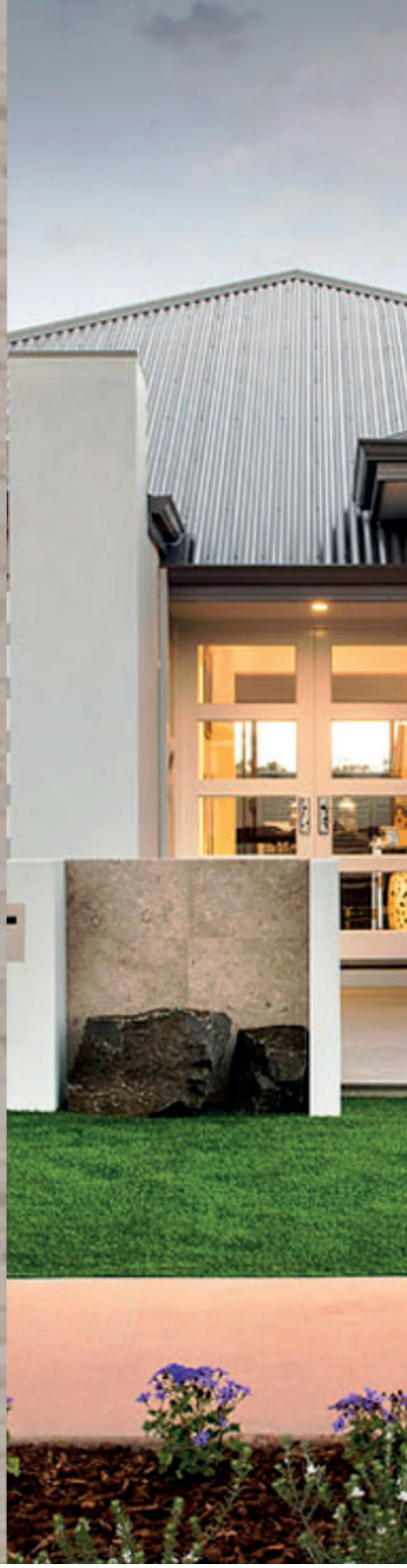


Smart batteries

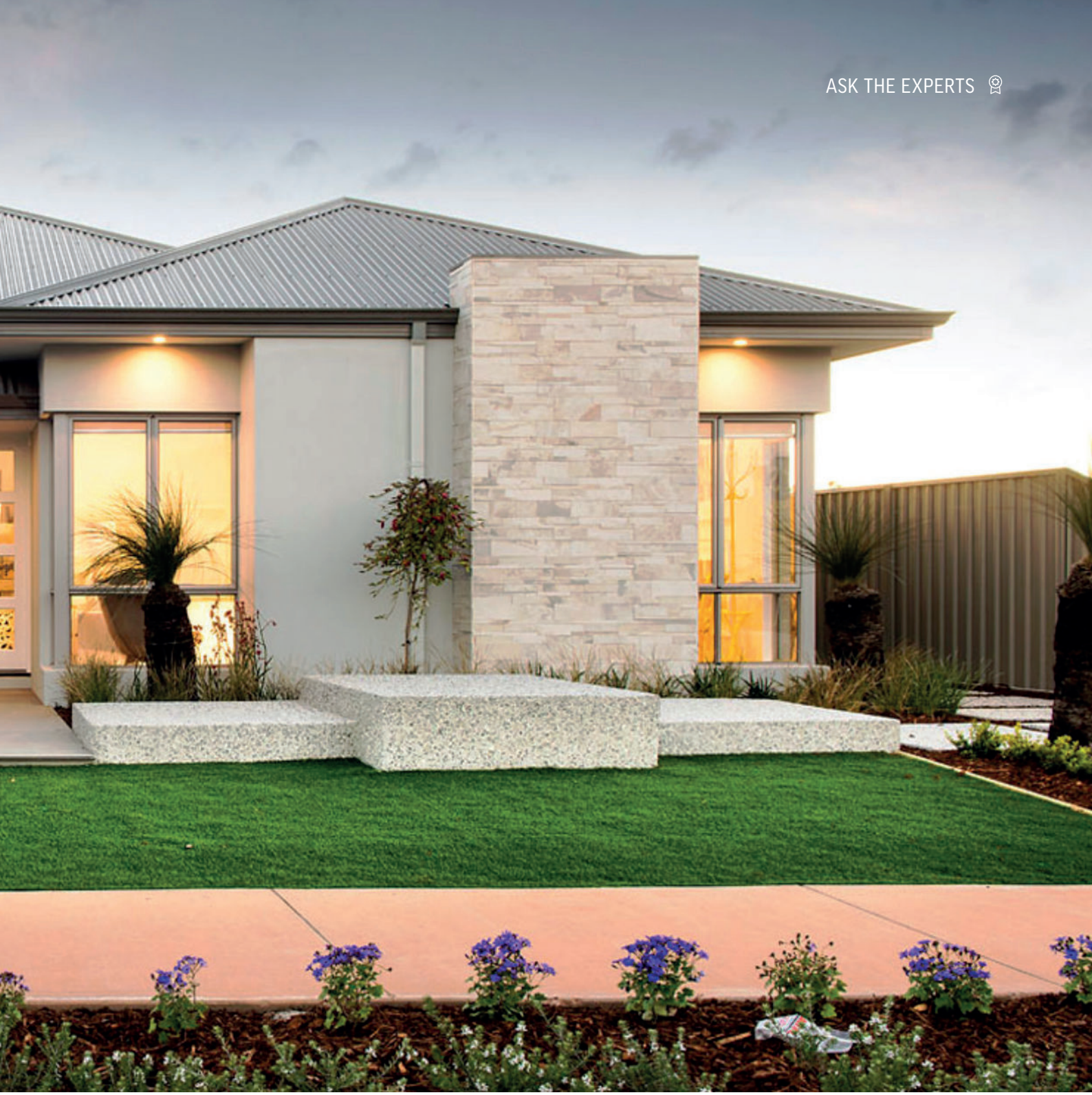
PES had a great exchange with Tynan Coles, CEO at Soltaro. Did you know there are now smart batteries? It seems that we are in a period where software can be added to anything to improve performance. We heard today about the built in possibilities, which allow the user to control the output of the batteries. Read on to find out more about this revolution in the solar battery world.

PES: Welcome to PES Solar, it's good to talk with you. Could we begin with a brief overview of Soltaro?

Tynan Coles: Soltaro is an Australian solar battery manufacturer established in 2016. Our partners have over 30 years' experience in the Solar PV industry. The company was established to design and engineer smart battery systems that would not only have lower paybacks on their investments, but would also provide stable and consistent power supply for the end user.

PES: We have been hearing about your smart batteries, could you tell us about the different models available and how they work?

TC: Smart batteries are effectively solar battery systems with software that utilises



lower tariffs and excess solar to further decrease the power dependence of the energy grid.

Currently our software works with our domestic All-In-One product range but will soon be available for our commercial battery solutions.

PES: How do they differ from normal batteries in terms of performance and efficiency?

TC: Normal batteries use excess solar to charge the batteries and discharge power from the batteries when there is not enough power provided by the PV system. Outside of this solar self-consumption model, they are very limited in providing additional benefits for the end user. This leads to longer paybacks, sometimes outside of the acceptable limit for the consumer.

Soltaro batteries use high cycle lithium iron phosphate cells which are guaranteed for 10,000 cycles over their 10 year warranty period. Therefore, we want to be cycling our battery modules multiple times per day. This is only possible through smart technology to control the battery systems to best suit the end user which ultimately decreases their paybacks.

PES: Are the smart batteries available for domestic, commercial and industrial use, would they be the same batteries in different sizes?

TC: Smart batteries are available whenever there is a smart software solution that can provide these additional benefits for the battery system. These software solutions are available for domestic all the way up through large scale industrial applications.

Soltaro currently has 5kW/5kWh and 5kW/10kWh All-In-One battery system for domestic applications. Each model is expandable up to 3 battery modules which effectively provides a battery storage range of 5kWh up to 30kWh for domestic applications.

