

Minimum electricity feed-in tariff to apply from 1 July 2020

Final Decision

25 February 2020



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Contents

Summary	3
1. What is a feed-in tariff?	5
What is our role?	5
Minimum feed-in tariff rates	5
How do we calculate the minimum FiT rates?	6
How can customers benefit from small renewable generation?	7
What offers are in the market?	8
2. Submissions on our draft decision	9
Level of the minimum FiT rates	9
Our approach to setting the minimum FiT rates	11
Mandating a time-varying FiT	12
Social costs of carbon	13
Policy related matters	14
3. Our final decision	15
We will not mandate a time-varying FiT at this stage	15
Minimum FiT rates to apply from 1 July 2020	17
Appendix A – Legal context	21
Appendix B – Technical methodology	23
Forecasting wholesale electricity prices	24
Approaches to forecasting wholesale electricity prices	24
Wholesale price forecasts for 2020–21	25
Estimate of market charges and ancillary services	27
Estimate of the avoided transmission and distribution losses	28
Estimate of the avoided social cost of carbon	29
Structuring time-varying FiTs	30
Appendix C – Cost components of the minimum FiT rates	31
Appendix D – Comparison with previous years	32
Appendix E – Comparison between FiT and the VDO	33
Appendix F – Submissions	34
Appendix G – Abbreviations	35
Appendix H – Glossary	36

Summary

From 1 July 2020, each retailer must offer at least one of the following minimum feed-in tariff (FiT) rates:

- a single rate feed-in tariff **and/or**
- a time-varying feed-in tariff

Our final decision is to not mandate a time-varying FiT at this time. Chapter 3 explains our reasoning in detail.

Minimum FiT rates to apply from 1 July 2020

Table S.1 Single rate minimum FiT – 2020–21 tariff rates

	Minimum rate to apply (all times) (c/kWh)
Rate	10.2

Table S.2 Time-varying minimum FiT rate – 2020–21 tariff rates

	Minimum rates to apply (c/kWh)		
	Off peak	Shoulder	Peak
Times	Weekdays: 10pm-7am Weekends: 10pm-7am	Weekdays: 7am-3pm, 9pm-10pm Weekends: 7am-10pm	Weekdays: 3pm-9pm Weekends: n/a
Rates	9.1	9.8	12.5

Notification

The Energy Retail Code requires a retailer to provide notification to a customer of a benefit change or price change at least five days prior to the change coming into effect.¹

A price change means a change to any of the tariffs or charges payable by a small customer under a customer retail contract. The FiT is not payable by a customer but is instead a credit on a customer's bill. This means that a change in FiT rates is not currently captured by the notification requirement in the Energy Retail Code.

¹ Division 3 of Part 2A, Energy Retail Code

Retailers are encouraged to consider adopting a consistent approach to notification of price and benefit changes, prior to any change in the rates coming into effect. To assist this process, the commission will in the near future consult on amendments to the Energy Retail Code relating to notifying customers of changes in FiT rates.

Feed-in tariffs and GST

In October 2018, the commission released a final decision requiring all charges and tariffs payable by customers to be shown including GST. As the FiT is not payable by a customer but is instead a credit on a customer's bill, this rule is not applicable to the FiT for customers.

1. What is a feed-in tariff?

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

What is our role?

As set out in the Electricity Industry Act 2000 (Vic) (the Act), we are required to determine one or more rates an electricity retailer² must pay its customers for the electricity they export to the grid, referred to as the minimum FiT rate.³ This is a credit paid to small renewable energy generation facilities which use fuel sources such as wind, solar, hydro or biomass.⁴ To qualify for a FiT, the small renewable energy generation facility should have an installed or nameplate generating capacity of less than 100 kilowatts.⁵

We set the minimum FiT rate for small renewable generation for each financial year. Retailers may offer rates above this level.

Minimum feed-in tariff rates

Since 2018–19, we have set both a single rate minimum FiT and a time-varying minimum FiT rate. The time-varying minimum FiT rate is a peak, shoulder and off peak structure. It was intended to reflect the underlying value of the electricity, which is based on a wholesale electricity market in which prices change every 30 minutes and tend to be higher at times of peak electricity demand.⁶

² The relevant electricity 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.

³ See section 40FBB of the Electricity Industry Act 2000.

⁴ An important exception is that a 'small renewable energy generation facility' does not include a generating facility that is under the premium solar feed-in tariff scheme (Electricity Industry Act section 40F(1)). 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 (Electricity Industry Act section 40F(2)).

⁵ See section 40F Definitions of the Electricity Industry Act 2000.

⁶ The wholesale spot price of electricity is determined through an auction, which is conducted every five minutes by the Australian Energy Market Operator. Currently, the process is repeated six times each half hour and generators are paid the average of the six marginal prices for the electricity they generate during that half hour. On 28 November 2017, the Australian Energy Market Commission made a determination to change the settlement period from 30

We update the minimum FiT rates on an annual basis to reflect changes in wholesale electricity market prices. Table 1.1 shows the minimum FiT rates from 2017–18 to 2020–21.

Table 1.1 – Minimum FiT rates: 2017–18 to 2020–21 (c/kWh)⁷

	2017–18	2018–19	2019–20	2020–21
Single rate minimum FiT	11.3	9.9	12.0	10.2
Time-varying minimum FiT rate				
Peak	n/a	29.0	14.6	12.5
Shoulder	n/a	10.3	11.6	9.8
Off peak	n/a	7.1	9.9	9.1

Annual changes in the level of the minimum FiT rates are affected primarily by the changes in the forecast wholesale electricity price.

How do we calculate the minimum FiT rates?

Calculating the minimum FiT rates requires us to estimate prices retailers avoid paying on wholesale electricity purchases when a small scale renewable generator exports electricity to the grid. In other words, what would a retailer pay if the electricity provided by a small scale renewable generator needed to be purchased in the National Electricity Market in 2020–21?

We have used a futures market approach to forecast the wholesale prices that underpin the FiT decision. This is the same approach we used for our FiT decision last year and for setting the Victorian Default Offer that applies since 1 July 2019.⁸ There are other costs included in the minimum FiT rates. These are the avoided:

- cost of market fees and ancillary service charges
- value of distribution and transmission losses
- value of the social cost of carbon.

Under the Act⁹, we must consider these costs in setting the annual minimum FiT rates.

minutes to five minutes. As a result, the half hourly averaging process will not be required from the proposed commencement date of the rule change of 1 July 2021.

⁷ The optional time-varying FiT was introduced in 2018–19. The time-varying FiT for 2018–19 and 2019–20 are time-weighted while the 2020-21 is solar-weighted. The carbon cost component was introduced in 2017–18.

⁸ Essential Services Commission (2019), Victorian Default Offer to apply from 1 July 2019: Advice to the Victorian Government, 2019. Essential Services Commission (2019), Victorian Default Offer to apply from 1 January 2020: Final report, November.

⁹ The factors that the commission must have regard to in determining the FiT that applies from 1 July 2018 are set out in section 40FBB(3) of the Act.

