AFB

Australian Flow Batteries

Disaster Response System

Standalone Solution for Emergency Power and Safe Drinking Water

Australian Flow Batteries (AFB) presents a 10 foot portable and scalable all-in-one solar energy, energy storage and drinking water purification and container system.

Key Features

Solar Energy

A solar array with a generating capacity of 18.56 KWP.

Energy Storage

A 20kWh onboard battery system for storage and continuous power.

Water Purification

A reverse osmosis water purification system generates clean drinking water.

Fast Deployment

3 to 4 people can have the system up and running in 3 to 4 hours.

Flexible Operation

Priority for resource (electricity or water) as needed on any given day.

Australian Flow Batteries is a major distributor of energy generation and storage solutions providing an easily deployable solar array, energy storage and water storage and purification system that integrates with existing infrastructure in challenging environments such as after natural disasters.

Average electricity generation of 75 kWh per day

Performance mix Electricity and water	Hours	Electricity used for water making per day	Surplus electricity for other purposes per day	Potable Water Yield per day
Water Maker daily operation hours	6	4,26 kWh	70,74 kWh	1200 Litres
Water Maker daily operation hours	12	8,52 kWh	66,48 kWh	2400 Litres
Water Maker daily operation hours	18	12,78 kWh	62,22 kWh	3600 Litres
Water Maker daily operation hours	24	17,04 kWh	57,96 kWh	4800 Litres

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Interconnections and Options

The Disaster Response container comes as standard with an electric grid connection and can operate with an electric grid to both supply electricity and draw electricity as needed from the grid. The control system comes with an RJ45/LAN-based onboard monitoring and control system, which can be accessed remotely using communications infrastructure such as cellular or satellite and allows integration with SCADA systems.

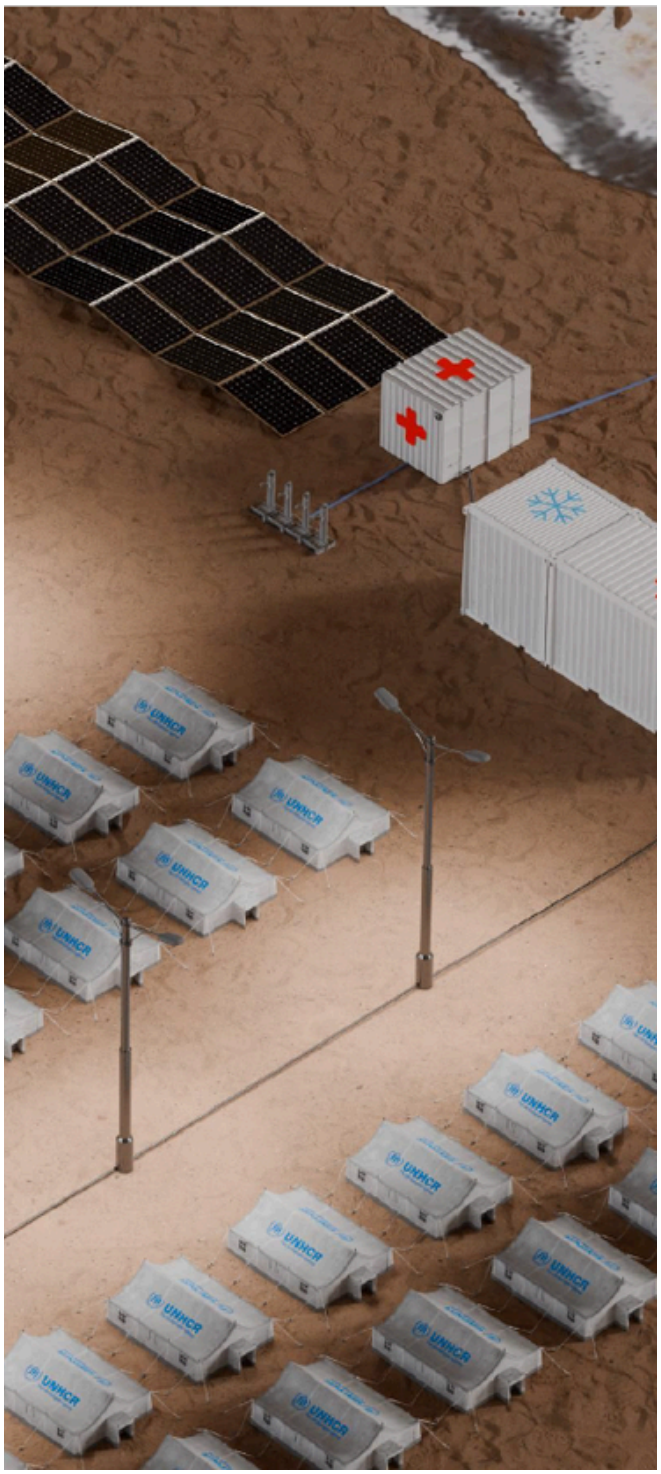
The container is available with a number of pre-installed options:

