Solar feed-in tariffs
Independent Pricing and Regulatory Tribunal
PO Box Q290
QVB Post Office NSW 1230

By e-mail: ipart@ipart.nsw.gov.au

Solar feed-in tariffs: Setting a fair and reasonable value for electricity generated by small-scale solar PV units in NSW

Origin Energy Limited (Origin) welcomes this opportunity to comment on the solar feed-in tariffs issues paper released by the Independent Pricing and Regulatory Tribunal (IPART).

Origin is a major Australasian integrated energy company focused on gas exploration, production and export, power generation and energy retailing. Listed in the ASX top 20 Origin has over 4,700 employees. Origin is now Australia’s largest energy retailer servicing 4.6 million electricity, natural gas and LPG customer accounts and has one of the country’s largest and most flexible generation portfolios with more than 5,930 MW of capacity, through either owned generation or contracted rights. We are a significant investor in low emissions and renewable energy technologies, including gas, geothermal, wind, hydro and solar and are by far the largest retailer of green energy products such as GreenPower. Through Australia Pacific LNG, our incorporated joint venture with ConocoPhillips and Sinopec, Origin is developing one of Australia’s largest CSG to LNG projects based on Australia’s largest CSG reserves.

Origin’s position on feed-in tariffs (FITs)

As an electricity retailer and installer of solar PV systems, Origin has followed the development of a number of feed-in tariff (FIT) schemes across the National Electricity Market (NEM) closely. Along with the Energy Retailers Association (ERAA), and other retailers, Origin has supported national consistency with respect to feed-in tariffs for a number of years.

Origin believes that a nationally consistent approach to FITs and clear objectives of FIT schemes is highly desirable. In relation to New South Wales, given the policy direction provided by the Government, Origin supports the determination of a FIT (in place of the now suspended Solar Bonus Scheme, herein SBS) through competition between retailers. This light-handed approach:

- Reduces the risk of any FIT being set too high or low;
- Allows retailers to innovate and compete for customers based on the shared benefits of solar PV generation for customers and retailers;
- Supports the Government’s objectives that any replacement for the SBS not create a burden for NSW electricity consumers or tax payers; and
Mini-merges the regulatory burden for industry and the need for IPART to devote resources to oversee a market that has not shown evidence of having failed.

Origin does not support the proliferation of mandatory transitional FIT schemes or the imposition of a minimum, regulated FIT. Regulating the voluntary FITs offered presently will:

- Distort the competitive retail electricity market in NSW;
- Add to the compliance burden for some or all licensed retailers in NSW; and
- Run the risk that the value determined is too high or too low, which in turn may have consequences for effective competition in the retail electricity market.

Origin supports IPART undertaking this review and the outcome of it may suggest a fair and reasonable value as a benchmark for consumers and retailers to consider when entering into FIT arrangements. We do not believe however that there is evidence that the market for voluntary FITs has failed, and therefore consider that regulatory intervention at most, would be limited to determining a benchmark fair and reasonable value, which will be an output of the review now underway.

**Retailer contribution to the cost of the Solar Bonus Scheme**

Origin opposes a retailer contribution to reduce the cost of the SBS. While we understand the view that retailers receive energy from SBS customers under the scheme, we do not support the principle that this value should be transferred to reduce the scheme’s cost. Retailers were not responsible for the establishment of the 60 cent gross SBS, and to require any benefit transferred elsewhere to reduce its cost will:

- Likely reduce or eliminate existing top-up payments made to 60 cent and 20 cent per kWh SBS participants, resulting in customer complaints and negativity;¹ and
- Would be inconsistent with the proposition that any future FIT (to replace the SBS) could be light-handed in nature, since on the one hand, IPART could recommend a voluntary payment to solar PV customers outside of the SBS (and allow competition to determine the rate) and on the other a ruling would be made on the value of FIT energy to mandatorily transferred to cover the cost of the SBS.

If retailers are obliged to contribute the value of avoided energy costs to contribute to the cost of the SBS, Origin would support the assistance from IPART or the NSW government in communicating this to customers affected and the rationale behind it.

