



3 June 2016

Dr Ron Ben-David  
Inquiry into the True Value of Distributed Generation  
Essential Services Commission  
Level 37/2 Lonsdale Street  
Melbourne VIC 3000  
Lodged online

Dear Dr Ben-David,

### **The Energy Value of Distributed Generation—Distributed Generation Inquiry Stage 1, Draft Report**

Origin Energy (Origin) welcomes the opportunity to provide a response to the Essential Services Commission of Victoria's (the Commission) Draft Report into the Energy Value of Distributed Generation.

Origin acknowledges the Commission's endeavours to determine a regulated method for pricing distributed generation but we do not support its proposed Distributed Generation Tariff (DGT) and most of its draft recommendations. In particular, Origin is concerned that in designing the DGT the Commission has not given appropriate weight to considering "the most appropriate policy and regulatory mechanisms for compensating different benefits of distributed generation, *including considering their practicality and costs.*"<sup>1</sup>

Origin does not believe that the DGT is the appropriate mechanisms for regulating feed-in tariffs when practicality and cost are taken into account. This conclusion is supported by jurisdictional regulators and competition authorities in four different states when they have considered the energy and environmental value of distributed generation (generally in the form of solar energy).<sup>2</sup>

With respect to the energy value of exported distributed generation, the Commission has assumed that a single rate does not capture the "true value" of distributed generation and proceeded to design a theoretically more cost reflective tariff. This is despite the Commission's current method incorporating an assessment of the time varying wholesale value of energy; the value is simply expressed as a single average figure. The Commission's own worked example demonstrates that the difference between a hypothetical single value feed-in tariff and a flexible feed-in tariff is essentially zero and is unlikely to encourage any change in behaviour due to the limited value of benefits to customers.<sup>3</sup>

Consumers can only be slightly better off on a flexible feed-in tariff if they respond to a price signal that is almost identical to the weighted average flat feed-in tariff. Given that the annual value of exported energy is likely to be modest (around \$100 per annum), consumers are likely to be better off responding to the more compelling price signal of their retail tariff, and to avoid energy consumption from the grid. This suggests a more fundamental problem with the Commission's approach: they have identified the "true value" of distributed generation as exported energy when in fact its true value largely resides in avoided consumption by the consumer.

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<sup>1</sup> Essential Services Commission of Victoria, *The Energy Value of Distributed Generation, Distributed Generation Inquiry Stage 1 Draft Report*, April 2016, p. 124. Emphasis added.

<sup>2</sup> Independent Pricing and Regulatory Tribunal, *Solar Feed-in-tariffs: Setting a fair and reasonable value for electricity generated by small-scale solar PV units in NSW*, Final Report, March 2012; Victorian Competition and Efficiency Commission, *Power from the people: Inquiry into Distributed Generation*, Final Report, December 2012; Queensland Competition Authority, *Estimating a fair and reasonable solar feed-in-tariff for Queensland*, Final Report, March 2013; Queensland Productivity Commission, *Solar Feed-in Pricing in Queensland—Draft Report*, March 2016.

<sup>3</sup> ESCV, *Draft Report*, p. 115.

Introducing a flexible feed-in tariff to achieve pricing efficiency is neither practical nor cost effective when compared against the introduction of network tariff reform, which would apply to more consumers and send far more direct price signals for behavioural change. Price efficiency is greater when behavioural changes are directed to consumption rather than energy production. The DGT is directed to the latter and, given that consumers do not have control of when their renewable distributed generation produce power due to the intermittent nature of the resource, any efficiency gains will be very small—if there are any at all. We believe that the Commission erred in not comparing this with the efficiency gains that are likely to be made as a result of Distribution Network Pricing Arrangements. Had it done so then Origin believes it would have concluded that Distribution Network Pricing Reforms are more cost effective and practical than a flexible feed-in tariff, and that the latter will not provide any significant additional efficiencies.

In terms of the environmental aspects of the Inquiry, Origin agrees that avoided emissions are a quantifiable environmental benefit of distributed generation. Other than potential reductions in carbon emissions, Origin is not aware of any additional quantifiable environmental or social benefits from distributed generation. We disagree with the Commission's view that the Renewable Energy Target (RET) does not adequately compensate distributed generation for the avoided emissions its system generates. As our analysis demonstrates, the objective of the Small Scale Renewable Energy Scheme (SRES) under the RET is to compensate renewable energy distributed generators for the emissions they avoid through an up-front subsidy. In Victoria, for a typical 3kW system, this represents a subsidy of \$2,014 over fifteen years. This represents a subsidy of about \$25/tco<sub>2</sub>e under the SRES. In contrast, at the end of May the European Union's ETS Carbon Futures<sup>4</sup> were trading at €5.97 or \$9.20 AUD and the average price per tonne of abatement was \$10.23 under the third auction of Australia's Emissions Reduction Fund.<sup>5</sup> Origin believes that the SRES already represents adequate compensation for avoided emissions.

