ecosmart Solar

The 8 Top Tips For Buying A Home Solar & Battery Solution

Energy independence and lower bills

www.ecosmartsolar.com.au

Company Profile

Welcome to EcoSmart Solar, your local, family-owned energy solutions provider. We have been dedicated to making renewable energy accessible and effective for the communities in Central Queensland since 2004.

EcoSmart Solar specialises in grid-connected solar power systems, batteries, EV charging and Hot Water. We are also pleased to offer solar pool heating and air conditioning solutions, customising our offerings to suit your unique needs and environmental conditions. At EcoSmart, it's not just about selling a product; it's about delivering an entire ecosystem of services. From supply and installation to delivery and ongoing maintenance, we provide you with an unmatched reliable after-sales experience.

We take great pride in our product selection including high-quality REC solar panels manufactured in Singapore. We only offer inverters, that have been successfully installed in Australia for a decade plus. We install cyclone rated mounting systems and high quality batteries such the Tesla Powerwall. Rest assured, when you invest in an EcoSmart solar & battery system, you are investing in robust, long-lasting solutions.

Our inhouse team of skilled tradespeople are trained to tailor solar solutions for your home to ensure optimum efficiency and to maximise your longterm investment. Additionally, we offer an obligation-free on-site advice, measurement, and quote service to take the guesswork out of your solar journey.

