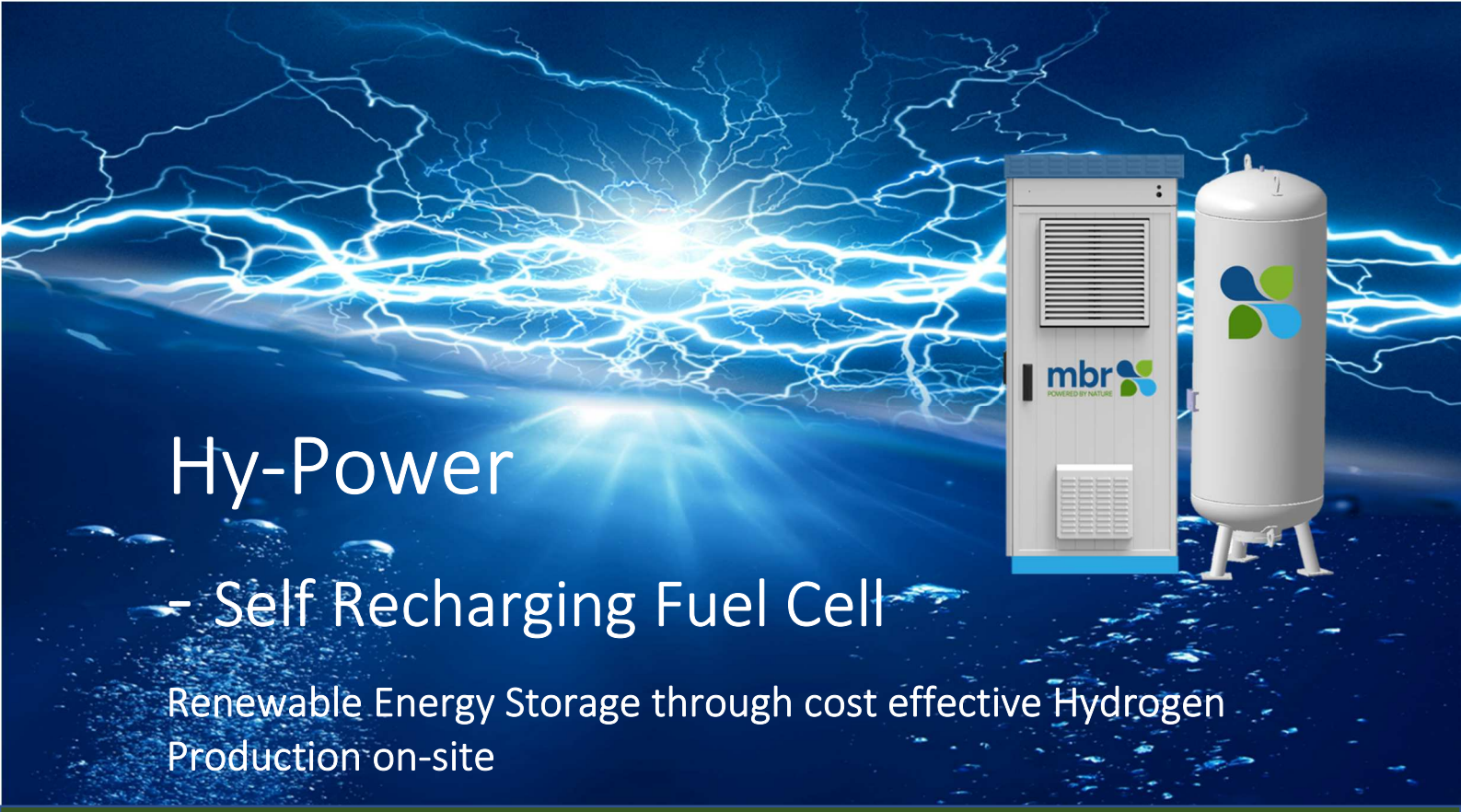


Hy-Power

- Self Recharging Fuel Cell

Renewable Energy Storage through cost effective Hydrogen Production on-site

Powered By Nature

Hy-Power is designed to be a logistics-free backup power solution, powered by renewables, that eliminates the need for on-site refuelling and maintenance visits, normally required for traditional power solutions.

Hy-Power completely removes the logistic issues relating to using fossil fuel-based generators in remote locations. The AEM electrolysers produce clean and dry hydrogen, directly compressed to 35 Bar and combines the benefits of cost-efficient alkaline electrolysis with those of the flexible (polymer electrolyte membrane) PEM. With a capacity of up to 10m3 litres of hydrogen per hour, the rack mountable Electrolysers are ideally suited for on-site hydrogen generation to store surplus energy for power applications.

With Hydrogen Fuel Cell power output options ranging from 1kW to 20kW per cabinet, the Hy-Power is the ideal Long-Term energy Storage strategy for any off-grid or micro grid application. The Hy-Power requires no air conditioning, can be deployed in outdoor IP55 cabinets and is pre-installed with SDEMS, an AI based control system, which manages and optimizes energy production, energy storage and loads.

