A Warning Against Cheap Solar Quotes

A prime example of a shoddy solar installation, and why you should never go for the cheapest quote!

So, what’s wrong with this installation?

There are many resources available arguing the long-term benefits for choosing better quality solar panels (Like LG) and inverters, and why it is well worth spending the premium upfront on such products. But this document is a resource for those wanting to know more about the differences between poor workmanship and careless installations of solar systems vs quality workmanship and a superior installation...

The image above is a prime example of a poor installation. It may not be immediately obvious to an untrained eye, but read on and learn why this is poor workmanship, and understand the differences as we compare it to “Industry Best Practice”.

Total Solar Solutions
• First Problem: Inverter on an unshaded north facing wall

Any reputable solar installer knows that you should never install an inverter on a north, or even a west facing wall subject to a lot of direct sunlight. Inverters are complex pieces of electronics, and like all electronics, they like to be kept cool. Installing an inverter in such a location where it is likely to get very hot in the sun, even if it is a quality inverter, is a sure way to reduce its life expectancy by a considerable margin, which in the end means you have to pay to have failed inverters replaced much sooner, negating some of the savings you had enjoyed from the solar installation.

In the case pictured above, it is clear that the lazy installers have mounted the inverter on the exposed north wall simply because it was easier for them, being located next to the main switchboard. This is a common failure of solar companies who employ sub-contractors on fixed rates who have no real interest in providing a quality installation that will last the test of time. What you often do not know until it’s too late, is that some inverter manufacturers will often void their warranties if the fault arises due to poor placement of the inverter where the temperatures can become too warm.

• External conduit

Sometimes it is unavoidable to run conduit for the cabling on an external wall, but in this case, the conduit could have, and should have been run down the cavity between the brick wall and the stud work. Once again this is a clear case of poor and lazy workmanship, cutting corners, or otherwise a rushed job by contractors who may not be paid to take the time to see it done properly.

When purchasing a solar system, you hope that it should add to the value of the house, not detract from it, and it’s cases like these that give people a bad taste in their mouth about solar, because to put it bluntly, it looks awful. If it was simply impossible to run the conduit behind the wall, at the very least, a reputable installer might have tried to tuck the conduit next to/behind the down pipe, and even then might paint the conduit to match the downpipe colour to hide it as much as possible. There simply is no excuse for this kind of sloppy workmanship.
• **Cheap DC cabling**

Although not obvious to an untrained professional, the installers have used cheap 2.5mm2 DC cabling from the panels to the isolator on the wall, which is barely adequate to the task. Besides the quality (or lack thereof) of the solar panels and inverter, a solar system is not complete without all of the “balance of system components”. These include the cabling (both DC and AC), MC4 connectors, isolators, mounting systems, circuit breakers and more.

Even quality panels and inverters can be let down by cheap balance of system components, and poor installations. DC cabling costs money (copper isn’t cheap), and many installers are guilty of using only the bare minimum required in order to cut costs. For most residential solar installations, it is accepted that at least 4mm2 DC cabling should be used, as 2.5mm2 cabling will be highly subject to voltage drop resulting in an increase of current, leading to overheating, especially during the warmer weather, which ultimately results in a loss of efficiency.

Worse than losing considerable efficiency in your solar system (meaning you don’t save as much money), is that cheap balance of system components and poor-quality workmanship can lead to house fires, and/or electrocution, putting you and your loved ones at risk. So, beware of solar companies offering cheap quotes, as you can be sure of getting sub-standard balance of system components.

The most reputable solar companies will use at least 6mm2 DC cabling for the full circuit, which not only greatly improves efficiency (meaning you save more money), but results in a more reliable and safe installation.

• **Rushed solar panel installation**

Whilst not everyone is concerned with aesthetics, upon closer inspection we can see that the installers have failed to trim back the railing, which remains sticking out the side of the panels looking like a sore thumb. It just goes to show that these installers take no pride in their work, and could care less about visual presentation, and how that might affect your property value.

Of a little more concern here is that the installers have failed to fit a protective cover over the top of the roof top DC isolator. Isolators are subject to degradation, being exposed to the hot sun and UV, and so to ensure a long life and safety, it is industry best practice to fit a reflective plate cover over the top of the isolator to keep the worst of the weather and UV from degrading it. Many house fires have been caused by sub-standard DC isolators, where a combination of the hot weather, UV, and high currents have overloaded them and caused them to melt and catch fire.
More examples of poor solar installations

In these examples, the installers have failed to grind out a channel under the tile to ensure the tiles can sit flush and in line with the surrounding tiles. These are the kinds of shoddy installations that lead to leaking roofs and other problems and is one of the major reasons why so many solar companies (local and national) file for bankruptcy – to avoid warranty liabilities, not taking any responsibility for their poor work.
Now for some examples of high quality “Industry Best Practice” solar installations!

Pictures provided by one of the most reputable solar companies in Australia, and proud installation partner for LG Energy, who continue to set the benchmark for quality and service.

Note the reflective metal plates over the top of the DC Isolator switches for added protection.

No railing left sticking out the sides, panels perfectly arrayed for the best aesthetic appearance.
Care taken to install the panels as straight and cleanly as possible, with railing trimmed back for the best appearance.

Once again, no railing left sticking out the sides while working around existing solar hot water panel, and you can see the DC isolators are protected/undercover. Very neat installations.
With a 50 degree pitch, and double story, few installers could have pulled off such a good looking, perfect installation in such difficult conditions. A great example of taking the time to do it properly.

A commercial solar installation with great pride taken to install inverters safely and professionally.

Hybrid installation with multiple batteries, and installed to perfection with no conduit running along walls.
No visible conduit, all cabling run behind the walls for a perfect installation. Inverters always installed on south or east facing walls, or sometimes in garages, but always in coolest possible location, even if that means additional work to run extra cabling back to the switchboard. This ensure the longest possible life from the inverter, hence greater long term savings for customers.

Summary

If ever there was a case of “YOU GET WHAT YOU PAY FOR”, solar installations fit the bill. Investing in a solar system is a long term investment. It is a technology designed to keep saving you money for 25+ years. Many people have been caught out choosing cheap installations from dis-reputable companies, and in the end, the long term savings haven’t even been half of what they expected, or half of what they were promised.

Poor solar panels that degrade quickly over time loosing efficiency, low quality inverters that fail on a regular basis, poor workmanship and cheap balance of system components causing more losses in efficiency, and resulting in eye sores that degrade your property value, not improve it…. And more seriously, sub-standard installations that put you and your family at risk of fire or electrocution.

Beyond the quality of the installation itself, there is the after sales service. Only the most reputable companies will care about what happens after your system is installed, such as getting all your paperwork filed for grid connection in a timely manner, registering your warranties for you, and even remotely monitoring your system to ensure everything continues to tick away as it should, which sometimes includes alerting you to the fact that overly high grid voltages have been detected, which can lead to inverter shut down, and helping you file a complaint with your power distributor. Most installers however simply do not care what happens to you, your home or your solar system after they have taken your money.

DON’T RISK IT!

Choose high quality solar panels like LG, which will save you many thousands (if not tens of thousands) of dollars more over their life time compared with cheap and inferior solar panels. Opt for the best inverters like Fronius, Enphase or SolarEdge for greater efficiency and reliability. And most importantly, make sure you are dealing with a reputable installer (like Total Solar Solutions) who use high quality balance of system components, and who have proven to show excellence with all their installations, who do not cut corners, and who take pride in their work. A company that will continue to look after you long after your system has been installed.