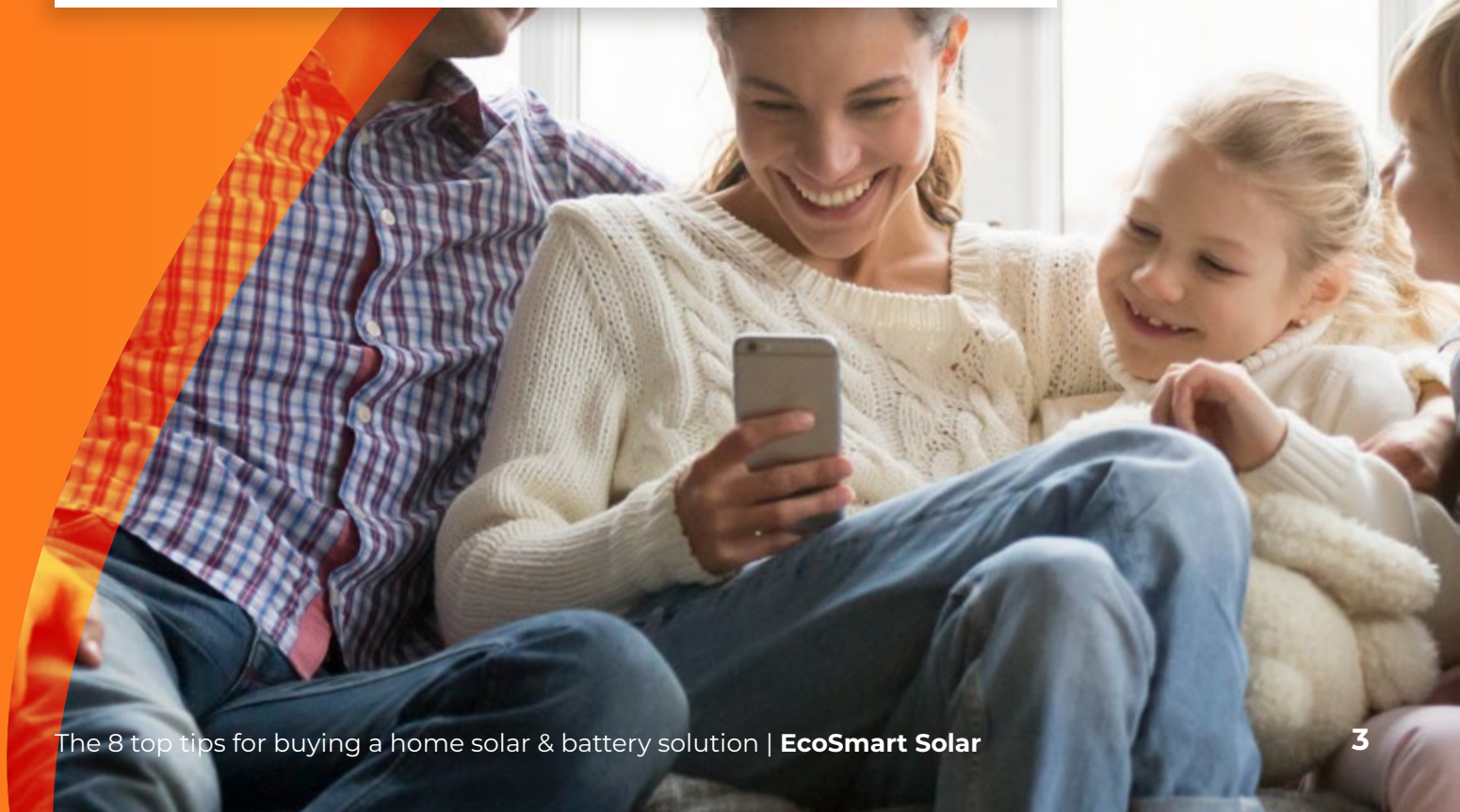
Jeff Hoare - Ecosmart Solar CEO

Key considerations when buying a Solar & Battery solution

Solar systems with batteries have become increasingly popular over recent years and are expected to become even more so going forward. We predict that a solar/battery combo will be a standard accessory to a residential home in years to come.

Several key factors that should be considered when researching and purchasing a solar and battery system or adding a battery as a retrofit to an existing solar system.

Here are the 8 key considerations to be aware of before embarking on this journey.



1

What is my key motivator for getting a home solar storage battery?

In the early years, like 2006 when solar had a 14-year payback, systems were only purchased by customers with a lot of disposable income for environmental reasons.

By 2008, the Howard Federal Government added an $8000 rebate into the mix, and the payback fell to 7 years when solar took off. In addition, the introduction of generous State Feed-in- Tariffs made the switch to solar more popular.

Purchase motivation from then on was mainly financial, as further solar equipment price reductions meant increased Return on Investment (ROI).

Today, ROI can be as low as 4 years, even for top-of-the-range quality solar equipment. A 20-year-plus lifespan for quality solar means significant financial benefits in the long run.

Today, the key reasons for purchasing a battery vary, from energy independence and a dislike of the energy retailers, to fear of blackouts and the desire for long-term financial returns.