Hydrogen production
500 NL/hr or 0.5 Nm^3/hr

High Efficiency
4.8 kWh for 1 Nm^3 of H2

Output Pressure
35 bar

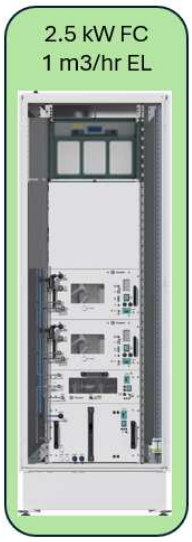
Hydrogen Purity
99.95% - 99.999%

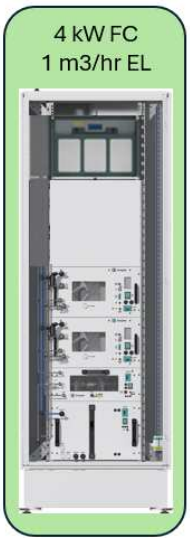
Power Output
2 kW to 20kWp per Cabinet

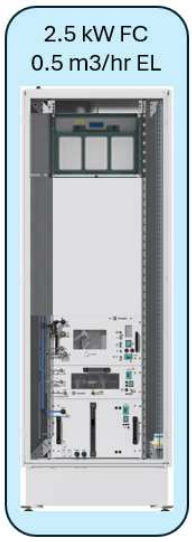
Hydrogen Storage
50kWh, 75kWh, 240kWh in expandable modules.

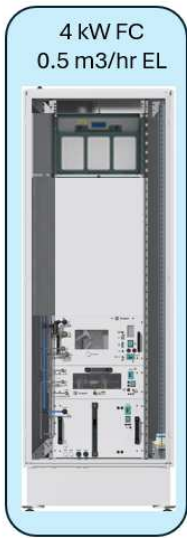
mbr
POWERED BY NATURE

System Configurations (Air Cooled Fuel Cell)









	1 m3 per hour H2 Production			0.5 m3 per hour H2 Production	
Configuration	**2.5kW-0.1m3/h**	**4kW-1m3/h**	**8kW-1m3/h**	**2.5kW-0.5m3/h**	**4kW-0.5m3/h**
Power Output (Charging)	2.5kW @ 48V or 24V	4kW @ 48V or 24v	8kW@ 48V or 24v	2.5kW @ 48V or 1.92kW @ 24V	4kW @ 48V or 2.88kW @ 24V
Rated Current	52A @ 48V or 80A @ 24V	83A @ 48V or 120A @ 24V	166A @ 48V or 240A @ 24V	52A @ 48V or 80A @ 24V	83A @ 48V or 120A @ 24V
H2 Cons.	Less than 70g per kWh				
Emissions	Water Vapor				
Operation	Altitude 0 – 4000m | Ambient Temp +5°C to +40°C | Humidity 10 to 90%				
H2 Production (Storage)	1000 NL/hr 2.1 kg/24 hr	1000 NL/hr 2.1 kg/24 hr	500 NL/hr 1.07 kg/24 hr	500 NL/hr 1.07 kg/24 hr	500 NL/hr 1.07 kg/24 hr
Power Cons.	4.8 kW	4.8 kW	4.8 kW	2.4 kW	2.4 kW
Standby Cons.	**75W**	**75W**	**90W**	**45 W**	**45 W**
Water Cons.	0.82 L/h	0.82 L/h	0.82 L/h	0.42 L/h	0.42 L/h
Output Press.	35 Bar				
H2 Purity	~ 99.9% (Impurities: ~1000 ppm H2O, < 1 ppm of any N2/O2/Ar/CO/CO2)				
With Dryer	> 99.999% (Impurities: < 1 ppm of any H2O/N2/O2/Ar/CO/CO2)				
Water purity	< 5 µS/cm (at 25°C)				

H2 Storage Options

1 m3 Vessel 35 m3 of H2 @35 Bar

16 Cyl. Rack 28 m3 of H2 @35 Bar

9 m3 Vessel 35 m3 of H2 @35 Bar

Use Cases

Hydrogen's versatility as energy storage is possible with our plug-and-play building blocks

Grid Storage France

Hydrogen keeps this refuge in the Alps operational all year-round. Since 2015, it runs autonomously for up to 16 days without sunshine using a 2 kW fuel cell.
Electrolyser: 500 NL/hr
Storage: 5 kg

Mobile Refueling China

Electrolysers are integrated into a mobile drone refueling station. The electrolyser produces hydrogen right onsite to refuel drones that need to be in the air for durations of over 12 hours.

Power-to-Gas Australia

Solar made hydrogen is combined with CO2 which is extracted directly from the air to create renewable methane. Such "power fuel" can be used for heating and cooling, transport or industrial use.

Renewable Storage La Reunion Island

Only accessible by foot or helicopter, the community is energy independent with solar and hydrogen since 2017.
The storage system provides 10 days of autonomy.
Electrolyser: 500 NL/hr
Storage: 3 kg

Residential MicroGrid Chang Mai, Thailand

Off Grid community of 6 building with 86 kWPV solar is energy positive since operation. Power produced also operates water pumps for irrigation
Electroliser 1m3/h

Power to Heat Netherlands

In June 2019, the first hydrogen project for residential heating was officially opened in Rozenburg near Rotterdam. Green hydrogen is directly used to generate heat.
Electrolyser: 4,000 NL/hr

Residential MicroGrid In Münster, Germany

1x EL 2.0 in combination with a fuel cell to provide seasonal storage
Electroliser 500m3/h
Storage 4.5kg

Telecom BTS Lompia, Malaysia

2x EL 2.0 in combination with a fuel cell to provide fully autonomous energy 24*7
Electroliser 1m3/h
Storage 4.5kg

Telecom BTS Hoddies Creak Australia

2x EL 2.0 in combination with a fuel cell to provide fully autonomous energy 24*7
Electroliser 1m3/h
Storage 4.5kg