

Australian Solar Round Table
Submission to
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**

Executive Overview

This review of Solar Feed-in Tariffs comes at a challenging time. Previous Solar Feed-in-Tariffs in NSW were inappropriately designed and administered by the previous Government and have created an inequitable and difficult situation. While part of this review is to consider how much, if anything, electricity retailers should pay towards the cost of this previous policy it is important that future tariff setting is not biased by these earlier decisions.

Optimising market competition and value is in the long-term interest of the NSW community, economy and environment and can be and should be achieved within the terms of reference for this report.

The Terms of Reference restrict IPART to a recommendation that does not increase electricity charges. If IPART's draft recommendation is implemented, electricity charges will increase more than if a higher, fair and reasonable price for solar electricity generation was paid. A fair and reasonable feed-in tariff would provide future solar-PV owners with a reasonable return, which would encourage rational deployment of the technology. This in turn would provide significant benefits to electricity consumers. It would:

- Reduce the total cost of energy to the market;
- Reduce wholesale market price volatility;
- Reduce the size and frequency of extreme peaks in electricity demand;
- Increase competition in the electricity sector by distributing ownership of generation and reducing barriers to new independent electricity retailers; and
- Be a catalyst for change in electricity networks, change that must happen to effectively meet the future energy needs of the state

IPART's draft recommendation utilises a "small picture" interpretation of the Terms of Reference rather than the holistic intentions of the COAG principles and what is the core of IPART's reason for being. By doing so it arrives at a recommendation that is in the interests of the electricity retailers but is contrary to the interests of the market as a whole. This position will limit the electricity price reductions and environmental benefits that can be achieved by rational deployment of solar-PV systems supported by a fair and reasonable portion of the value they generate.

A Feed-in-Tariff of around 24c/KWh would reduce electricity prices to consumers, provide other substantial benefits to NSW, encourage a sustainable deployment of solar PV systems and be *fair and reasonable*.

Key Points for Consideration

1. Breadth of the Report

We believe that IPART's interpretation of the Terms of Reference inappropriately restricts the breadth of the report to a subset of what should be covered under the consideration of fair and reasonable value.

IPART was requested to recommend a fair and reasonable feed-in tariff that provided

- no cost to the NSW Government
- no additional cost to electricity users

IPART's report presents the fair value of solar PV exports *for* retailers.

However, for IPART to fulfill its terms of reference it needs to consider what is fair and reasonable to Solar PV owners and the community/market as a whole. With a feed-in tariff below 8c/kWh the financial incentive will not be adequate to support most potential future owners of Solar PV systems, limiting the deployment of the technology. This would lead to wholesale electricity prices significantly higher than the case of greater Solar PV take-up. The value in driving down electricity costs through the inclusion of relatively small (but significant) Solar PV generation in our energy mix is far greater than the cost of providing the financial incentive to deploy Solar PV. It is in the community's interests, and IPART has a responsibility to, consider areas more broadly than the value for the retailer.

A Feed-in-Tariff that is priced in line with the retail electricity prices of around 24c/kWh would:

- Lead to a reduction in consumer electricity charges by lowering wholesale prices due to the Merit Order Effect by more than the cost of the feed-in tariff.
- Be Fair and Reasonable with retailers, solar PV owners and other electricity users all better off;
- Come at no cost to NSW Government;
- Be within the terms of reference, whereas IPART's draft recommendation is not.

2. Competition

There has been much discussion about the need for a free market, increasing competition, and the market being unfettered by mandatory small-scale solar PV tariffs.

The reality is that the Australian electricity sector is consolidating with fewer players that have more market power. The three major players (Origin, AGL and TruEnergy) control an even bigger share of the national market as a result of the recent NSW privatisation process.

The single most effective action that can be taken to increase competition in the sector is to encourage and enable distributed and embedded generation. Widely owned and distributed generation is clearly not in the interests of the dominant players and they understandably resist in order to protect the interests of their shareholders. However, the fact that change requires them to adapt or even brings new challenges to their businesses is not a reason to deny the benefits to the broader community.

Blocking the flow of the benefits of MOE to all electricity consumers is a regressive impost on the NSW community and Australia as a whole.

3. Relevance

Despite the relatively small scale of solar-PV, the dominant market players have been strident in their opposition, describing and perhaps erecting hurdles that would impact their business model. There are a number of issues that have been raised that are irrelevant, not material or not correct:

- a. The cost of managing solar customers is high and needs to be compensated for.