- Larger water maker options, which can provide up to 22,000 litres of clean drinking water per day and consumes approximately 50kWh of electricity.
- Can operate with electric back up source from Diesel Generator with an accessory box.
- Insulation and climate control system for hot climates.
- Alternative battery chemistry options for extreme climate conditions.
- Assisted pull out and pull in (winch system).
- Additional anchoring solutions for high wind load areas.
- Smart grid controller linked with utilities and/or Virtual Power Plan operators.
- GPS asset tracking and kill code option.

The container can be air dopped by helicopter or via an optional light weight version for air drop by parachute available upon request.

Fast deployment, protection and redeployment:

- Place it on the ground, place the rail feet, install the rails and pull out the solar array.
- 3-4 people can have the system up and running in 3-4 hours.
- The array can be pulled in and the doors closed in under 30 minutes for protection in case of extreme weather events.



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Key Components

1. Solar Array (transport mode)
2. Pressure pump
3. Cartridge filter set 10nm and 5nm
4. 3000 liter potable water tank
5. Water hose reel 50 meter hose for raw water supply from water body (Sea, pond, lake, river etc)
6. Raw water tank 500 liter
7. Sandfilter (rough pre-filtration)
8. Reverse Osmosis system
9. Submersible pump for raw water supply from water body
10. Electrical room, see below

1. Electrical safety box
2. 20kWh battery bank
3. Electrical control box
4. Solar/battery inverter

Watermaker

- Patented energy recovery system.
- Fully automatic.
- Operates fully automatically and the integrated custom made controller eliminates all the normal inconveniences (valves, switches, gauges) that are present in ordinary desalination systems.

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Model PV101518

RATED POWER	PV System nominal power	18,56kWp (32x580Wp)
	AC Output	15kW maximum, max 10kW from battery
INVERTER SYSTEM	Hybrid Inverter Topology	Transformerless, On-grid/off-grid
BATTERY SYSTEM	Battery Module Size and qty	5kWh x4 = 20kWh Energy Storage (max 40 kWh)
	Battery charge/discharge power	10kW (max 20 kW)
AC OUTPUT (Inverter)	Voltage	220/380V,230V/400V340-440V
	Frequency	50 / 60 ± 5 Hz.
	Phase	Three phase WYE
	Connections	3W+N+PE 25mm2 - Optional 125A CEE Quick Connect
	Maximum output current	25A
	Power factor	0.8 leading – 0.8 lagging
	Total harmonic distortion	THDi < 3%
	Peak efficiency	98,75%
	MPPT efficiency	99.9 %
PROTECTION	DC Reverse polarity protection	Yes
	DC Switch	Yes
	DC Surge protection	Type II
	Insulation resistance monitoring	Yes
	AC Surge protection	Type II
	AC short circuit protection	Yes
	Ground fault monitoring	Yes
	Grid monitoring	Yes
	Anti island protection	Yes
	Residual current monitoring unit	Yes
	String monitoring	Optional
	AFCI protection	Optional
Water System (Options)	Type	Reverse Osmosis
	Daily Potable Water Capacity	4.8/22 CBM max
	Energy usage per CBM of water	3,5kWh/2,2kWh
	Energy usage per day max usage	16,8kWh/48,4kWh
	Hourly raw water requirement	1,34CBM/2,72CBM
	Raw water requirement per day max usage	32CBM/65CBM
INDICATOR	LED	Operation Status
COMMUNICATION	Communication port	RS-485/RJ45 (Internet) + USB (Local)
INTERFACE	Protocol	MODBUS
ENVIRONMENT	Temperature	0 to 60°C (Power draining above 50°C)
	Relative humidity	0 - 90 % (non - condensing)
	Maximum operating altitude	2,000 m
STANDARDS	Electrical	CE, VDE0126, EN50549, C10/C11, UTE C 15-712, IEC62116,IEC61727, IEC 60068, IEC 61683, CEI0-21, CEI0-16, N4105,TOR Erzeuger, G98/G99, G100, AS/NZS 3100, AS4777, UNE217001, UNE206007, PO12.2, KSC8565, IEC 61215, IEC 61730, IEC 62941
CONTAINER	Container type	10 'HQ Shipping container
	Container dimension (W x L x H) in cm	244x299x292
	System weight in kgs	Approx. 7.900 kgs
	Deployed system footprint (W x L) in meters	5x26 meters

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