The Commission wants these changes implemented by the start of 1 January 2017. Origin does not support this timeframe. Whilst it is reasonable for the Commission to assess retail and network aspects of distributed generation through discrete reports, we believe that it will be more beneficial if the final report considers both aspects together. This will ensure that the different aspects of retail and network policy on distributed generation align, and that efficient policy responses are chosen. In addition, it may be difficult and more expensive if proposed system changes are implemented under a short time line—in this case, less than five months if the final report is released in August 2016.

Overall, the Commission has itself identified three guiding principles for evaluating the merit of the DGT: simplicity, materiality and behaviour response. In Origin's view, it is difficult to see how the DGT is consistent with these principles. We believe that in Victoria's competitive retail energy market it is consumers, not regulators, who ought to determine what amounts to the true energy value of distributed generation. This would be achieved by deregulating the feed-in tariff to allow the competitive market to determine the price and structure—as is the case in New South Wales and Queensland at present, and as is under consideration by the Essential Services Commission of South Australia.<sup>6</sup> In the absence of deregulation we propose that the Commission publish both single and flexible feed-in tariff rates and allows the market to determine which products are offered and taken up by consumers.

We address these issues, and the questions proposed by the Commission, in more detail below.

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<sup>4</sup> <http://www.investing.com/commodities/carbon-emissions-historical-data>

<sup>5</sup> <http://www.cleanenergyregulator.gov.au/ERF/Auctions-results/april-2016>

<sup>6</sup> Essential Services Commission of South Australia, *South Australian electricity retailer feed-in tariff: Review of Regulatory Arrangements, Issues Paper*, March 2016.

Should you have any questions or wish to discuss this information further, please contact Timothy Wilson, Regulatory Analyst, on .

Yours sincerely

Keith Robertson  
Manager, Wholesale and Retail Regulatory Policy

## Wholesale market value of distributed generation exports

The proposed multi-rate tariff is intended to make payments to distributed generators better reflect the 'market value' of the generator's exports. To achieve this outcome, the multi-rate structure includes payments that vary according to time and location.

1. Does the proposed multi-rate feed-in tariff (FiT) allow for payments to distributed generators to better reflect the market value of their exports? If not, why not?
2. Do you support the proposal to amend the FiT framework to enable multi-rate tariffs for distributed generation? If so, which of the options do you favour and why? If not, why not?

### Reflecting the market value of exports

The proposed DGT will be a marginally better reflection of the market value of a distributed generator's exports than the current flat rate. Any time differential price will, in theory, be a more accurate reflection than a flat price because the values will more closely follow the expected price curve of the wholesale market relative to a flat price. However, most customers are limited in their ability to respond to these price signals because the intermittent nature of solar PV means that they cannot control when their systems produce energy.<sup>7</sup> Even if customers were to change their behaviour it will be a marginal improvement of the market rate because the flat feed-in tariff already incorporates an assessment of the time varying wholesale value of energy; the value is simply expressed as a single average figure rather than three separate figures. This ambiguity is expressed in Table 6.4 of the Commission's Draft Report, which demonstrates that the value earned under a flat or flexible rate is very similar. It is also worth noting that customers will be marginally worse off on a single rate in Year A and marginally better on a single rate in Year B; the proximity in values suggests that the single rate is already compensating customers reasonably for their energy exports.<sup>8</sup>

As the Commission is aware, Origin does not support regulated feed-in-tariffs where effective competition exists in the retail market. Given the high level of competition that exists in the Victorian retail electricity market, mandating a minimum feed-in tariff only acts to stifle competition in the feed-in tariff market and to limit customer choice. This is demonstrated by comparing the spread of offers in Victoria with South East Queensland, which has deregulated feed-in-tariffs. In Victoria, feed-in-tariffs coalesce around the mandated minimum feed-in-tariff rate, with most customers receiving a rate that is close to the mandated minimum determined by the Commission. The South East Queensland market, in contrast, has a much broader spread of offers; 10 retailers offer customers a voluntary feed-in-tariff rate of between 4 and 11 cents kWh, with the largest three retailers offering customers a rate of between 6 and 8 cents a kWh. Regulated feed-in-tariffs may therefore create a sub-optimal price ceiling for some customers seeking to export electricity to the grid.

If the Commission wants to propose a more accurate reflection of the market value of feed-in tariff then it ought to provide the Government with advice on the deregulation of feed-in tariffs. It has already done this, in a limited manner, with draft recommendation six's proposal to deregulate the feed-in tariff where retailers allow customers to be paid the half-hourly wholesale market rates. If there is a strong desire for this product among a sizable customer base then, in Victoria's competitive energy market, retailers will offer it to customers. Origin therefore supports draft recommendation six because it provides consumers with more choice.