1. What is a feed-in tariff?

This year we have also introduced two changes in our approach. First, we used the 12-month average price in forecasting wholesale electricity costs instead of the 40-day average we used previously. The 12-month average price reflects retailers' approach to buying contracts over a longer period hence would likely result in minimum FiT rates that are more reflective of changes in retailers' actual costs. Second, the time-varying minimum FiT rate is now based on solar-weighted wholesale electricity prices instead of the time-weighted approach (technology neutral approach) we used in our most recent two FiT determinations. The solar-weighted approach better reflects the true value of solar exports to the grid. Retailers and peak bodies support these changes to our approach (see chapter 2 for details).

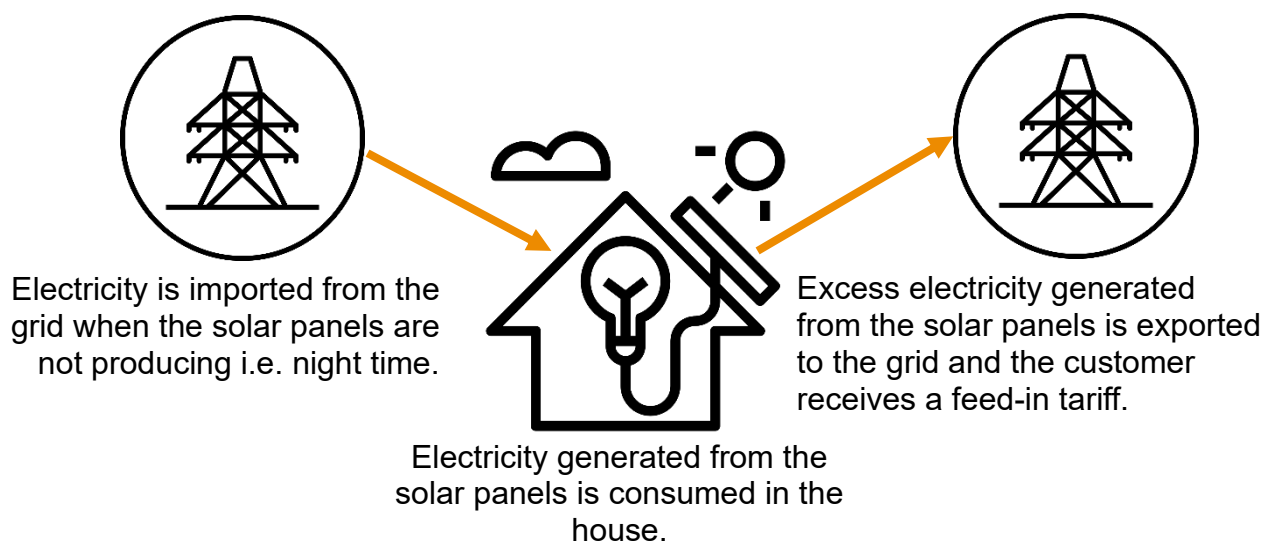
Details on the method used to calculate the minimum FiT rates can be found in Appendix B – Technical methodology.

How can customers benefit from small renewable generation?

Customers who have small renewable generation capacity benefit by:

- Using the electricity they generate in their home or business – rather than purchasing from their electricity retailer, and so avoid network and retailer charges.
- Exporting any excess renewable electricity generated to the grid and receiving a FiT for the amount of electricity exported.

Figure 1 illustrates an example of a solar customer both consuming and producing electricity.



1. What is a feed-in tariff?

What offers are in the market?

All relevant Victorian retailers are required to provide at least the minimum FiT rate in all offers.¹⁰ They are free to offer a FiT rate that is higher than the minimum.

The FiT rate may vary across retailers and across different offers. As at September 2019, the single rate FiTs offered by Victorian retailers ranged from 12.0 c/kWh (the minimum FiT rate for 2019–20) to 20 c/kWh.¹¹ Some retailers offer higher FiT rates if new customers buy the solar package from them or if existing solar customers switch their electricity accounts to them. Publicly available information on retailers' websites and the Victorian Energy Compare website¹² provides further insight into the different retailer FiT offers.

As at February 2020, only EnergyAustralia offers both a single rate FiT and a time-varying FiT rate to Victorian customers. Several other retailers offered contractual arrangements to battery owners which involve dynamic pricing of electricity exports. We will continue to monitor whether more retailers offer time-varying FiT rates in the immediate future.

The premium feed-in tariff (of 60 c/kWh, now closed to new customers), or any bonus that retailers may offer above this is outside the scope of our role to set a minimum FiT rate.

¹⁰ The relevant electricity 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. FiT is not mandated in many other Australian states.

¹¹ Essential Services Commission (2019), Victorian Energy Market Update: September, section 4, p.9.

¹² Victorian Energy Compare (<https://compare.energy.vic.gov.au/>) is the government energy price comparator website.

1. What is a feed-in tariff?

2. Submissions on our draft decision

We received 99 submissions in response to the draft decision on the minimum electricity feed-in tariff (FiT) rate to apply from 1 July 2020 (nine from retailers, two from peak bodies and 88 from individuals).¹³ We would like to take the opportunity to thank stakeholders for their input which has helped inform our final decision.

In summary, the key points raised by stakeholders relate to the level of the minimum FiT rates, the two changes in our methodological approach to setting the minimum FiT rates, mandating of a time-varying FiT, the social cost of carbon and some policy related matters.

Level of the minimum FiT rates

The minimum FiT rates should be higher

Many solar customers stated that the minimum FiT rates should be higher to allow them to recover their investments and to encourage uptake of rooftop solar and batteries.¹⁴

In contrast, Globird suggested that the commission should further lower the minimum FiT rates and pass the savings on to other consumers under the Victorian Default Offer to mitigate the poor subsidising the rich.¹⁵

The minimum FiT rates we set reflect the factors that we are required to take into account under the legislation:

- prices of electricity in the wholesale market
- any distribution and transmission losses avoided in Victoria by the supply of small renewable energy generation electricity
- the avoided social cost of carbon

As we set the minimum FiT rates annually, we expect to see the rates fluctuate, particularly as wholesale electricity prices change in the energy futures market. Furthermore, it is not open to the

¹³ The complete list of submissions can be found in Appendix F.

¹⁴ Surendra Talasila, submission received 5 December 2019, p.1; Anthony Hardy, submission received 9 December 2019, p.1; Adam Creed, submission received 10 December 2019, p.1; Peter Brown, submission received 30 December 2019, p.1; Barry Grant, submission received 16 January 2020, p.1; Anonymous, submission received 4 December 2019; Anonymous, submission received 24 December 2019; Anonymous, submission received 31 December 2019; Anonymous, submission received 31 December 2019; Anonymous, submission received 6 January 2019; Anonymous, submission received 6 January 2019; Anonymous, submission received 16 January 2019; 55 Anonymous Solar Citizens members, submission received 16 January 2020.

¹⁵ Globird, submission received 15 January 2020, p.3.

2. Submissions on our draft decision

commission to set the minimum FiT rates on the basis of other considerations, such as allowing solar customers to recover their investments or to promote uptake of rooftop solar generation.

