Australian

PV Association

ABN 91 006 005 190

www.apva.org.au

IPART Draft Report: Changes in Regulated Electricity Prices from 1 July 2011

- Submission by the Australian PV Association -

May 2011

Main points:

- Electricity Price Rises associated with solar power systems are overstated.
- The Draft IPART determination allows electricity retailers to make windfall profits at the expense of consumers.
- The actual price paid for STCs is well below $40, and IPART should ensure the cost paid by consumers is reflective of the retailers' efficient costs rather than the Clearing House price.
- The Federal government's reduction of the solar multiplier means that the projected Solar Technology Percentage will change and therefore the costs associated with meeting STC liabilities must be re-assessed.
- The true value of PV electricity to the retailer is much more complex than simply offsetting wholesale generation costs. The APVA requests that IPART undertake an open and transparent process to assess the true value of PV electricity to the retailer.
- Complementary support measures are needed over the short term for PV systems to reach grid parity, after which the PV system owner's cost of abatement will be negative.

Discussion

The APVA expresses its concern that electricity price rises associated with solar power system installations are overstated, while electricity retailers are simultaneously allowed to make windfall profits from the NSW Government's Solar Bonus program.

STC Prices

The APVA acknowledges that the enhanced Renewable Energy Target has increased the costs of Green Energy allowances for NSW electricity retailers. However, the APVA believes that the costs quoted are overstated. This is principally due to the forward-purchasing of STCs by the retailers at prices far below those stated in the document.

The draft report states that IPART

> *"have made a draft decision to set the cost per STC in line with ORER's fixed price of $40 (nominal) for 2011/12 and 2012/13. Our reasons are as follows:*
>
> - *this values the opportunity cost of an STC, recognising that a household can always sell certificates at $40 through the clearing house*

- *it is problematic to determine a cost-based estimate consistent with our approach to the LRET*
- *this is the approach taken by regulators in other jurisdictions (QLD and SA) and is supported by retailers*
- *it is broadly consistent with the market price for STCs."*

However, evidence shows that $40 is not broadly consistent with the market price or opportunity cost for STCs. In the first quarter of STC trading:

- Only 100,000 STCs were purchased through the Clearing House at $40, representing 1% of the total volume surrendered. Given there are now ten times this amount in the Clearing House, there is little likelihood of households obtaining $40 in any reasonable time. Furthermore, analysis by SunWiz shows that the Liable Entities that did purchase through the Clearing House were not NSW electricity retailers.
- The STC price dived once it became clear that requirements were met by STCs available on the market (see Figure 1). The STC price has continued to dive subsequently, since Q2 requirements (7 Million STCs) were met by 9 May. The current spot price is $25.
- The volume of STCs surrendered (8.8 Million) is 10% lower than the 9.8 Million required by the Small-Scale Technology Percentage, indicating that retailers have sought to defer costs until the truing-up that occurs in Q4. Such deferral of liability may affect the timing of cost estimates shown in IPART Table 3.12, affect the pass-through amounts stated in IPART Table 4.2, and affect the 9-month time delay between SRES liability arising and its recovery.