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<sup>7</sup> QPC, Draft Report, p. 129

<sup>8</sup> ESCV, Draft Report p. 115.

Origin aspires to be the leading solar energy provider in Australia and we offer customers solar systems under a range of financing models. Solar customers benefit from the increasing deregulation of feed-in tariffs across Australian jurisdictions, as this encourages innovation and further competition to attract a growing number of residential solar customers. For instance, Origin has recently developed a product of two year, 12 c/kWh feed-in tariff for its residential customers that obtain a new solar system of up to 6.24 kW from Origin.<sup>9</sup> This product is offered across each of our retail markets and is a clear example of the competitive market working to the benefit of customers. However, under a flexible tariff structure, Origin would presumably be required to differentiate its feed-in tariff offering to reflect the mandated structure. If this is correct then Origin could not continue to offer this product in Victoria. We therefore seek clarification from the Commission on two matters:

- (a) Will these customer's contracts be grandfathered under the new scheme?
- (b) Whether the regulatory intervention the Commission are proposing will result in better outcomes for new customers that will not be able to access this offer?

### **Flexible feed-in tariff and behavioural response**

Origin does not believe that the Commission's flexible feed-in tariff will produce a material behavioural response because exported energy is a secondary consideration for distributed generation customers. Our analysis of an average residential customer in the Powercor distribution network from May 2015 until April 2016 shows that a customer with a 3 kW solar system would be \$7 better off per annum under a flexible feed-in tariff.<sup>10</sup> Using Year A of Commission's own example in its Draft Report, we set out the peak, shoulder and off peak tariffs in Table one.<sup>11</sup> The Commission's underlying assumption appears to be that consumers will be motivated to shift their behaviour by a 2.8 cent tariff difference between the peak and off peak tariff (in this synthetic year). In contrast, Origin's flexible tariff standing offer for the Powercor area provides consumers with a clear price signal between each of these tariff points. The difference between the peak and shoulder period is 15.466 c/kWh and 7.909 c/kWh from off peak to shoulder. The total difference between peak and off-peak represents 23.375 c/kWh.

*Table one: Comparison between Year A in Melbourne region and Origin standing offer in Powercor*

Location	Critical Peak	Peak	Shoulder	Off peak
Melbourne, Geelong and Eastern Vic zone	31.6 c/kWh	6.5 c/kWh	5.2 c/kWh	3.7 c/kWh
Powercor	N/A	41.998 c/kWh	26.532 c/kWh	18.623 c/kWh

*Note: Powercor prices are inclusive of GST*

When considering the price signal between the two tariffs two things become clear: firstly, that in isolation the price signal provided by the DGT does not provide a sufficient signal to consumers to motivate them to use their distributed generation system differently; and secondly, the price signal driving the efficient use of distributed generation is the retailer tariff. Both of these observations tend to suggest that the proposed feed-in tariff will not meet the Commission's guiding principles of behavioural response and materiality.<sup>12</sup>

The Commission appears to assume that the behaviour of distributed generation is analogous to centralised generators; distributed generators are expected to respond to the price signal of the feed-in tariff in the same way that centralised generators respond to the spot price on the wholesale market.

<sup>9</sup> <https://www.originenergy.com.au/for-home/solar/plans-offers/feed-in-tariff-offer.html>

<sup>10</sup> This assumes a peak, shoulder and off peak flexible feed-in tariff of 7, 5.5 and 4 cents per kWh respectively (i.e. Year A, Northern and Western Victoria region), against a time weighted flat feed-in tariff using the same periods and tariffs of 5.21 cents per kWh.

<sup>11</sup> ESCV, Draft Report, p. 113.

<sup>12</sup> Ibid, pp. 17-18.

Distributed generation differs from normal generation because they must consume less power than they generate in order to export it. As table one demonstrates, the relative cost of retailer energy is much higher than price available for exporting energy. Owners of distributed generation primarily pay back the cost of their investment through the avoided cost of purchasing grid energy rather than by exporting it. This explains why the avoided cost of grid energy is the price signal that owners of distributed generation respond to. Taking this into consideration, we do not believe that the proposal will generate a behavioural response.

If consumers did respond to the price signal by shifting their demand to a different time in order to export more then consumers may in fact be worse off under the DGT. That's because these consumers will have to purchase energy from the grid at a higher rate (even under off peak tariffs) than the Feed in Tariff rate they will receive for exported energy. If consumers use less energy overall in order to export additional energy then they will make more money—yet this also true under the current single rate feed-in tariff and reflects the benefit of energy efficiency.

