



## SOLAR ENERGY INDUSTRIES ASSOCIATION INC NSW CHAPTER

seia.org.au

This submission prepared by Geoff Bragg, NSW Chairman.

21<sup>st</sup> Jan 2012

### SUBMISSION TO THE INDEPENDENT PRICING AND REGULATORY TRIBUNAL (IPART)

### SOLAR FEED-IN TARIFFS SETTING A FAIR AND REASONABLE VALUE FOR ELECTRICITY GENERATED BY SMALL-SCALE SOLAR PV UNITS IN NSW

SEIA NSW would like to acknowledge the depth of research and analysis that has been undertaken by IPART in addressing Feed in Tariffs in NSW. There are however a number of specific areas that we would like to make comment.

#### THE TERMS OF REFERENCE

Whilst IPART has faithfully adhered to the terms of reference handed down by the NSW government, it must be said that these terms of reference are inappropriate for the time.

It is widely accepted that globally and locally, we as a society need to address climate change. Clean energy from renewables can play a large part. Rooftop solar is a practical way for families and businesses to produce some of their own energy and at the same time manage their exposure to rising energy costs.

Setting the terms of reference to exclude any form of government subsidy or preferential conditions to the Solar industry, particularly whilst providing vast subsidies to coal fired generation of electricity, is totally inappropriate given rising CO2 emissions and the community's expectation that our governments support a transition to renewable energy.<sup>1</sup>

SEIA NSW urges IPART to acknowledge these inappropriate terms of reference in the final report to the NSW government.

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<sup>1</sup> 14000, conversations – What Australians are saying about renewable energy  
<http://100percent.org.au/sites/default/files/14000%20conversations%20-%20MPCCC%20Report%2015%20June.pdf>



## THE COBBORA DEVELOPMENT AND SUBSIDY TO COAL FIRED GENERATION OF ELECTRICITY

The Cobbora coal development will effectively be a huge 17 year subsidy to coal fired generation of electricity in NSW. When attempting to attribute a value to exported PV energy this subsidy is not accounted for in IPART's calculation, as it is: "outside their modelling period" (IPART Draft Report page 55)

This is unacceptable.

From NSW Auditor-General's Report Volume One 2011 ELECTRICITY SALE TRANSACTIONS – Page 57: <sup>2</sup>

"Now a Government entity (Miner) will develop the coal mine near Cobbora and supply coal to the GenTraders for a period of 17 years from 1 July 2015. The miner will also supply coal to Macquarie Generation and Delta Electricity Coastal.

The coal will be made available to the GenTraders at a price based on the estimated cost of production. The base price is \$1.47/GJ (\$31.16 per tonne) and is adjusted for the ash, moisture and sulphur content of the coal. The coal will be supplied for the term of the contract with the Miner and the coal price is subject to quarterly indexation."

The current market rate for export coal is between \$100 and \$120 per tonne. This price difference equates to an effective subsidy of between \$68 and \$88 per tonne. IPART should consider this enormous subsidy to the coal fired generators; the PV energy that will be created under the FiT arrangements set up by the IPART review will be directly competing with the coal fired energy produced by the Cobbora development for 17 years, 68% of the 25 year lifetime of current PV modules. Although 2015 (the commencement date of Cobbora development) is outside the IPART modelling period, the future subsidy to coal fired generators should be incorporated in any calculation, given the concurrent energy production lifetimes of both the Cobbora development and current/ future PV modules to be installed.

IPART should address this unfair and inequitable subsidy in reporting to the NSW government. Why should coal fired power receive an ongoing substantial subsidy and the new solar Feed in Tariff incorporate no subsidy whatsoever?

