Exemplifying the Resilience of Solar and Batteries:

Stories Unveiled in the Wake of Cyclone Gabrielle

Published June 2023

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In the aftermath of Cyclone Gabrielle, we present a collection of case studies that shine a light on the resilience solar power and batteries provide in times of crisis.

When the storm unleashed its force upon the upper North Island of New Zealand in early 2023, thousands of Kiwis faced the task of overcoming its impact. However, amidst the chaos, there emerged stories of hope.

In this series, we had the privilege of talking with four extraordinary residents of Hawke's Bay who experienced the full force of Cyclone Gabrielle. We would like to thank them for their willingness to share their personal journeys during this trying time.

From the essential task of keeping the lights on to the invaluable role of enabling communication technology, these stories vividly demonstrate the undeniable value of distributed renewable energy solutions.

Kim, Carole & Bandit (the cat) and their 10.4 kW solar array

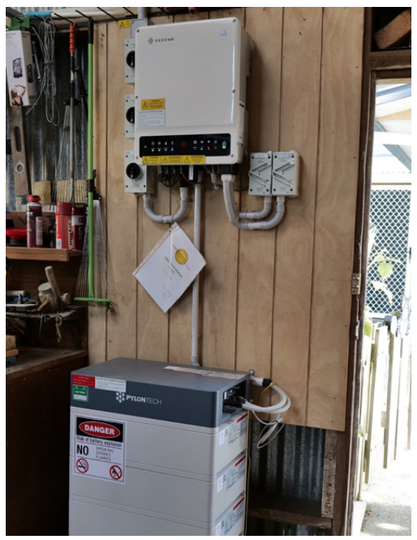
Cat-astrophe Averted: Carole's Cat Resort Survives the Cyclone

A property nestled in sun-drenched Hawkes Bay is where you'll find a boutique cattery that Carole proudly owns and operates.

Reflecting on the recent cyclone, Carole finds herself immensely thankful for the timely installation of solar panels and batteries, a serendipitous decision made only a few months prior.

The solar power and battery system Carole had installed is designed to power a wide range of appliances including: an HRV system, ceiling heat panels, CCTV cameras, stereo, an electric vehicle along with water sanitization equipment. The system also powers the workshop appliances, two freezers and an irrigation system for the orchard (which is leased).

Prior to installing the solar power system in November 2022, Carole faced exorbitant monthly electricity bills ranging from $900 to $1,200. Since investing in solar and batteries, the cost has plummeted to around $300 a month.



Solar battery: Pylontech Force H1 14.2 kWh

Carole recounts the night Cyclone Gabrielle hit, "We were up and down a few times during the night due to the strong winds, and it was a bit of a surprise that we made it through." Although some of their neighbours had large trees fall, she was astonished that they did not have any property damage.

The solar system proved essential, providing the operators of this small commercial operation with resilience during an unforeseen weather event. Carole shared her thoughts, stating, "I always believed we might face an earthquake or a tsunami due to our low-lying location." However, it was the unexpected cyclone that highlighted the system's value.

EV charging with solar electricity

The solar system proved essential, providing the operators of this small commercial operation with resilience during an unforeseen weather event.

Thanks to the recently installed solar panels and batteries, the business sustained its operations throughout the six-day power outage, demonstrating its ability to function autonomously".

Carole was reassured that the cats were not affected by the cyclone, saying "Their daily routine remained the same, they still received their room service, meals and all the attention they needed." Thanks to the dependable solar power and backup batteries, the lights stayed on, allowing the business to operate seamlessly, with all appliances functioning as per usual.

In the aftermath of the cyclone, the cattery became a safe haven for a dozen cats unable to return home due to contamination, and for families seeking refuge.

Carole's commitment to supporting the community shone through as she offered family, friends and clients a place to charge their cell phones and have a hot cuppa.

Carole finds herself pleasantly surprised by the solar power system, its value exceeding her initial expectations. She enthusiastically shares, "We have been thoroughly impressed with the system." As Carole looks to the future, she eagerly anticipates installing solar power and batteries in her own home, once the ongoing renovations are completed.

Linda and Owen

Storm-Resistant Home: How a Tesla Powerwall Powered Through the Cyclone

Meet Linda and Owen, a retired couple living near rural Wairoa.

Growing increasingly tired of power outages in their area, Linda and Owen were often left frustrated and without power for hours, or sometimes days. So, they invested in solar panels and a Tesla Powerwall - a year before Cyclone Gabrielle hit.

Linda rationalised their battery purchase as insurance against the possibility of power outages, much like purchasing any other type of insurance. Additionally, as a retired couple, they aimed to lower their energy bills and make an environmentally conscious decision, which Linda expressed as the right thing to do.

Fortunately their house remained unharmed following Cyclone Gabrielle, but their surroundings were ravaged by landslides and blocked bridges, leaving them stranded for two weeks. Luckily, Linda and Owen's solar power system was up and running, providing them with all the power they needed to sustain their daily activities.

Linda attested that the solar power system provided them with sufficient energy even in the aftermath of the cyclone, despite the terrible weather conditions. Linda described it as a pretty horrible, really misty cloud, and raining on and off. They could use their stick vacuum, cook meals in the oven, use the microwave, and run the washing machine as if nothing had happened. Enough solar was generated to fill up their Tesla Powerwall battery daily.

Despite being physically isolated,

7 kW Solar Array

Linda attested that the solar power system provided them with sufficient energy even in the aftermath of the cyclone, despite the terrible weather conditions.