### **Network tariff reform**

In *Power of Choice*, the AEMC tied any cost reflective feed-in pricing closely to proper signals from network tariff reform:

The interactions between feed-in tariffs and flexible pricing options for electricity usage will also need to be considered. The aim should be to encourage consumers to make effective and efficient choices between maximising the use of their PV generated electricity for their own on-site needs (and thus reducing their need to import electricity at peak times) and exporting at peak demand times. Clearly the interactions may be complex and will involve different considerations in terms of network capacity and quality issues and the power supply/demand balance. *However it is important that the combination of both the feed-in tariff and the consumer's own retail tariff should be providing the right efficiency signals.*<sup>13</sup>

In the absence of storage, renewable energy distributed generation is intermittent and consumers do not directly control the conditions under which their system generates power. Owners can therefore only use their systems more efficiently by shifting or reducing their consumption. As the QPC has observed, "it would be more effective and efficient to directly target consumption (for all electricity consumers, not just solar PV owners), rather than indirectly through solar export pricing."<sup>14</sup> It follows that if the goal is to achieve better network efficiency by shifting distributed generation consumption to times where its value is higher for the network and other customers then a more direct and effective method of achieving this would be network tariff reform.

Origin believes that the Government's Terms of Reference means that the Commission should compare the pricing efficiency gains under a flexible feed-in tariff with those it will receive following the implementation of the Distribution Network Pricing Arrangements. Under these Arrangements, consumers that respond efficiently to network price signals will pay less for their use of the network.<sup>15</sup> The Commission ought to examine these Arrangements, which are aimed at achieving pricing efficiency, as part of its consideration of the current policy and regulatory framework under the Terms of Reference. Further, the Terms of Reference require cost and practicality of proposed policy positions to be considered. Given the implementation of the Distribution Network Pricing Arrangements is already underway, it is difficult to see what additional efficiency benefits the DGT will provide relative to its cost.

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<sup>13</sup> Australian Energy Market Commission, *Power of Choice: Final Report*, November 2012, p. 241. Emphasis added.

<sup>14</sup> ESCV, Draft report, p. 129. Emphasis in original.

<sup>15</sup> Australian Energy Market Commission, *Distribution Network Pricing Arrangements, Rule Determination*, 27 November 2014, Sydney.

### **Critical peak pricing**

Origin believes that the Commission's proposal to introduce a critical peak pricing component is inconsistent with the Commission's guiding principles of simplicity, materiality and behavioural change. In theory, including a critical peak price will provide an incentive for customers to shift their consumption in order to export more energy to the grid to take advantage of the higher price. However, as Table one demonstrates, the same problem applies with critical peak pricing to other aspects of the flexible feed-in tariff: the incentive for customers is to consume the energy they generate because it is cheaper than purchasing it from the grid.

Origin would expect critical peak pricing events to generally coincide with the peak retail tariff (i.e. between 3-pm on a weekday) and, as Table one above demonstrates, the critical peak pricing tariff may not be higher than the peak retail tariff paid by the customer. Even where a critical peak pricing tariff is higher than the customer's retail tariff the price signal is too marginal and retrospective to encourage significant behavioural change. Customers will not be aware of when there are critical peak pricing events unless they are monitoring the spot market for above \$300 MWh events.<sup>16</sup> It is likely that customers will only find out after the event as a line item on their bill. The incentive for customers to shift their behaviour is therefore blunted by the marginal and retrospective nature of the critical peak pricing signal. Furthermore, there is little that customers can practically do to take advantage of this additional price signal. Given that solar customers do not control the availability of their distributed generation, they may not in fact be able to take advantage of a critical peak pricing event (this also assumes they are at home and aware the event is occurring anyway). Accordingly, customers may not be able to take advantage of a critical peak pricing event, and Origin believes that the price signal is too marginal to incentivise them to do so anyway.

Complications also arise for retailers implementing the critical peak pricing tariff. Origin would not expect retailers to predict a critical peak pricing event until before fact; that's why retailers enter contracts to hedge against peak pricing events. Further, retailer systems will bill customers based on the flexible feed-in tariff rate that applies during a critical peak pricing event (this is likely to be the peak rates given the time critical peak pricing events tend to occur). Additional systems outside of our core billing will need to be developed to ensure that an adjustment is made to the customer's bill to reflect any export value. It is not clear whether customers receive both the critical peak pricing and the peak tariff or just the critical peak tariff. Origin assumes that it would just be the critical peak tariff alone but would appreciate clarification from the Commission on this point.

Taken as a whole, Origin believes that the critical peak pricing tariff will not deliver a price signal—and that customers are still more likely to avoid consumption than they are to export energy. Given this, and the complications involved in billing customers retrospectively, Origin does not believe that this proposal is either practical or cost effective and is therefore inconsistent with the Commission's terms of reference.