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<http://www.audit.nsw.gov.au/AOReportSearch.aspx?yBase=3&yrf=2011&yrt=2011&ids=30,0&keyw=Electricity%20Sale%20Transactions&pageModule=465&ModuleID=458>



## POTENTIAL FOR PV TO REDUCE NETWORK EXPENDITURE

IPART Draft Report page 64:

“In our view, a comprehensive review of the NEM arrangements for embedded generation – particularly small-scale PV generation – is needed. When the policy and regulatory framework (including the embedded generation and economic regulation provisions within the National Electricity Rules) were developed, small-scale solar PV units were not common. Since then, there has been a rapid uptake of these units in most states and territories, with over 550,000 PV customers now connected to the grid across Australia.<sup>67</sup> In light of this, the arrangements related to small-scale embedded generation warrant attention from both the AEMC and AER, to ensure that the policy and regulatory framework is appropriate and that it is being applied in a nationally consistent manner.”

Since these economic impacts have been identified, but unquantified and excluded from IPART's calculation of a future FIT, "fair and reasonable" cannot be attributed to the final value with such a potentially significant unknown. IPART should consider changing their recommendation from a "fair and reasonable" price for exports to "interim" price for exports until these costs/benefits can be quantified and potentially incorporated into the FIT.

We are on the cusp of a transformation of our energy system. The introduction of Smart Grid technology is happening now, and will change the way we use energy. Embedded PV generation will play a large part in shaping the development of intelligent grid infrastructure. Since 2008 in France, and 2009 in Germany large-scale PV plants have had to participate in grid management<sup>3</sup>. Article 6 of the German Renewable Energies Act set a framework to allow network operators to remotely control PV plants to achieve grid stability management.

This is the kind of forward thinking policy that is lacking in Australia at present.

Once again we may find that governments are taken by surprise at the level of uptake of PV into the market and the consequences, both technical & economic.

We should be encouraging industry, network operators and regulators to collaborate and see the proliferation of PV into the networks as an opportunity to create an innovative, intelligent network before the wave of embedded generation arrives rather than trying to slow it down or stop it coming altogether.

Understanding the costs and benefits of embedded generation as IPART has recommended is just the first of many steps. When networks and retailers find ways to make embedded PV an asset to their business model rather than a hindrance, a corner will have been turned and the transformation will have begun.

<sup>3</sup> One German equipment manufacturer's solution to PV as a grid manager <http://www.sma.de/en/products/knowledge-base/sma-inverters-as-grid-managers.html>



## REDUCING DEMAND FOR ENERGY SUPPLY FROM THE RETAILERS

IPART Draft Report page 65:

“As AGL noted in its submission, under net metering arrangements, increasing PV exports may reduce network system use which, over time, could reduce network demand and increase prices for all customers under a weighted average price cap.<sup>68</sup>”

Following this logic, any embedded PV generation will increase electricity prices for the whole. So too will energy efficiency measures that reduce consumption of electricity; they reduce network demand and therefore have the potential to increase prices. Do we stop becoming energy efficient so as not to affect electricity prices? At what point does IPART consider the growth of PV generation a problem, in that it starts to reduce the economic viability of traditional electricity retailers? Would IPART suggest that government regulate the growth of embedded PV generation to ensure the viability of the existing electricity retail market, or encourage a truly competitive marketplace?

Consumers expect to be able to choose a competing technology to deliver their energy and become more self-reliant by creating their own energy with PV.

The development of more cost effective energy storage that is predicted alongside the growth of the electric vehicle market will enable customers to choose to disconnect from the grid for much of the time, or disconnect altogether.

SEIA NSW urges IPART to acknowledge that “reducing network demand” is exactly the objective of embedded PV generation; restricting a competing energy generator from supplying consumers within the market could be viewed as anti-competitive behaviour.

## A BROADER VIEW – THE NEM AND PV

SEIA believes that IPART’s report into Solar Feed in Tariffs is an opportunity to look more holistically at the concept of embedded and distributed generation of all kinds. Urgent detailed analysis is required to enable governments to set policies that value PV’s contribution as a major factor in the conversion of our electricity system to a more intelligent and efficient one.

Given this work is unlikely to be undertaken as part of IPART’s review, SEIA supports IPART’s recommendations from page 65 of the draft report:

“2 Comprehensive network system modelling is not warranted to calculate the impact of small-scale solar PV on the distribution network businesses’ costs.