TOP TIP: Clearly articulate the reasons why you are looking at a solar and battery system, when you brief the potential installation company, your communication is clear, which will help the installer design the best solution to meet your needs.

2

The best reasons to go for a battery

Typically, it will be 10 years or more for most homes to be able to pay back the cost of a home battery if it is added to an existing solar system. While the ROI period can reduce significantly with a solar + battery + EV charger + heat pump hot water bundle, financial benefits are less clear-cut than with a solar-only system. **A battery addition can offer many special benefits.**

- **Blackout protection**

  This can be achieved via a battery purchase. If you have regular blackouts or feel there is a risk of blackouts, you may install a battery to power at least essential appliances from the battery when you lose grid power. For example, if you reside in a bushfire-prone zone or remote area and your battery will power your water pump, charge the phone and essential loads the battery could make a big difference in such an emergency.

- **Self-sufficiency**

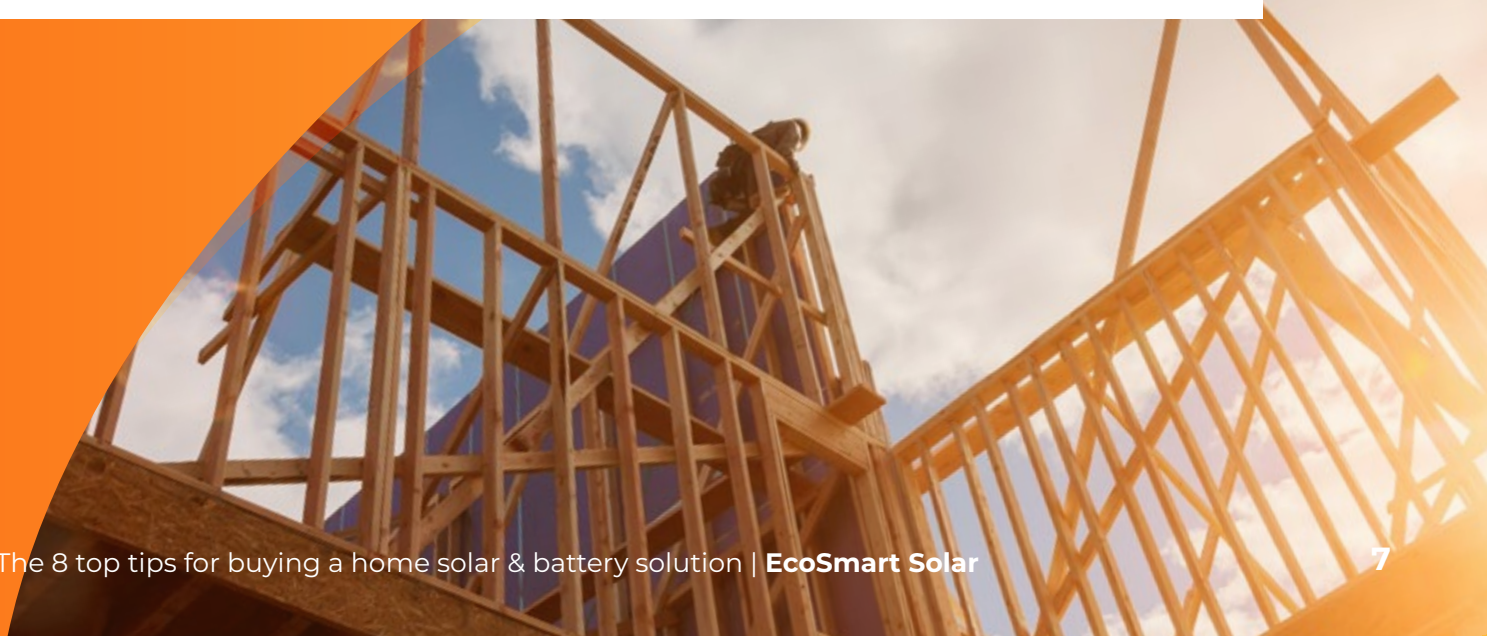
  This is an excellent reason for a battery purchase. Many people want to get batteries to increase their ability to use their own renewable power. If you are likely to export much power back to the grid, particularly at a low Feed-in-Tariff (FIT), then you may wish to store your electricity in your battery.