Our commercial battery modules start from 7.68kWh and are scalable up to MWh+. This is due to our unique cluster design which allows flexibility for any project requirements. All commercial systems are design in house by

our engineering team to ensure our battery systems work as efficiently as possible.

PES: Could you explain the benefits of the additional software?

TC: There are many benefits that our software can provide some of them are as follows:

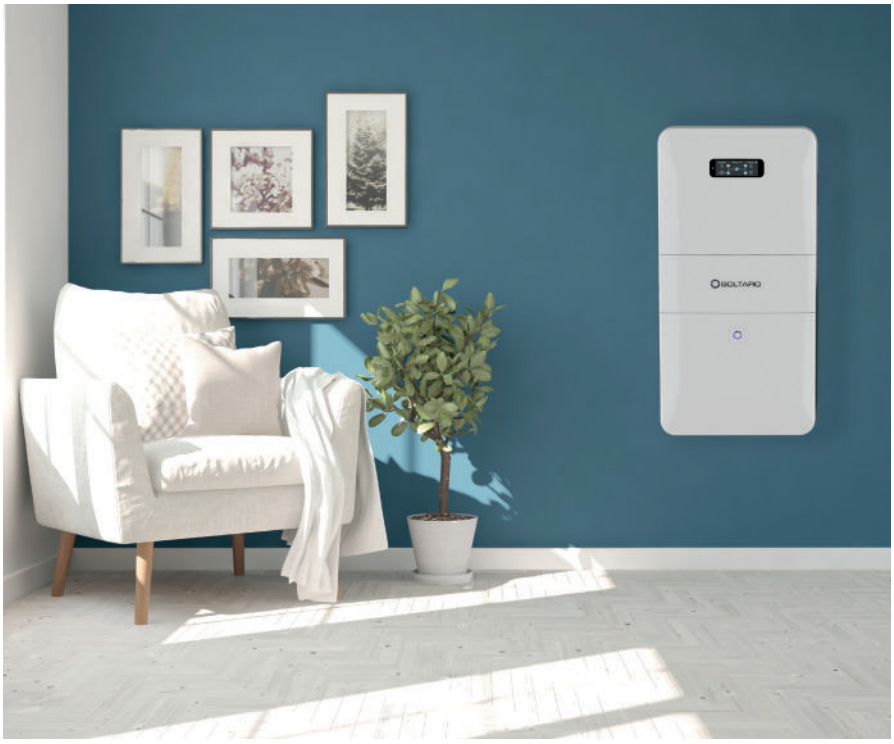
- charging the batteries when energy spot prices are at their lowest and discharging these batteries when the energy spot prices are at their highest
- turning on appliances during the day when there is excess solar to prevent using all your battery power when these appliances would normally be manually turned on in the evening
- assisting the grid frequency and voltage through charging or discharging a smart battery network
- behind the meter power sharing in local communities

PES: Can this software be added retrospectively to make traditional batteries 'smart'?

TC: At this stage our software only works Soltaro battery systems, but the development plan is to be able to retrofit to any Solar PV or battery system through an external device that sits locally at the end user's site.

PES: We know you are present in Australia and the UK and were wondering if you have plans to expand into other areas?

TC: We also have an office in South Africa which services the African market. Our UK office services partners all through Europe.



PES: We understand you work in partnership with different companies installing solar in their new builds, how does this work and is there a list of criteria for perspective collaborators?

TC: We currently work with selected house builders who are installing solar and batteries to offset most of the household's energy usage. That being said, any builder can work with one of our battery solutions from day 1. Our engineers can design the system based on the house size and number of people living in the home.

PES: Do you have any interesting projects in the pipeline that you are able to share with us?

TC: In Australia we are rolling out our domestic battery system in a network of retirement villages. Once all the battery systems have been installed, we will be using our software solution to share power between all the individual villas and common areas within each village.