### **Locational pricing**

The Commission has sought to determine a method for calculating the line losses associated with transmission lines across the state. Origin accepts that distributed generation is an efficient generation source in regions that are not located near large-scale centralised generation. The Commission has identified the applicable loss factor across a number of zones and ultimately settled on two geographic locations as balancing simplicity with cost reflectivity and the greatest potential for a behavioral response. Origin appreciates the difficulty in seeking to balance these factors and the Commission's approach appears reasonable in terms of isolating the greatest transmission losses in the western and northern zone.

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<sup>16</sup> ESCV, *Draft Report*, p. 57.

However, as with other aspects of the DGT, the differences between each of the zones is ultimately marginal, as reflected in the Commission's own rates in Table 6.3 of their draft report.<sup>17</sup> This is explained by Victorian being the smallest mainland state, thus resulting in low overall loss factors that the Commission is proposing. Whilst the Commission's scenarios are synthetic, we would expect their actual determinations to be similar, with an immaterial price difference between the different regions across the feed-in tariff values. It is difficult to see consumers in one zone acting differently in another based on a relative price signal of between 0.3 and 0.5 cents across the locational zones. Accordingly, we believe that the proposal to include locational pricing does not meet the Commission's guiding principles of materiality and behavioural response.

### **Distributed generation below 5MW capacity**

Origin does not agree with the Commission's definition of distributed generation as including generation less than 5 MW in capacity. The Commission states that systems less than 5MW capacity "are typically unable to negotiate a price for their output and are effectively price takers via the mandated FIT payment."<sup>18</sup>

Origin disagrees with this position. Installation of a 100 kW solar system costs around \$140,000 in Victoria—and this after they have received over \$60,000 in upfront STCs. This represents a significant investment on behalf of a consumer and suggests that they are backed by sufficient resources to negotiate a market price. Indeed, the current threshold for receiving a regulated minimum feed-in-tariff in Victoria is generation capacity of less than 100kW of energy.<sup>19</sup> Under the RET's Small Scale Renewable Energy Scheme (SRES), solar systems must be no more than 100kW and with a total annual output of less than 250MWh to obtain small-scale technology certificates; wind systems must be less than 10kW and hydro systems less than 6.4kW. In Origin's view, the 100kW threshold for solar systems is a broadly appropriate definition of "distributed generation" for the purposes of an Inquiry into its true value. We cannot see any compelling reason for changing it.

### **Amending the framework**

As the above discussion indicates, Origin does not support the proposed amendments to the framework. We do not believe that the Commission's proposed DGT meets the three principles it has correctly identified as guiding this work: simplicity, behavioural response and materiality. Whilst the Commission has sought to justify these changes on theoretical grounds, such as the dynamic efficiency of a variable price signal, in practice these changes will require significant behavioural changes by customers in response to a marginal price signal to generate any net benefits for all Victorian consumers. We do not believe that this behavioural change will occur.

The Commission's own hypothetical example in Table 6.4 demonstrates this by highlighting the marginal difference between customers on a flat or flexible feed-in tariff.<sup>20</sup> The Commission stated in a forum attended by Origin that the "unknown" benefit is the behavioural change by customers in response to the flexible price signal.<sup>21</sup> However, as we have discussed above, the export value is secondary to customer's retail tariff in determining behavioural response.<sup>22</sup>

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<sup>17</sup> Ibid, p. 113.

<sup>18</sup> Ibid, p. 25.

<sup>19</sup> Section 40F, *Electricity Industry Act 2000*.

<sup>20</sup> ESCV, *Draft Report*, p. 113.

<sup>21</sup> The relevant stakeholder forum was held by the Commission following release of the Draft Report on 9 May 2016.

<sup>22</sup> Premium feed-in tariffs are evidently the exception, where the price of exported energy is two or three times the customer's retail tariff. In this instance the price signal is for customers to maximise energy generation and minimise their consumption. As the Commission is aware, these tariffs were determined by Governments across Australia for their own purposes, and not as a reflection of the real value of exported distributed generation. They generally closed when costs well exceeded their benefits and have created problems for jurisdictions that have to fund them from Government balance sheets. We would observe that

When considered in the broader framework of energy regulation, as the Terms of Reference require, it is hard not to conclude that other policy reforms (like network tariff reform) will in fact generate greater efficiency benefits for all customers. For that reason, and taking costs and practicality into account, the most reasonable recommendation is for the Government to pursue efficiency dividends through network tariff reform.

In Origin's view, choice is central to the functioning of Victoria's competitive energy market. As an alternative policy, the Commission may consider determining both a single rate feed-in tariff and a flexible feed-in tariff. It is then up to retailers, within a competitive market, to determine what they want to offer customers. This is better than retailers being forced to mandatorily assigning customers on to the DGT regardless of their preference.