Linda and Owen found solace in the ability to communicate with their loved ones. As they age, and climate change causes more serious weather events, Linda feels that being prepared for possible catastrophe is imperative, particularly when living rurally. Despite being terrified during the worst of the storm, Linda says that having solar power to enable communication with loved ones (or Civil Defence, if needed), was very reassuring during that very stressful time.

Linda and Owen generously shared their solar power with their neighbours, giving them a place to wash their clothes and store frozen food. One evening, they invited their neighbours over for a hot meal and to watch the news on their TV. Linda noted that this simple act of hospitality and communication was crucial during a crisis, telling us it was really amazing to have them sit in their living room and watch the news for the first time in days. The visitors were shocked by the destruction that they saw. This experience reminded Linda and Owen of how important it is for people to have communication, especially in times of uncertainty.

Linda admitted that during the month that followed after investing in the Powerwall, she and Owen questioned whether it was a wise decision, wondering if the money would have been better spent on Kiwi Saver. However, as Linda explained, those doubts vanished after the cyclone hit, and the Powerwall proved its value, prompting her to say, "We are just so thankful and amazed at how efficient it was. We have never second-guessed the Powerwall since."

Linda and son Mark standing next to their Tesla Powerwall

Owen standing next to his Alpha.ES SMILE-5 10.1 kWh solar battery

Community, Generosity, and Solar Power: Owen's Inspiring Story

To say that Owen from Greenmeadows, Napier, is a big advocate of solar and batteries would be an understatement.

Owen is completely captivated by the solar power system, he expresses his fascination, stating, "I'm just infatuated by the whole system, I look at the monitoring every day. It's fascinating watching it working from hour to hour."

The solar battery surpasses Owen's expectations, performing unbelievably well. He shares, "For eight months of the year, particularly in the summer, the battery is fully charged by eleven o'clock in the morning. For the rest of the day, I'm exporting power. On a bad weather day, it'll probably be one o'clock once the battery is fully charged even with a 100 hundred percent cloud cover. I mean it's intriguing how it happens. It can be an overcast day, but it's charging like hell."

With an impressive setup of 22 solar panels on the roof and a 10 kWh battery in the garage, Owen describes himself as "virtually self-sufficient". He proudly claims, "We don't pay anything for power." Although they import a small amount of power during the winter months, for nine months out of the year, their power bills amount to $0 or in credit. Owen confidently states, "It's a no-brainer. I frequently use that term when anyone asks me about my solar power system."

When Cyclone Gabrielle struck, Owen's solar power was put to the ultimate test. However, he remained blissfully unaware of the power outage the first day following the storm. Owen recalls the moment, saying, "When the power went out, I didn't know until my son called and said, 'Hey, we have no power.' My battery system switched over the instant the power went out. It's just unbelievable".

In response to the situation, Owen swiftly took action, extending cords over the fence to help his neighbours keep their freezers running. He invited neighbours and friends to his house for warm meals, cell phone charging, and hot showers. Owen's son and young family sought refuge in his home, providing the grandkids with a sense of normality.

"We were more than happy to help," Owen explained. "The impact on our solar power system was negligible".

"For eight months of the year, particularly in the summer, the battery is fully charged by eleven o'clock in the morning. For the rest of the day, I'm exporting power."

Owen's generosity and assistance forged strong bonds within the community, turning strangers into lifelong friends during the 9-day power outage.

Looking ahead Owen plans on installing solar power and batteries on his business, again he says "It's a no-brainer".

8.8 kW Solar Array

Cheryl standing in front of their 6.74 kW solar array

Solar & Batteries Keep Couple Safe & Connected Post Cyclone Gabrielle

It was almost three years ago that Cheryl and Rick decided to buy a solar power system for their home which included 19 solar panels and a Tesla powerwall.

They decided to add a battery to the system, as Rick explains “if you make the power then you might as well hang on to it”.

Saving money on power bills was a big motivator for the couple. They are thrilled to tell friends and neighbours “the cheapest power bills were initially minimal and then $44.53 average monthly cost over summer and $75.22 over winter in 2022.

After installing the system, they were surprised to learn how effective the system is on grey days with minimal sunshine. Rick explained “it’s been a surprise. We always get the battery to 100% full most days, even on a cloudy day.”

The full value of the system wasn’t realised until the day after the storm, Cheryl explained “We woke up surrounded by water. The water came through the house downstairs, so we waited upstairs”.

The couple resided in their house for a duration of 10 days following the storm. The view from the second story gave them perspective, Cheryl explained, “at night you’d look out the windows into darkness all around you, we’d say to each other, we are so lucky.”

During those days after the storm, the couple never ran out of power thanks to the Tesla Powerwall and panels. So much power in fact that they were able to help neighbours by storing their frozen food and charging their phones. They even had one neighbour working from their home, bringing over his laptop, pluging-in and going about his business. Cheryl noted that “it wasn’t just the convenience of the power, but emotionally, it gave us a sense of well-being that we were safe and connected.”

The lower floor of their home suffered extensive damage, rendering it uninhabitable. All appliances had to be discarded, and gib had to be removed. All appliances had to be discarded, and walls had to be torn down. The driveway remained inaccessible for several days, requiring the use of a tractor to navigate through.

“It wasn’t just the convenience of the power, but emotionally, it gave us a sense of well-being that we were safe and connected.”

But it all got a bit much when news of the second storm was announced only days after Cyclone Gabrielle. Rick’s health also started suffering from the silt. That is when the couple decided they needed to leave until they could safely return.

Rick attests to solar and batteries and would encourage everyone to get solar and batteries, particularly now that there are cheap loans for them from the banks, with Rick confidently stating “there needs to be more encouragement for people to be more self-reliant and resilient in this way.”

Rick standing in front of their Tesla Powerwall 2

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