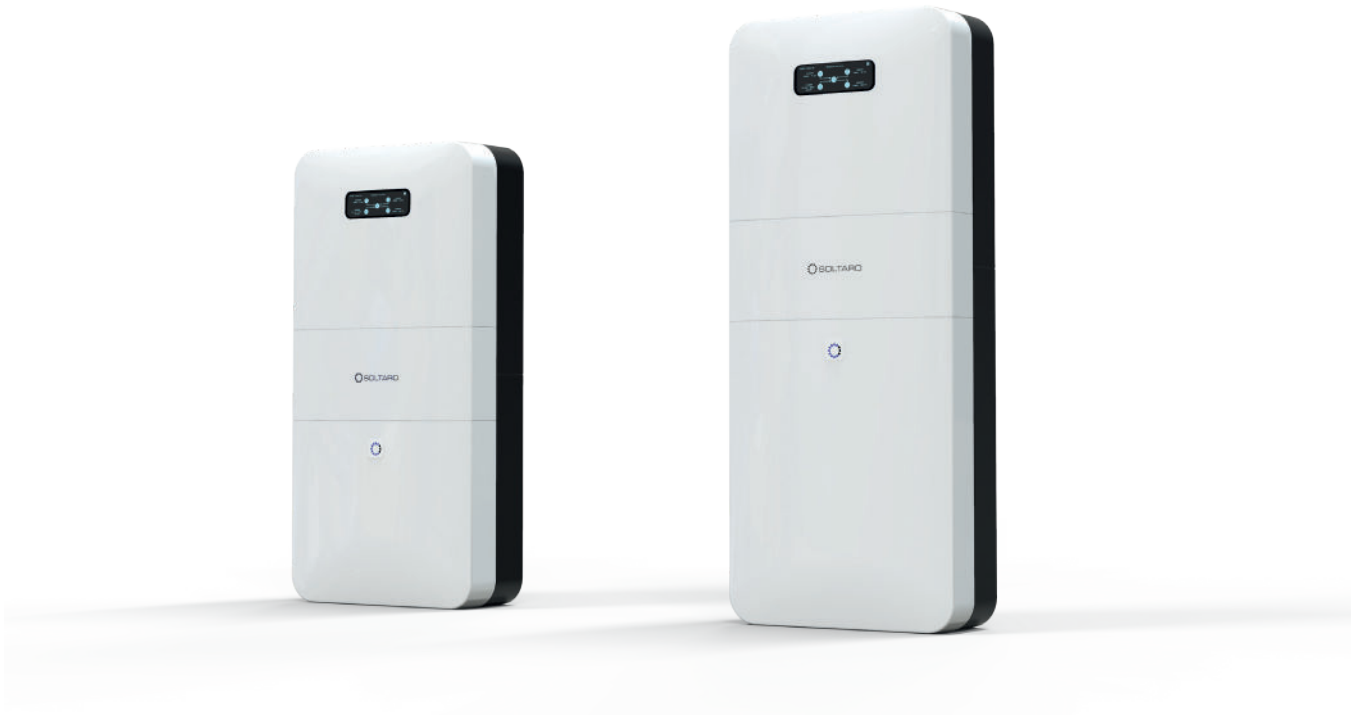
PES: Is research and development an integral part of your business?

TC: Yes, it's a major part of our business. Now that we have the hardware finalised our main focus is on software to further increase the benefits of battery systems. As far as we are concerned, only 20% of a battery system is the hardware. The remaining 80% is the software.

The main reason for this is that our software will allow us to cycle the battery module multiple times per day based on smart technology. The more you cycle the battery the more benefits you get out of them.

There are also many grid services that we can provide through our smart battery systems that will allow the network operators to have a more stable electricity network. This cannot be achieved through just hardware.

For these reasons our R&D is now focused on the software to allow our battery systems to



be more flexible. Our development plan was always to provide these software functions and this is why we designed our battery modules to allow 10,000 cycles during the 10 year warranty period.

PES: What makes your solutions stand out from the competition, what are the benefits to the end user?