While one might expect that in the early stages of the deployment of a new technology to include some administrative cost burden, there is no need for it to continue. The technology and systems are available for market participants to offer solar customers a higher level and better value of service than traditional consumers, and even reduce their costs. Compensating them for not adapting is contrary to the principles of the market we all strive for.

- b. There are elements of the calculation and distribution of a fair value that are too complex and must therefore be ignored.

Electricity generation, distribution and retailing in Australia is a complex area covered by, literally thousands of pieces of legislation in multiple jurisdictions. Changes to the nature of the networks, the generators and customers have required legislators, authorities and the markets to adapt and incorporate the changes. Complex problems have been solved with a combination of available data, systems and informed decisions about how to fairly and reasonably deal with them, where “reasonably” includes making approximations and estimates.

Not treating Solar PV in the same way would be both inequitable and anti-competitive, erecting barriers to new market entrants to the advantage of existing operators.

- c. It has been suggested that retailers hedging strategies may mean that they are over hedged in the middle of the day and that perhaps they should be compensated for this by solar generators. This is erroneous as hedging strategies are (or should be) adaptive and will change to reflect market conditions.

It should not be assumed that something that is not in the best interests of the major electricity retailers is not in the best interests of markets, competition and consumers.

4. Networks

There has been significant discussion around the impact of PV systems on Networks. The summary of the *facts* on this topic is as follows:

- a. There will be circumstances where solar PV enables network enhancement to be deferred – as acknowledged by network operators such as Ausgrid. Work to determine the quantum and value of these situations has not been done.
- b. There will be some instances where solar PV puts stress on local areas of the network – as has been demonstrated. It should be pointed out

that these “stresses” are in large part a result of lack of network planning and investment to cope with the significant increase in electricity driven household devices and air conditioning rather than simply from solar generation units on their own.

- c. The number of instances where PV has caused instability in the network is proportionately very small as acknowledged by Essential Energy (“issues are important but small in number and mainly rural”). This has also been ETSA’s experience in S.A. where they have had only a couple of problems from approximately 60,000 installations.
- d. Distributed and embedded generation is here to stay and will rapidly grow as has been demonstrated internationally as well as, to a lesser extent, in Australia. Not dealing with both the commercial and the technical implications of this will lead to perverse outcomes and inefficient use of network capital.
- e. Australia is in the midst of an enormous investment in electricity grids and networks – approximately twice that of the National Broadband Network. Maximising the return of this investment requires a strategy that enables the acceleration of the deployment of a variety of forms of embedded and distributed generation.

5. Impact of price differential

The report points out that between $\frac{1}{2}$ and $\frac{2}{3}$ of the power generated by solar PV systems is consumed on a consumer’s premises. This equates to demand reduction and the consumer benefits financially by the value of the power not imported. This means that there would be a significant differential between the cost consumers save by using power they consume (an amount more like the 24c/kWh retail price of electricity) rather than the 8-10c range proposed by IPART, for exports.

The differential between these numbers is likely to see the following unintended consequences:

- a. The deployment of smaller systems which are less economically efficient and will result in less environmental benefit
 - b. Higher future costs for all users. The less power produced by PV, the more that has to be purchased by retailers during times of peak wholesale prices, the cost of which will be passed on to consumers. Smart meter technology currently being trialed will be used to accelerate the implementation of time of day pricing and passing on peak costs.
- #### 6. The Merit Order Effect (MOE) is real
- The MOE, where wholesale electricity prices are suppressed by generation from solar and wind generators is real and widely accepted...
- During IPART’s round table discussion on December 12th 2011 Andrew Dillon of TRUenergy stated “In terms of the merit order effect.... first of all that absolutely is a real effect; there is no doubt about that.”
 - “... the merit- order effect is a distributional effect which shifts profits from generation companies to consumers. If the market value of

renewable electricity is taken into account and the potential savings for consumers created by the merit-order effect are taken into account the feed-in support can lead to a net profit for consumers in the short run. Whether the savings created on the wholesale market are passed on to consumers heavily depends on the competitiveness of the consumer market....” – The Fraunhofer Institute (See Reference 1).

To deny the MOE is to fail to understand the operation of the National Electricity Market and other electricity markets across the globe. The question for debate is whether electricity policy, and specifically the development of fair and reasonable feed-in tariffs, should be informed by, and leverage the way the market operates – or simply ignore market realities.

7. MOE is a prolonged effect

It has been incorrectly suggested that the MOE is a transient effect that will reduce after its initial impact.