3 The National Electricity Rules and guidelines governing DNSPs should be reviewed to ensure they appropriately incorporate small-scale embedded PV generation into the policy and regulatory framework. This review should consider:

- the impact of PV exports on network costs
- the most appropriate way to reflect the impact of PV exports on network costs in the prices paid by those customers who install PV



- the relationship between embedded generation and the economic regulation provisions within the National Electricity Rules. “

Furthermore, SEIA suggests that IPART highlight the urgency of this recommendation and put forward a timetable of suggested actions to commence July 2012. Understanding the impact of embedded and distributed generation in the electricity market will be hugely important as PV installation rates advance following the introduction of a carbon price, combined with retail electricity price rises and falling PV prices.

## DISMISSAL OF FINANCIAL BENEFIT FROM THE MERIT ORDER EFFECT

IPART Draft Report page 76:

“if a financial benefit does arise, it will ultimately be shared among all electricity customers through lower prices.<sup>80</sup>

In our view, even if this benefit could be quantified and allocated to PV customers, it would result in an increase in electricity prices for other customers. As this would be contrary to our terms of reference, we consider it is appropriate to not include the value of any benefit arising from the merit order effect in setting this value.”

At what point would IPART consider passing on the value from lower wholesale prices? Embedded generation is likely to significantly increase its share of the energy landscape in the years ahead.

Hypothetically, if heavy saturation of PV embedded generation in the coming decade were to reduce wholesale prices by 20% in daytime peak summer load periods, would it not be “fair and reasonable” for that value to be attributed to those PV owners that brought about the benefit to all consumers? Why should PV gift this benefit to all, considering the capital cost?

Rather than seeing rooftop PV as just another generator being added to the national electricity market, it should be seen as a significant participant in the transformation of the residential and commercial energy markets. No other embedded generation is likely to have as large an impact as rooftop PV.



## THE CONSEQUENCES OF SETTING A RATE ON EXPORTS AT 1/3 OF THE RETAIL PRICE

IPART, the network distributors and the NSW government should be aware of some of the possible consequences of setting a value on exported energy at such a small proportion of the regulated retail price.

### **On-site energy storage**

Without on-site storage, and an export rate that is roughly a third of the retail price, households will find it prohibitively expensive, if not impossible to generate enough energy to offset their entire quarterly energy charges, or “zero their bill” as consumers often seek to do. They would need to generate for daytime loads, plus generate and export roughly 3 times the energy they consume at night to gain credits, in addition to generating and exporting a great deal more to offset their connection charges.

SEIA NSW members and the solar PV installers that remain in business in NSW, report increased interest from consumers in battery storage to provide backup supply in the event of power outages, but also more significantly, in minimising exports to the grid and maximising self-consumption of the PV energy produced. There are a number of manufacturers that are offering technical solutions that involve charging and discharging batteries at different times of the day dependent on PV production and consumer loads, to effectively receive the full retail price value from all PV generation.<sup>4</sup>

With increased demand for and competition amongst the control equipment, combined with the falling cost of Lithium battery technology being produced in China, it is anticipated to be a growth area of the solar PV market.

Combine this with rising electricity prices, a consumer sentiment of “How can I become more independent and get off the bill treadmill” & “I don’t want to give it to the \*\*\*\*ards for nothing!”- There is the potential for a growth market.

If the use of these technologies were to experience the kind of take up in the coming decade we saw in NSW in 2010-2011 with conventional PV, managing the environmental & safety compliance issues would be of utmost importance. The design, installation, maintenance and disposal of this equipment is an entirely different exercise to conventional grid connected PV, and sufficient resources will need to be deployed early, to manage its implementation effectively.

### **Consumer load shifting and resistive element electric hot water systems**

With such a low value (8 to 10c) being suggested for exported PV energy, consumers and solar designers will find innovative ways to get a better return on the energy that is produced.