**Origin’s solar PV customers in New South Wales**

Excluding the recently acquired retail businesses arms of Integral (now Endeavour) Energy and Country (now Essential) Energy, Origin has a significant number existing market contract customers with solar PV systems. These customers are assigned to a range of feed-in tariff schemes:

- The now closed 60 cent per kWh (on a gross basis) SBS;
- The 20 cent per kilowatt hour version of this scheme (also closed); and
- A number of customers on separate arrangements made on a voluntary basis by Origin with the customer.

¹ IPART acknowledge this on page 44 of the issues paper
In addition, Origin like other retailers pays a “top up” amount in addition to the prescribed feed-in tariff of 6 cents per kWh for customers on the 60 cent and 20 cent variations of the SBS as well as 6 cents only to customers who were unable to access the SBS.

What is a ‘fair and reasonable’ value for solar PV generation exported to the grid?

*Method 1: Estimating the financial gain to the retailer*

1. What are the direct financial gains to retailers as a result of their solar PV customers exporting electricity to the grid?

IPART notes that retailers benefit from avoided spot market costs where their customers generate electricity to the grid and this is measured. However, to value and allocate these benefits a number of issues need to be considered:

(1) For first tier retailers, the avoided spot market costs are not explicitly recognised in market settlement. While a first tier retailer’s customers may have exported energy to the grid, these volumes are not accounted for in settlement. This is because the first-tier retailer’s settlement volume is measured as the residual of transmission node (TNI) demand once interval metered and profiled second-tier loads are subtracted from the total TNI load. The benefit is therefore difficult to measure with any accuracy, since no counterfactual spot price is available to reference.

(2) Different retailers will have a range of hedging strategies in place. A lower spot price may not be of benefit to a retailer with significant proportion of its load already hedged.

(3) Allocating the benefit of reduced demand (and therefore a reduced spot price) is difficult to attempt accurately under a settlement by difference regime. As identified in point one above, the embedded generation output from a first tier retailer’s customers is not accounted for at settlement. However, the generation to the grid would have reduced the spot market price for all retailers (first and second tier) within a particular TNI. The first tier retailer is unable to fully capture this benefit and is not compensated for it by its second tier competitors.

So while there may appear to be a direct financial gain for a retailer, the value of this gain will vary significantly based on factors such as those discussed above.

Due to these uncertainties, Origin believes that competition between retailers is the most efficient means of determining the financial value of energy exported to the grid by solar PV customers. Any prescribed minimum price will inevitably impact upon competition and will not reflect the preferences of customers with solar PV systems or their retailers. The fact that some retailers offer additional amounts of 8 cents per kWh and others 6 cents per kWh reflects the different approaches retailers have adopted to valuing energy exported to the grid.

2. Do retailers pay for the cost of complying with the RET on electricity exported by solar PV customers?
Origin notes that this matter relates to the ORER and is subject to Commonwealth oversight. As such, the ORER needs to confirm the assumption made by IPART on page 17 of the issues paper.

3. Are there other indirect financial gains to retailers as a result of their solar PV customers exporting electricity to the grid? If so, how can these be estimated? Should these indirect financial gains be fully reflected in the feed-in tariff or shared will all electricity customers?

As discussed in response to question 1 above, by virtue of generating (whether measured on a gross or net basis), solar PV customers reduced the spot price relative to what it would have otherwise been. This benefit (or cost, depending on an individual retailer’s hedging strategy) is difficult to allocate. The benefit is effectively shared among all customers through lower spot prices (including to those customers with solar PV systems) relative to the spot price without the contribution of embedded generation. Origin does not believe these gains can be reliably estimated, since the counterfactual spot market price can never be known, along with the merit order of dispatch within particular times.

4. Are there additional costs to retailers associated with serving solar PV customers?

The cost to serve solar PV customers is significantly higher than is the case for customers without embedded generation. There are a number of reasons for this:

Lack of harmonisation

Retailers face a range of different feed-in tariff schemes across Australia. Origin and other retailers have repeatedly requested national consistency as a guiding principle of feed-in tariffs scheme design. With a number of prescribed schemes now ending, retailers will have to contend with further complexity through the need to incorporate new/replacement schemes and maintain existing schemes, along with the associated jurisdiction-specific eligibility requirements, tariffs and in some cases customer contracts.

