

Case Study

Rob Relishes his 'Off-The-Grid' Retreat

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It's not easy to reach Rob Cooper's property in rural Western Australia, about 130kms north-east of Perth. Once you hit the turn-off from the bitumen 30kms outside York, there's a twisting, turning trek through paddocks of curious sheep until finally reaching his weekender, perched on a small hill overlooking his 113 acres of pretty farmland.

When Rob first investigated running power from the grid to his shed-home there in 2008 it would have taken five power poles and about \$69,000. By 2015 it had risen to \$89,000 and last year it was a whopping \$122,000.

And aside from running the power to the block, the cost of that electricity would have risen too; since 2008 power prices have risen 117 percent, more than four times the average price increase across sectors, according to the ABC's Joshua Byrd's report in 2018. That upward trend will continue.

Figures released by Australian Energy Market Commission (AEMC) in its residential electricity price trends report released 2017, shows residential electricity prices in WA are expected to have an average annual increase of 6.3 percent over the two years to June 2020.

Rob says in comparison solar systems have fallen in price. When he first started looking for one around 2015, the cost was nearly \$70,000. His Delta system came in at just under \$20,000.

"Who doesn't want to live off the grid looking at the cost of power?" he laughs. "Solar has dropped in price considerably and the power companies supply on grid have gone up considerably."

"But here power bills and water bills are non-existent thanks to the solar power and rainwater."

"And in the future, I'll build a four bedroom by two bathroom shed-house and this Delta system I have here now will run that."

That house will probably come when he retires from his job as a mine site safety superintendent in the state's north, where he works eight days on six days off.

For now though, he spends as much time at his 'retreat' as he can. The solar power system has been a labour of love. It's housed inside the 15m by 15m shed which has a kitchen in the corner and behind that a bathroom. For now, he sleeps in his motorhome, which is parked-up inside.

The motorhome, the fridge, kettle, television and anything else that runs on power is fed solely from a 22-panel system, which he hopes to expand soon to 26, just to speed up the charging rate.

The inverter and two batteries complete the set-up that allows him to live blissfully power bill free.

The panels feed into an E5 inverter which converts the solar power to residential power and which is 'truly battery ready' meaning he simply had to connect one and then the second battery with no extra equipment and it was up and running.



Delta E5 and BX6 Battery





Delta's Shane Arnold who helped create the system, explains a lot of other inverters need extra equipment to make them battery compatible.

"Ours also does something unique; if you just installed this inverter and didn't have a battery for storage, it does what we call 'islanding' which means that if your panels are making electricity then it will make the power available during a blackout. Not many inverters can do this," he says.

Rob however stores his power in his batteries, each BX6.0 battery making 4.8kwh of available energy and stored indefinitely. He oversees the entire system from a touch pad, where he can monitor every aspect of it, download the information via a USB to his laptop and create spreadsheets on consumption or production or both.

"I run a kilowatts spreadsheet so I can see exact power usage," he says.

"I've switched everything off and from there could see on the monitor that the TV uses 84 watts, the fridge 115 and the two lights 90 watts which changed to 7 watts a light when I moved to LED," he says.

"On an overcast today, and it's been overcast the last ten days here, even running the refrigerator and lights. These two batteries are down to just 84 percent, so there's a lot more to pull off them because the system has been able to store the energy."

When drawing really big loads, like using welders he uses a back-up generator instead, to avoid repeatedly drawing big loads off the batteries and perhaps damaging them.

And he says his next step is to put in a call to the Delta team to learn how he can force the batteries to charge from the generator.

"While the batteries are very good storage to also be able to recharge them from a generator would be very handy," he says.

Shane explains it's never a good idea to use a battery to its 100 percent capacity.

"You never use one hundred percent of a battery because it will greatly reduce the battery life and Delta makes sure consumers can only ever use 80 percent, to ensure maximum battery life," he explains.



Rob says while his system allows him to live 'off the grid' in his remote location, anyone, anywhere can utilise a similar system and be power self-sufficient.

"Anyone can have the actual panels on their house roof and hook in the battery system and it will charge the battery and use it and the solar from the panels during the day and rely on battery in night time," he says.

Shane says the E5 and BX6 is a popular combination in areas where consumers want 'energy security'.

"Blackouts are inconvenient and people want to make sure they can always keep the fridge running or power machines like c-pap machines for sleep apnoea and then there are those who simply want to ensure the family is safe at night especially, if like Rob, they work fly-in, fly-out," he says.