Some solar customers consider the minimum FiT rates should be zero at times of excess electricity¹⁶

The minimum FiT rate is an annual average price. It reflects the average wholesale price for electricity weighted according to times at which solar electricity is exported by residential customers. This weighted average will include times in the year when electricity prices are very low (or even negative) and other times in the year when electricity prices are higher.

Many solar customers consider the minimum FiT rates should at least equal the retail electricity tariff¹⁷

It would be uneconomic for the minimum FiT rate and the retail electricity tariff to be set at the same level. This is because the minimum FiT rate is a payment for generation and supply of electricity, while the retail electricity tariff is a payment for the retail supply of electricity to a customer's premises. In addition to wholesale electricity costs, the latter includes other costs such as the network tariff, cost of complying with the renewable energy target and costs of operating a retail business. This means the minimum FiT rate will always be lower than the retail electricity tariff.

A few solar customers also stated that retailers make excess profits from on-selling solar electricity exported by their customers.¹⁸ It is true that retailers will on-sell this solar electricity that they purchase from solar customers at a higher retail electricity tariff but this reflects the additional costs that retailers face as mentioned above.

The minimum FiT rate is decreasing while retail electricity tariff is increasing

Some solar customers questioned why the minimum FiT rate is decreasing while their retail electricity tariff is increasing.¹⁹ Although there are similarities in the approach to estimating the

¹⁶ Anonymous, submission received 5 December 2019.

¹⁷ Anonymous, submission received 4 December 2019; Kemmis Brown, received 5 December 2019, p.1; Anonymous, submission received on 2 January 2020; six Anonymous Solar Citizens members, submission received on 16 January 2020.

¹⁸ Anonymous, submission received 17 January 2020.

¹⁹ Peter Brown, submission received 30 December 2019, p.1; Anonymous; submission received 30 December 2019, p.1; Anonymous, submission received 31 December 2019; Anonymous, submission received 9 January 2020; Anonymous, submission received 16 January 2020; four Anonymous Solar Citizens members, submission received 16 January 2020.

2. Submissions on our draft decision

wholesale electricity components of the minimum FiT rate 2020–21 and the Victorian Default Offer 2020, there are important differences that account for the divergence between the two. See Appendix E for a detailed explanation.

Our approach to setting the minimum FiT rates

Stakeholders support the change to solar-weighted approach

The Australian Energy Council and some retailers supported using solar-weighted future wholesale electricity prices to set the time-varying minimum FiT rate rather than the time-weighted future wholesale electricity prices.²⁰ The Clean Energy Council also supported the approach with the ‘understanding (and the proviso) that the commission continues to monitor changes in the composition of Victoria’s small-scale generating mix when making future FiT decisions’.²¹

Our final decision is to adopt the solar-weighting approach in setting the time-varying minimum FiT rate. Publicly available data on the Department of Environment, Land, Water and Planning website shows that in the last two/three/five years, solar accounted for 99.9 per cent of small scale distributed generation.²² We will continue to monitor changes to the composition of Victoria’s small scale generating mix when making future FiT decisions.

Stakeholders support the 12-month average approach

Some retailers noted support for using a 12-month average of future wholesale electricity price rather than the 40-day average used in the 2019–20 FiT decision.²³ The Clean Energy Council also supports using a 12-month average.²⁴ No stakeholders disagreed with our proposed approach.

Our final decision is to use a 12-month average of future wholesale electricity prices to set the minimum FiT rates.

²⁰ AGL, submission received 17 January 2020, p.1; EnergyAustralia, submission received 17 January 2020, p.1; Momentum Energy, submission received 13 January 2020, p.1; Red and Lumo Energy, submission received 17 January 2020, p.1; Simply Energy, submission received 17 January 2020, p.1; Australian Energy Council, submission received 17 January 2020, p.1.

²¹ Clean Energy Council, submission received 19 December 2019, p.2.

²² Clean Energy Regulator, accessed on 10 February 2020, <http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations#Installation-numbers-for-small-scale-systems-by-state/territory>

²³ AGL, submission received 17 January 2020, p.1; Alinta Energy, submission received 17 January 2020, p.1; Momentum Energy, submission received 13 January 2020, p.1; Red and Lumo Energy, submission received 17 January 2020, p.1.

²⁴ Clean Energy Council, submission received 19 December 2019, p.2.

2. Submissions on our draft decision

Mandating a time-varying FiT

Retailers opposed the commission's draft decision to mandate a time-varying FiT for the following reasons:

- there is no clear evidence of a market failure²⁵
- it undermines competition and innovation²⁶
- a time-varying FiT is already available on the market²⁷
- it is costly to implement²⁸
- the price differential between the minimum time-varying FiT rates is minimal²⁹
- the commission should be mindful of other ongoing regulatory reforms that retailers need to comply with³⁰
- the Victorian retail market has fundamentally changed since 2016 when the commission considered whether a time-varying FiT would be beneficial to consumers
- the commission has no basis or justification for mandating it.³¹

In addition, a few retailers³² provided information on the costs of implementing a time-varying FiT while two retailers³³ have provided estimates of the change in revenue a solar customer would earn if they shift from the single rate minimum FiT to the time-varying minimum FiT rate.

We note that the Clean Energy Council supports cost-reflective pricing including a time-varying FiT. The CEC states that:

²⁵ Origin Energy, submission received 17 January 2020, p.1; Australian Energy Council, submission received 17 January 2020, p.2.

²⁶ Powershop, submission received 17 January 2020, p.2; Red and Lumo Energy, submission received 17 January 2020, p.2.

²⁷ Momentum Energy, submission received 13 January 2020, p.2; AGL, submission received 17 January 2020, p.1.

²⁸ Momentum Energy, submission received 13 January 2020, p.2; AGL, AGL, submission received 17 January 2020, p.1.

²⁹ Momentum Energy, submission received 13 January 2020, p.2.

³⁰ Origin Energy, submission received 17 January 2020, p.1.

³¹ Momentum Energy, submission received 13 January 2020, p.3.

³² Momentum Energy, AGL, and another retailer through its written submission on the draft decision; Powershop (during commission staff's meeting with them on 3 February 2020).

³³ Simply Energy, submission received 17 January 2020, p.2; Momentum Energy, submission received 13 January 2020, pp. 2-3.

2. Submissions on our draft decision

Electricity pricing influences supply and demand. Reducing peak demand and spreading the electricity load more evenly will improve network utilisation, reducing network spending and wholesale electricity costs.³⁴

Our final decision is to not mandate a time-varying FiT at this time. See chapter 3 for the reasons supporting that decision.

Social costs of carbon

Some retailers raised concerns about the social cost of carbon component of the minimum FiT rates. Energy Australia considers that the carbon intensity factor is high and outdated particularly with the closure of Hazelwood power station in 2017. It also noted:

Solar customers are being twice compensated for carbon reductions by the avoided cost of carbon include in the FiT, as well as the value of credits under the small-scale renewable energy scheme which are typically factored into the contracted price of rooftop PV installations.³⁵

In February 2017, the Government issued an Order in Council specifying a method for determining the social cost of carbon. In setting the minimum FiT rates, we must have regard to any Order in Council that sets out a methodology or factor to calculate the avoided social cost of carbon and avoided human health costs.

