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For the Climate Change Authority

October 2012

RET Review response;

How the RET has benefitted Australian PV system price's



Introduction

Thank you for the opportunity to respond to your review of the Renewable Energy Target.

SolarBusinessServices is a PV industry research and consultancy business formed in 2009. The company specialises in industry, channel and policy analytics and works with Industry associations, local and International companies who are targeting the PV industry in Australia.

On the back of our extensive research, we develop PV industry specific strategic and tactical plans and assist companies with implementation, investment strategies, product development and various other activities in support of PV industry growth and maturity.

Founder Nigel Morris has 21 years experience in the Australian PV industry.

Prior to starting SolarBusinessServices, Nigel was a senior member of Australia's only PV manufacturer, (BP Solar) for twelve years in roles including National Sales Manager, Offer Development Manager, Marketing Manager and Distribution Manager.

This experience, coupled with International links through other divisions provided a diverse wealth of experience in projects (such as Solar Cities, The Athletes Village and Bushlight), product development, and offer development.

Importantly, two highly relevant functions Nigel was responsible for included the monitoring and establishment of PV pricing in the Australian market and the launch and successful implementation of Australia's first combined PV kit system with a REC offering.

Prior to BP Solar, Nigel worked for a small PV Retailer and Installer in a variety of roles deploying off grid solar across Australia, SE Asia and the South Pacific. This included hands on product manufacturing, installation, training, system design and sales.

Nigel is the recipient of the 2011 Australia Solar Council award for "Industry Leadership and Advocacy".

Our submission

I am aware that a number of other submissions, some of which I have contributed towards, will focus on the broader issues described in the review paper and as such, I have elected to focus on a single issue contained within the review, in this short submission.

The issue is specifically:

"The Authority is continuing to explore how the Australian cost of renewable energy has changed over time, and would welcome any evidence to demonstrate the impact that local deployment under the RET, rather than a general fall in international technology costs, has had on those costs."

We have attempted to quickly collate, analyse and summarise the key nuances through available data and the impact that the RET has had in Australia. We have explored the issue of PV pricing in a local market context in response to the question posed in the review.

Price data

Although data collection is slowly improving on the Australian PV market, it is extremely limited and was in fact one of the key drivers for establishing this business.

As such, we have analysed and provided samples of data that were available over the last 10 years or so, from a variety of sources including the International Energy Agency, The Clean Energy Regulator, the Sustainable Energy Development Authority, the IEA PVPS program, consumer surveys, and our own intelligence gathering activities concentrated over the last three years. It is worth noting that the Australian Solar Institute has provided some support for the Australian PV Association to conduct research through the International Energy Agency PVPS program to collect indicative system pricing for some years.

This data provides an excellent snapshot of the changes and some excellent indications of the impacts of various schemes however, Australia is sorely lacking in qualitative and quantitative data on the granular issues of PV cost build up, and the explicit benefits of individual programs. One of the key issues is that much of the granular detail on pricing resides within private companies and without an obligation to report on the nuances of price build (as is the case in other countries such as the USA and Germany), accessing and analyzing data is very difficult time consuming.

Despite this, through our extensive experience in the market and industry connections we can correlate changing trends and behaviors and can draw some conclusions.