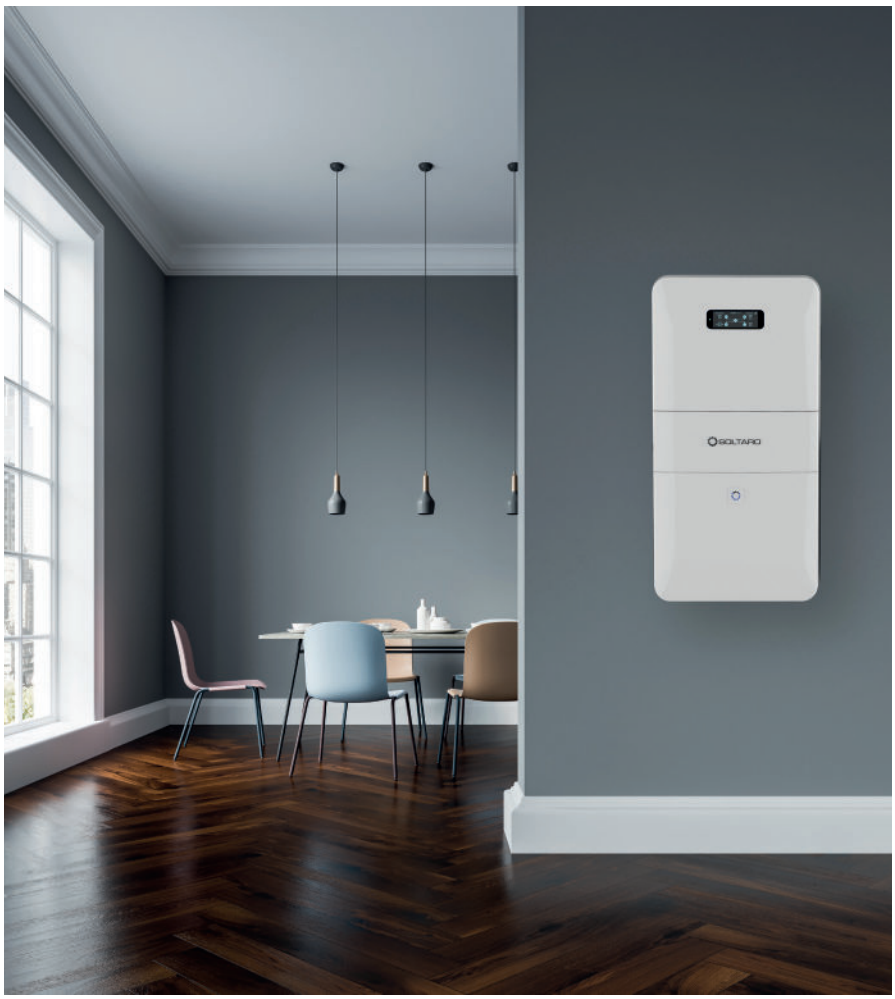
TC: Our All-In-One 2 solution has been developed over the past years, further improving our All-In-One 1 solution. The focus has been on making the system installation as plug and play as possible. This means that less things can go wrong with our system during the installation and commissioning phase.

