

## APVA Response to the IPART Energy Draft Report on Solar Feed-in Tariffs, Nov 2011

January 2012

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IPART's Draft Report "Solar feed-in tariffs: Setting a fair and reasonable value for electricity generated by small-scale solar PV units in NSW Energy — Draft Report",<sup>1</sup> has made a useful contribution to the debate around the value of PV electricity.

The APVA remains of the view, however, that tariffs for exported PV electricity should have a mandated minimum value and that net metering arrangements would provide the most straightforward means of reflecting current PV value to retailers, which we estimate to be at least 18-20c/kWh. These arrangements should apply to both residential and commercial customers, across all tariff types and be available until such time as suitable changes are made to provide a market for distributed energy services in the NEM. Also, PV should not be treated as a special case; rather, in line with the NEM objectives of technology and participant neutrality, distributed energy regulations should apply to all participating technologies.

### IPART's findings

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APVA commends IPART on the following points:

- Recognising that retailers benefit from more than just the wholesale market value of the electricity produced by PV systems.
- Recognising that the simplest and most accurate way to value PV exports to retailers in the current regulatory environment is simply the retail tariff minus any costs associated with buying and selling that electricity.
- Confirming that reductions in loss factors and the merit order effect provide financial benefits to retailers that are currently not recognised.
- Recommending that "the NSW Government and the solar industry provide accurate and readily-accessible information to improve customers' understanding of the financial consequences of installing small-scale PV".
- Recommending that "the National Electricity Rules and guidelines be reviewed to ensure small-scale renewable generation is appropriately incorporated into the policy and regulatory framework".
- Recognising that it may be appropriate to provide financial incentives to PV that provides support to the distribution network in particular areas.

However, of overriding concern to the APVA is the failure of the report to acknowledge the changing environment in which retailers will need to operate as the uptake of distributed energy technologies – both supply and demand - increases. The APVA is of the view that the current regulations do not adequately cater for the significant changes now under way in the distributed energy market generally and that these cannot be separated from responses to PV in particular.

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<sup>1</sup> "Solar feed-in tariffs: Setting a fair and reasonable value for electricity generated by small-scale solar PV units in NSW Energy — Draft Report", Independent Pricing and Regulatory Tribunal, NSW Government, November 2011.

With the levelised cost of PV electricity now at or below retail electricity costs in many areas<sup>2,3</sup>, and continuing to decrease, an increasing number of households and businesses will install PV, with or without any government subsidies. This will decrease customer electricity demand, adding to decreases already evident as a result of increased solar water heater and PV uptake and energy efficiency<sup>4</sup>. The current retail market depends on kWh sales and a daily service availability charge. Network operators also depend on kWh sales and network access charges. If kWh sales continue to fall, one response to maintain retailer and network operator revenue may be to increase service availability and network access charges. Customers are unlikely to respond well to continued increases in electricity bills as their usage is reduced. For these reasons, the APVA believes that new regulatory arrangements will need to be put into place as soon as possible to cater for a new market in distributed energy services, rather than just electricity sales. Such a market would facilitate new business models for both networks operators and retailers, providing appropriate incentives for grid support functions, distributed generation and demand reduction.

Although IPART did refer to the need for the National Electricity Rules and guidelines to be reviewed, their focus seemed to be only on potential network costs of PV, not on the broader requirements for integration of distributed generation (such as the modification of DUOS payments). The APVA calls on IPART to specifically describe areas of the National Electricity Rules that inhibit fair treatment of costs and benefits associated with distributed generation, and that IPART makes proposals that specifically address these issues, and also provide an estimate of the value that may be captured through their recommended process. We note also that PV inverters have significant capability to assist networks, yet many of these capabilities are either prevented or not provided with any incentives at present.

Another area of concern is the focus on costs and consequences of installing PV specifically, given that the NEM has explicit formal objectives of technology and participant neutrality. We note, for instance, the significant costs incurred as a result of the recent rapid uptake of air conditioners and that there has been no discussion about those costs being borne by the owners of such systems – which are of course subsidised by households that do not own them.

## Benchmark range

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IPART has proposed setting a benchmark range rather than prescribing a particular value for exported PV electricity.