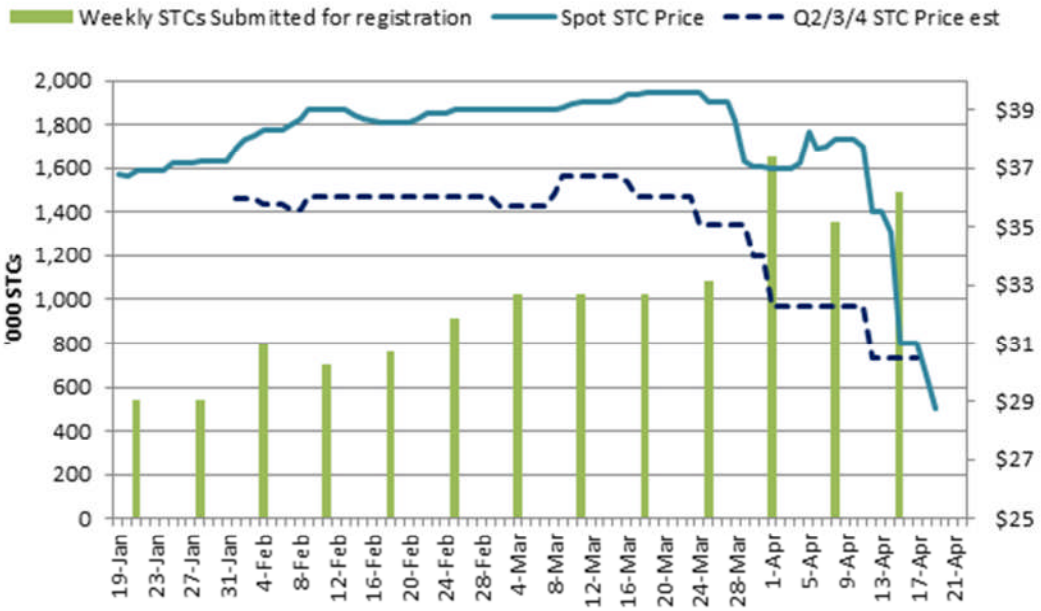

Figure 1 STC Spot Price and Trading Volume: Jan to April 2011

Source: Green Energy Trading; Information current as of 17th April

Looking forward:

- It is likely that, given the low spot price, in the second quarter of 2011 there will be even fewer purchases through the Clearing House at $40.
- At current creation rates (1.5 million STCs/week), it is likely that the year's requirements will be met by 1st of July, meaning that a depressed STC price is inevitable for the remainder of the year.

Such low prices demonstrate that the STC market cannot be modelled as economically rational in that the STC price is clearly not determined solely by the cost of carry plus some acceptable risk margin. The cost of carry does not account for such low spot prices. Assuming 10% cost of finance, the cost of carry of $40 for 90 days is in the order of $1 rather than $15 (and so does not make up the difference between the current spot price and $40).

The APVA does not wish to constrain the retailer's ability to forward purchase STCs at a price reflective of cost-of-carry plus some risk margin - it is in the interest of PV integrators to sell STCs ahead of quarterly surrender periods in order to manage cash-flow, of which STCs make up a significant proportion. However, electricity retailers have deeper pockets than PV installers, and three retailers represent 60% of the liability (Source: SunWiz analysis of the REC registry), but control ~80% of the purchases. Add into the equation information asymmetries and the PV installation activity of some retailers (thus creating their own STCs at discounted rates), and price manipulation is one possible result.

In light of such information, IPART's draft decision allows electricity retailers to make windfall profits by buying STCs below $27 but passing on a cost of $40. Little wonder that 'such an approach is supported by retailers'. The APVA wishes to protect electricity consumers from windfall profiteering by electricity retailers by proposing that the cost pass-on to customers be reflective of the forward STC prices across the coming year, plus an acceptable margin for risk and cost-of-carry. In setting retail electricity prices to enable retailers to recover the 'full, efficient costs of providing electricity to customers', the APVA recommends that IPART recognise that the retailers 'efficient costs' of STC compliance are well below $40, and will remain so for the foreseeable future[1].

Small Scale Technology Percentages

The APVA notes that the government recently announced an accelerated reduction in the solar multiplier. This will affect the number of STCs created in future years, as well as the number carried forward from 2011 into 2012. As such, the APVA suggests that table IPART 3.11 be re-visited.

Retailer Cost Recovery of Solar Bonus Scheme Windfall

The APVA supports IPART's suggestion that some of the cost of the Solar Bonus Scheme be borne by retailers that have received windfall profits from the scheme. The APVA suggests that the true value of PV to the retailer be recognised, rather than just the 6c/kWh avoided cost of wholesale electricity. The true value of PV electricity to the retailer is much more complex than simply offsetting wholesale

[1] In its draft decision, IPART has recognised the increased volume of STCs that will need to be surrendered in 2012 without considering the impact that excess STCs has upon the unit price.

generation costs. It needs to take account of a number of additional factors, including the fact that all the retailer's fixed costs (including network costs) can be passed through to the customer as their service availability charge; AEMO nets off PV electricity from the retailer's obligations; PV output has been shown to correlate well with the NEM spot price and so averages more than $60/MWh; and retailers can on-sell the PV electricity at up to 45c/kWh – either straight back to the system owner or to their neighbour. There are likely to be additional factors that need to be taken into consideration and so the APVA requests that IPART undertake an open and transparent process to assess the true value of PV electricity to the retailer.