Applying that method yields a value of 2.5 cents per kilowatt hour of electricity exported by a small renewable generator, which we add to both the single rate and time-varying minimum FiT rates.

We have relayed EnergyAustralia's concerns to the Department of Environment, Land, Water and Planning.

Powershop noted:

Time-varying FiT in combination with the 2.5c/kWh social cost of carbon is problematic in relation to customer with batteries as it will encourage customers to charge their batteries at off peak rates and discharge into the proposed FiT. This would see customers with a battery being paid a social cost of carbon premium for energy that is not generated from their solar system but rather sourced from the grid a time of low renewable energy generation.³⁶

³⁴ Clean Energy Council, submission received 19 December 2019, p.1.

³⁵ EnergyAustralia, submission received 17 January 2020, p.1.

³⁶ Powershop, submission received 17 January 2020, p.3.

2. Submissions on our draft decision

Our view is that it is highly likely that at the first instance solar customers will charge their batteries using the excess solar power they generate rather than buying electricity from the grid to charge their batteries. This is because buying electricity from the grid would be more expensive for them.

Policy related matters

EnergyAustralia noted that over time, it 'would expect that the need for any minimum FiT is reviewed, rather than seeing the commission mandate further pricing and product decisions'.³⁷

Red Energy and Lumo Energy also opposed the commission's determination of the minimum FiT rates. It noted that:

Competitive markets effectively determine the value of this source of generation so the only role for the Commission is to specify any premium to that value that reflects the avoided social cost of carbon.³⁸

These submissions are policy related and have been relayed to the Department of Environment, Land, Water and Planning accordingly.

Appendix F lists the stakeholders who have provided feedback on our draft decision. Their submissions can be accessed on our website: <https://www.esc.vic.gov.au/minimum-feed-tariff-review-2020-21-submissions>.

³⁷ EnergyAustralia, submission received 17 January 2020, p.2.

³⁸ Red and Lumo Energy, submission received 17 January 2020, p.1.

2. Submissions on our draft decision

3. Our final decision

From 1 July 2020, each retailer must offer at least one of the following minimum feed-in tariff (FiT) rates:

- a single rate feed-in tariff **and/or**
- a time-varying feed-in tariff.

Our final decision is to not mandate a time-varying FiT at this time.

We will not mandate a time-varying FiT at this stage

In our draft decision, we proposed to mandate a time-varying FiT. This was consistent with what we have signalled in our previous two FiT decisions that the optional offering of a time-varying FiT in 2018–19 and 2019–20 was a transitional measure.

The commission's distributed generation inquiry in 2016 found that the benefits of a time-varying FiT for solar customers were expected to outweigh the costs, and that it would also help increase investment in solar panels.³⁹

In our draft decision, we sought information from retailers in relation to issues associated with mandating the time-varying FiT from 1 July 2020. Feedback was also sought on costs and benefits that support delaying mandating the time-varying FiT to an unspecified future date.⁴⁰

In response, retailers strongly opposed the mandating of a time-varying FiT. Retailers generally raised concerns about the extent of current evidence that the benefits outweighed the costs. Some provided information on costs and the impact on their solar customers' FiT revenues if they shifted from the single rate minimum FiT to the time-varying minimum FiT rate.

Consideration of benefits and costs

We have taken on board stakeholders' submissions. We engaged Frontier to undertake an updated modelling of the costs and benefits of mandating a time-varying FiT.

Frontier's finding is that a time-varying FiT is unlikely to change behaviour for a substantial number of solar customers at this point in time because:

³⁹ Essential Services Commission (2016), The energy value of distributed generation inquiry - Stage 1 final report, August, chapter 7.

⁴⁰ Essential Services Commission (2019), Minimum feed-in tariff review 2020–21: draft decision, December, p.6.

- retail electricity tariffs are much higher than the minimum FiT rate and
- the difference between the time-varying rates is much higher for time-varying retail electricity tariffs than for the time-varying minimum FiT rate.

The higher retail electricity tariffs provide a much stronger price signal than the minimum FiT rate. Under this situation, solar customers would be better off minimising their purchase of electricity from the grid to avoid the higher electricity price and self-consume their solar generation.

The effect on customers with solar and batteries will likely be the same. The wide gap between the retail electricity tariff and the minimum FiT rates will incentivise them to use batteries to reduce their consumption during peak times to avoid the high electricity price (i.e. self-consume from the battery) rather than to export the electricity from the battery.

Because customers are better off responding to time-varying retail electricity tariffs than the time-varying minimum FiT rate, Frontier concluded that time-varying FiTs are unlikely to change customer behaviour and, therefore, unlikely to lead to economic benefit at this stage.

Frontier also estimated the costs to retailers of mandating a time-varying FiT, using the cost information provided by retailers. The information currently provided by retailers suggests that while there would be some costs incurred as a result of mandating a time-varying FiT, these costs are expected to be minimal.

We have accepted Frontier's analysis

We have been persuaded by Frontier's analysis.

We note that Clean Energy Council strongly support cost reflective pricing, including the time-varying FiT. We concur with the view that time-varying tariffs more generally are beneficial, because they send price signals which encourage or cause customers to change their behaviour during peak times. This, in turn, can lead to reductions in generation and network costs, which benefits everyone.

We also consider that time-varying tariffs more generally can help reduce individual customer bills, particularly if customers are prepared to change their behaviour in response to the price signal provided by these tariffs. But we acknowledge that at this time, time-varying FiTs, which are a subset of general time-varying tariffs, are not likely to be beneficial to consumers as evidenced by Frontier's modelling of benefits and costs.

We are required to set minimum FiT rates annually. In recognition that electricity markets are changing we will keep an eye on developments in retail electricity markets.

Future reform of network tariffs may mean that customers become more likely to respond to time-varying FiTs (for instance, if network tariff reform means that the consumption component of retail

3. Our final decision

electricity tariffs falls because the consumption component of network tariffs falls). If this occurs there may be a stronger case for mandating a time-varying FiT.

Attached is Frontier's report in relation to its modelling of the benefits and costs of mandating a time-varying FiT.⁴¹

Minimum FiT rates to apply from 1 July 2020

The minimum FiT rates are set out in tables 3.1 and 3.2. These are based on the most up-to-date forecasts of wholesale prices in the futures market.

Table 3.1 Single rate minimum FiT – 2020–21 tariff rates

	Minimum rate to apply (all times) (c/kWh)
Rate	10.2

Table 3.2 Time-varying minimum FiT rate – 2020–21 tariff rates

	Minimum rates to apply (c/kWh)		
	Off peak	Shoulder	Peak
Times	Weekdays: 10pm-7am Weekends: 10pm-7am	Weekdays: 7am-3pm, 9pm-10pm Weekends: 7am-10pm	Weekdays: 3pm-9pm Weekends: n/a
Rates	9.1	9.8	12.5

These minimum FiT rates are based on wholesale electricity forward prices for the 12 months up to 17 January 2020. Wholesale electricity prices in futures market have increased since the draft decision was made (which made use of wholesale electricity forward prices for the 12 months up to 25 October 2019).

