avoided human health costs when setting a feed-in tariff.

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[67] Office of the Tasmanian Economic Regulator, Investigation to Determine the Regulated Feed-in Tariff Rate Final Report May 2019, accessed 13 October 2021, https://www.economicregulator.tas.gov.au/Documents/19%20687%202019%20Regulated%20Feed-in%20Tariff%20Investigation%20Final%20Report.pdf

[68] Synergy, Distributed Energy Buyback Scheme (DEBS), accessed 13 October 2021, https://www.synergy.net.au/Your-home/Manage-account/Solar-connections-and-upgrades/Distributed-Energy-Buyback-Scheme.

[69] Department of Trade, Business and Innovation, Changes to Feed in Tariffs, accessed 13 October 2021, https://industry.nt.gov.au/__data/assets/pdf_file/0008/811628/changes-to-feed-in-tariffs-fact-sheet.pdf.

Table B.3: Regulated feed-in tariff methodology comparisons in other jurisdictions (excluding South Australia, ACT, and South-East Queensland)

State/Territory	Avoided wholesale electricity costs	Avoided network losses	Avoided ancillary & NEM costs	Avoided social cost of carbon and human health costs
Victoria	✓	✓	✓	✓
New South Wales	✓	✓	✓	✗
Queensland (excl. SEQ) Queensland)	✓	✓	✓	✗
Tasmania	✓	✓	✓	✗
Western Australia	✓	Uncertain	Uncertain	✗
Northern Territory	✓	Uncertain	Uncertain	✗

The level of feed-in tariffs in other jurisdictions

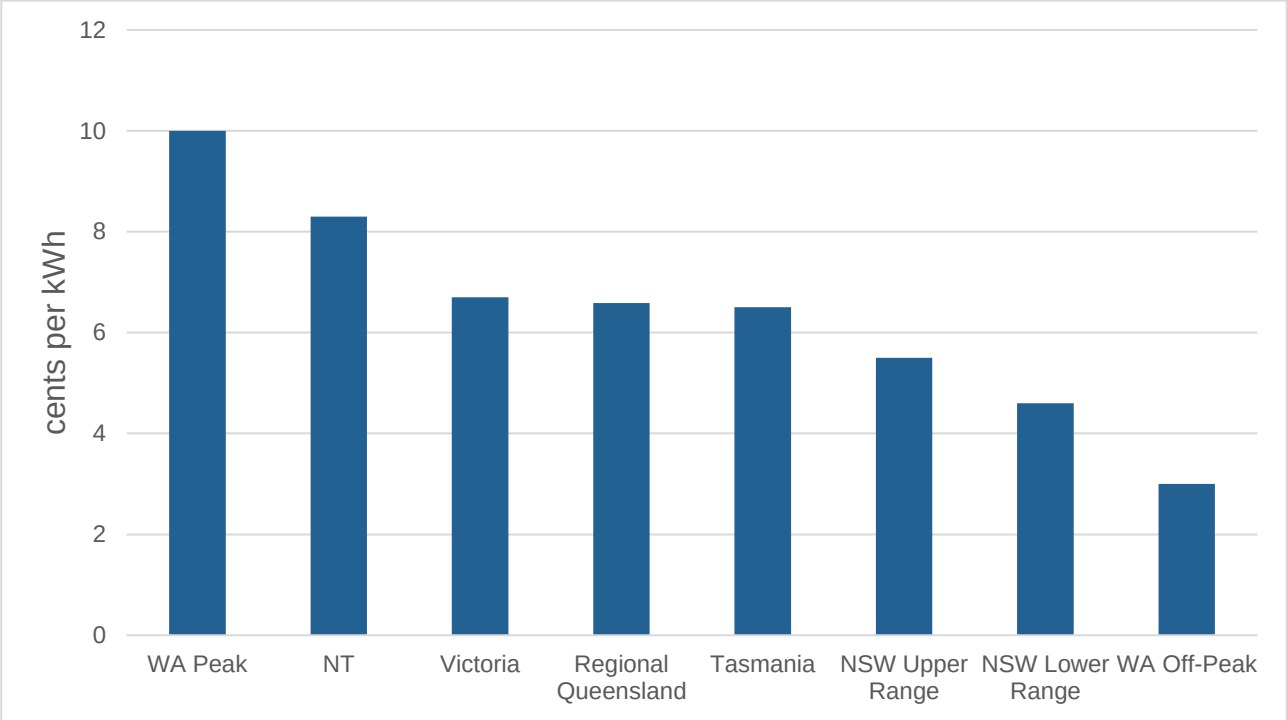
Victoria's minimum feed-in tariff is currently higher than most other regulated flat feed-in tariffs, apart from the Northern Territory (whose feed-in tariff is updated less frequently than other jurisdictions and whose electricity generator is a government owned monopolist). Victoria's higher flat feed-in tariff is mainly due to the additional avoided social cost of carbon which is accounted for when setting the feed-in tariff.