It is possible that in a perfectly functioning competitive market, setting a benchmark rate would result in retailers offering customers a value equal to the actual value of PV electricity to the retailer. However, as recognised by IPART, two of the three Standard Retailers currently do not offer such a feed-in tariff for their customers. IPART implies that simply making information available to current and potential PV system owners will result in all retailers offering a fair feed-in tariff. However this is likely to be overly simplistic, especially given that retail prices are currently regulated precisely because the retail electricity market is not considered to be fully competitive, while new supply contracts prevent customers moving to other retailers, sometimes for several years. Furthermore, a long period has elapsed since the Solar Bonus Scheme was closed, and in this period competition has not delivered

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<sup>2</sup> APVA 2011, Modelling of PV & Electricity prices in the Australian Residential Sector, by the Australian PV Association for the Australian Solar Institute.

<sup>3</sup> APVA 2011, Modelling of PV & Electricity prices in the Australian Commercial Sector, by the Australian PV Association for the Australian Solar Institute.

<sup>4</sup> AusGrid has reported an annual decrease of 2% for the last 4 years

voluntary feed-in tariffs from many retailers, a natural experiment indicating that competition cannot be expected to deliver fair results to future PV owners.

As stated by IPART, “In 2012, the Australian Energy Market Commission (AEMC) will begin a review of the competitiveness of the State’s retail electricity market. The purpose of that review is to recommend to the NSW Government whether retail price regulation should be removed.” IPART seems to be preempting this process by assuming that the market is already sufficiently competitive.

IPART also states that “if the NSW Government determines that the market is sufficiently competitive to remove retail price regulation, then arguably, there would be no need to regulate a feed-in tariff.” This of course means that if the AEMC determines that the market is not sufficiently competitive to remove retail price regulation, there will be a need to regulate the feed-in tariff.

Further, as acknowledged by IPART, both the reductions in loss factors and the merit order effect result in benefits to retailers (and possibly to their customers to the extent that they are passed on) that are currently not captured by PV system owners ie. they are indirect benefits or positive externalities. Traditionally such externalities (both positive and negative, such as climate change impacts), by their very definition, call for government regulation, not the absence of government regulation as IPART asserts.

IPART states that one reason for taking a light handed approach is because if they recommend a particular tariff “Retailers might then avoid PV customers or provide different offers to those that they provide to non-PV customers”. However, such behaviour would contravene COAG’s National Principles for Feed-in Tariff Schemes, which include the following:<sup>5</sup>

*“That Governments agree that residential and small business consumers with small renewables (small renewable consumers) should have the right to export energy to the electricity grid and require market participants to provide payment for that export which is at least equal to the value of that energy in the relevant electricity market and the relevant electricity network it feeds in to, taking into account the time of day during which energy is exported.”*

and that

*“assignment of tariffs to small renewable consumers should be on the basis that they are treated no less favourably than customers without small renewables but with a similar load on the network.”*

## Indirect benefits

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The IPART report acknowledges that both the reductions in loss factors and the merit order effect result in benefits to retailers (and possibly to their customers to the extent that they are passed on) that are currently not captured by PV system owners. However, IPART goes on to say that these values should not be included in the value offered to PV system owners because:

1. Such benefits are not fully captured by the system owner’s retailer i.e. the benefits are externalities
2. It is impractical to quantify and allocate these benefits to PV customers
3. Reallocating these benefits to PV customers would increase electricity prices for non-PV customers

Point 1: This is in fact the definition of an indirect benefit, so it is disconcerting that IPART asks stakeholders to identify indirect benefits then chooses to ignore them because they are indirect

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<sup>5</sup> COAG Meeting, Canberra, November 2008, National Principles for Feed-in Tariff Schemes.

benefits. It is exactly because such benefits are externalities that government regulation is required to capture and allocate them fairly.

Point 2: Although it may be difficult to accurately quantify such benefits, it is not particularly difficult to *estimate* them. This has in fact been done by the Melbourne Energy Institute for the merit order effect using price dispatch stacks from the NEM in 2010. They estimated the impact of the PV that was actually installed during 2010. They assumed the ORER levels of generation throughout the NEM and found the total value to be about \$34 million, which when divided by the total PV generation, equated to just over 10c/kWh. If this is added to the 8-10c/kWh calculated by IPART, the full value of PV electricity to retailers would have been at least 18-20c/kWh in 2010.

While the authors acknowledge their approach is not perfect (for example it does not allow for possible changes in participant bidding behaviour in response to PV), the size of the benefit makes it worthy of further investigation. It should be noted that the BMU (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety) in Germany formally reports on the value of the merit order effect every year, in part based on work they commission, when they evaluate the uptake of renewable generation and the effectiveness of associated policies. They estimated that the MOE induced by all renewable generation in 2009 (no figures are yet available for 2010) reduced the costs of wholesale electricity by about 3.1 billion euros.<sup>6</sup> When divided by total renewable generation, this equated to about 4 eurocents/kWh.<sup>7</sup>

Similarly, both Marginal Loss Factors and Distribution Loss Factors are revised annually by AEMO following established procedures. The impact of PV systems on such loss factors could readily be calculated in aggregate and applied as an average benefit to owners of PV systems.