This has caused the minimum FiT rates in the final decision to be slightly higher than in the draft decision. Appendix C shows the breakdown of costs components of the minimum FiT rates.

These minimum FiT rates also reflect the two changes we introduced in our approach: the use of a 12-month average of future wholesale electricity prices to make it consistent with our approach to the Victorian Default Offer, and solar-weighting the time-varying minimum FiT rate to better reflect the true value of solar exports. Retailers and peak bodies supported these changes in approach (see chapter 2 for details).

⁴¹ Frontier Economics (2020), Cost-benefit analysis of mandating time-varying FiT, February.

Time blocks have not changed

Table 3.3 sets out the relevant periods, or time blocks, in which the time-varying minimum FiT rate applies.

Table 3.3 – Time block structure for the time-varying minimum FiT rate

Period	Weekday	Weekend
Off peak	10pm-7am	10pm-7am
Shoulder	7am-3pm, 9pm-10pm	7am-10pm
Peak	3pm-9pm	n/a

Notification

A review of retailers' feed-in terms and conditions show that the most common notification requirement for a FiT change is 'as soon as practicable and no later than the next billing period'. We consider the latter is not fair or reasonable for customers.

The Energy Retail Code requires a retailer to provide notification to a customer of a benefit change or price change at least five days prior to the change coming into effect.⁴² A price change means a change to any of the tariffs or charges payable by a small customer under a customer retail contract. The FiT is not payable by a customer but is instead a credit on a customer's bill.

This means that a change in the FiT rates applied by a retailer (either as a result of the minimum FiT rate determined by the commission to apply from each 1 July or at any other time) is not currently captured by the notification requirement in the Energy Retail Code.

We wanted to better understand retailers' customer notification processes regarding FiT. We sought information from retailers regarding their method and timing of notifying customers regarding changes to FiT and whether the FiT rates credited and the charges payable by a customer are covered under the customer retail contract, or separate agreements.

The terms and conditions that retailers apply to FiT rates show that the most common customer notification for a change in the FiT rates is 'as soon as practicable and no later than the next billing period.' We consider this is not fair or reasonable for customers. It is at odds with giving customers clear, timely, easily understood information to allow them to evaluate the ongoing suitability of their contract before any changes come into effect.

⁴² Division 3 of Part 2A, Energy Retail Code

3. Our final decision

We expect retailers to inform their customers of changes to the FiT rates that will be credited to a customer's bill prior to any change in the rates coming into effect. Retailers are encouraged to consider adopting a consistent approach to the notification requirement that applies to price and benefit changes.

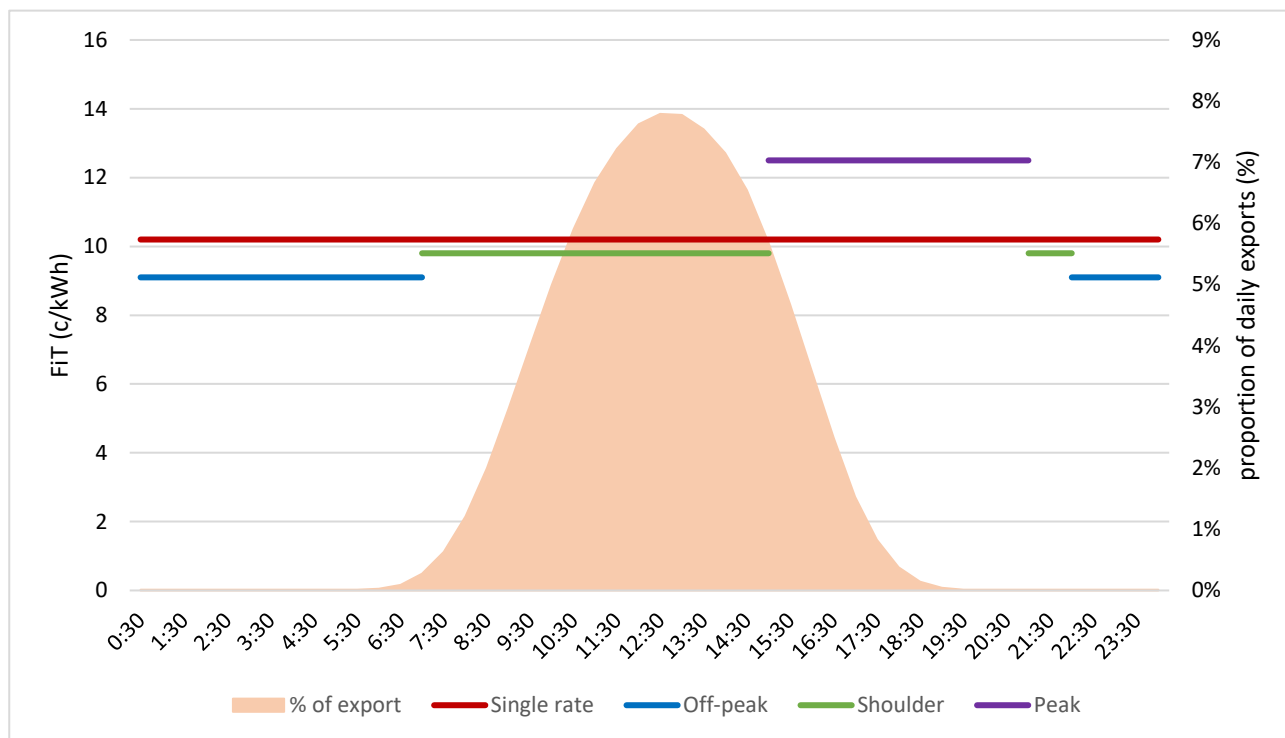
The commission will consult on amendments to the Energy Retail Code relating to notification requirements to customers of changes in FiT rates in the near future.

We encourage customers to shop around

We encourage you to shop around because some retailers offer FiT rates that are higher than the minimum we set. But it is important not to just focus on the FiT rates when deciding on an electricity plan. Some plans which offer higher FiT rates may have less competitive prices for the electricity that you consume from the grid, and this may more than offset any benefit from the higher FiT. You should think of your whole energy bill which includes what you will pay for the electricity you use as well as export.

Figure 3.1 provides an indication of how the minimum FiT rate varies throughout the day and how it compares with an average export profile. The export profile is different for each individual customer, the best combination of FiTs and usage tariffs varies across customers.

Figure 3.1 – Comparison of 2020–21 minimum FiT rates and average export profile throughout the day



Feed-in tariffs and GST

In October 2018, the commission released a final decision requiring all charges and tariffs payable by customers to be shown including GST. As the FiT is not payable by a customer but is instead a credit on a customer’s bill, this rule is not applicable to the FiT for customers.

Appendix A – Legal context

The Essential Services Commission is required under the Electricity Industry Act 2000⁴³ 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. This rate or rates is referred to as the minimum feed-in tariff (FiT).

The FiT is a credit paid by a relevant retailer⁴⁴ to each customer per kilowatt hour (kWh) of electricity exported. It applies to small renewable energy generation facilities with capacities of less than 100 kilowatts (kW) which produce electricity using renewable energy sources such as wind, solar, hydro or biomass.⁴⁵

Each year, the commission determines the minimum FiT rates for the following year.⁴⁶ The new minimum FiT rates described in this document will apply from 1 July 2020.

