Summary of Australian PV Industry Survey

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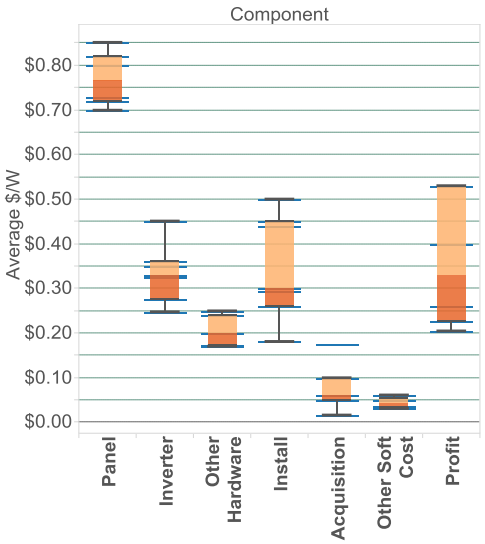
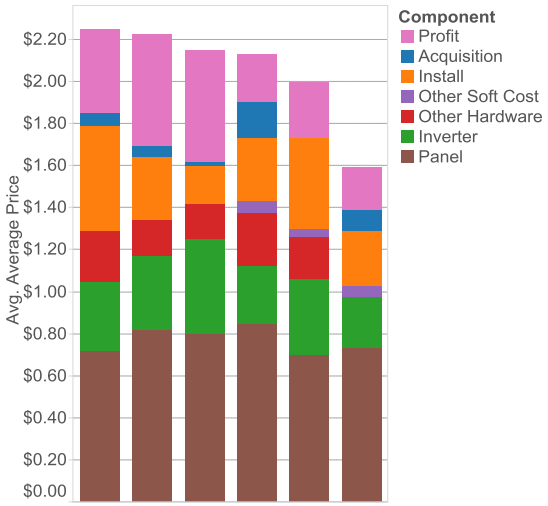
The International Energy Agency PV Power Systems program is running an international survey into Soft Costs and Timelines for PV System Installations. Warwick Johnson, of SunWiz, is Australia's representative to the IEA-PVPS Task 1 and led a survey of the Australian PV industry that forms an input into Australia's annual report to the IEA PVPS. Of the 37 survey participants, seven agreed to answer a range of questions in extended phone interviews; together they installed 19MW in 2014 and thus represented over 2% of Australia's volume. Their responses are summarized in this report, supplemented by answers from an annual APVI survey. This work was supported by the Australian Centre for Advanced PV.

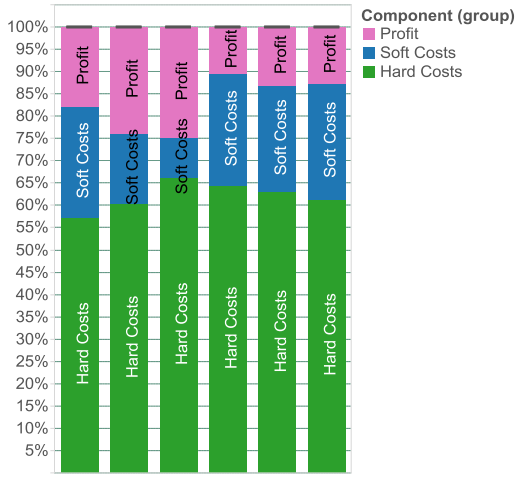
Price Breakdowns – Interview

The average cost for PV systems installed by the participants survey was A$2.30/W in 2014. The graph to the right shows the distribution of costs by category amongst the seven respondents for an average 5kW system. Panels still made up the largest cost component, followed by inverters, installation, other hardware, customer acquisition, and other soft costs. Profit was also a significant component of overall price.