Point 3: IPART's Price Determinations for retailers use the higher of the Long Run Marginal Cost or the average spot price to determine the assumed wholesale cost to retailers. Recently, the average spot price has been lower, meaning that retailers have been receiving the difference as a windfall profit. The financial benefits of the reduction in spot price by the merit order effect and reductions in loss factors are therefore currently captured by retailers. Thus, passing these benefits on to PV system owners would not increase costs to customers, but would simply reduce windfall profits to retailers. If at a later date the spot price were to be higher than the LRMC, assigning these benefits to PV system owners still would not increase costs for non-PV customers above what they would otherwise be, it would just mean that the reduction that would otherwise occur would go to those responsible for it. Put simply, there would be no electricity price rises for non-PV customers because non-PV customers would pay the same amount as if there were no PV connected to the grid.

IPART states that, "In other words, any future feed-in tariff for these customers must be subsidy-free." However, by ignoring the above indirect benefits, the recommended benchmark rate is in fact a subsidy, from the owners of PV systems to retailers.

As indicated in the introduction to this submission, the APVA does not believe that specific rules should be set for PV, rather that new regulations should be developed which cover all distributed energy. For instance, all distributed generation, as well as any activities that reduce electricity use, such as the variety of energy efficiency measures and solar water heaters, provide similar indirect benefits to those described above for PV. The latter are currently rewarded with a value equal to the prevailing retail tariff.

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<sup>6</sup> BMU (2011) *Renewable Energy Sources in Figures: National and International Development*, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, Germany.

<sup>7</sup> At the much higher penetration levels of renewable energy in Germany, the per kWh impact of the MOE decreases because lower cost generation is displaced.

Finally, as acknowledged by IPART, there is no competitive pressure on retailers to recognise such indirect benefits because they are received by all retailers. This means there is no incentive for a particular retailer to offer a higher tariff to attract PV customers. Thus, these benefits will not be captured by assumed competition between retailers and so a ‘benchmark range’ is not appropriate.

## Other points

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### Retail costs (page 45)

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IPART states that retailers do not avoid incurring the various fixed customer costs when a customer exports electricity. While this is true, they also do not *incur* any of these costs when a customer exports electricity. All a retailer’s customer-related operating costs and customer acquisition and retention costs are covered by the Service Availability Charge. Thus, such costs are not relevant to the payment for exported electricity. Despite this, IPART appears to use such costs to justify a reduced payment for exported electricity.

Retailers can apply to the AER to be compensated for such costs, however it is worth noting that Ausgrid’s application for costs incurred under the NSW SBS was rejected by the AER as they were not ‘sufficiently material’. The AER’s position was supported by both Country Energy and Integral Energy at the time.

In its report “2011 Determination of Solar Feed-in Tariff Premium, Draft Price Determination”,<sup>8</sup> ESCoSA refers to ACIL Tasman’s report that supported their draft Determination. ACIL Tasman stated that:

*“we have not attempted to estimate this incremental cost [any increase in retail operating costs due to PV customers], our expectation is that it would be extremely small and within the reasonable error margin associated with the estimate of the energy value”.*

### Network costs (page 46)

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IPART states that “Retailers are required to pay network costs (both fixed and variable) to the network distribution businesses based on the gross amount of electricity they supply to customers”. However, this is not strictly true as the fixed charges are independent of energy use. For example, the following is from Essential Energy’s Annual network prices report 1 July 2011 – 30 June 2012.

*“Most network prices have a fixed Network Access Charge, which is independent of the demand and energy supplied. Fixed charges are non-discretionary in nature and represent the means of cost recovery for those costs which are fixed and reflect the costs that vary due to customer numbers. They are unrelated to actual consumption.”<sup>9</sup>*

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<sup>8</sup> 2011 Determination of Solar Feed-in Tariff Premium, Draft Price Determination”, Essential Services Commission of South Australia, SA Government, 2011, page 40.

<sup>9</sup> Essential Energy’s Annual network prices report 1 July 2011 – 30 June 2012, page 18

## Transmission network costs

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IPART also states that “A transmission network-related component, including an allowance for avoided Transmission Use of System payments, should not be included in determining a fair and reasonable value for a non-subsidised feed-in tariff in NSW.”