By law,⁴⁷ the commission must take into account certain factors in determining the minimum FiT rates. These factors include:

- the prices of electricity in the wholesale electricity market
- any distribution and transmission losses avoided in Victoria as a result of small renewable energy generation.

The commission must also have regard to 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.⁴⁸ The Act allows the Governor in Council to issue an order specifying a methodology

⁴³ See section 40FBB of the Electricity Industry Act 2000 (the Act).

⁴⁴ A person that holds a licence to sell electricity and sells to more than 5,000 customers.

⁴⁵ An important exception is that a 'small renewable energy generation facility' does not include a generating facility that is under the premium solar feed-in tariff scheme (Electricity Industry Act section 40F(1)). 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 (Electricity Industry Act section 40F(2)).

⁴⁶ While this has previously been done on a calendar year basis, following recent amendments to the Act the commission is now required to set one or more rates (section 40FBB(2)) by 28 February in the financial year preceding the financial year in which it is to apply (section 40FBB(1)). See Energy Legislation Amendment (Feed-in Tariffs and Improving Safety and Markets) Act 2017 (Vic), assent date 14 February 2017.

⁴⁷ The factors that the commission must have regard to in determining the FiT that applies from 1 July 2018 are set out in section 40FBB(3) of the Act.

⁴⁸ Following recent amendments to section 40FBB(3) of the Act.

or factors for determining these avoided costs.⁴⁹ An order made in 2017⁵⁰ sets out factors and methodologies including the following:

- methodologies for determining the number of units of carbon dioxide equivalent (CO₂e) reduced per unit of electricity exported from a small renewable energy generator
- the monetary value for each unit of CO₂e 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.

⁴⁹ Section 40FBB(3B).

⁵⁰ Victorian Government 2017, Victoria Government Gazette No. S 36, Tuesday 21 February 2017.

Appendix B – Technical methodology

The commission has set two minimum FiT rates to apply from 1 July 2020. The methodology comprises the following components:

- the value of electricity produced by small scale renewable generators, based on the avoided cost of purchasing the same amount of electricity from the wholesale market, accounting for price changes throughout the day and seasonally. This includes:
 - wholesale electricity price forecast, both a single rate and a time-varying rate
 - avoided distribution and transmission losses
 - avoided ancillary service charges and market fees
- avoided social cost of carbon and avoided human health costs.

We have used the following process to determine the minimum FiT rates:

1. Develop a forecast of wholesale electricity prices for the relevant year (2020–21):
 - a. For the *single rate* minimum FiT – using the forecast wholesale prices, calculate the average value of wholesale electricity during the hours solar photovoltaic (PV) systems typically export.
 - b. For the *time-varying* minimum FiT rate – using the forecast wholesale prices, calculate the average value of wholesale electricity during the hours solar photovoltaic (PV) systems typically export during each tariff structure time block.
 - c. Incorporate market fees and ancillary service charges that are avoided by retailers when they purchase from small scale generators rather than purchasing from the wholesale market.
2. Adjust the values above to account for avoided network losses.
3. Incorporate any value associated with the avoided social cost of carbon and avoided human health costs.⁵¹

With the exception of the time periods for the calculation of the wholesale component of the minimum FiT rate, all elements of the method are identical for both the single rate minimum FiT and the time-varying minimum FiT rate.

⁵¹ These are set by government. We take those costs as a straight pass through into our modelling.

Forecasting wholesale electricity prices

Approaches to forecasting wholesale electricity prices

As set out in our draft decision, we have used a futures market approach to estimate the wholesale electricity price in 2020–21. This is based on feedback that we have received from stakeholders in establishing an approach for setting a reference retail price, a desire to align all our pricing approaches, and advice from Frontier Economics as to the best practice approaches used by other regulators in completing similar work.

Both market modelling and futures market approaches are well established techniques that both have their relative advantages, but the commission has determined that the factors above mean that it is appropriate for us to use a futures market approach.

Prior to 2018, we used a market modelling approach that essentially modelled the process that occurs in the National Electricity Market. Doing so requires detailed assumptions on bidding strategies from generators, fluctuations in demand and intermittent wind and solar generation, unplanned plant outages, and transmission constraints. These models can also incorporate the impact of new generation assets, structural changes in the market and longer range forecasts. Based on these assumptions, the model then generates wholesale price forecasts at half-hourly level.

By their nature, these models are complex, which limits the level of transparency that can be provided to stakeholders about how we have reached a decision. In preparing this decision we reviewed the feedback we have received from stakeholders on approaches to forecasting wholesale electricity prices over the time we have been setting the minimum FiT rates. We have also examined the approaches taken to forecast wholesale electricity prices in other jurisdictions and the response from stakeholders in their most recent decisions.

Using a futures market approach is consistent with the approach used in our 2019–20 FiT decision and our Victorian Default Offer (VDO) decisions.⁵² We believe that there are benefits from using a futures market approach by providing more transparency to stakeholders, and ensuring our decision matches the view of ‘the market’ as represented by contract prices. Increased transparency over the inputs for analysis provides stakeholders with greater opportunity to provide meaningful feedback on our decision.

⁵² Essential Services Commission (2019), Victorian Default Offer to apply from 1 July 2019: Advice to the Victorian Government, May. Essential Services Commission (2019), Victorian Default Offer to apply from 1 January 2020: Final report, November.

Wholesale price forecasts for 2020–21

We engaged Frontier Economics to forecast wholesale electricity prices for 2020–21 using a futures market approach. The following section outlines the approach.

Wholesale price forecast for the single rate minimum FiT

Forecasting the relevant wholesale price for the single rate minimum FiT involves four steps.

1. Calculating the price level for 2020–21. Using the average price of 2020–21 quarterly baseload future swaps from the ASX (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 final decision this was 17 January 2020).

The use of a 12-month average price is new for this FiT review. Last year, we used the 40-day average price to forecast wholesale electricity prices for 2019–20. The 12-month average price is more reflective of retailers' approach to buying contracts over a longer period hence would likely result in prices that are more reflective of retailer's actual costs. While it does not reflect the market's most current view of electricity prices in the future it would provide more stable prices over time. We also used the 12-month average price in forecasting wholesale electricity price for the VDO.⁵³

2. Selecting the appropriate historical prices and export profile. The commission received half-hourly actual export data from each of the five distribution business for the period 1 July 2018 to 30 June 2019. The most recent data is likely to be the best indicator of solar export profiles in 2020–21. Similarly, corresponding spot price data is available from the Australian Energy Market Operator.

3. Scaling historical prices to 2020–21 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.

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 2020–21.

5. Calculate the single rate minimum FiT. The wholesale electricity component of the single rate minimum FiT is calculated by averaging the half-hourly prices from step 4, weighted according to the time of solar exports from step 2.

⁵³ Essential Services Commission (2019), Victorian Default Offer to apply from 1 July 2019: Advice to the Victorian Government, May. Essential Services Commission (2019), Victorian Default Offer to apply from 1 January 2020: Final report, November.