This energy can then be used at night or other times when your electricity demand is higher than your solar is generating during the day. While your energy retailer will miss out on their share of the profit to resell your FIT electricity, you will help your energy independence.

- **A new home deserves a solar & battery combo**
  - If you are in the process of building and designing your house and are planning on building an energy-efficient home, a solar and battery combination is a must-have.
  - If you are still designing your home, you can create your home's roof to be aligned with the sun to gain optimum solar generation. When planning your property, please design the roof with minimal ridges and gables, which could create shadows and reduce solar output.
  - The best solution would be to have a relatively straight roof at an angle of 10-25 degrees, facing North, North-East, or North-West. This will ensure solid solar generation, especially in the afternoon.

- **Forward thinking purchasers love new technology.**

  Some people install batteries because they love the technology and are early adopters and thought leaders. They have recognised that solar with batteries, EV vehicles, and the reduction of gas as a heating and cooking source will be part of the lower CO2-generating energy footprint of the future.



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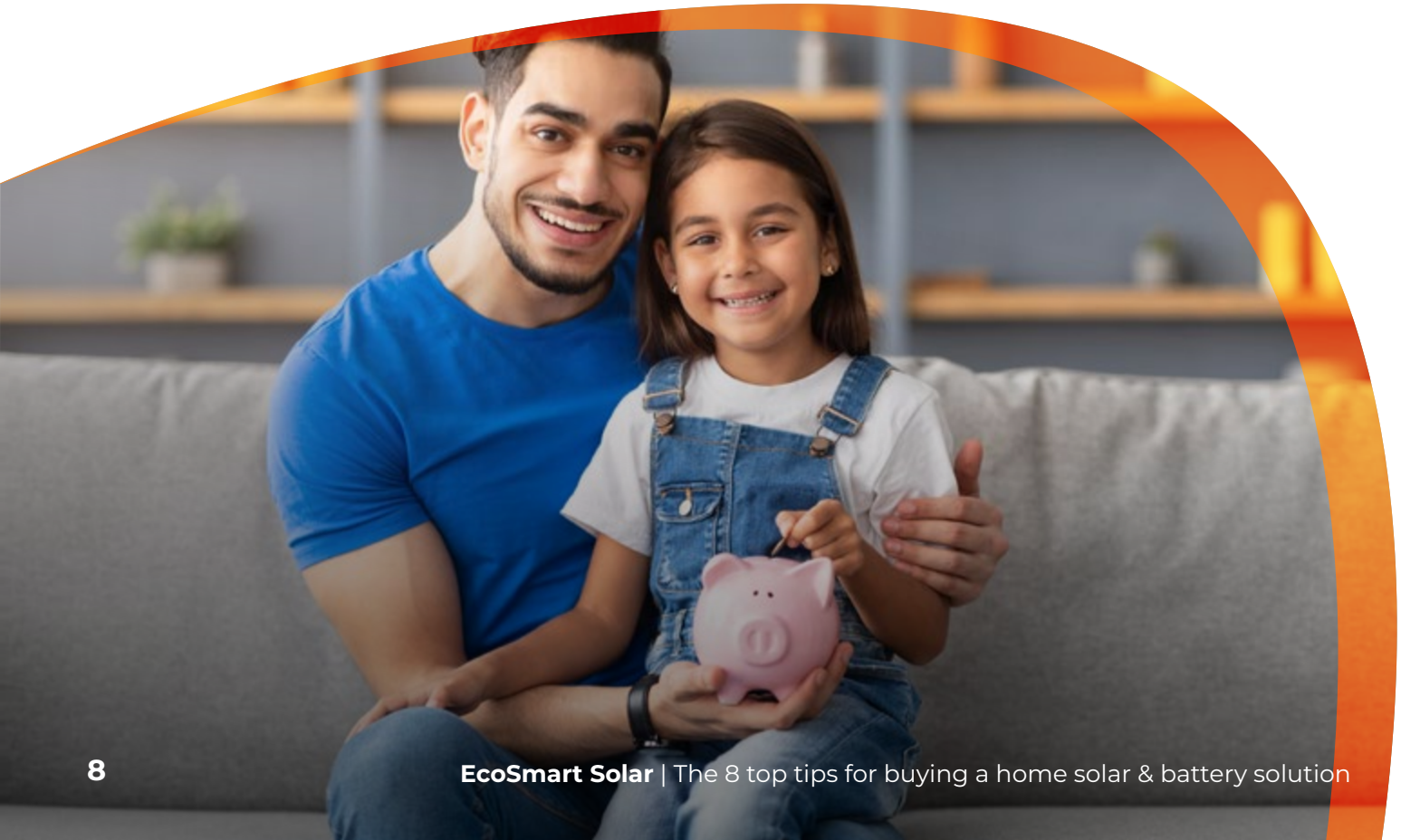
What is the financial reality?