IPART, in New South Wales, also sets benchmarks for different periods of the day. This is to allow for fluctuations in the feed-in tariff when energy demand is lower during the day and solar exports are high, and in the evening when demand for electricity is high but solar has less capability to meet demand. As in Victoria, retailers do not have to offer time varying feed-in tariffs, and most do not.

Figure B.1 compares the regulated feed-in tariffs across Australia in October 2021. Tariffs are highest in the Northern Territory (8.3 cents per kWh), followed by Victoria, Queensland, Tasmania, and New South Wales.

The 10 cents per kWh (3pm-9pm) and 3 cents per kWh (all other hours) under Western Australia's Distributed Energy Buyback Scheme have been set to encourage households to either self-consume or store their solar energy generation in the middle of the day when it is plentiful and to install west facing panels.

Figure B.1: Feed-in tariff flat rates in other jurisdictions October 2021[a,b,c]



[a]Victoria also has time-varying feed-in tariffs ranging from 6.1 to 10.6 cents per kWh. [b]Western Australia's new Distributed Energy Buyback Scheme has two rates: 10 cents per kWh (3pm-9pm) and 3 cents per kWh (all other times). [c]IPART also sets NSW benchmarks for different feed-in tariffs at different times of the day.

Sample feed-in tariffs offered across Australia

In Victoria, many retailers offer the same 6.7c/kWh rate. In less regulated states, retailers tend to offer a wider range of feed-in tariffs, both below and above what is common in Victoria.

It is worth noting higher feed-in tariffs are normally conditional on purchasing solar panels from the retailer or new solar customers changing retailers, and caution should be taken when directly comparing feed-in tariffs. Some retailers also offer a higher feed-in tariff until a certain threshold of energy is exported; once the threshold is reached, the feed-in tariff is reduced.

Appendix C – Technical methodology

Our approach to determining the minimum feed-in tariffs for 2022–23 is largely the same as the approach used to set the minimum feed-in tariffs for 2021–22.

The methodology comprises the following components:

- the value of electricity sourced from small scale renewable generators, based on the avoided cost of purchasing an equal amount of electricity from the wholesale market, accounting for price changes throughout the day and seasonally, including:
  - both flat rate and time-varying rate wholesale electricity price forecasts
  - avoided market fees and ancillary service charges
- avoided transmission and distribution losses
- avoided social cost of carbon and avoided human health costs.

Table C.1 shows how the minimum feed-in tariff is calculated from these components.

Table C.1 – Calculating the minimum feed-in tariff

Component	Calculation	Flat rate	Overnight	Daytime	Early Evening
A: Wholesale electricity prices	Solar export-weighted average price forecast (cents per kWh**)**	2.44	4.27	2.23	4.03
B: Avoided market fees and ancillary service charges	Budget National Electricity Market fee for 2021-22 used as a best estimate for 2022-23 + Average of the ancillary service charges recovered from customers between week 44 of 2020 and week 45 of 2021 (cents per kWh)	0.09	0.09	0.09	0.09
C: Transmission and distribution loss adjustment	Multiply overall losses for each distribution business by the share of total customer numbers and sum these then make loss adjustment.	0.062	0.062	0.062	0.062
D: Value of avoided transmission and distribution losses	Multiply (A + B) by C	0.16	0.27	0.14	0.26