If there is an appetite in the Victorian market among customers for a flexible feed-in tariff, then a retailer will invest in the necessary billing system changes to offer it. However, retailers should not be mandated to offer either a flexible or single feed-in tariff; this should remain a commercial decision for retailers. We do note that there has been a low take-up rate among Origin customers for the flexible retailer tariff that forms the basis for the DGT. Based on this experience, Origin believes it is preferable if the Commission publishes both single rate and flexible pricing feed-in tariffs and allows the market to determine what retailers offer to customers.

### Environmental and social value of distributed generation electricity

Our analysis of the environmental and social value of distributed generation focused on establishing that a given benefit could be reliably linked to a given unit of output from distributed generation.

**3. Are there additional data and analyses that the Commission should consider in assessing the environmental and social benefits of distributed generation, specifically in terms of identifying, quantifying and valuing those benefits of distributed generation?**

Origin agrees with the Commission's view that the only appropriate social and environmental benefit that can be quantified in a feed-in tariff is avoided carbon emissions. Other diffuse benefits that might arise from distributed generation, such as improved air quality from displaced coal fired generation, are difficult to quantify and value for the purpose of a feed-in tariff.

The Commission observes that the Commonwealth Government's former policy of maintaining the RET after the introduction of the carbon tax means that the RET alone did not compensate for emissions.<sup>23</sup> The RET was maintained during carbon pricing not because it was insufficient to account for all emissions but to act as a complementary measure that would encourage renewable energy technologies into the market through the provision of a cross-subsidy.<sup>24</sup> In other words, the RET was an additional technology subsidy over and above the carbon price. Other measures, such as the Australian Renewable Energy Agency and the Clean Energy Finance Corporation, were also introduced as complementary measures to lower the costs of renewable energy in the long term. Had the carbon price remained in place then, over time, a falling RET certificate price would reflect the reduction in the RET's role of subsidising new technologies.

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these premium feed-in tariffs have created inaccurate expectations in some stakeholders of the actual value of exported solar energy.

<sup>23</sup> ESCV, *Draft report*, p. 89.

<sup>24</sup> Climate Change Authority, *Final Report: Review of the Renewable Energy Target*, December 2012, pp. 35-36.

In 2014, ACIL Allen estimated the cost of abatement under the SRES at \$95 to \$175 per tonne of carbon under the scheme,<sup>25</sup> whilst the fixed carbon price under the emissions reduction scheme commenced at \$23.00 per tonne of carbon on 1 July 2012. The reason for this difference is that directly valuing an externality is a more direct and efficient mechanism for pricing avoided greenhouse gas emissions than the SRES or the proposed DGT. A carbon price provides a direct incentive to reduce emissions and allows liable entities more opportunities to find cost effective methods for doing so. In contrast, rewarding specific generation technologies for avoided emissions (as in the case of the SRES and the DGT) mandates narrow forms of action regardless of their efficiency.

### **Objectives of the RET**

The Commission states that the diffuse objectives of the RET means that it cannot apportion the subsidy under the SRES for each objective. The objectives of the RET, in section 3 of the *Renewable Energy (Electricity) Act 2000*, are:

- (a) to encourage the additional generation of electricity from renewable sources; and
- (b) to reduce emissions of greenhouse gases in the electricity sector; and
- (c) to ensure that renewable energy sources are ecologically sustainable.

The objectives of the SRES are confined to (a) and (b) in section 3 of the Act. Objective (c) is not relevant to the calculation of Small-Scale Technology Certificates (STC) under the SRES. Rather, the Act meets objective (c) by defining what an “eligible renewable energy source” is in sections 17 and 17A.

Origin does not believe that it is necessary to apportion value between objectives (a) and (b) to determine the price of avoided emissions in the subsidy. The Queensland Productivity Commission (QPC) summarised the relationship between objectives (a) and (b) in its recent draft report on solar feed-in pricing:

The objective of the RET is to reduce CO2 emissions by increasing the proportion of electricity generation derived from renewable energy sources and supplied to the Australian electricity market.<sup>26</sup>

These objectives are clearly concurrent, with the SRES certificate price of \$40 achieving both simultaneously. In Origin’s view, these objectives cannot be separated in the energy sector, and we note that the Commission’s own deemed output based method of calculating a carbon price would also meet the same two objectives through its shadow carbon price.

### **Calculating avoided emissions under the SRES**

Origin believes that the Commission’s initial view was correct and that the environmental benefit of renewable energy distributed generation is more than fairly compensated under the Small-scale Renewable Energy Scheme (SRES) in the Renewable Energy Target (RET). We do not agree with the Commission’s view in its Draft Report that an additional deemed output tariff is required to pay for avoided emissions of renewable distributed generation given that the SRES is calculated with this in mind.

