

I ♥ SOLAR

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A FREE I LOVE SOLAR GUIDE

Sun-Powered Driving

The homeowner's guide to charging your EV for free (or close to it) with solar — how much system you really need, the smart chargers worth having, and the simple habits that turn sunshine into kilometres.

Written for Australian homeowners
by the team at I Love Solar

ilovesolar.com.au
Solar & EV specialists, matched to you

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A NOTE BEFORE YOU START

Every home, roof and driving pattern is a little different. This guide gives you the principles the I Love Solar matching platform uses behind the scenes to size a system properly — think of it as the "why" behind the quote you'll eventually get.

SECTION 01

Why solar and EVs are a perfect match

An electric vehicle is, in energy terms, just a very large, very useful battery on wheels. A typical Australian driver uses around 30–40 kWh of charging a week — and that's exactly the kind of chunky, predictable load that rooftop solar is brilliant at soaking up during the day.

Charge from the grid at typical Australian rates and you're paying somewhere between 30 and 45 cents per kWh. Charge from solar you've already generated, and that same energy effectively costs you nothing beyond the system you already own — while sending that power back to the grid via a feed-in tariff earns you a fraction of that value in return. Every kilowatt-hour you use yourself rather than export is typically worth three to four times more to you than one you sell back.

30–45c

per kWh charging from the grid at
typical AU rates

3–4x

more valuable using your own
solar than exporting it

~35kWh

typical weekly home EV charging
need

That's the whole thesis of this guide: with the right-sized system and a smart charger doing the thinking for you, most of your daily driving can be fuelled by sunlight that would otherwise be sold back to the grid for very little.

WHY THIS MATTERS FOR I LOVE SOLAR HOMEOWNERS

When you request a match on I Love Solar, one of the first questions is whether you drive (or plan to drive) an EV. It changes the ideal system size, panel orientation and inverter choice — which is exactly why a generic "one size fits all" solar quote so often under-delivers for EV owners.

SECTION 02

How much solar do you actually need?

As a rule of thumb, homes wanting to run normal household appliances *and* charge an EV during the day should be looking at a minimum 5–6.6 kW solar system, before batteries are even considered. Bigger households, bigger cars, or families planning a second EV should look higher again.

1 Start with your driving pattern

How many kilometres do you actually drive in an average week? Most mid-size EVs use somewhere around 15–20 kWh per 100km, so a 300km week needs roughly 45–60 kWh of charging — on top of everything else your home uses.

2 Add your household load

Fridges, air-conditioning, hot water and the rest of a typical family home use another 18–25 kWh a day. Your solar system needs to comfortably cover both, with enough headroom for cloudy days.

3 Think about roof space and orientation

A north-facing roof gets the most even generation across the day, which suits daytime EV charging particularly well. East/west split arrays can also work nicely if you tend to charge morning and afternoon rather than the middle of the day.

RULE OF THUMB

If an EV is part of your household (now or in the next couple of years), don't size your solar system for "today's bill" — size it for the car as well. It's far cheaper to install extra panel capacity once than to retrofit later.

SECTION 03

Smart chargers: the piece most people get wrong

Plugging your EV into a basic wall charger and hoping for the best usually means you end up drawing whatever's cheapest to install rather than what's smartest to run — often pulling straight from the grid regardless of what your panels are producing. A solar-aware ("smart" or "solar-diverting") charger changes that completely.

1 Eco / solar-only mode

The charger only starts, or only ramps up, once there's genuine excess solar available — so you're never accidentally paying grid rates for a charge you thought was free.

2 Dynamic load balancing

The charger automatically backs off when the oven, air-con or kettle switches on, so your whole home never trips a breaker or pulls an expensive demand charge.

3 App visibility

A good charger app shows you exactly how much of each charge came from your own solar versus the grid — genuinely useful for understanding whether your system is sized right.

4 Boost / manual override

For the days you need a fast, full charge regardless of sunshine, a manual override switches back to full-speed grid charging on demand.

I LOVE SOLAR TIP

When you're matched with an installer through I Love Solar, ask specifically for a charger with eco-mode and app-based solar tracking. It's a small difference in upfront cost that pays for itself quickly in avoided grid charging.

SECTION 04

When to charge: reading the sun, not the clock

The single biggest habit shift for solar EV owners is charging in the middle of the day instead of overnight. Most rooftop systems produce the bulk of their output between roughly 10am and 3pm — so that's your charging window whenever your routine allows it.