A solar and battery combo purchase is financially more advantageous and has a lower ROI than the ROI of adding a battery to an existing solar system, for which you already had a great ROI.

For example, with solar alone, a 4-year ROI can be achieved. If we look at a battery added to an existing solar system, a 10-year plus ROI will be the reality.

A solar/battery combo, with some of the more price-focused battery models, is probably sitting at a 7-year ROI. As we experienced before, around 2010 with solar, 7 years ROI is the magic number for most customers to consider purchasing a long-life home improvement item.

If one adds an EV charger to the solar/battery combo and then combines the solar savings, battery savings, and fuel savings in driving one or two EV vehicles instead of a petrol car, then the ROI on the bundle purchase for the lot can be as low as 4.5 years.



Here is one specific sample using top-of-the-range equipment *:

Item	Size	Est Purchase & Installation Costs	Est Annual Benefit
Solar System	12kWh	$14,000	$2,800
Battery	13kWh	$18,000	$900
EV Charging	20,000km travel pa	$2,000	$2,100
Total		$34,000	$5,800
ROI with 1 EV			5.8 years
ROI with 2 EVs			4.5 years

***This is a rough calculation only, as prices vary depending on installed brands and local energy prices**

****Assumes owner uses 75% of EV electricity consumed via home solar, the rest is paid for.**

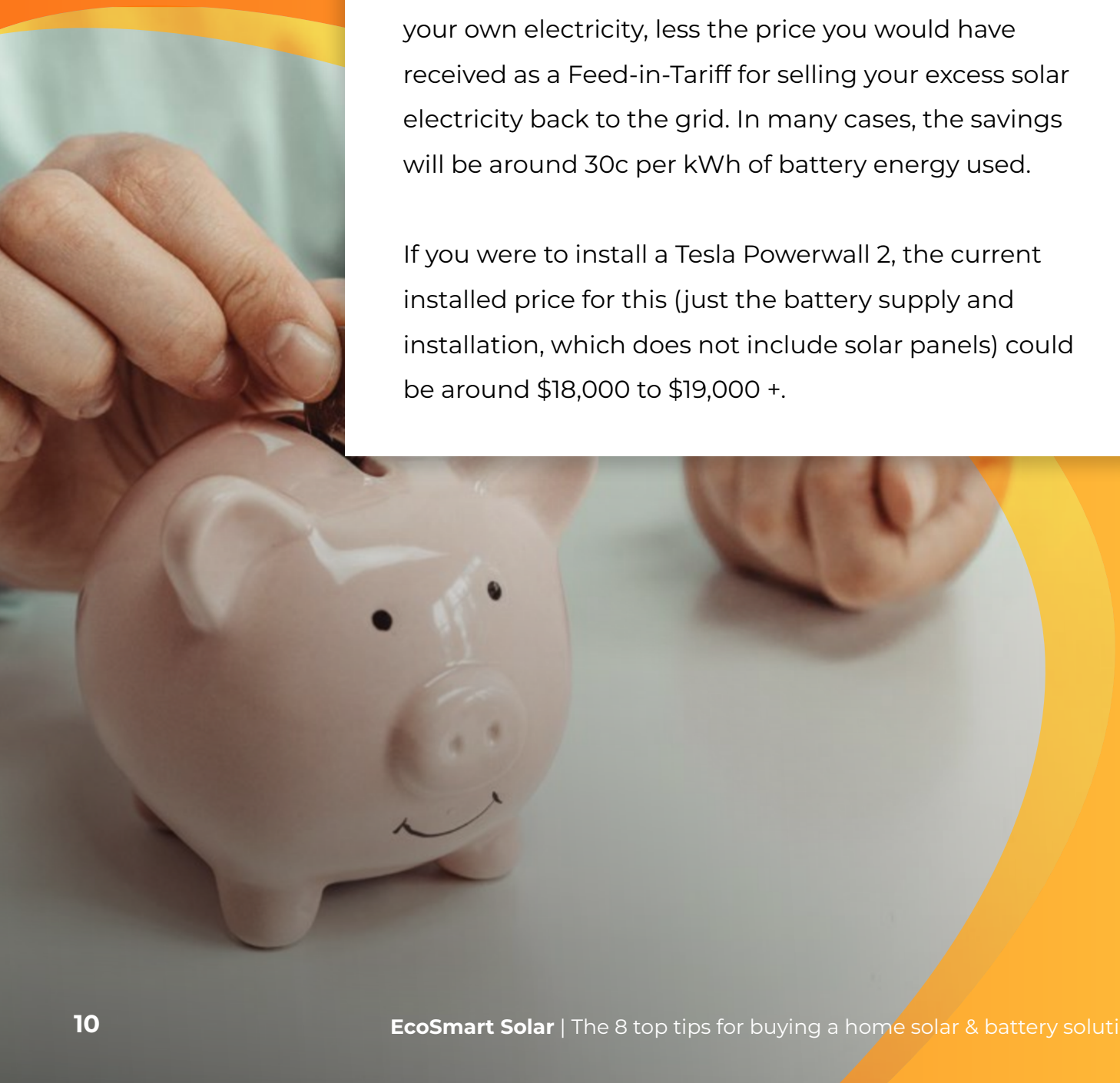
4

How much money can I save with my battery?

The primary savings of a home battery can be achieved by storing the excess solar electricity that the PV system generates during the day and making it available on a rainy day, in the evening, and overnight.

In this situation, the savings would be the electricity cost you didn't have to buy because you are using your own electricity, less the price you would have received as a Feed-in-Tariff for selling your excess solar electricity back to the grid. In many cases, the savings will be around 30c per kWh of battery energy used.

If you were to install a Tesla Powerwall 2, the current installed price for this (just the battery supply and installation, which does not include solar panels) could be around $18,000 to $19,000 +.



The Powerwall has 13.5kWh of usable energy. If you use this capacity once daily, the saving would be 30c * 13.5kWh = 4.05 per day. At the price of $18,000 for a Powerwall, the payback period would be 4,444 days or 12.1 years. While this might sound long, consider all the other benefits, such as blackout protection and saving via solar power being used for EV charging.

In saying that, electricity prices are expected to increase by 50% over the next few years, increasing savings and reducing the ROI. Also, other battery brands like Sungrow will be significantly cheaper than the quoted Tesla price point. So talk to us about specific solutions.

Right now, in areas with high electricity prices, if you choose a cost-effective battery model, you can already achieve ROI periods of 7 years.

Savings must be calculated based on your circumstances and costs and may vary based on tariff rates, usage patterns, the cost of the battery being used, etc., which must be factored in. So see an expert to give you a customised battery proposal.

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Don’t buy cheap & make sure you get multiple quotes

A home battery is a complex piece of equipment, and quality batteries command a decent price point. Usually, you get what you pay for.