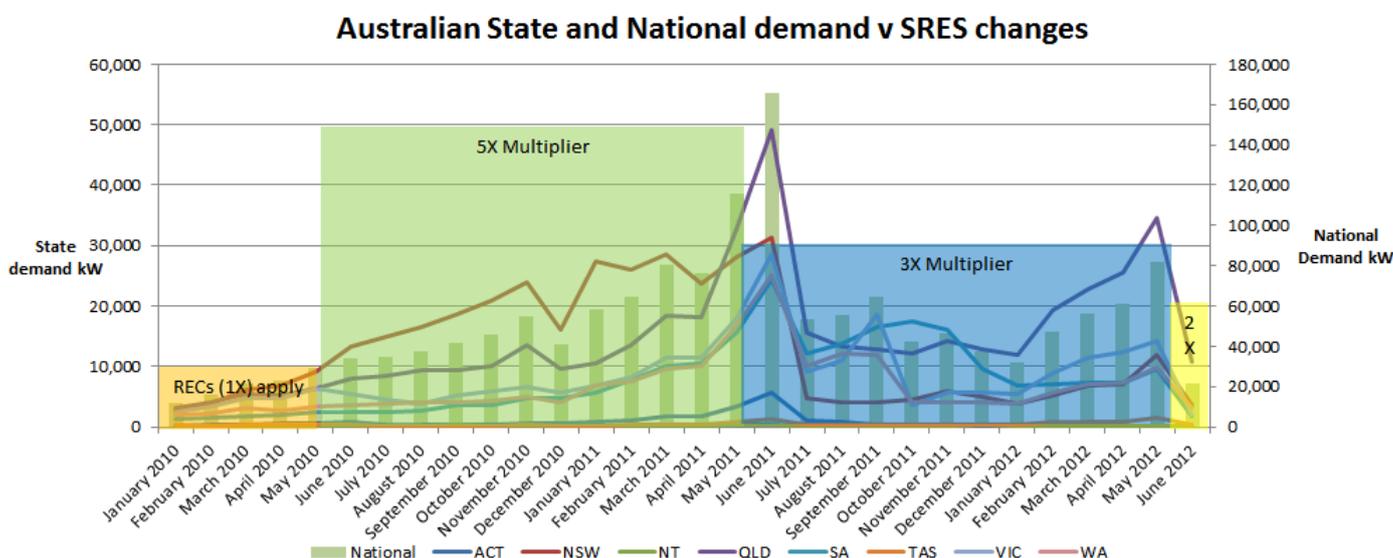
The RET, volume, cost and price

Request: That the Australian Government addresses this gap in data collection to allow it to better measure the performance and impacts of its PV related programs with respect to PV price impacts

Although many local and global factors effect *cost*, it is predominately local factors and scale that affect *price*.

Price consists of the build up of costs, plus the cost of sales and the margin requirement, which are directly proportional to the volume or scale available.

Whilst global cost reductions have contributed to volume growth, the following graph demonstrates the market's distinct and immediate volume reaction to changes in the RET, in this case the SRES multiplier. Part of this reaction is emotional and part of it is price based and in addition, each of the States were starting and stopping programs over the period analysed.



The RET, volume, cost and price (cont.)

However, the overriding trend of volume changes occurring as the SRES changes is absolutely clear. The SRES drives volume, volume drives scale and scale drives price.

Although the domain of private companies my first hand experience over the past decades has been a reduction in margin expectations driven by increasing volumes. Historically, PV Retailers required 35% plus Gross Profit and PV Wholesalers required 20-25% Gross Profit to meet basic expenses due to the low market volumes. Pricing structures at BP Solar while I was National Sales manager included a commensurately wide Discount off Retail price to allow such profits to made.