Origin is concerned that the Commission’s method will lead to double counting of avoided emissions that are already accounted for through the upfront subsidy in the SRES. In Queensland, the QPC has estimated the direct subsidy that is received through the SRES in Zone three and concluded that it adequately compensates consumers for the price of avoided emissions:

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<sup>25</sup> Expert Panel, *Review of the Renewable Energy Target Scheme*, August 2014, p. 42.

<sup>26</sup> QPC, *Draft Report*, p. 73.

Taking the mid-point of estimated system prices, and assuming a 20-year useful life, the level of the SRES subsidy is between 2.8–2.9c/kWh generated. This rate of subsidy holds across system sizes. Another way to consider the level of the subsidy is that, assuming an export rate of 40 per cent, the household receives an additional 7.1c/kWh through the SRES for energy exported.<sup>27</sup>

We would expect this to apply with respect to Victoria despite being in zone four rather than zone three. Although the subsidy might be lower in Victoria this is accounted for by the fact that less energy is produced by solar PV in this state and therefore fewer emissions are avoided. The subsidy under the SRES therefore remains proportionate to energy generated and emissions avoided by a system in a particular location.

Unlike the QPC, the Commission has not sought to calculate the avoided emissions cost that Victorian consumers already obtain under the SRES. Despite this, it has reached the conclusion that SRES does not represent a sufficient instrument for reducing greenhouse gas emissions. To arrive at this view, the Commission should have calculated the cost of avoiding emissions and compared this to the subsidy paid for this purpose under the RET. Having not undertaken this analysis, the Commission has no basis for suggesting that emissions are not already accounted for. Accordingly the Commission has not demonstrated the grounds for proposing an additional mechanism for pricing these avoided emissions.

Using the Clean Energy Regulator's STC calculator<sup>28</sup> for a 3kW solar system installed in Melbourne (postcode 3000) on 3 June 2016, a distributed generation owner could expect to obtain 53 certificates over a fifteen year period. Most consumers will opt to obtain this through an upfront subsidy that reduces the cost of their distributed generation system. This results in a small discount on the upfront certificate price. Taking this into account and multiplying a discounted certificate price of \$38.00 by 53 certificates, the distributed generation owner may receive up to \$2,014 for the value of its STCs under the SRES. This represents a subsidy of about \$25/tco<sub>2</sub>e under the SRES. In contrast, at the end of May the European Union's ETS Carbon Futures<sup>29</sup> were trading at €5.97 or \$9.20 AUD and the average price per tonne of abatement was \$10.23 under the third auction of Australia's Emissions Reduction Fund.<sup>30</sup> Clearly the SRES subsidy exceeds the most recent carbon price received internationally and Australia. Origin therefore agrees with the QPC that the subsidy received under the SRES is sufficient to compensate these consumers for the benefit of their avoided emissions.

### **Liability for paying deemed output tariff**

Finally, Origin seeks clarification from the Commission on who will be liable for paying the deemed output tariff. There is no inherent reason for retailers to pay the deemed output tariff unless the Commission is proposing to make retailers responsible for carbon emissions by introducing a shadow carbon price that is reflected in the deemed output tariff. Unlike a carbon price, where retailers are liable entitles for carbon that is emitted, retailers do not possess data on the size of their customer's distributed generation system or its total output; we are only aware of the energy that is exported. This information will need to be obtained and it does not necessarily follow that retailers are better placed than the Government to do so.

If retailers are required to meet the cost of avoided emissions of distributed generation then it will have a negative impact on innovation and competition among solar customers. In Victoria, retailers are obligated to offer at least the mandated minimum feed-in tariff and the same discounts it offers to other

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<sup>27</sup> Ibid, p. 75.

<sup>28</sup> Accessed here: <https://www.rec-registry.gov.au/rec-registry/app/calculators/sgu-stc-calculator>

<sup>29</sup> <http://www.investing.com/commodities/carbon-emissions-historical-data>

<sup>30</sup> <http://www.cleanenergyregulator.gov.au/ERF/Auctions-results/april-2016>

customers.<sup>31</sup> An additional cost to retailers in the form of a deemed output tariff would make these customers more expensive and retailers will need to recover these costs. The incentive for retailers to develop products to attract these more expensive solar customers is reduced, leading to less innovation in the market. We would also expect that the additional cost associated with these customers may reduce the incentive of retailers to offer rates above the mandated feed-in tariff. Accordingly, to reduce these disincentives, Origin believes that the Victorian Government ought to meet the cost of the deemed output tariff.

### Implementation (retailers and distributors)

Implementing the proposed distributed generation tariff (DGT) framework would impose administrative costs on retailers and distributors.