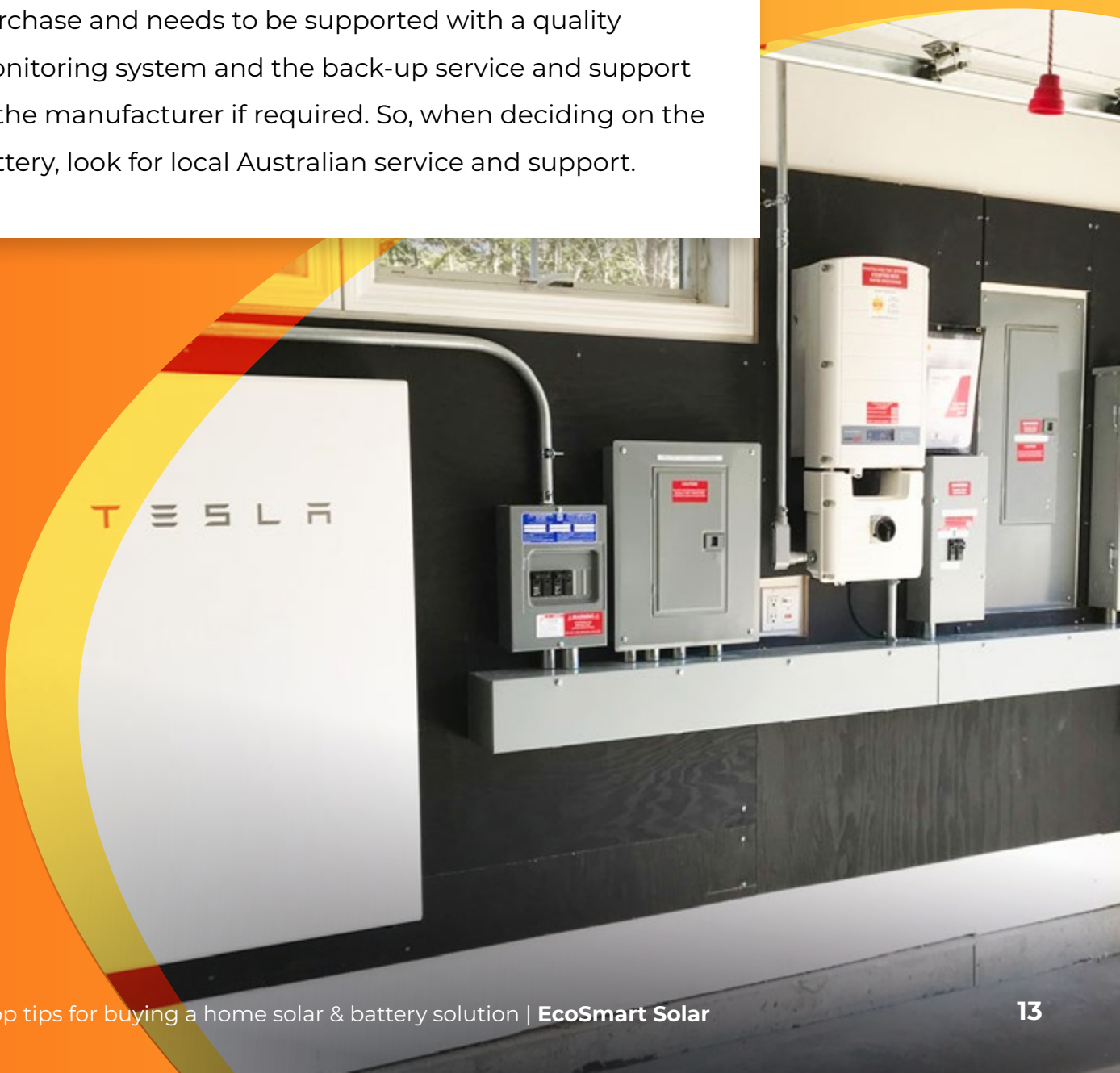
That said, not every home solar battery has to be a Tesla Powerwall. More and more battery brands now offer a wide range of battery sizes and price points.

Buying too cheap introduces several risks to your home and wallet.

Home Storage Batteries are mostly Lithium Ion chemistry. Poorly manufactured batteries have the risk of excessive heat build-up, loss in performance, and worse. Buying a cheap battery with a poor after-sales service level will ensure you look at this purchase with sad eyes in years to come.

Consider multiple system design options and ensure that you receive a top-quality long-lasting solution at a price in your budget range.

Remember that a battery is not a set-and-forget purchase and needs to be supported with a quality monitoring system and the back-up service and support of the manufacturer if required. So, when deciding on the battery, look for local Australian service and support.



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Should I wait for batteries to come down in price?