Component	Calculation	Flat rate	Overnight	Daytime	Early Evening
E: Value of avoided social cost of carbon	Multiply the volume factor by the price factor – see page 52 for more information.	2.49	2.49	2.49	2.49
F: Value of avoided human health costs	Set at 0 cents per kWh after having regard to a number of different methodologies that provide a range of values (including zero), in the absence of one definitive and reliable quantification methodology and data source.	0.00	0.00	0.00	0.00
Total **(rounded to one decimal place)**	**A + B + D + E + F**	**5.2**	**7.1**	**5**	**6.9**

Forecasting wholesale electricity prices

We have used a futures market approach to estimate wholesale electricity prices in 2022–23. This approach best meets our legislative objectives.

We used a futures market approach in previous feed-in tariff decisions. Benefits of using a futures market approach include:

- providing more transparency to stakeholders than a market modelling approach
- ensuring our decision matches the view of 'the market' as represented by contract prices.

Increased transparency over the inputs for analysis is consistent with our objectives to promote protections for customers[70] and to promote the long term interests of Victorian consumers.[71] Increased transparency gives stakeholders greater opportunities to understand and provide meaningful feedback on our decisions.

Wholesale price forecasts for 2022–23

We engaged Frontier Economics to forecast wholesale electricity prices for 2022–23 using a futures market approach. The following section outlines the approach.

[70] Electricity Industry Act 2000, s. 10(c).

[71] Essential Services Commission Act 2001, s. 8.

Wholesale price forecast for the flat feed-in tariff

Forecasting the relevant wholesale price for the minimum flat feed-in tariff involves five steps. The purpose of this is to estimate what retailers would pay for customers' solar exports if this electricity were sold in the wholesale spot market in 2022–23 in the same way as other generators' output.

1. **Calculating the price level for 2022–23.** Using the average price of 2022–23 quarterly baseload future swaps from the Australian Stock Exchange (after adjusting for an assumed contract premium of five per cent) weighted by traded volume across the most recent 12 months up to a particular date (for this draft decision this was 1 October 2021). The 12-month average price is reflective of retailers' approach to buying contracts.

   Table C.2 provides the value of these contracts over the 12 months up to and including 1 October 2021.[72] Frontier Economics will update these estimates for our February 2022 final decision, to reflect market expectations at that point in time. These updates are likely to result in a difference between the estimates contained in our draft and final decisions.

Table C.2 – Average baseload swap prices for 2022–23 (less 5 per cent premium)

Calendar quarter	Trade-weighted average price in 12 months to 1 October 2021 (cents per kWh)
Q3 2022	3.99
Q4 2022	3.43
Q1 2023	5.49
Q2 2023	3.72

Source: Base swap price data from ASX Energy and analysis from Frontier Economics

2. **Selecting the appropriate historical prices and export profile.** The commission received half-hourly actual export data for customers across each Victorian electricity distribution network for the period from 1 July 2020 to 30 June 2021. The most recent data is likely to be the best indicator of solar export profiles in 2022–23. Similarly, corresponding spot price data for the same time period is available from the Australian Energy Market Operator.
3. **Scaling historical prices to 2022–23 levels.** After averaging prices for each quarter for the relevant historical base year, they are compared to the quarterly futures prices in step 1 to determine a scaling factor for each quarter.

[72] Frontier Economics has advised the commission that a 40 day average is preferred over a 12 or 24 month average since base swaps further from maturity are less likely to be traded with accurate market information and are less representative of expected spot prices.

4. **Apply the scaling factor to the historical prices.** Each half-hourly price in the base year is scaled by the relevant factor calculated in step 3 to forecast the half-hourly prices expected in 2022–23.
5. **Calculate the flat feed-in tariff.** The wholesale electricity component of the flat feed-in tariff is calculated by averaging the half-hourly prices from step 4, weighted according to the time of solar exports from step 2. The formula for this is:

$$\text{Flat feed-in tariff export weighted wholesale electricity price} = \frac{\sum_{t=1}^{17,568} (\text{expected price 2022-23}_t \times \text{solar exports}_t)}{\text{Total solar exports 2020-21}}$$

Where t= each half hour interval in the year.