When any form of new generation enters the market, one can expect to see a reduction in market prices – rules of supply and demand. The only reason for the market prices to go back up is due to further changes in the supply and demand environment. The reason electricity prices have continued (and will continue if we maintain the current market paradigms) to increase is because of a combination of the following:

- a) Increasing instability and peaks in wholesale electricity pricing
- b) Network costs have increased
- c) Increased use of fuel based generation and the increasing cost of this fuel (in particular, gas)
- d) Network losses have increased as the network has become more stressed.
- e) Environmental related charges have increased
- f) Compliance costs have increased

Increased deployment of solar PV will reduce a), c), d), and the effect of the carbon tax on e).

8. MOE is not too hard to deal with

Measuring, accounting for and exactly distributing the real benefits of MOE would be too hard. So would measuring, accounting for and exactly distributing the cost of electricity produced and sold in the market today. So would measuring, accounting for and exactly distributing the cost of electricity transmission and distribution.

In this complex electricity market valid approximation and estimation are a fact of life today and will continue to be in the future. This is, in part, the reason that IPART exists. It doesn't mean that the fair value of MOE (or the fair cost of generation and transmission/distribution) can't be equitably distributed.

It is inappropriate for IPART to claim that MOE is too difficult to value. Research and literature that calculates the value of MOE is available from Australia and across the world including for example current research by the

Melbourne Energy Institute, The University of Melbourne (provided in our original submission) and the Fraunhofer Institute (see Reference 1). A simple, net feed-in tariff with an appropriately set value is easy to administer (as many States across Australia and jurisdictions around the world demonstrate).

9. There are good reasons why some generators should be rewarded for MOE while others aren't.

Some operators of schedulable fossil fuel based generators have argued that solar PV generation shouldn't be rewarded with the value it produces through MOE – because fossil fuel generators do not get this value either. While it is an understandable defensive position for them to take, the reality is that the peaking plants benefit from the high prices in peak and extreme peak situations and solar PV doesn't. In addition, "because others don't" is not a valid reason not to do something.

To not support a fair and reasonable Feed-in Tariff for solar PV is essentially denying the community a fair-go for the purposes of protecting large, strong and dominant businesses from the need to adapt with the changing business and technology environment. Delaying the take-up of Solar PV ignores the benefits Solar PV generates and:

- Is a regressive in that it forces all members of the community to pay higher electricity costs;
- Will encourage an unnecessary level of investment in gas generation, the costs of which are on an upward price trajectory due to fuel price increases while Solar PV costs continue to fall and include no fuel costs.

10. While Australia may be rich in coal and gas, the increasing value of these commodities in international markets will mean the real cost of their use in electricity generation within Australia will continue to increase.

11. Accelerating the deployment of solar PV will assist the optimal investment in new electricity generation infrastructure.

Growth in the introduction in decentralised generation (embedded and distributed) and a reduction in the dominance of centralised generation is inevitable due to a combination of:

- Technological advancement of decentralised generation;
- Cost reductions resulting from the maturing of these newer technologies; and
- Pressure to improve environmental and economic performance.

Investment in these technologies, including solar, by far outstrip the investment in centralised technologies that have already exhausted most possible cost reductions. Solar PV is part of the new composition of energy generation and working to encourage it will assist in the optimisation of the network for the new network structure. Its contribution to this process is not only technical, it also helps ameliorate the cost of network upgrades that are not only inevitable, are already underway.

12. Wholesale price volatility

As has been widely documented, the MOE has the effect of both reducing overall wholesale prices and reducing market volatility. Highly volatile

markets favour the dominant Gen-tailers and restrict competition from new entrant retailers with smaller customer bases and balance sheets.

It is in the interests of increased competition to encourage the introduction of generation that reduces wholesale price volatility

13. IPART's Role

As stated by IPART (http://www.ipart.nsw.gov.au/Home/About_Us), IPART's role is much broader than the terms of reference for this report. Specifically *"At the core of all our work is optimising market competition and value in the long-term interest of the NSW community, economy and environment."*

The economics, structure, technology and social expectation around electricity are changing at a faster rate than has ever been experienced, creating new challenges for all stakeholders, including IPART. Optimisation of market competition and value in the long-term interest of the community, economy and environment will require new approaches and tools; and a proactive approach by both IPART and Governments.

