

# Electricity Usage Procedure

## Overview

As with any off-grid energy system, Umukuri's is a balancing act between consumption and generation. There are many electricity management factors to consider.

The over-riding principle is **the batteries should never be depleted below 70% capacity**. The batteries are the most expensive component and preserving their operational lifespan is in Umukuri's pecuniary interest.

In purely cost/benefit terms, it will always be sensible connecting the [Petrol Generator](#) to meet energy consumption requirements if the batteries are approaching 70% capacity (30% depletion.)

Depth of Discharge (DOD) cycle count for our Lead Carbon batteries according to the manufacturer:

1500 cycles at 100% Discharge capacity  
2400 cycles at 80% Discharge capacity  
3000 cycles at 60% Discharge capacity  
3600 cycles at 50% Discharge capacity

Another factor to consider is that Umukuri typically harvests a lot more energy than it can store. On a sunny day in summer the battery bank typically reaches 100% charge by about 10 a.m., meaning the eight or so remaining sunshine hours for the day are wasted. It makes sense to operate energy hungry devices such as the Vacuum Cleaner, Clothes Dryer, Toaster, Electric Kettle and Washing Machine during the day to make use of this energy which would otherwise be harvested but unused.

## Electricity Procedure for Arrival and Departure

### Arriving at Umukuri

1. The [Inverter](#) always remains powered **ON**. If it isn't powered on when you arrive flick the power switch on the right-hand underside to the **ON** position.
2. Ensure all of the **ORANGE** switches on the [Container Switchboard](#) are in the **UP** (on) position.
3. Check the [Battery Monitor](#) is reporting a State of Charge (SoC) of at least **80%**
4. On the [Container Switchboard](#) ensure the **BLACK** switch at the bottom right is in the **UP** (on) position to connect the [Energy System](#) to household consumption.
5. Check to ensure the gauge on the [Container Switchboard](#) maintains a steady **230 Volts**.
6. On the [Bach Switchboard](#) in the toilet flick the **MAIN ISOLATION SWITCH** switch at the left to the **UP** position to connect the Bach to the energy system.
7. Keep an eye on the [Display Panel](#) in the kitchen throughout your stay, to ensure the State of Charge (SoC) always remains above the **70% minimum** threshold in accordance with the Umukuri [Energy Policy](#).
8. Settings 26 & 27 need to be altered on the inverter on the first of September and the first of May each year. Turn OFF the Bottom ON/OFF rocker switch to FORCE the settings to save (it should beep for 3 seconds) and that tells you it's saved, then you can turn it on again and know that any time it the unit had to power down it would re-start with these saved settings back

again. On or about the 1st of May, setting 26 (Bulk charging voltage (C.V voltage)) should be set to 56.1 (Winter) and setting 27 (Floating charge voltage) 55.6 (Winter) On or about the 1st of September, setting 26 should be set to 55.6 (Summer) and setting 27 should be set to 54.4 (Summer)

## Departing Umukuri

The [Bach](#) is isolated from the [Energy System](#) when Umukuri is unoccupied in accordance with the [Energy Policy](#). (Electricity continues to operate in the [Container](#) and the [Lodge](#).)

1. On the [Bach Switchboard](#) in the toilet flick the **MAIN ISOLATION SWITCH** at the left to the **DOWN** position to disconnect the Bach from the energy system.
  - (Ensure all of the **ORANGE** switches on the [Container Switchboard](#) remain in the **UP** (on) position.)
  - (Ensure the [Inverter](#) remains powered **ON**.)

## Support

Contact	Description	E-mail	Landline	Cellphone
Simon Anderson	Nerd	<a href="mailto:simon@anderson.gen.nz">simon@anderson.gen.nz</a>		021 891 826
Mark Denize	Maintenance and support	<a href="mailto:mark.denize@gmail.com">mark.denize@gmail.com</a>	(03) 579 9220	021 469 220

## References

[Batteries](#), [Batteries Log](#), [Energy System](#), [Energy Monitoring](#)

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