Wholesale price forecast for the time-varying feed-in tariffs

Steps 1 to 4 of forecasting the time-varying feed-in tariffs are the same for forecasting the flat feed-in tariff. Like the flat feed-in tariff approach, the commission has set the time-varying feed-in tariffs using weighting based on solar export profiles. For step 5, the only difference is that the above weighting is done three times, once for each time block, using only the expected prices and solar exports from the relevant time block.

Estimate of market fees and ancillary service charges

When retailers purchase energy from the wholesale market, they must pay market fees and ancillary service charges to the Australian Energy Market Operator (market operator). The market operator charges these fees based on the amount of electricity that retailers purchase from the wholesale market. Retailers can avoid them if they get electricity from small scale renewable generators.

We have included these fees and charges (shown in Table C.3 below) in our calculation of avoided costs. The total value of market fees and ancillary services are 0.09 cents per kWh.

Table C.3 – Market fees and ancillary service charges

Item	Fee	
	$/MWh	cents per kWh
National Electricity Market fees	0.55	0.055
Ancillary service charges	0.32	0.032
Total	**0.87**	**0.087**

Source: AEMO, 2021-22 Budget and Fees report and ancillary services recovery summaries for 2020 and 2021

Market fees

The National Electricity Market fee levied by the market operator is set in advance of each year through its annual budgeting process. However, the 2021–22 the market operator Budget and Fees paper does not provide an estimate of the fee for 2022–23. Therefore, we have used the 2021–22 market fee of 0.055 cents per kWh for retailers as a best estimate for 2022–23[73].

For 2021-22, the market operator levied two new, additional fees on market customers to recover the consolidated costs of the Five-Minute and Global Settlements. We have included these new fees in our calculation of the market fees component of the minimum feed-in tariff. The above changes only have a minor impact on the feed-in tariffs.

Ancillary services

The market operator recovers the cost of providing ancillary services from market participants (retailers) and publishes the recovery rate of ancillary service charges on a weekly basis. In determining feed-in tariffs that applies from 1 July 2022, we have assumed that the average cost of ancillary services in 2022–23 will be consistent with its average over the last 12 months (or 52 weeks) from October 2020 to October 2021.[74]

Estimate of the avoided transmission and distribution losses

Electricity supplied to the wholesale market is often produced by large generators located some distance away from the point of consumption. Electricity is transported to households and businesses via a transmission and distribution network (also known as the 'grid'). During this process, a small portion of electricity originally exported to the grid is lost as heat and sound. This is referred to as network or line losses.

Small scale renewable generation reduces network losses because the generated electricity is typically consumed close by. The extent of the associated cost saving varies depending on the location of the generation facility (among other factors such as the quality of the line and the amount of electricity flowing through it). We have incorporated this cost saving into the feed-in tariffs by applying a 'loss factor' to the avoided cost of purchasing electricity in the wholesale market, including market fees and ancillary service charges.

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[73] Australian Energy Market Operator 2021, 2021-22 AEMO Budget and Fees, accessed 18 October 2021, https://aemo.com.au/-/media/files/about_aemo/energy_market_budget_and_fees/2021/aemo-2021-22-budget-and-fees.pdf?la=en.

[74] Australian Energy Market Operator 2021, Ancillary services payments and recovery, accessed 18 October 2021, https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/data-nem/ancillary-services-data/ancillary-services-payments-and-recovery.

Using the market operator's estimates of distribution and marginal loss factors for 2021–22, we have estimated a flat customer share-weighted loss factor of 1.061 for Victoria. We have then applied this loss factor to derive the value of avoided network losses used in the minimum feed-in tariff calculations. Table C.4 below sets out the inputs to the loss factor calculation which are publicly available on the market operator's website.