The leftmost graph beneath shows the build-up of prices for an average 5kW system from the six respondents that provided values for all cost components. Note that the sixth respondent did not provide a price for other hardware, which is a reason their price is lower. These prices exclude the discount from STCs, and also costs for STC creation have not been factored into the price. The rightmost graph breaks down the cost components into hardware costs, soft costs, and profit for each of the six respondents with complete responses.





Reasons for Price Variations

The main reason given for pricing variation amongst individual cost categories was the variability of the housing stock, encompassing differences in roof material, access, and difficulty of installation.

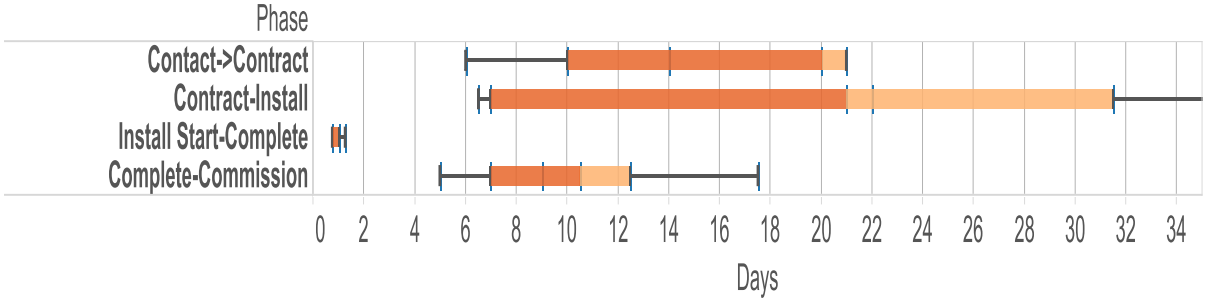
A couple of interviewees noted the extreme pricing pressure. They also noted the difference in price obtainable by subcontracting out installations, but those with employed installers expressed major concern about the risk of sub-quality installations by subcontractors.

Future Pricing

Labour is already an expensive component, but most interviewees saw labour prices increasing due both to wages growth and to the increase in time spent meeting the evolving compliance standards and regulations. Inverter pricing was frequently seen as the best area to make gains in pricing. Increasing system sizes were also seen as leading to lower cost-per-watt.

Residential Project Timeframes – Interview

The average time from contact to completion for an installation in Australia was 55 days, with significant variability, particularly around the time from contract-to-install. The graph below shows a box-plot showing the median, and upper and lower quartiles of number of days spent on each phase of a residential project. The period between obtaining a customer contract and commencing the installation was the longest period and with greatest variance. The time taken to close a sale following initial customer contact was the next lengthiest component. Most residential installations take less than one day, depending largely on the number of workers on site, which varied amongst respondents from two to four.



Biggest challenges in each stage of the project stages

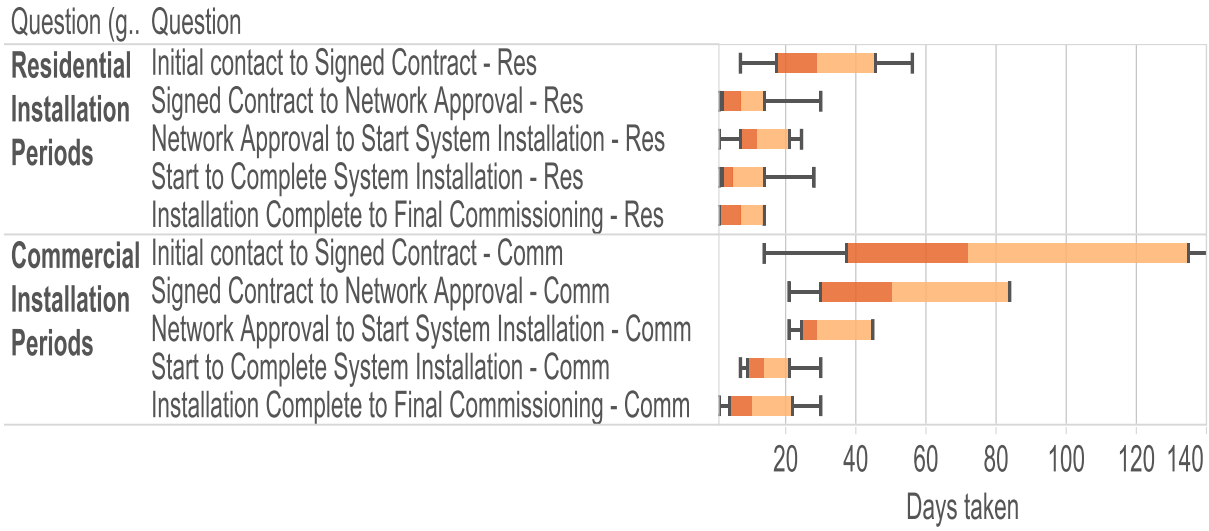
A repeating theme was the significant variation in distribution network operator process and approval timeframes, with concerns raised about subjective interpretation and variance in process depending on who answered the phone. Though this was less of an issue for residential grid connection approvals, interviewees regularly volunteered a complaint about this issue in commercial PV. The variation has significant impact upon cashflow and pricing risk.