4. What would be the implications for electricity retailers and distributors of moving to the proposed DGT framework? Specifically, what are the cost implications of implementing the proposed DGT framework? And what evidence can be provided with regard to those costs? Are there ways these costs could be reduced?

As the Commission acknowledges, retailers would bear costs to implement its DGT. As we have argued throughout this submission, our concern is that this change ultimately yields at best a slight net benefit for some customers that does not justify its implementation costs. These costs will be met by all retailers and passed on to consumers; this is particularly the case for the deemed output tariff.

In terms of implementing the DGT, Origin's primary concern is the difficulty in administering this tariff and explaining it to customers who have this change imposed on them. Dealing with customers is central to the role of retailers. The DGT is more complicated for customers than the present single rate tariff, and we would expect it to cause confusion about how their feed-in tariff is calculated. At present, customers receive a line item on the third page of their bill that calculates their exported energy against a single rate. This is applied as a credit to the bill. We would anticipate that the proposed DGT would complicate the presentation of the customer's bill because each segment will need to be broken up and presented to customers. There will need to be an additional item for critical peak pricing periods, which generally will not apply on most bills because it is likely to fall only during warmer months. Overall, bills are likely to become less digestible by consumers, and we do not believe that the DGT meets the Commission's guiding principle of simplicity for customers.

The presentation of a complicated feed-in tariff calculation, and the fact that customers have been mandatorily assigned without their consent, will naturally lead to customers contacting Origin to explain the new structure. The complexity of the proposal will require additional call handling time with customers, which will increase costs in the call centre to satisfy this demand. Staff will also need additional training to understand these Victoria specific changes. Similarly, in terms of the deemed output tariff, we assume that this will be paid annually, and therefore will be a one-off payment each year. Whilst customers would be pleased to receive a bill credit, we would expect it will generate inquiries to explain how this is calculated and why it does not appear on the customer's following bill. Ultimately we expect the combined impact of all aspects of the DGT to increase customer handling time and require involved training for our representatives to meet legitimate inquiries.

Corresponding updates to billing systems will need to occur. This is a Victorian specific regulatory derogation and will not lead to efficiency gains across other jurisdictions. Even if retailers were to introduce flexible feed-in tariffs in other jurisdictions they would not necessarily correspond to the

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<sup>31</sup> See section 23C of the *Electricity Industry Act 2000*.

Victorian specific tariff structure. The locational pricing aspect of the DGT will require additional rules and logic to determine a customer's location and to assign them the relevant tariff; this will derogate from the usual practice of assigning tariffs based on a customer's network service provider. The DGT will also require system updates to generate necessary correspondence that reflects these Victorian specific changes. Price Fact Sheets will need to be updated—and we would anticipate that the Powercor and Jemena zones may be split between different location zones, which will complicate their presentation to customers. These presentation difficulties will be encountered in other digital platforms, such as the Victorian Government's comparison website 'Switch On', and will impact on the process retailers establish for signing up customers through their websites. Online customer portals may also require updates to ensure that information about their consumption and feed-in tariff is presented accurately.

We believe that if consumers want access to a flexible feed-in tariff then a retailer will choose to invest in the necessary system upgrades and employee training to facilitate this; other retailers may follow. The costs that arise out of this decision would reflect efficient decision making by retailers and consumers. Retailers are better placed than regulators to make these decisions because they are directly accountable to customers through a competitive market.

The Commission wants these changes implemented by the start of 1 January 2017. Origin does not support this timeframe and would prefer any final implementation date to be the following year. Whilst it is reasonable for the Commission to assess retail and network aspects of distributed generation through discrete reports, we believe that it will be more beneficial if the final report considers both aspects together. This will ensure that the different aspects of retail and network policy on distributed generation align, and that efficient policy responses are chosen. In addition, it may be difficult and more expensive if proposed system changes are implemented under a short time line—in this case, less than five months if the final report is released in August 2016.

## Batteries

Electricity storage (batteries) products are becoming more widely available in the Australian market.

**5.** What impact, if any, would increased deployment of electricity storage systems have on the assumptions and analysis underpinning the proposed distributed generation tariff framework outlined in this draft decision?

The impact of energy storage systems is to provide consumers with the ability to choose when they want to use the energy they have stored from their intermittent distributed generation. The Commission's approach is to provide a price signal that will allow customers to export this energy. In theory, solar PV customers could charge their batteries during the day and then shift their export profile to peak times. This would contribute to a reduction in peak demand. However, in practice we would not expect these customers to charge their batteries in order to discharge them in a manner that delivered exports during peak times. For the same reasons we have outlined above, those customers will respond to the more compelling price signal of their retailer tariff by choosing to consume the energy they have generated and stored. Accordingly, increased deployment of storage simply highlights the fact that exporting distributed generation is a secondary concern for these customers regardless of the DGT.