In this review, we have used the same approach to network losses as we have in the Victorian Default Offer. We have taken the load weighted average of the short and long sub-transmission distribution loss factors[75] and calculated the transmission loss factors by taking a simple average of the marginal loss factors across each distribution area (after removing some nodes that have no residential or small business load).[76] These factors are then weighted by the number of low voltage residential and non-residential customers in each distribution zone to develop a Victoria wide loss factor.[77]

Table C.4 – Inputs for calculating loss factors

Distribution business	Distribution loss factor	Average marginal loss factor	Total loss factor	Number of customers
CitiPower	1.0500	0.9978	1.0478	341,617
Powercor	1.0782	0.9937	1.0715	854,215
United Energy	1.0525	0.9957	1.0480	693,275
AusNet Services	1.0734	1.0056	1.0795	767,797
Jemena	1.0430	0.9993	1.0423	362,266
Customer share-weighted			1.0619	

[75] Australian Energy Market Operator 2021, Distribution loss factors for the 2021/22 Financial Year, accessed 18 October 2021 https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/loss_factors_and_regional_boundaries/2021-22/distribution-loss-factors-for-the-2021-22-financial-year.pdf?la=en.

[76] Australian Energy Market Operator 2021, Marginal loss factors for the 2021-22 Financial Year, accessed 18 October 2021, https://www.aemo.com.au/-/media/files/electricity/nem/security_and_reliability/loss_factors_and_regional_boundaries/2021-22/marginal-loss-factors-for-the-2021-22-financial-year.pdf?la=en.

[77] Australian Energy Regulator, Performance reporting, accessed 18 October 2021, https://www.aer.gov.au/networks-pipelines/performance-reporting.

Estimate of the avoided social cost of carbon

In February 2017, the Victorian Government issued an Order in Council ("Order") specifying a methodology for determining the social cost of carbon and the factors we must consider when applying this methodology.[78]

It defines the avoided social cost of carbon as the avoided 'cost per kilowatt-hour (kWH) of small renewable energy generation electricity purchased by a relevant licensee' (e.g., retailer), determined in accordance with the following methodology and factors:

$$Avoided\ social\ cost\ of\ carbon = Volume\ factor \times Price\ factor$$

The volume factor, in the Order is an emissions intensity coefficient factor of 1.27 kilograms (kg) of carbon dioxide equivalent (CO2e) per kWh of electricity exported by a small renewable energy generator. This means that 1.27 kg (or 0.00127 tonne) of CO2e is assumed to be avoided for each kWh of electricity exported by a small renewable energy generator.

For the price factor, we have used the method specified in the Order to determine the value of a tonne of CO2e. It results in a value of $19.63 per tonne of CO2e.

The resulting avoided social cost of carbon is 2.5 cents per kWh.

Human health costs

The Victorian Government has not made an Order in Council that specifies a factor or method for determining avoided human health costs attributable to a reduction in air pollution.

We reviewed the associated health benefits as part of our inquiry into the energy value of distributed generation in 2016.[79] We have also re-examined this matter a number of times since. However, due to a lack of sufficient evidence and data, we could not place a reliable monetary value on the avoided human health costs.

We remain of the same view now. The Department of Environment, Land, Water and Planning has noted similar issues around data and raised concerns about reliably estimating these health costs

[78] Victorian Government 2017, Victoria Government Gazette No. S 36, Tuesday 21 February 2017, Order specifying a methodology and factors for the determination of the avoided social cost of carbon (Order in Council).

[79] Essential Services Commission 2016, The energy value of distributed generation, August 2016, pp. 62-63, https://www.esc.vic.gov.au/sites/default/files/documents/Distributed-Generation-Inquiry-Stage-1-Final-Report-Energy-Value-FINAL-20160916.pdf

in a Victorian context.[80] Currently, the avoided human health costs are set at 0 cents per kWh, in the absence of one definitive and reliable quantification methodology and data source.

Structuring the time-varying feed-in tariff

We have also set a time-varying feed-in tariff with overnight, day and early evening periods. The time periods – or 'time blocks structure' – for the time-varying feed-in tariff are set out in Table C.5.