Interviewees also noted the following as issues; compliance cost, keeping up to date with evolving standards and regulations, and the absence of a cost-effective residential solution for the forthcoming export limitations on residential systems in Queensland.

Project Timeframes – APVI survey

14 respondents answered questions on the period taken for a residential and commercial PV project. A box-plot showing the median, and upper and lower quartiles is displayed below. From this we can see that:

- Commercial projects take a lot longer than residential projects.
- Closing the sale is the longest phase of projects, whether residential or commercial.
- The network approval process is a lot quicker for residential projects than commercial projects.
- It takes a longer period for a commercial project to commence installation following permission to connect to the grid, when compared to a residential system.
- The most common timeframe for installation of a PV system is one day, which doesn't take long to commission thereafter.



Difficulty obtaining approval to connect to the network – APVI survey

We asked "For Installers, Do you commonly encounter difficulties with obtaining approval to connect to the network? If so, please describe"

Many respondents advised of little-to-no difficulty obtaining network connection approval. This seemed to be the case particularly for residential, though there are circumstances where the customer cannot put on the system size they want. Commercial PV was more problematic, particularly where there was a myriad of nuanced connection rules subjectively interpreted by DNSP. There were also complaints of overly onerous requirements and long approval timeframes.

Experience with Monitoring Equipment – APVI survey

We asked: "Please describe your experiences in including monitoring equipment with your solar power systems."

There was a wide variance of experience with monitoring equipment. Those who answered this question noted that difficulty configuring systems that sometimes required a second visit to resolve issues, though many had excellent experiences particularly after the initial learning curve. While some viewed this as essential, others felt that inverter metering was usually sufficient due to price

sensitivity. One respondent noted that many more customers are wanting monitoring; another viewed it as essential; other regarded monitoring as an invaluable fault notification system.

Battery sales – APVI survey

We asked, "For Installers, what proportion of customer enquires about batteries result in a sale of a battery backup system?"

Most respondents answered that they had made no sales of battery back-up systems, one noting that this was despite every customer asking for batteries. A small number of respondents had some success in selling battery systems, though it appeared to be a mainstay of business for a a couple of respondents.

Equipment Problems – APVI Survey

We asked installers, "have you experienced problems with equipment in 2014? Please describe the problems encountered and the proportion of systems installed with each type of problem."

Of the 37 respondents who finished the survey, three noted problems with panels, such as micro-cracks, and Potential Induced Degradation. Nine noted problems with inverters – six of which named brands they'd had problems with and the other three noting inverter failure rates ranging from <1% to <5%. The main problem encountered with rooftop isolators were product recalls, which affected three respondents, and water ingress on <1% of one respondents jobs.