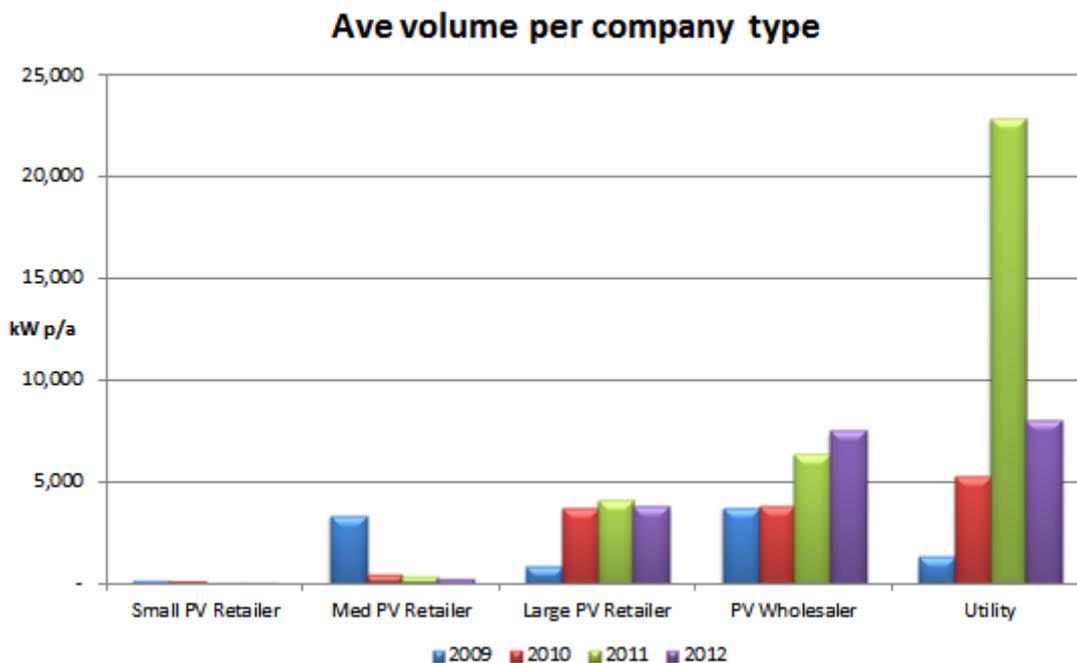
Today however, my experience with PV Retailers is that many operate on 10-20% Gross Profit and PV Wholesalers operate on 5-10% Gross Profit. Although I cannot disclose the companies, I have witnessed numerous profit and Loss statements proving these hypothesis. It is worth noting that these business have not only reduced margin requirements, but have increased sophistication, marketing and market coverage substantially whilst enduring perpetually declining costs and price expectations. The only factor that allows these margin reductions to work is volume; and the RET clearly drives volume.

I submit as evidence a sample of the volume available per company in recent years. Care must be taken in assessing this graph as the relative strengths of segments ebbs and flows, and categorization of companies changes over time as growth ebbs and flows (eg some companies may move from the medium to large Retailer segment), however, the distinct trend has been for substantial volume growth, and thus scale and cost reductions.

This graph describes the average annual sales volume per company (as different company types) selling PV in the Australian market over recent history. It demonstrates the growth in average annual volumes, demonstrating the growth, and the resultant opportunities for economies of scale in the local market.

With the knowledge that the RET had been the primary driver of volume, we can reasonably deduce that the RET has

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Local versus global price factors

Australia is currently the 8th largest PV market in the world (by annual installation volume) and has developed with a unique set of dynamics and characteristics that influence price build up which are rapidly and regularly changing. These influences are both global and local.

The global influences are predominately product related, but also include broader industry investment. In the simplest of terms, a larger market attracts more products, better buying potential and a more attractive investment opportunity for International companies.