Table C.5 – Time block structure for time-varying feed-in tariff 2022-23

Period	Weekday	Weekend
Overnight	10pm-7am	10pm-7am
Day	7am-3pm, 9pm-10pm	7am-10pm
Early evening	3pm-9pm	n/a

[80] Department of Environment, Land, Water and Planning 2019, Estimating the health costs of air pollution in Victoria, pp. 3-5, https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0022/421717/Final_Health-costs-of-air-pollution-in-Victoria.pdf

Appendix D – Legislation on setting feed-in tariffs

Table D.1 – Relevant sections of the Essential Services Commission Act 2001

	Section
s. 8(1)	**Objective of the Commission** In performing its functions and exercising its powers, the objective of the Commission is to promote the long term interests of Victorian consumers.
s. 8(2)	Without derogating from subsection (1), in performing its functions and exercising its powers in relation to essential services, the Commission must in seeking to achieve the objective specified in subsection (1) have regard to the price, quality and reliability of essential services.
s. 8A(1)	**Matters which the Commission must have regard to** In seeking to achieve the objective specified in section 8, the Commission must have regard to the following matters to the extent that they are relevant in any particular case— (a) efficiency in the industry and incentives for long term investment; (b) the financial viability of the industry; (c) the degree of, and scope for, competition within the industry, including countervailing market power and information asymmetries; (d) the relevant health, safety, environmental and social legislation applying to the industry; (e) the benefits and costs of regulation (including externalities and the gains from competition and efficiency) for— (i) consumers and users of products or services (including low income and vulnerable consumers); (ii) regulated entities [electricity distributors and retailers]; (f) consistency in regulation between States and on a national basis; (g) any matters specified in the empowering instrument [in this case, the Electricity Industry Act (the Act)].
s. 8A(2)	Without derogating from section 8 or subsection (1), the Commission must also when performing its functions and exercising its powers in relation to a regulated industry do so in a manner that the Commission considers best achieves any objectives specified in the empowering instrument [the Act].

Table D.2 – Relevant sections of the Electricity Industry Act 2000

	Section
s. 10	**Objectives of the Commission** The objectives of the Commission under this Act are— (a) to the extent that it is efficient and practicable to do so, to promote a consistent regulatory approach between the electricity industry and the gas industry; and (b) to promote the development of full retail competition; and (c) to promote protections for customers, including in relation to assisting customers who are facing payment difficulties.
s. 40F(1)	**Definitions** In this Division— **biomass energy generation facility** means a generation facility that generates electricity by utilising energy from the combustion of— (a) biomass; or (b) biogas; **general renewable energy feed-in terms and conditions** has the meaning given by section 40FB; **hydro generation facility** means a generation facility that generates electricity by utilising the energy from moving water; **non-complying licensee** means— (a) a relevant licensee that has not complied with a condition set out in section 40FF(1) or 40G(1); or (b) a small retail licensee that has not complied with the condition set out in section 40FG(3); **qualifying customer**, of a relevant licensee or small retail licensee, means a person who— (a) purchases electricity from that relevant licensee or small retail licensee; and (b) engages in the generation of electricity— (i) at a property that the person occupies as their principal place of residence by means of one qualifying solar energy generating facility at the property; or (ii) at one or more properties— (A) that the person occupies, otherwise than as a place of residence, by means of one qualifying solar energy generating facility at each of those properties; and (B) at which the person's annual consumption rate of electricity is 100 megawatt hours or less; and (c) has been exempted by Order under section 17 from the requirement to hold a licence in respect of the generation of electricity for

supply and sale;

qualifying solar energy generating facility means a photovoltaic generation facility that—

(a) has an installed or name-plate generating capacity of 5 kilowatts or less; and

(b) is connected to a distribution system;

qualifying solar energy generation electricity means electricity that a qualifying customer generates and does not use;

relevant generator means—

(a) a generation company; or

(b) a person engaging in the generation of electricity for supply or sale that has been exempted by Order under section 17 from the requirement to hold a licence in respect of that activity;

relevant licensee means a person that—

(a) holds a licence to sell electricity; and

(b) sells electricity to more than 5000 customers;

small renewable energy generation electricity means non-pool electricity supplied by a relevant generator from a small renewable energy generation facility operated by that generator;

small renewable energy generation facility means a facility of the following kind, connected to a distribution system, that generates electricity and has an installed or name-plate generating capacity of less than 100 kilowatts—

(a) a wind energy generation facility;