While not limited to New South Wales, the absence of a nationally consistent feed-in tariff regime has significantly added to operational costs for retailers through training, compliance and billing system changes.

Customer expectations

Due to the very generous nature of some prescribed feed-in tariff schemes, public awareness of solar PV issues is high and customers have purchased systems based on information that may not always have been accurate. This has created expectations that do not materialise (for example, when a customer continues to receive an electricity bill after it has been suggested they would be reduced or eliminated), driving complaints to retailer and distributor contact centres. These entities of course were not responsible for the claims originally put that created the subsequently unmet expectations.
Furthermore, by its nature, embedded generation has technical complexities that are difficult to explain to customers and require retailers to provide additional training in order for customer complaints to be adequately responded to.

**Operational issues**

The large number of installations that have taken place across Australia in the last three years has absorbed significant resources of both retailers and distributors. It has been difficult to adequately respond to customer inquiries and complaints due to the number of contacts made by customers installing new solar PV systems.

There are additional connection and metering issues to contend with when managing solar PV customers that further add to administrative costs. Inaccurate information provided by third parties (for example installers) often amplify this cost and result in customer confusion and concern.

In addition, regulated price caps in New South Wales and other jurisdictions do not take into account the higher cost to serve associated with customers assigned to feed-in tariff schemes. These costs are either absorbed by the retailer or recovered from non-regulated sources of revenue.

Any additional cost to serve must be recovered from energy retailing functions and some of this cost is likely to be recovered from the retailer’s customers without a feed-in tariff arrangement.

5. Are there alternative approaches to estimating the financial gain to retailers as a result of their solar PV customers exporting electricity to the grid?

The clear alternative to having to estimate financial gains to retailers would be again, to allow the competitive market place to reveal the value of electricity exported to the grid. Retailers who do not pay a reasonable FIT (with respect to the energy component specifically), will lose and/or not win customers with solar PV systems. Origin is concerned that there is an underlying assumption that the market has somehow failed, when today, following the suspension of the SBS, retailers continue to voluntarily pay a FIT. In addition, customers are free to change to a retailer of their preference.

**Method 2: Estimating the wholesale market value of the electricity**

6. What is the most appropriate approach to estimating the market value of the electricity exported by solar customers to the grid? What are the key issues that need to be considered?

Due to the uncertainty involved in accurately assigning a value to the market value of exported solar PV electricity, Origin believes in the first instance, the market value should be determined by competitive forces, as described above. Noting that IPART will consider a market value as part of the current review outside of the current market determined price, Origin would recommend that the following issues be considered:
1. The market value of solar PV should reflect the contribution made at various times of the day.
2. The availability of solar PV, its predictability and certainty in forecasting when this contribution can take place may discount the any value determine in (1) above.
3. As discussed elsewhere in this response, retailers have different hedging strategies and may value the contribution of solar PV (or any embedded generation) quite differently. Any market value determined needs to account for these scenarios.
4. A value determined following these considerations might be compared with current voluntary FITs offered by retailers at present and if found to be similar, the case for intervention would not be required.

Other possible benefits of PV generation

7. What impact does solar PV generation have on network costs? How can this impact be most accurately measured?

Origin agrees with IPART that the positive and negative impacts of solar PV on distribution networks are difficult to measure and allocate. We further acknowledge at a local level, solar PV (or for that matter any embedded generation) can result in increases or decreases in network efficiency.

Avoided use of system costs

There is clearly an avoided transmission UoS benefit created by embedded generation of all types (electricity that did not have to be transported to the transmission node from a transmission connected generation source). This value in terms of cents per kilowatt hour is very small, but there are requirements for it to be recognised under the National Electricity Rules and some distribution businesses reflect this benefit in network tariffs.

Within the distribution network, customers without embedded generation who are located nearby an embedded generator will pay the full cost of transmission and distribution for all of their consumption, even though a portion of this used only a very small section of the distribution network. It is difficult to attach an avoided cost value in such circumstances. A detailed examination of this matter is required in New South Wales and elsewhere in the NEM. Notwithstanding the deleterious impact upon distribution network quality of supply that embedded generation may impose in some circumstances, it is difficult to see how on average, embedded generation increases costs to the distribution network and its users.