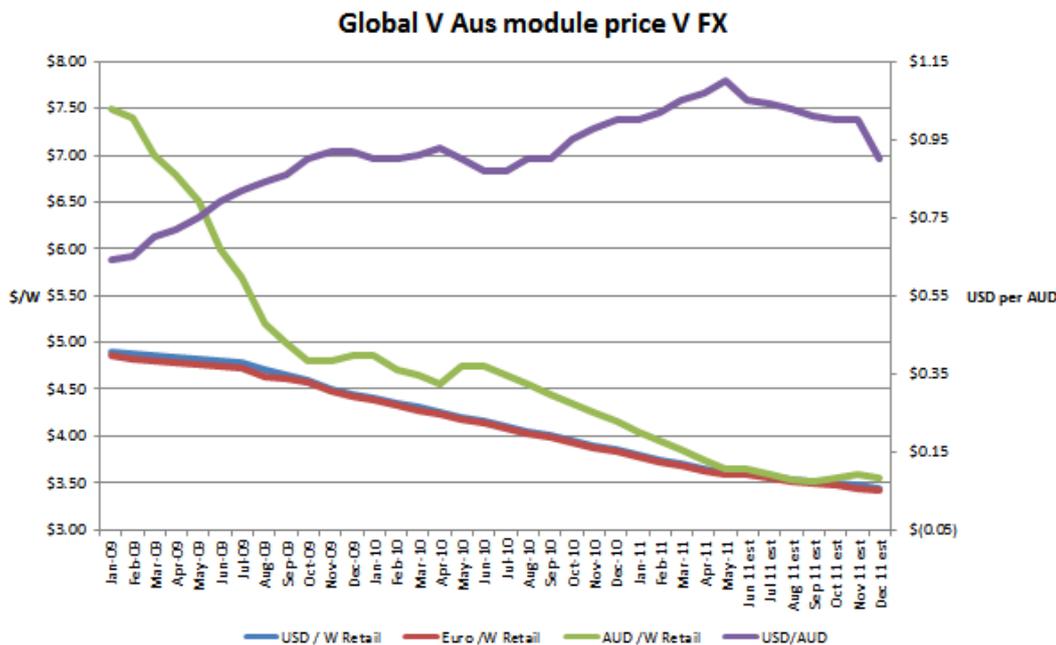
In this sense despite the fact that we are relatively small compared to other PV markets, we are clearly material and this has attracted an increasing number of companies to invest in local staff and facilities (eg SMA Inverters, Canadian Solar, Conergy, Q Cells, Sunpower, First Solar and many more). These investments bring better service and logically, lower serving and support costs to the local market.

Given that we can measure the growth in PV as a direct result of the RET, it is a logical conclusion to make that industry has benefitted from higher quality and better service through International investment from a significant number of PV and related companies.

Secondly, from first hand experience (and quite logically), I can confirm that the attractiveness and volume of a given market strongly determines the market price. I have personally witnessed the establishment of pricing that is relative to the size and cost to serve in different global markets and watched as Australia moved from having no influence (being immaterial in proportional global volume) to having staggering buying power in the global market.

Thus in broad terms, the growth in our market, stimulated by the RET has played a significant function in driving up volume and thus increasing buying power for local companies, resulting in lowered prices to consumers.

I submit evidence of this in the form of the following graph which describes the relative change of the Australian price per Watt for PV over time. Foreign exchange rates play a role, but volume and buying power must also be present to allow price points to converge; which they have. Although PV (module cost) is only one element of price, it is proportionally significant in the cost build up and we can now buy PV at roughly the same price as the US and European market's through a combination of exchange rates *and* market attractiveness.



Price build up

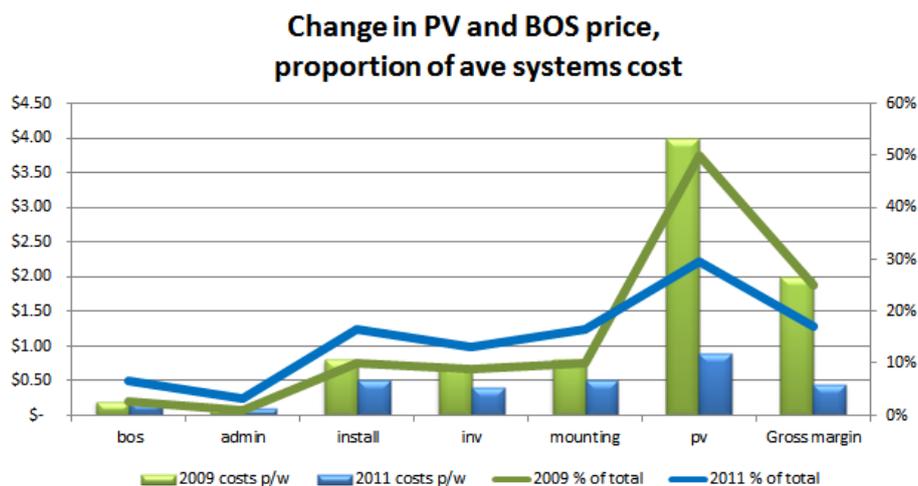
Despite our size, our market has a minimal measurable impact on the global price of the majority of components which are predominately manufactured to suit other markets.