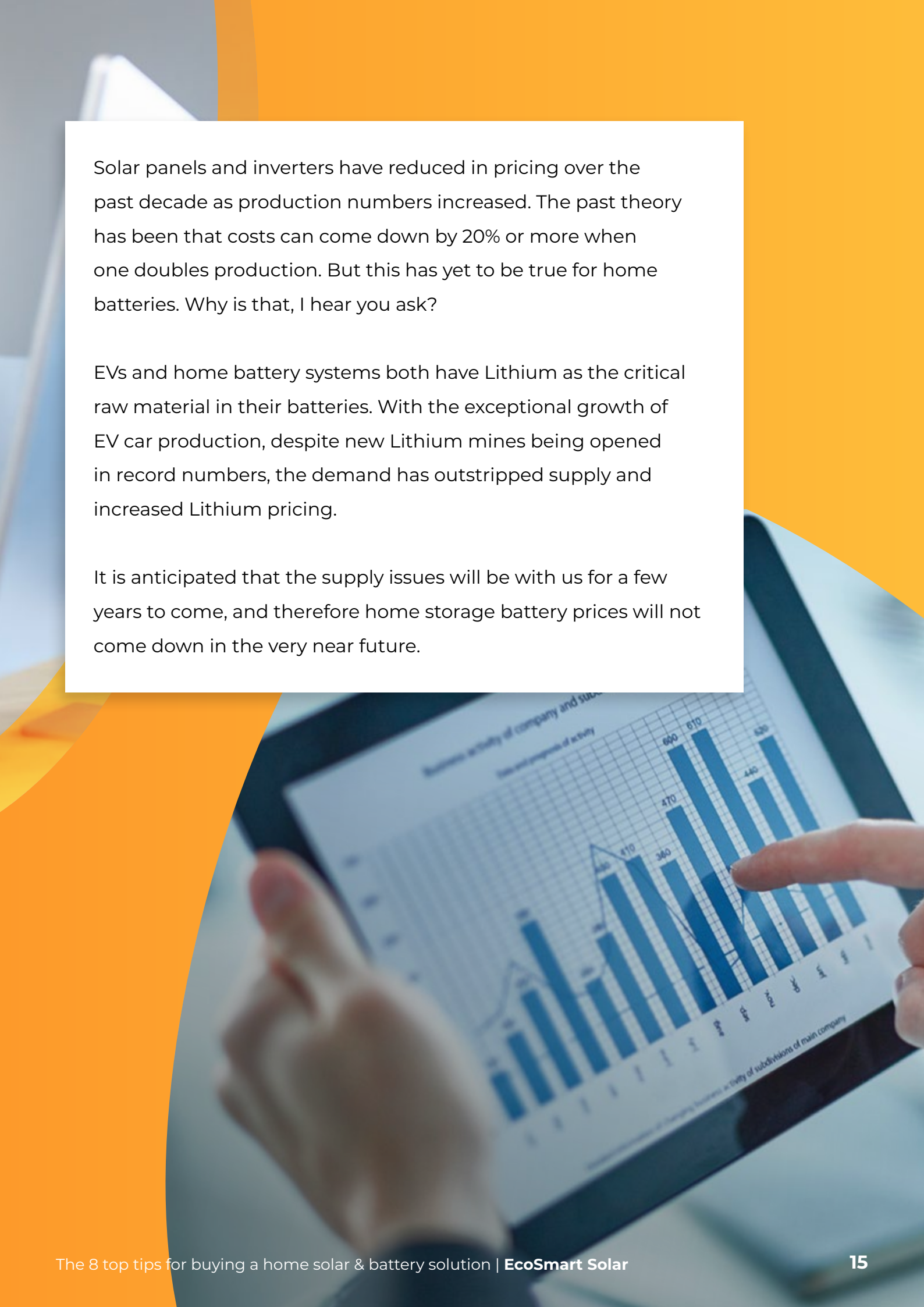
The answer is most likely No - because batteries in the last 4 years have NOT reduced in price, but contrary to earlier expectations increased in cost.

Home storage batteries have a vital role to play in increasing the use of renewable energy. With over 3.3 million solar systems on the roofs of Australia and only 140,000 home batteries installed, the surplus of solar systems can only lead to a great demand for home batteries in the near future.

Solar panels and inverters have reduced in pricing over the past decade as production numbers increased. The past theory has been that costs can come down by 20% or more when one doubles production. But this has yet to be true for home batteries. Why is that, I hear you ask?

EVs and home battery systems both have Lithium as the critical raw material in their batteries. With the exceptional growth of EV car production, despite new Lithium mines being opened in record numbers, the demand has outstripped supply and increased Lithium pricing.

It is anticipated that the supply issues will be with us for a few years to come, and therefore home storage battery prices will not come down in the very near future.