Cost of Abatement

While acknowledging that PV is not currently the least-cost form of abatement, few initiatives in the electricity industry have led to any significant abatement in the urgent timeframe in which it is needed. PV is one of the few options successfully deployed over the past decade and over 500MW of PV is now generating emissions free electricity across Australia every day. The AGL paper referenced has significant shortcomings, including in its LRMC calculations – which assume 19% lower than demonstrated yields and then further penalise PV by 7% for 'losses'. The $422 arrived at is far higher than The Australia Institute's assessment of the Solar Homes and Communities Program[2], which put an abatement cost at $257-$301/tCO_2e. Both took an historical and 'static' view of the PV industry and PV prices have subsequently halved. The cost of PV has been reducing at a consistent rate of 22% for each doubling of capacity, and is expected to continue to do so.

A $8000 unsubsidised investment in a 1.5kW PV residential system reaps $12,000 of offset electricity expenditure and offsets 42 tonnes of CO_2 at today's emission intensities[3], albeit at a (highly-simplified) NPV of $-2,390[4]. Government injections of $2,390 could effectively abate 42 tonnes of emissions for approximately $56.50/tCO2-e today, and would leverage private investment, and grow the industry until grid parity is reached. Regardless, though the abatement cost of PV is currently more expensive than other methods, once grid parity is reached, which in NSW could be within about five years[5], the cost of abatement for the system owner (on the basis that they pay the full cost of this system without any government assistance) will be zero. After this time it will be negative.

Complementary support measures

Continued support is needed to transition PV to the point of grid parity, at which point it will be able to deliver cost-effective carbon abatement without subsidy. Internationally, the need is well recognised for measures complementary to a carbon price. Comprehensive analysis reveals that in

[2] https://www.tai.org.au/file.php?file=/media_releases/PB%2021%20SHCP%20final.pdf, accessed 10/5/11

[3] This does not include any site-specific avoidance of losses in transmission and distribution of electricity, somewhat offsetting a simplifying assumption of constant grid emissions intensity.

[4] Assumes 7% discount rate, 20c/kWh electricity price indexed at 2.5% p.a., with 0.5% degradation p.a.. Excludes maintenance costs except for $1.5/W inverter replacement in year 13, and assumes 20 year system life. Assumes production of 4.5kWh/kWp/day (as demonstrated in Peer Review of AECOM Report on Solar Bonus Scheme for Clean Energy Council, 2011

[5] APVA analysis for the Australian Solar Institute shows that grid parity is expected to be reached in about five years. This timeline is consistent with international reports, such as the NREL report 'Break-Even Cost for Residential Photovoltaics in the United States: Key Drivers and Sensitivities', which showed that grid parity could be reached in many parts of the United States by 2015.

order to reduce the *total*-cost of agreed-upon emissions trajectories, higher-cost abatement measures need early-stage support. The increased deployment that results from early stage-support lowers the price of technology deployment (due to learning-curve effects), which lowers the eventual cost of abatement whilst avoiding the lock-in of technologies whose abatement cost starts out low but becomes increasingly expensive when reducing emissions to zero becomes necessary, such as the case may be for carbon-capture and storage from gas turbines[6]. Interestingly, technologies such as nuclear have a negative learning cure, with costs increasing as the safety, risk and long term commitments become better understood[7].

[6] Cédric Philibert, 2011, "Interactions of Policies for Renewable Energy and Climate", International Energy Agency , Working Paper.
[7] Gruber, A., 2010, The costs of the French nuclear scale-up: a case of negative learning by doing, Energy Policy, doi:10.1016/j.enpol.200.05.003.

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Attachment A: Background on the APVA

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.

APVA Objective

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

- 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

- Access to international PV networks (PV industry, government, researchers) which allow personal relationships to develop and 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

- 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 13: PV System Performance

For further information on the Australian PV Association visit: **www.apva.org.au**

For further information on the IEA PVPS Programme visit **www.iea-pvps.org.**