<sup>4</sup> One manufacturer’s solution to minimising exports:

<http://www.powerrouter.com/products/powerrouter-solar-battery-bs-50-kw>



Solar retailers are already advising consumers who are contemplating installing PV under net metering arrangements to move as many night time loads to daytime, to ensure they are getting the maximum possible return from PV investment. In a residential setting this is often programming washing machines, reverse cycle air conditioners, water pumps & dishwashers to operate through the solar production curve. This may have an unintended beneficial outcome for the distributors by moving loads away from the early evening peak, but will also be felt as a lost sale of kWh to the retailers.

Some consumers are already resorting to disconnecting resistive element electric hot water systems from the Off-Peak supply and connecting them onto the normal tariff supply, with timers set to coincide with the peak hours of solar production. The cost of PV has fallen so significantly and with a rate on exports also so low, heating water in this way is not as absurd as it first sounds. In many instances an additional 2 kWp solar array dedicated to offsetting hot water heating demand produces enough energy for a small household. The solar array is physically large, but it serves two purposes; unlike conventional solar hot water collectors, PV collection works year round providing energy to the rest of the consumer loads when the water has been heated to temperature. Conventional solar hot water collectors effectively shut down by late morning in summer, wasting the potential to harvest renewable energy for a good proportion of the year.

Consider a consumer in Essential Energy area who may be paying over 10c per kWh for Off-Peak (controlled load 1) or over 15c per kWh on Off-Peak 2 (controlled load 2).

Using energy produced from PV to replace these off-peak charges gets significantly greater value in both instances than the current export rate offered voluntarily by Origin Energy of 6c / kWh, and about 50% more value than the 8 to 10c currently being recommended by IPART as the value of exports.

Whilst all this sounds logical from a PV perspective, if this trend were to continue at scale it will have implications for the network load profile and distributors management of it. On a cloudy day with low PV production, all of these resistive element electric hot water storage tanks would suddenly 'appear' as loads on the network, during the middle of the day. One could argue that this 'boosting' would be happening anyway if those customers had opted to install a convention solar hot water collector, but many have a manual boost, or Off-Peak boosting, which is not the same as timers all coming on during the middle 4 hours of the day.

With a higher export rate, closer or equal to the retail rate – 1:1 Net FiT, there is no incentive to load shift; the energy is exported and used by the nearest available load to the PV system, most likely 2 doors down from the PV system location.



## DATA FROM THE DISTRIBUTORS

It is to be applauded that IPART has analysed real network information on the performance of PV systems.

SEIA NSW would encourage further publication of any data on solar production, load profiles and export ratios. To date, this information has been difficult or impossible to obtain. We would like to see annual publication of all available data from the network distributors. Consumers, industry & regulators will all benefit greatly by the release of this information.

## GOVERNMENT ANNOUNCEMENT & CONSUMER SENTIMENT

We know from private research that a consumer's decision to purchase a PV system is significantly impacted by government policy and sentiment towards renewables, not just subsidies & rebates.

In the context of the devastating collapse of the rooftop solar industry in NSW following the closure of the Solar Bonus Scheme in 2011 and the thousands of job losses that have ensued, SEIA NSW believes it is time for the NSW government to say something positive about rooftop solar.

IPART Draft Report page 93:

**“The NSW Government and the solar industry provide clear information to customers about small-scale solar PV, including the potential financial consequences to households and small business customers who choose to install PV units.”**

Consistent with the above, upon the announcement of the new Feed in Tariff arrangements, we would like to see a NSW Government information package and media announcements that state clearly that rooftop solar is a financially viable and government endorsed option for households and businesses looking to managing rising energy costs. This could be done in conjunction with information about the NSW governments stated aim of 20% renewable energy by 2020.

Given the new Feed in Tariff arrangements are not going to cost the NSW government a cent, and not increase electricity prices, the least the government can do is support the industry with rhetoric, if not with dollars.

We would welcome IPART contributions to producing consumer oriented information showing the **“potential financial consequences to households and small business”**.

SEIA NSW would also like to see IPART making some positive statements about savings from rooftop solar for households and small business in its press releases and publications at the time of the release of the final report in April.





## THANK YOU

I would like to thank IPART for the opportunity to make a submission, and look forward to future communication & collaboration.

Regards



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