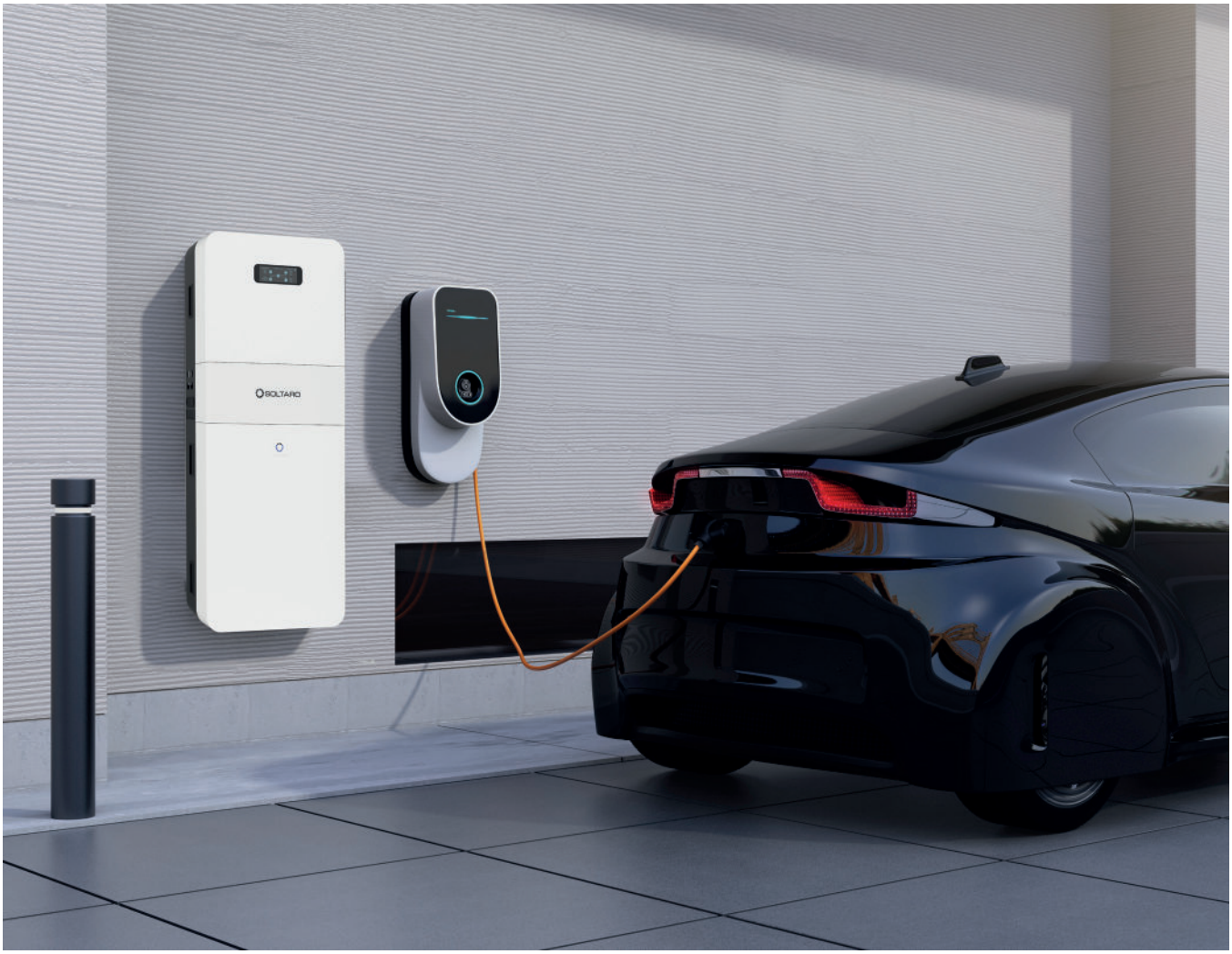
Secondly our AIO2 visual design has been focused on creating an appliance rather than a solar product. You can see from the physical design, it's one of the most aesthetically pleasing battery systems in the market today.

Finally, our focus on our software solution to make our batteries smart differs quite considerably to most battery manufacturers. The end user can have comfort that they are getting a battery system that includes a hybrid inverter, battery modules and software system all from the one manufacturer.

PES: What do feel is the biggest challenge facing the industry today?

TC: The biggest challenge in our industry is making batteries affordable for the





consumer. Without smart batteries you need high electricity tariffs to achieve return on investment that is acceptable. We acknowledged this challenge 2 years ago and made a focus towards developing software as another layer on top of our battery hardware.

PES: What sort of impact has the pandemic had on your company and do you see that changing as move forward in 2021?

TC: Being an Australian company we have been extremely lucky in that we have had very little restrictions imposed on us throughout the pandemic. Most of our team have been able to continue developing our product without any delays caused through the pandemic.

Our European and African sales have been affected due to the lockdowns in these areas, but 2020 was always planned as a development year so it wasn't a major factor in the operation of our business. The AIO2 was certified at the start of 2021 so hopefully the pandemic eases and our partners can start operating their businesses normally again.

PES: Where do you see Soltaro, in particular and the solar industry in general, in 5 years' time?

TC: In 5 years' time we plan to being in the Top 5 solar battery systems suppliers throughout the world. We are focused on innovation and through our 30 years' experience in the solar PV industry, we know what the consumer wants.

We were lucky enough to be involved in the solar PV boom in the early 2010s and are predicting that the solar battery boom is just around the corner. It's important for consumers to choose a smart, reliable battery system and know Soltaro can be trusted to deliver.

www.soltaro.com