Augmentation deferral and system support benefits

Origin agrees with IPART’s comments that local factors are important in establishing if exports from embedded generation contribute or detract from the benefits associated with deferring network investment. Origin supports IPART’s intention to examine the impact of solar PV on network costs as set out in the terms of reference. The correlation between embedded generation exports to the distribution network and times of peak network demand, while not always high, certainly requires investigation. The correlation between peak network demand and peak wholesale (spot market) prices is likely to be stronger than the relationship to maximum exports to the grid from solar PV installations.
Origin believes that avoided network costs are an important component of establishing the value of embedded generation, and while complex, deserves more scrutiny than it has historically received. At the same time, distribution businesses have countervailing concerns about the impact of solar PV generation exported to the grid that require assessment also.

8. How can any network benefits resulting from solar PV generation be shared with solar PV customers?

To satisfy the requirement within the terms of reference, administrative simplicity suggests that any identified network benefits should be set at an average rate across a particular network area. The transaction costs for distributors (and retailers in passing through any benefits via billing) of a complex, location-specific set of tariff rebate arrangements are likely to significantly diminish these benefits. Where larger embedded generators are proposed or a distributor specifically targets embedded generation in a particular section of their network, site, or sub-station specific rebates or payments may be warranted. For large numbers of small solar PV systems however, an average benefit-sharing payment would be the simplest approach (e.g. on a cents per kWh basis).

A note on benefit sharing

The sharing of benefits is a concept that equally applies to the value of export energy (whether considered as an avoided cost or measure against the wholesale market), not only to avoided network costs. The issues paper seems to imply that energy equates to a 100 per cent realisation of benefits, yet avoided network costs are distributed to solar PV customers at less than 100 per cent. The allocation of benefits from an exported energy perspective, again, should be a matter left to the competitive market to determine.

9. How should any value from reduced energy losses as a result of solar PV generation be estimated?

As with some location-specific network benefits, reductions in distribution network losses may be material in particular sections of the network and immaterial or zero in others. Origin considers the distribution businesses are best placed to comment on estimating reduced energy losses, however we note that measurement based on current network diagnostics may be difficult beyond a certain level of granularity. Historic data from zone substations serving customers with a high penetration of solar PV is one area of research that may assist IPART.

10. If the value of reduced energy losses is material, should it be shared with solar PV customers? If so, how could this be achieved?

As for our response to question 8 above there is a trade off between simplicity and fairly sharing benefits. Benefits associated with improvements in network losses could be transferred to solar PV customers via a FIT, reflecting the contribution their generation makes (at the margin) to improved network productivity.
Implications of setting a future feed-in tariff higher or lower than the value of the exported electricity

11. What are the implications of setting the feed in tariff too high or too low? What is the most appropriate way of managing this risk?

As discussed above, the best way of managing the risk of setting a FIT too high or too low is to not set it at all and allow competition between retailers determine the value. Voluntary FITs are offered now, despite all of the attendant difficulties of measurement and uncertainties described by IPART in chapter 3 of the issues paper. The review being undertaken by IPART will serve as a means of validating these voluntary tariffs.

How should a ‘fair and reasonable value’ be implemented in NSW?

How competitive is the retail electricity market in NSW?

12. Is our proposed approach for analysing the effectiveness of retail market competition appropriate for this review? Are there any other factors we should consider?

Applying a test based on the effectiveness of retail market competition as a means of exploring how a fair and reasonable FIT could be implemented is not appropriate in Origin’s view. This is because the nature of the market is very different from energy supply to a small customer. In effect, retailers are the consumers of the energy exported by solar PV customers. As such, to the extent competing retailers value this service provided by the customer, they will make offers based on their valuation. The purchase of exported feed-in electricity is discrete from the supply agreement (whether regulated or a market contract) the retailer holds with the customer. As such, Origin does not believe there is a market failure (given voluntary FITs are currently available) warranting an assessment of the effectiveness of competition in relation to exported energy from solar PV.