However, we are able to measure some global and local cost and price impacts.

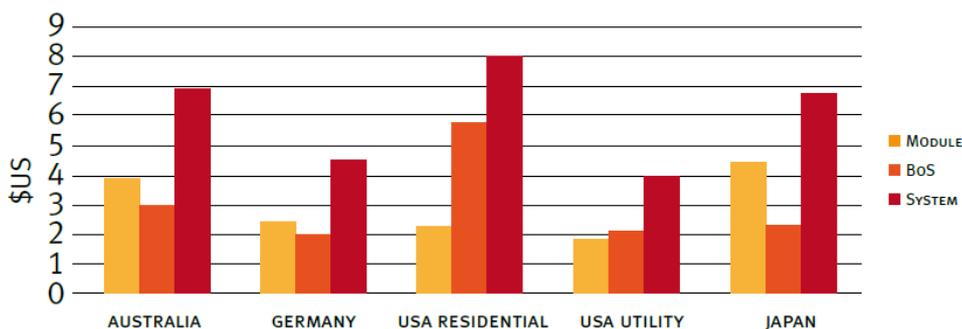
For the sake of this discussion we have isolated our analysis to Residential sales components which make up more than 90% of the current market and define price build up as consisting of the following:

- PV cost
- Inverter cost
- Mounting hardware cost
- Installation cost
- Other ancillary hardware cost
- Gross Profit margin (effectively the cost of sales plus net margin)

The graph below is indicative of average system prices comparing 2009 to 2011, based on a samples of prices taken from the Australian market, excluding subsidies. This data demonstrates the many system cost reductions including average installation prices.



Overheads and the cost of physical installation has been reduced substantially in recent years through volume as previously described. Comparing to an assessment in 2009 in which non-module costs were approximately 43 per cent of system prices installation now represents approximately 10-15 per cent of total system price, though module price declines have been faster than declines in other balance of system costs. The following graph from the International Energy Agency PVPS and the Australian PV Association describes Australia's relative global position.

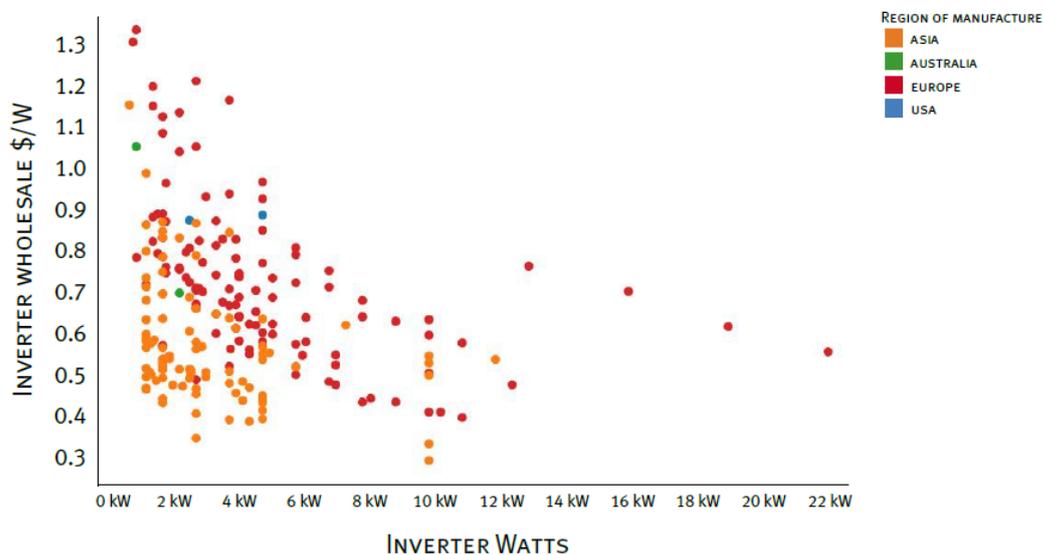


Price build up (cont.)