(b) a solar energy generation facility;

(c) a hydro generation facility;

(d) a biomass energy generation facility;

(e) a facility or class of facility specified for the purposes of this definition under subsection (2)—

but does not include a qualifying solar energy generating facility or a TFiT scheme generating facility that is connected to a distribution system under the premium solar feed-in tariff scheme or TFiT scheme;

small retail licensee means a person that—

(a) holds a licence to sell electricity; and

(b) sells electricity to 5000 or less customers;

solar energy generation facility means a generation facility that generates electricity by converting solar energy into electricity;

feed-in tariff

wind energy generation facility means a generation facility that generates electricity by converting wind energy into electricity.

s. 40F(2) The Governor in Council, by Order published in the Government Gazette,

may, for the purposes of paragraph (e) of the definition of **small renewable energy generation facility**, specify a facility or class of facility that generates electricity in any way as a small renewable energy generation facility.

s. 40FB(1) **Meaning of general renewable energy feed-in terms and conditions**

General renewable energy feed-in terms and conditions are the prices, terms and conditions comprising an offer under which a relevant licensee will purchase, from a relevant generator, **small renewable energy generation electricity**.

s. 40FB(2) Without limiting subsection (1), on and after the commencement of section 4 of the **Energy Legislation Amendment (Feed-in Tariffs and Other Matters) Act 2013**, general renewable energy feed-in terms and conditions must, as a minimum, include terms and conditions under which—

(a) an amount, specified for a financial year under section 40FBA, is credited against the charges payable to the relevant licensee by a customer who is a relevant generator for electricity the licensee supplies to the customer (a ***general renewable energy credit***); and

(b) a general renewable energy credit that arises during a period of supply of electricity to that customer is included in the electricity bill of that customer that relates to that period of supply; and

(c) if, in a period of supply of electricity to the customer, a general renewable energy credit exceeds the amount owed by that customer for electricity supplied to that customer in that period of supply, the excess general renewable energy credit amount is—

(i) credited against the charges payable to the relevant licensee by that customer for electricity the licensee supplies to that customer in the next period of supply of electricity to that customer; and

(ii) included in that customer's electricity bill that relates to that period of supply of electricity; and

(d) any excess general renewable energy credit amount referred to in paragraph (c) is extinguished on the day the contract for the supply of electricity by the relevant licensee to the customer ends.

s. 40FBA **Rates for purchases of small renewable energy generation electricity**

For the purposes of section 40FB(2)(a), in each financial year the amount to be credited against the charges payable to a relevant licensee by a customer who is a relevant generator is determined at—

(a) the rate or rates determined by the Commission under section 40FBB for that financial year; or

(b) if the Commission has not determined one or more rates under section 40FBB for that financial year—the rate or rates that applied immediately before the commencement of that financial year.

s. FBB(1) **Commission to determine one or more rates for purchases of small renewable energy generation electricity**

The Commission may determine one or more rates for the purposes of section 40FBA(a).

s. FBB(2)

A rate determined under subsection (1) must be—

(a) determined not later than 28 February in the financial year preceding the financial year in which it is to apply; and

(b) published in the Government Gazette not later than that date.

s. FBB(3)

In determining a rate for the purposes of section 40FBA(a), the Commission must have regard to—

(a) prices of electricity in the wholesale electricity market; and

(b) any distribution and transmission losses avoided in Victoria by the supply of small renewable energy generation electricity; and

(c) the following avoided costs—

(i) the avoided social cost of carbon;

(ii) the avoided human health costs attributable to a reduction in air pollution.

s. FBB(3A)

If an Order under subsection (3B) is in effect, the avoided costs that the Commission must have regard to under subsection (3) are the avoided costs determined in accordance with the methodology or factor specified in the Order for the relevant avoided costs.

s. 40FBB(3B)

The Governor in Council, by Order published in the Government Gazette, may specify a methodology or factor for the determination of—

(a) the avoided social cost of carbon; or

(b) the avoided human health costs attributable to a reduction in air pollution.

s. 40FBB(4)

A determination of the Commission under this section is not a determination for the purposes of the **Essential Services Commission Act 2001**.