With respect to a regulated floor FIT or range providing certainty for small solar PV customers, it is doubtful that any regulated FIT level determined through the review process will materially contribute to an investment decision on installing solar PV. Customers are more likely to be interested in the avoided electricity costs and the contribution this makes to the payback of a solar PV system. Customers can seek out and energy retailers can meet any demand for FITs that suit individual customers and the term of their application. The other principle consideration that customers will include in their investment decision is the impact of the multiplier for renewable energy credits. This has been forecast to decrease in the medium term to unity.

13. Are there any barriers (or emerging barriers) to entry that may limit the potential for competition in the NSW retail electricity markets, particularly in relation to solar PV customers?
Origin believes that a regulated FIT level (above avoided UoS costs) will have a negative impact on competition. Applying a regulated FIT to customers on regulated supply arrangements will discourage non-standard retailers from competing for these customers.

14. Are there any other developments that may affect the competitiveness of the retail electricity market in New South Wales?

Despite the continued regulation of retail prices in some jurisdictions, the retail markets in the mainland states of the NEM have consistently exhibited a high level of competition. An international study recently ranked New South Wales in the top ten most competitive retail electricity markets globally. This study estimated that New South Wales, along with Queensland and South Australia exhibited churn rates of more than 10 per cent. This high level of current competitiveness is likely to continue in the future.

15. Has there been any change in the types of customers being offered competitive contracts? Is there any evidence to suggest that there are particular groups of customers (particularly solar PV customers) that have been more or less active in the competitive market such as pensioners?

Origin is not aware of any particular changes in trends with respect to marketing to particular groups. Awareness of retail competition is well established in New South Wales and as IPART is knows, the market has been open to competition since January 2002.

16. What evidence is available on the number of solar PV customers receiving voluntary feed-in tariffs? Does the level of these voluntary feed-in tariffs represent a fair and reasonable value of the electricity exported by solar PV customers?

Origin is itself offering voluntary FITs currently as discussed above. We are aware of other retailers doing the same. Origin believes that the voluntary FITs offered reflect competition in the marketplace and therefore a reasonable value of the benefits shared between solar PV customers and retailers. Origin does not consider that there is a market failure to address at this stage. We support a review to test the value of a fair and reasonable price, but we reiterate that this should not result in a minimum price floor, other than a reasonable estimate of avoided UoS charges funded by distribution networks if a reasonable value for this can be determined.

If the review results in a fair and reasonable estimate from retailers in the range of current voluntary FITs, Origin would urge IPART to declare there to be no need for intervention. Such an outcome would indicate an absence of market failure.

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2 AEMC (2011), Strategic Priorities for Energy Market Development: Discussion Paper, pg 21
Should retailers be required to pay a specified feed-in tariff?

17. What degree of regulatory intervention is required to ensure solar PV customers receive a fair and reasonable value for the electricity they export to the grid? Are there options (other than those listed in section 4.2) that are more appropriate?

Origin does not believe regulatory intervention is required to ensure solar PV customers receive a fair and reasonable value for their export electricity. If intervention is deemed necessary, Origin would support the implementation of a benchmark rate as described in section 4.2.3 of the issues paper. Given voluntary feed-in tariffs are being offered at present, there is no evidence that the market has failed. A benchmark rate may be identified over the course of IPART’s review and this could be used by customers in negotiation with retailers.

As discussed in response to question 12 above, Origin does not believe that certainty will rank highly among customer preferences in relation to a non-SBS FIT rate. Certainty is promoted as a benefit of the option set out in section 4.2.2. If customers seek certainty in relation to their FIT rate, they can request such certainty and competition among retailers will respond to this preference.

How should a fair and reasonable feed-in tariff be updated over time?

18. Should IPART recommend a single year feed-in tariff? If so, how should the feed-in tariff be updated over time?

Updating a benchmark price annually will add to regulatory costs. Since Origin believes the need for regulation is unnecessary (as there is no evidence of market failure), Origin would suggest that IPART undertake external benchmarking after a period of time and compare this benchmark to the voluntary FITs offered by retailers. Establishing a new process similar to the annual regulated price reviews is administratively burdensome and not required in relation to FITs.

Should all PV customers be eligible for the feed-in tariff?