Energy, particularly electricity, is a critical plank in the economic and social foundation of the State. Failure to adapt to the new environment will have a significant effect on the State's standing. For example:

- As the cost of emissions rises (an inevitability over the medium, if not short term) and the cost of new no/low emission generation technologies continues to follow downward cost curves, no/low emission generation will be required to maintain the competitiveness of the State's electricity sector.
- Enormous investment is being made, and advancements achieved, in new distributed and embedded energy technologies. This investment is much greater than that going into older centralised technologies, technologies that (other than nuclear) are already near the bottom of their cost curves. If NSW is to be capable of harnessing the benefits of new energy technologies it will need to be able to embrace them in its electricity network.
- Today, solar PV is an important thin end of the wedge when it comes to new distributed and embedded generation technologies, its success is fundamental to creating a path to a new energy future.
- Solar power is the most popular form of electricity today. It is popular because it is safe, non-emitting, has low impact on community amenity and it can be owned and operated by almost anyone. It is also a visible demonstration of participation in the care and respect for the environment.
- A growing base of distributed and embedded generation will put competitive pressure on the electricity and energy sector to adapt and provide better service and value. Solar PV is the fastest and easiest way to support this new competition.

This changing environment doesn't just affect the solar sector. The competitiveness and attractiveness of the State as a whole will be affected. The right strategic decisions need to be made now in order to ensure that State's energy future.

Conclusion

The ability to provide owners of small-scale solar PV systems a fair and reasonable value for electricity they export exists and is called for by the Terms of Reference set by the Premier. Doing so will encourage a rational level of deployment of small-scale solar PV and provide the benefits of lower electricity costs, less volatility in wholesale electricity prices and increased competition.

To deny the community a fair return for investing and participating in driving down electricity costs is against the NSW Government's principals and IPART's mandate.

The Australian Solar Round Table's recommendation

The Australian Solar Round Table recommends that IPART and the NSW Government:

- Review the growing body of evidence on the MOE and, if appropriate, set about finding ways to maximise its value by encouraging the growth of solar PV, albeit without increasing the cost of electricity for consumers.
- Recommend a fair and reasonable portion of the value be distributed to the generators of the value. Not all of the value, just what is required to achieve a fair and reasonable return so that the export of solar power is encouraged rather than discouraged.

While significant work would be required to calculate the exact fair and reasonable value in every circumstance, such work is both underway and is in reality of marginal value. Like many things in the complex electricity market and infrastructure, there are times when a conservative approximation is the appropriate solution.

Only a portion of the value of MOE (around 24c/kWh, somewhere between 40% and 60% of the total value) would be required to provide a fair and reasonable value for the solar PV exporter with the remainder flowing through to all market participants. There is little risk in well considered approximation when only this proportion of the total value needs to be attributed to the exporter.

- Set a minimum price to be paid. This has no negative effect on competition, especially when considering the benefits to competition from less wholesale price volatility, but will ensure an equitable outcome for consumers in a market dominated by just a few major corporations.
- Establish a review process to ensure that the price paid for power from new systems is maintained at a price that is fair and reasonable and not at a rate that provides inappropriate returns or causes an impost on the market.
- Consider the introduction of a specific program to encourage the deployment of commercial solar PV systems.

As pointed out in IPART's draft report, businesses tend to consume power during daylight hours. As a result, those that own PV systems may consume as much as 80% of the power they produce, so little is exported.

The structure of current market contracts (designed around legacy centralised generators and hierarchical electricity grids) is such that businesses generally pay more to have access to the capacity they require (as network charges) and less for the electricity itself (as lower volumetric

charges). The lower volumetric charges combined with only around 20% being exported means that it is even harder for commercial entities to monetise the real value of the power they produce than it is for residential customers.

This is significantly limiting the up take of commercial scale systems, which will in turn maintain or increase the pressure on daytime generation and extreme peak prices. This is a lost opportunity for NSW and electricity consumers who will have to bear the risk of power disruption and increased electricity prices. It also reduces the potential for more competitive pressure in the market by effectively removing the choice of self generation from commercial businesses.

- Work with the NSW and other Governments to ensure that the transmission and distribution networks effectively support the introduction of new embedded and distributed generation technologies (not just solar PV)

About the Australian Solar Round Table

The Australian Solar Round Table (the Round Table) is a group of CEOs of Australia's largest and most professional Solar Energy Companies that has been formed to provide industry leadership, stakeholder education and to earn market confidence for the Residential and Commercial Solar market in Australia. The Round Table was formed in August 2011 and currently represents about 25% of the Australian solar marketplace. Its membership will expand as likeminded CEOs are invited to join.

Currently, the round table membership is:

- Energy Matters
- Nu Energy
- Ingenero
- Zen Home Energy Systems
- Suntech Power Australia

The Round Table uses objective, fact-based data to develop and communicate industry strategies and policies that are empathic to the needs of the stakeholders in the industry, Governments and the broader community. Members contribute their resources and experience to establish critical mass and a strong voice.

Dave Holland of Right Angle business Services facilitates the Round Table on behalf of the member CEOs.

Contacts

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References

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