A If you work from home

Easy — schedule your smart charger to run in eco-mode across the middle of the day and let it top up as excess solar allows.

B If you're out during the day

Set a scheduled charge for when you're usually home around midday (weekends, work-from-home days), or pair with a small battery to store midday solar for an evening top-up.

QUICK HABIT

Get into the routine of plugging in whenever you're home during daylight hours, even for "just an hour" — let the smart charger decide whether there's enough excess solar to use, rather than deciding for it.

SECTION 05

The real numbers: petrol vs grid vs solar

Here's a simple, indicative comparison for a driver covering roughly 15,000km a year — the numbers will move around with your car, driving style and local prices, but the pattern holds everywhere in Australia.

FUEL SOURCE	APPROX. COST PER 100KM	APPROX. ANNUAL COST*
Petrol (mid-size car)	\$10–\$13	\$1,500–\$1,950
EV charged from the grid	\$4.50–\$7.50	\$675–\$1,125
EV charged mostly from solar	\$0.50–\$2	\$75–\$300

*Indicative only, based on typical 2026 Australian fuel and electricity pricing and a 15,000km annual driving distance. Your own figures will depend on your vehicle, tariff and solar self-consumption.

THE COMPOUNDING EFFECT

Shift most of that charging onto solar you'd otherwise be exporting for a low feed-in rate, and the "fuel" for your car moves from a genuine household expense to something close to a rounding error — often saving well over \$1,000 a year compared with petrol.

SECTION 06

Batteries, VPPs and going further

A home battery isn't essential to charge an EV from solar — daytime charging works well without one — but it does open up two extra options worth knowing about.

1 Evening charging from stored solar

If your routine really only allows overnight charging, a battery lets you store the day's excess solar and release it to your car after dark, instead of buying it back from the grid.

2 The federal battery rebate

Australia's Cheaper Home Batteries Program currently discounts eligible battery installations through Small-scale Technology Certificates, applied directly on your invoice by an accredited installer — no separate application needed. The exact discount tapers over time and by battery size, so it's worth checking current rates when you get quotes rather than relying on last year's numbers.

3 Virtual Power Plants (VPPs)

Grid-connected battery systems installed under the current rebate generally need to be VPP-capable, even if you don't join one straight away. A VPP can pay you for letting your battery support the grid at peak times — a nice bonus layered on top of your EV charging savings.

WORTH ASKING ABOUT

When you're matched with installers through I Love Solar, ask each one to run the numbers both with and without a battery for your specific driving pattern. Sometimes it pays for itself quickly; sometimes daytime-only charging is genuinely enough. A good installer will tell you honestly which applies to you.

SECTION 07

Common questions, answered

Do I need a special solar system to charge an EV, or will my existing setup work?

Your existing panels will happily feed an EV charger — the question is really whether there's enough spare capacity once your home's own use is covered. Many owners simply add extra panels and, in some cases, upgrade their inverter.

Is a smart charger worth the extra cost?

For almost everyone charging from solar, yes. The eco-mode and app tracking alone typically pay for the price difference within the first year or two through avoided grid charging.

Can I charge two EVs from one solar system?

Yes, but it usually means a larger system and careful load balancing between chargers — exactly the kind of detail worth discussing directly with a matched installer before you commit to panel numbers.

What if I rent, or can't install solar right now?

You can still shift charging to off-peak or "solar sponge" grid periods where retailers pass through cheap daytime rates — not as good as your own free solar, but a solid interim step.



EVERYDAY CHARGING

Plug in during the day, not after dinner.

Most home routines already put phones, laptops and EVs on charge right when the sun's doing the work — you just have to let it.

READY WHEN YOU ARE

Get matched with the right solar & EV installer — free, and obligation-free

I Love Solar works like the trades platforms you already know, purpose-built for solar and home energy. Tell us a little about your home and your driving, and we match you with pre-vetted, CEC-accredited installers in your area who actually know how to size a system for EV charging — not just a generic rooftop quote.

1

Answer a few quick questions about your home, roof and driving habits.

2

We match you with vetted local installers suited to EV-ready systems.

3

Compare real, tailored quotes side-by-side and choose with confidence.

Get your free match at ilovesolar.com.au

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