19. Should there be a limit on the size of the customer or solar PV unit that is eligible for this fair and reasonable value? If so, what should this limit be?

As noted by IPART on page 38 of the issues paper, this matter is not relevant where an advisory benchmark rate (or not rate) is in place. If price regulation is determined by IPART, then customers above 40MWh per annum should be required to negotiate a FIT. In terms of solar PV systems supported, a cap consistent with other jurisdictions (5kW) is recommended.
Should feed-in tariffs vary by tariff component, location or customer type?

20. Should there be a single feed-in tariff across NSW or should it vary by distribution network supply area?
21. Should there be different feed-in tariffs for different customer types (e.g. business and residential?)
22. Should the feed-in tariffs vary be tariff component? For example. Should there be a peak rate, a shoulder rate and an off-peak rate for customers with time-of-use metering and a standard (or block rate) for customers with accumulation meters?

Origin believes that until market failure is demonstrated and material differences across network areas are demonstrated, a single benchmark rate would be the most appropriate regulatory response. Differentiating FITs by customer and meter type will result in administrative costs to retailers likely to exceed any benefits that may result from doing so relative to a fair and reasonable valuation. Furthermore, such requirements would discourage competition for solar PV customers due to the administrative burden involved.

Should the feed-in tariff apply to net and gross metering?

23. Should the feed-in tariff apply to both net and gross metering, or net metering only?

Origin believes that a future FIT should apply to net metered customers only. Net metering provides greater incentive for energy efficiency, as a customer will avoid using energy from the grid in the first instance to avoid the retail tariff. Net metering is also consistent with the market valuation of export energy; under a gross metered situation, the valuation attached to the energy of a gross metered customer consuming their own generation or exporting may differ significantly to that of their retailer. Net metering would also align future NSW solar PV customers with other jurisdictions, who have net metered approaches in place.

What contribution should retailers make to the future costs of the Solar Bonus Scheme?

24. How should we estimate an appropriate contribution of retailers to the Solar Bonus Scheme?
25. What are the key issues that need to be considered in recommending a contribution by retailers to the Solar Bonus Scheme?

Origin understands there is a view that retailers should contribute to the cost of SBS to limit the impact on New South Wales tax payers and electricity consumers. Retailers however were not responsible for the extremely generous nature of the scheme. As identified by IPART on page 44 of the issues paper, any obligation on retailers to contribute to the cost of the two variations of the SBS will reduce or eliminate any current voluntary contributions made on top of the prescribed FIT.
While it might be argued that current SBS customers enjoy a relatively high subsidy, the removal of any top up amount will cause customer dissatisfaction and complaints. Origin would ask that should any decision to contribute to the cost of the SBS be determined as a result of this review, that IPART or the NSW Government assist retailers to explain to customers the reason for the withdrawal of any top-up amount. Without this kind of independent confirmation, it is likely customers affected will make numerous contacts to retailers, further increasing cost to serve and a number may result in ombudsman cases.

Origin does not agree that any top up amount in addition to the prescribed SBS rates should be quarantined, if the view is that SBS customers already enjoy significant support. The market value of any exported energy is quite separate from a government policy aimed at rewarding customers for installing solar PV systems. As such, this element is not dispensable. The voluntary additional amounts paid by retailers in fact reflect the benefit contributed by solar PV customers described in part 3 of the issues paper. The suggestion now seems to be that where customers create a genuine market benefit (the energy exported to the grid), this is to be allocated to reducing the cost of the scheme to which customers agreed in good faith to participate. If a decision is made that a contribution is mandatory, Origin presumes any avoided network costs will also be added to the amount contributed by retailers.

**Conclusion**

Origin does not support the introduction of further regulation in relation to FITs, believing that competition between retailers and consumer choice will determine a market price. Secondly, contributing an amount to the cost of the cancelled SBS based on a benefit created by participants of that scheme is likely to further antagonise customers, drive costs for retailers and will have only a modest impact on the overall cost of the SBS, relative to its projected cost.

Origin welcomes further discussion of the matters raised in this response to IPART’s issues paper. Please contact David Calder on (03) 8665 7712 in the first instance.

Yours sincerely

[SIGNED]

Graeme Hamilton
Regulatory Manager
Retail