Wholesale price forecast for the time-varying minimum FiT rate

Like the single rate approach, the commission has set the time-varying minimum FiT rate using weighting based on solar export profiles. Solar weighting the time-varying minimum FiT rate is new for this FiT review.

During the 2015 distributed generation inquiry, the commission recommended that the time-varying minimum FiT rate should be time-weighted and not solar-weighted to ensure that it was technology neutral.

This would be appropriate if the mix of renewable exports comprised a range of technologies, such as standalone solar, solar with batteries, small scale wind turbines, and exports from the batteries of electric cars charged by solar. We used this approach in our two most recent FiT determinations.

However, since 2015 the take-up of rooftop solar generating units has continued to increase and has remained by far the dominant source of small scale renewable generation in Victoria.

Solar-weighted future wholesale electricity prices are based on the prices of electricity weighted by the average exports of small scale solar through the day. For example, only a small proportion of solar electricity is exported after 6pm (when wholesale market prices are typically at their highest), while most is exported in the middle of the day when prices are low. So, the estimates of the value of solar exports are weighted by the amounts that are exported at those times. This solar weighting approach better reflects the true value of solar exports to the grid.⁵⁴

Time-weighted future wholesale electricity prices would be more appropriate if exports occurred more evenly through the day, for example, due to exports from wind, biomass or electricity stored in a battery. But this is currently very uncommon.

Under the technology neutral time-weighting approach, solar owners on a mandated time-varying FiT are likely to be paid more than the true value of their exports to the grid.⁵⁵ We estimate that if all current solar customers were to switch to a time-varying FiT, the time weighted approach would entail additional FiT payments from retailers to customers with solar panels of about \$12 million (upper bound), and ultimately these additional costs could be borne by all retail consumers.⁵⁶

⁵⁴ This generation has occurred during the middle of the day and has been one factor suppressing wholesale electricity prices to near zero during those times.

⁵⁵ During our consultation with stakeholders in September 2019, some retailers and consumer groups have also expressed concerns about customers without solar panels subsidising customers with solar panels.

⁵⁶ Difference between single FiT (10 c/kWh) and average of time-weighted time-varying FiT (11.4 c/kWh) multiplied by the assumed solar export for 2020–21 of 950 GWh. We acknowledge that this upper bound is highly unlikely to occur.

We will continue to monitor changes to the composition of Victoria’s small scale generating mix when making future FiT decisions.

The time blocks used for the time-varying minimum FiT rate are those established by the Victorian Government for the standard flexible pricing tariff.

Estimate of market charges and ancillary services

When retailers buy energy from the wholesale market, they must pay market fees and ancillary service charges to the Australian Energy Market Operator. They pay these fees based on the amount of electricity they purchase from the wholesale market and avoid them to the extent that they source electricity from small renewable generators. We have included these fees when calculating avoided wholesale costs.

The market fees levied by the Australian Energy Market Operator are set in advance, through its budgeting process. The Australian Energy Market Operator has estimated its relevant 2020–21 market fees to be \$0.60 /MWh. Our estimate of market fees does not include fees associated with full retail competition as these fees are recovered on a per customer basis.

The cost of ancillary services is recovered from market participants. On a weekly basis, the Australian Energy Market Operator publishes data showing the cost recovery rate for ancillary services. For the purpose of determining minimum FiT rates that apply from 1 July 2020, we assume that the average cost of ancillary services in 2020–21 will be consistent with the average over the last 52 weeks. When this is added to the relevant market fees, the value of ancillary service charges and market fees avoided when a retailer obtains electricity from a small scale renewable generator is 0.10 c/kWh. Table B.1 provides a breakdown of this calculation.

In maintaining consistency with previous years, the cents per kilowatt hour has been rounded to the nearest 0.1 cent amount, meaning the value applied for market fees and ancillary services in the 2020–21 feed-in tariff is 0.1 c/kWh.

Table B.1 – Market and ancillary service fees

Item	Fee (\$/MWh)
NEM general fees	0.56
National transmission planner	0.04
Ancillary services	0.42
TOTAL	0.10

Source: AEMO, Electricity Budget and Fees report 2019–20 and Ancillary service payments and recovery

Estimate of the avoided transmission and distribution losses

Electricity purchased from the wholesale market is often supplied by large generators located away from the point where it is consumed. Electricity is transported to households and other users via the transmission and distribution network (also known as the grid). During that transportation process, a small portion of the electricity originally generated is lost as heat. This is often referred to as 'line losses'.

Small-scale renewable generation is typically generated and consumed close together. The extent of this saving varies depending on where the generation is located (and other factors). We have incorporated this cost saving into the feed-in tariff by applying a 'loss factor' as part of the avoided cost of purchasing energy on the wholesale market.

Using data obtained from the Australian Energy Market Operator, the commission estimates a customer weighted line loss factor of 1.0486. The inverse of the loss factor is applied to estimate the value of losses in the calculation. Table B.2 sets out the inputs to this calculation. Consistent with previous decisions, we have taken the short sub-transmission 'E' distribution loss factors⁵⁷ and calculated the average marginal loss factors (MLF) by taking a simple average of the loss factors published by the Australian Energy Market Operator across each distribution area.⁵⁸ We have not published the MLFs, but they can be sourced from the Australian Energy Market Operator website. Both sets of loss factors use the 2019–20 factors published by Australian Energy Market Operator. The loss factors are then weighted by the number of low voltage residential and non-residential customers in each distribution zone to calculate a Victoria wide loss factor.⁵⁹

⁵⁷ https://aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Loss_Factors_and_Regional_Boundaries/2019/Distribution-Loss-Factors-for-the-2019–20-Financial-Year.pdf

⁵⁸ https://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Loss_Factors_and_Regional_Boundaries/2019/Marginal-Loss-Factors-for-the-2019–20-Financial-year.pdf

⁵⁹ <https://www.aer.gov.au/networks-pipelines/network-performance>

Table B.2 – Inputs for calculating loss factors

Distribution area	Distribution loss factor	Average marginal loss factors	Total loss factor	Customers
AusNet Services	1.0583	0.9950	1.0530	732,805
Citipower	1.0474	0.9975	1.0448	337,953
Jemena	1.0418	0.9984	1.0401	339,021
Powercor	1.0682	0.9795	1.0463	827,074
United Energy	1.0570	0.9959	1.0526	675,999
Customer weighted			1.0486	
Inverse			4.63%	

Estimate of the avoided social cost of carbon

In February 2017, the Victorian Government issued an Order in Council specifying a method for determining the social cost of carbon.⁶⁰

The avoided social cost of carbon for a relevant financial year is the cost per kilowatt-hour of small renewable energy generation electricity purchased by a relevant licensee (retailer), determined in accordance with the following methodology and factors:

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

The order specifies the factors the commission must use when applying this methodology.

With regard to the volume factor, the commission must use 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 of CO₂e is assumed to be avoided for each kWh exported by a small renewable energy generator (or 0.00127 tonne of CO₂e avoided per kWh exported).

With regard to the price factor, the order specifies a method for determining the value, which the commission has applied to determine a value per tonne of CO₂e of \$19.63.

