



# ZCell energy storage

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John Altree-Williams, College Park, SA



## John Altree-Williams ZCell benefits

South Australian John Altree-Williams has seen the summer quarter power costs for his Adelaide house plunge by 80 per cent from the previous summer after installing a Redflow-based energy storage system. As well as reducing electricity costs and improving energy independence by guaranteeing power supply during any grid blackouts, ZCell offers an Internet-enabled Battery Management System that allows Mr Altree-Williams to monitor closely his home’s energy usage patterns, enabling him to ensure it operates at peak efficiency so he can automate the system in future.

### PROJECT OVERVIEW

- Location: College Park, South Australia
- ZCell installation partner: Off-Grid Energy Australia <http://www.offgridenergy.com.au/>
- Storage: 2 x Redflow ZCell zinc-bromine flow batteries, with 20 kilowatt-hours (kWh) storage
- Inverters: 2 x Victron MultiGrid 48/3000/35-50 battery inverter-chargers
- Solar: 2 x Victron BlueSolar MPPT 150/70 solar charge controllers
- Solar: 27 x 270-watt Tindo photovoltaic solar panels, in three strings of nine (7.29 kWp)
- ZCell is Australian-designed and developed
- ZCell has low fire risk
- ZCell can go from 100 per cent full to zero stored energy without damaging the battery
- ZCell sustains 100 per cent of its energy storage capacity throughout the life of the battery

RESIDENTIAL  
CASE STUDY

COLLEGE PARK  
SOUTH AUSTRALIA

## ZCell storage system cuts home power bill by 80%



When John Altree-Williams heard ill-informed commentary that blamed renewables for causing South Australia's statewide power blackout in September 2016, he decided to do something about it.

Rather than just pen a letter to the editor, Mr Altree-Williams researched solar panels and batteries to replace an ageing one-kilowatt peak (kWp) PV system on his roof with a future-proof, Australian-made solar energy storage system. His answer was Redflow's ZCell zinc-bromine flow battery.

Mr Altree-Williams said he had held a long-term interest in renewable energy technology. "After the political nonsense and all the misinformation following the statewide blackout in September 2016. I thought, what can I do?" he recalled. "I decided to invest some money in this emerging renewable industry and, as much as possible, I wanted to use Australian-made components. I decided Redflow's technology is new and interesting.

"We chose ZCell because of its low fire risk and, with Redflow's zinc-bromine chemistry, you can go from 100 per cent full to zero stored energy without damaging the battery. You also get 100 per cent of its storage capacity for the life of the battery, whereas lithium battery efficiency degrades over time."



At Mr Altree-Williams' renovated 100-year-old College Park bungalow, ZCell installer Off-Grid Energy installed an energy storage system with two ZCell zinc-bromine flow batteries, with a total energy storage capacity of 20 kilowatt-hours (kWh), supported by two Victron MultiGrid 48/3000/35-50 battery inverter-chargers. The batteries receive energy from 27 Tindo 270-watt photovoltaic solar panels, connected to two Victron BlueSolar MPPT 150/70 solar charge controllers.

Mr Altree-Williams said the new system had reduced electricity costs for the first full quarter by 80 per cent. "Our bill was just \$82.50," he said. "That's only 90 cents per day during the summer months. As our Origin Energy daily grid connection cost is 82.95 cents, excluding GST, that bill was pretty much just the grid connection cost.

"During the quarter, our average daily grid usage was 1.76 kWh, down from 8.47 kWh for the same quarter last year, so our usage reduced about 80 per cent from the previous summer. That's a significant saving. We're not huge users of energy, but, of course, we wanted to reduce our costs. ZCell will also keep our lights on if there is another power blackout."



Mr Altree-Williams said he used the ZCell Battery Management System (BMS) to monitor closely how his house consumed energy. "The BMS is constantly on my computer screen, it's very useful, and the ZCell interface is terrific," he said.

"For example, the electric in-floor heating in our new extension is a bit of an energy hog, using nine kilowatts when it's running. I've had Off-Grid Energy rewire it, so it's now on three separate circuits, which allows me to control each circuit individually. By using the BMS to monitor the batteries and the energy system. I'm monitoring it closely to collect data to work out the logic for how to run the floor at its most efficient rate, so, long-term, I can automate its operation."

Mr Altree-Williams described the support from Redflow and Off-Grid Energy as excellent. "They are completely committed to making sure we get all the benefits of this system," he said.

To learn more about ZCell, visit [www.zcell.com](http://www.zcell.com).

### About Redflow

Redflow Limited, a publicly-listed Australian company (ASX: RFX), produces small 10kWh zinc-bromine flow batteries that tolerate daily hard work in harsh conditions. Marketed as **ZCell** and **ZBM2**, Redflow batteries are designed for high cycle-rate, long time-base stationary energy storage applications in the residential, commercial & industrial and telecommunications sectors, and are scalable from a single battery installation through to grid-scale deployments. Redflow batteries are sold, installed and maintained by an international network of energy system integrators. Redflow's smart, self-protecting batteries offer unique advantages including secure remote management, 100 per cent daily depth of discharge, tolerance of high ambient temperatures, a simple recycling path, no propensity for thermal runaway and sustained energy delivery throughout their operating life.