IPART appears to have focussed solely on avoided TUoS payments as representative of the potential benefits provided by PV to transmission networks. However, non-scheduled generation is incorporated into AEMO’s projections of the generation contribution to meeting summer maximum demand, as well as the annual load forecasts underpinning Transgrid’s Electricity Statement of Opportunities (ESOOs). Transgrid’s Annual Planning Report 2011 indicates that 358MW of 752MW (about 50%) of non-scheduled generation is assumed to be available during peak demand times in 2011-12 (hydro is assumed to have 20% availability and wind is assumed to have 5% availability). While this does not include small-scale PV, it does show that non-scheduled generation is assumed to reduce the need for network capacity.

Small-scale PV is classified as distributed generation with a capacity less than 5MW, and so is not required to register with AEMO or participate in the NEM dispatch process. Thus, rather than being incorporated into Transgrid’s ESoo as a form of generation, it is assumed to reduce demand, and so also reduces the need for network capacity. If IPART wishes to fully incorporate the impact of PV on transmission network costs, this effect should be incorporated.

Recently, the Western Australian government released a new methodology for calculating the Capacity Credits available to intermittent generation. This is essentially based on the average output by the generator during the top 12 Trading Intervals drawn from separate days from the previous 5 years, less an adjustment for the variability of output. This approach implicitly recognises that intermittent generation can provide capacity at peak periods.

When referring to avoided TUoS payments, IPART points out that the method currently used was originally developed for large embedded generators rather than residential-scale PV systems. IPART then states that therefore this methodology is not suitable for residential-scale PV systems and so calculation of avoided TUoS payments would be too difficult. However, the method IPART describes could readily be applied to aggregate residential-scale PV systems, given that it is in aggregation that they may provide network benefits. Indeed, Essential Energy has been able to calculate this as an average benefit and have been paying it to PV customers for a number of years.



## Attachment A: Background on the APVA

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The APVA is an association of companies, government agencies, individuals, universities and research institutions with an interest in solar photovoltaic electricity. In addition to Australian activities, we provide the structure through which Australia participates in an International Energy Agency (IEA) programme called PVPS (Photovoltaic Power Systems), which in turn is made up of a number of activities concerning PV performance and implementation. Further information is available from [www.apva.org.au](http://www.apva.org.au).

### APVA Objective

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The objective of the Australian PV Association is to encourage participation of Australian organisations in PV technology and industry development, policy analysis, standards and accreditation, advocacy and collaborative research and development projects concerning photovoltaic solar electricity.

APVA membership provides:

### Information

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- Up to date information on new PV developments around the world (research, product development, policy, marketing strategies) as well as issues arising
- Access to PV sites and PV data from around the world
- International experiences with strategies, standards, technologies and policies
- Australian PV data and information
- Standards impacting on PV applications

### Networking

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- Access to international PV networks (PV industry, government, researchers) which can be invaluable in business, research or policy development or information exchange generally
- Opportunity to participate in international projects, with associated shared knowledge and understanding
- Opportunity to meet regularly and discuss specific issues which are of international, as well as local interest. This provides opportunities for joint work, reduces duplication of effort and keeps everyone up to date on current issues.

### Marketing Australian Products and Expertise

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- Opportunities for Australian input (and hence influence on) PV guidelines and standards development. This ensures both that Australian products are not excluded from international markets and that Australian product developers are aware of likely international guidelines.
- Using the information and networks detailed above to promote Australian products and expertise.
- Working with international network partners to further develop products and services.
- Using the network to enter into new markets and open new business opportunities in Australia.

## The International Energy Agency PV Power Systems Programme (IEA PVPS)

One principal activity of the APVA is to manage Australian participation in the PVPS Programme. This work is arranged by Tasks, each with its own commitments of time and resources. Support is provided by the Australian Solar Institute. At present Australia participates in:

Task 1: PV Information Exchange and Dissemination

Task 11: PV Hybrid Systems within Mini-grids

Task 14: High Penetration of PV in (Smart) Electricity Grids

and maintains an interest in:

Task 8: Very Large-Scale PV Systems

Task 9: PV in Developing Regions

Task 12: Environmental Health & Safety for PV Systems

Task 13: PV System Performance

For further information on the Australian PV Association visit: [www.apva.org.au](http://www.apva.org.au)

For further information on the IEA PVPS Programme visit [www.iea-pvps.org](http://www.iea-pvps.org).