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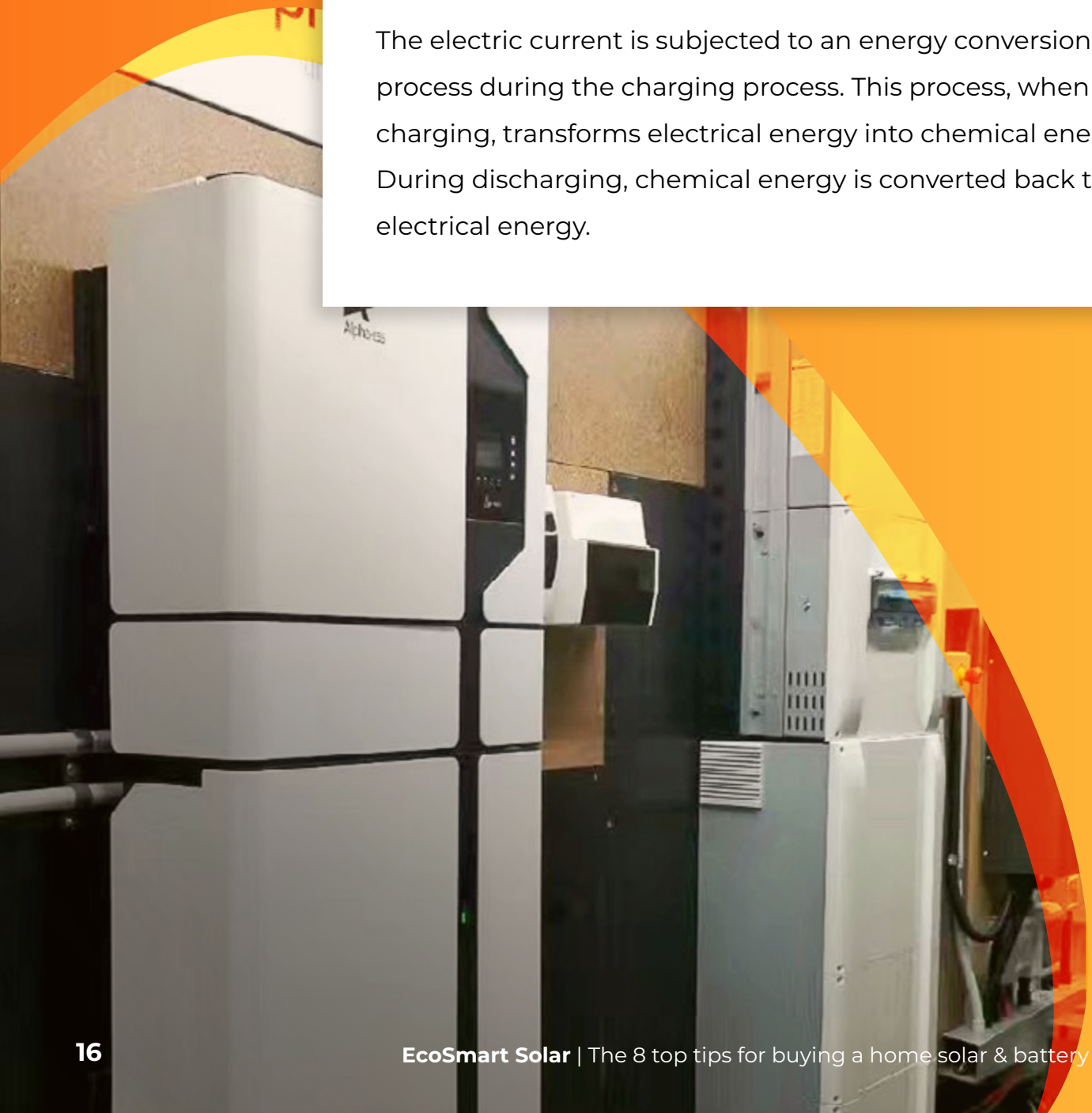
How do batteries work?

A solar home storage battery charges like a car battery. The charge controller or battery management system selects a voltage that is compatible with the battery's voltage.

The battery management system also regulates the PV array's voltage output to supply the right amount of electricity to the battery.

The electric current is subjected to an energy conversion process during the charging process. This process, when charging, transforms electrical energy into chemical energy. During discharging, chemical energy is converted back to electrical energy.



Usually, this process also requires some energy, meaning there will be an energy loss during the charge and discharge process. One will never retrieve the full 100% of the energy one has charged the battery, and one would allow about 5-10% as a loss factor.

Lithium ion is the current technology of choice for on-grid home storage solutions. Lithium-ion batteries are made up of several different raw materials, mainly lithium, graphite, cobalt, and manganese.

Lithium-ion battery technology is constantly evolving as the electric car industry continues to push large amounts of research funds toward their ongoing development. They display a long lifespan, with an average warranty life of 10 years plus. It is the best technology to use right now.

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Modular battery packs sound good - but are they?

Several manufacturers have modular battery solutions where multiple batteries in sizes of 3, 4, 5, or 6kWh capacity can be connected to provide more capacity and design flexibility.

These solutions are also, in many cases, easier for the installer to handle when transporting and installing. But be aware of some pitfalls. In the past, the module technology has been sold as allowing you to add batteries in the future as your needs change. So home owners regularly purchase a small battery, hoping they can purchase more modules as the family grows.

However, this is rarely becoming a reality, as:

- Battery technology and chemistry change quickly. If you leave it for more than a year or two, the manufacturer is likely to have moved to the next generation of batteries.
- This is because new battery models are often incompatible with the previous battery set. So you are stuck with what you initially purchased, without the opportunity to expand the battery.
- Adding new batteries to old batteries in a set is not recommended as different ages of batteries will not work efficiently together, so performance will be compromised as the battery management system will have difficulty balancing the charge between the old and new batteries.
- You need to ensure that the company quoting your battery system can correctly size the solar and battery.

Getting an experienced, quality-focused, and knowledgeable system designer in the 1st place is very important. We can help you.

EcoSmart Solar follows all the important guidance given in this guide.

Contact us for free advice or an obligation free quote.

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