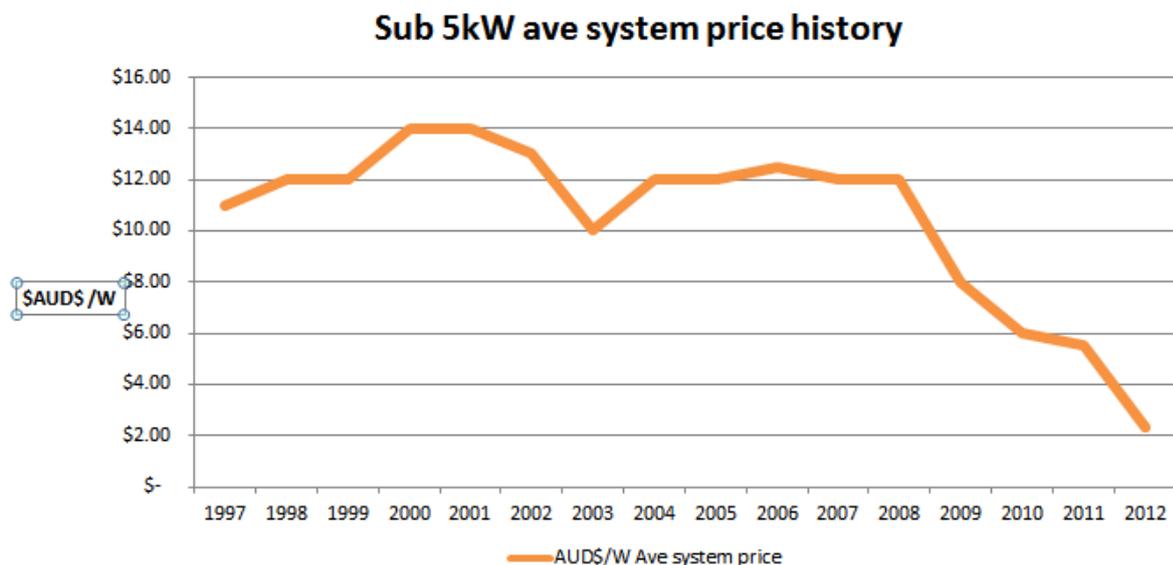
One definable measure of local market growth impacting International costs - and thus lower Australian prices - is with respect to inverters.

The graph below by Sunwiz Consulting shows the wholesale price per kilowatt of inverters across the second half of 2010 from a range of suppliers into the Australian market, and illustrates the economies of scale that apply to inverters. It also illustrates the price differential between inverters manufactured in Asia and Europe, with Australian inverters typically costing somewhere in the middle.

The size of Asian-made inverters is punctuated at 1.5, 2, 3, 4, and 5 kW – with the prevalence of 1.5 kW inverters suggesting the influence Australian policy settings have upon Asian manufacturers; by contrast European inverter sizes are more evenly distributed. Thus, the unique nature of the Australian market requirement for 1.5kW systems, drove manufacturing, investment, competition, cost and price reductions. The volume and the 1.5kW system requirement thus specifically drove these cost reductions.



The graph below is a combination of averaged sample system prices from our own data and from International Energy price estimates for Australia. This demonstrates the overarching system price trend in Australia.



Conclusions

Whilst ample room exists for much improved, systematic data collection on local market price we believe this sample of data provides a strong representation of the best available data from a variety of sources and given more time and funding, we could develop far more comprehensive analysis.

We believe that we have demonstrated not only the direct correlation between demand, volume and the RET but crucially the relationship between demand, economies of scale, margin and leverage which are intrinsic features of any market.

We urge you to very carefully consider the ramifications for volume and price during your review.

The RET drives volume.

Volume drives scale.

Scale drives price reductions.

Nigel Morris

SolarBusinessServices

2nd November 2012