The resulting avoided social cost of carbon is \$0.025/kWh of electricity exported by a small renewable energy generator.

⁶⁰ See 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).

The Victorian Government’s Order in Council did not specify a factor or method for determining avoided human health costs. They are therefore set at 0 c/kWh.

Structuring time-varying FiTs

We have also set a time-varying minimum FiT rate with peak, shoulder and off-peak periods. Consistent with the findings of our inquiry into the true value of distributed generation, these time blocks are identical to those used for flexible pricing in Victoria. The time periods – or ‘time blocks structure’ – for the time-varying minimum FiT rate are set out in table B.3.

Table B.3 – Time block structure for time-varying minimum FiT rate

Period	Weekday	Weekend
Off peak	10pm-7am	10pm-7am
Shoulder	7am-3pm, 9pm-10pm	7am-10pm
Peak	3pm-9pm	n/a

Appendix C – Cost components of the minimum FiT rates

Table C.1 below sets out how each component contributes to the overall minimum FiT rates for both the single rate and the time-varying options. Annual changes in the level of the minimum FiT rates are affected primarily by the changes in the forecast wholesale electricity price, which accounts for 71 per cent of the minimum FiT rate, on average.

Table C.1 – Detailed breakdown of the components for the 2020–21 minimum FiT rates
(c/kWh)⁶¹

Component	Single rate	Off peak	Shoulder	Peak
Wholesale electricity prices	7.26	6.20	6.91	9.48
Avoided market fees and ancillary service charges	0.10	0.10	0.10	0.10
<i>Sub-total</i>	7.36	6.30	7.01	9.58
Loss adjustment (multiply)	4.63%	4.63%	4.63%	4.63%
Value of avoided distribution and transmission losses	0.34	0.29	0.32	0.44
<i>Sub-total</i>	7.70	6.59	7.34	10.03
Value of avoided social cost of carbon	2.50	2.50	2.50	2.50
Value of avoided human health costs	0.00	0.00	0.00	0.00
Total (rounded to one decimal place)	10.2	9.1	9.8	12.5

⁶¹ Table may not add due to rounding.

Appendix D – Comparison with previous years

Table D.1 – Single rate minimum FiT from previous years up to 2020–21 (c/kWh)

FiT component	2015	2016	2017–18	2018–19	2019–20	2020–21
Forecast solar-weighted average wholesale electricity price	5.7	4.6	8.1	6.8	8.9	7.3
Avoided market fees and ancillary service charges	0.05	0.1	0.1	0.1	0.1	0.1
Value of avoided distribution and transmission losses	0.4	0.3	0.6	0.5	0.5	0.3
Value of avoided social cost of carbon	n/a	n/a	2.5	2.5	2.5	2.5
Minimum FiT rate	6.2	5	11.3	9.9	12.0	10.2

Table D.2 – Time-varying minimum FiT rate from previous years up to 2020–21 (c/kWh)⁶²

	2018–19	2019–20	2020–21
Peak	29.0	14.6	12.5
Shoulder	10.3	11.6	9.8
Off peak	7.1	9.9	9.1

See Frontier Economics' report for details about comparison of wholesale electricity price forecasts for the minimum FiT rates for 2019–20 and for this decision.⁶³

⁶² The minimum time-varying FiT rates for 2018–19 and 2019–20 are time-weighted while 2020–21 is solar-weighted.

⁶³ Frontier Economics (2020), Wholesale price forecasts for calculating minimum feed-in tariff, February.

Appendix E – Comparison between FiT and the VDO

While our estimate of the wholesale electricity price component of the single rate minimum FiT has fallen in this final decision for 2020–21 compared with our previous final decision for FiT 2019–20, our estimate of the wholesale electricity cost component of the Victorian Default Offer 2020 has increased relative to our previous estimate of the VDO for 2019–20.

While there are similarities in the approach to estimating the wholesale electricity components of the minimum FiT rate 2020–21 and the Victorian Default Offer 2020, there are important differences that account for these different trends:

- We determined the minimum FiT rates for the financial year commencing 1 July 2020 and the Victorian Default Offer for the calendar year commencing 1 January 2020. We are required to set the minimum FiT rates on a financial year basis under the Electricity Industry Act⁶⁴ and the VDO on a calendar year basis under the Order in Council⁶⁵. This means that the high contract prices for Q1 2020 affect our estimate of the Victorian Default Offer but not our estimate of the minimum FiT rates.
- The minimum FiT rates are determined, in part, by the correlation between solar exports and wholesale electricity prices while the Victorian Default Offer is determined, in part, by the correlation between retail load and wholesale electricity prices. The same changes in pricing patterns that have resulted in a reduced correlation between solar exports and wholesale electricity prices in 2019–20 have a very different impact on the correlation between retail load and wholesale electricity prices in 2019–20.
- Our use of a 12-month trade weighted average price for determining the minimum FiT rates for 2020–21 instead of the 40-day average we used for the minimum FiT rates 2019–20 has the effect of lowering the minimum FiT rates for 2020–21. The trend for the Victorian Default Offer has not been affected by a similar change in approach, since the Victorian Default Offer for both 2019–20 and 2020 made use of a 12-month trade weighted average price.

See Frontier Economics' report for details.⁶⁶

⁶⁴ Section 40FBB, Electricity Industry Act

⁶⁵ Order in Council made under section 13 of the Electricity Industry Act 2000 and published in the Victorian Government Gazette No. S 208 on Thursday 30 May 2019. An amendment to schedule 1 was ordered in the Victorian Government Gazette, No. S 216 Tuesday 4 June 2019 (updating controlled load charges).

⁶⁶ Frontier Economics (2020), Wholesale price forecasts for calculating minimum feed-in tariff, February.

Appendix F – Submissions

Electricity retailers

- AGL Energy
- Alinta Energy
- Energy Australia
- Momentum Energy
- GloBird
- Origin Energy
- Powershop
- Red Energy and Lumo Energy
- Simply Energy

Consumer Group

Solar Citizens – submissions from 68 members of Solar Citizens

Peak Body

Clean Energy Council

Australian Energy Council

Individuals

Kemmis Brown

Surendra Talasila

Anthony Hardy

Adam Creed

Peter Brown

Tony

Linda Taylor

Barry Grant

11 Anonymous

Appendix G – Abbreviations

Term	Definition
AEMO	Australian Energy Market Operator
c/kWh	cents per kilowatt hour
DLF	Distribution loss factor
FiT	Feed-in tariff
IPART	Independent Pricing and Regulatory Tribunal in New South Wales
kW	Kilowatts
kWh	Kilowatt hour
MLF	Marginal loss factor
MWh	Megawatt hour
MW	Megawatts

Appendix H – Glossary

Term	Definition
the Act	Electricity Industry Act 2000 (Vic)
commission	Essential Services Commission (Victoria)
Small renewable energy generator	A wind, solar, hydro, biomass energy facility (or other facility if specified by Order in Council) connected to a distribution system that generates electricity and has an installed or name-plate generating capacity of less than 100 kilowatts.
Relevant retailer	A person that holds a licence to sell electricity and sells to more than 5,000 customers.