



PORTABLE POWER STATION



ADES PPS 10/60/70 KW

PLUG AND PLAY

ades
OFF-GRID

GENERAL DESCRIPTION

PPS represent a solution for long-term energy supply through the capture, storage and supply of electricity immediately and sustainably to any part of the planet.

These trailers combine the capture of different renewable energy sources and integrate a battery array and a power generator to ensure a constant supply.

Created to achieve energy independence, there is a choice between 100% renewable generation and mixed generation.

The significant savings that can be made in fuel costs tend to offset the initial investment in only a few years.

Furthermore, this product can benefit from lines of financing such as the Clean Development Mechanisms (CDM) and the green tickets scheme as it avoids atmospheric pollution. Further information about these options can be found on our website.

BENEFITS OF THE RANGE

- Plug and play: electricity generation within a few minutes
- Stable energy price due to independence from fuel price fluctuations.
- CO₂ emissions reduction: possible channel to receive financing.
- No need for network infrastructure: development of micro-networks.
- Easy and long-term energy solution.
- No engineering required, thus reducing the cost of electrification projects.
- Portable design: fast and flexible supply.

APPLICATIONS

- Rural areas
- Isolated areas (islands, etc.)
- Emergency and post-emergency situations (hospitals, camps, etc.)
- Industrial and mining areas
- Singular requirements: water pumping, desalination, food conservation, etc.

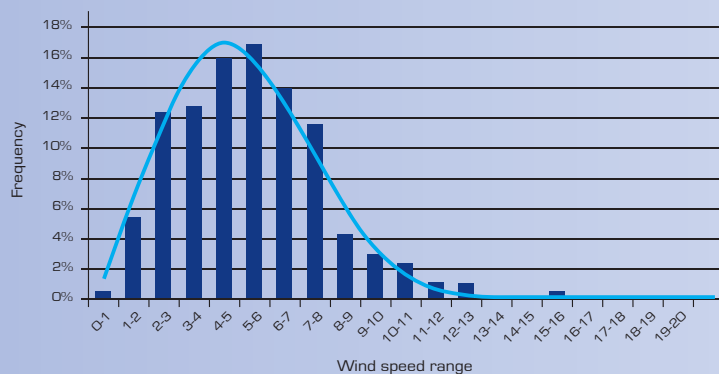


RANGE OF POWER OPTIONS		10 KW	60 KW	70 KW
		50% Solar + Batteries 50% Diesel support	40% Wind + Solar + Batteries 60% Diesel support	50% Wind + Solar + Batteries 50% Diesel support
COMPONENTS	High-quality solar modules	•	•	•
	5 kW wind turbines		•	•
	Battery array	•	•	•
	Electrical power generator	•	•	•
	Inverter	•	•	•
	Control panel	•	•	•
OPTIONAL	GPRS remote communications system	•	•	•
	Additional reserve fuel tank	•	•	•
	Set of spare parts	•	•	•
	Spare wheels	•	•	•
	Water treatment unit	•	•	•
	Water pumping	•	•	•

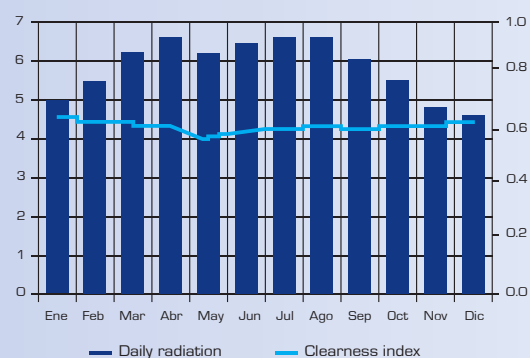
EXAMPLE OF PRODUCTION

- Calculation based on one PPS 70 for Haiti
- Location: Haiti
- Purpose: rural electrification
- Study: output of 1 PPS 70 In the Haiti electrification process. Creation of micro-networks between homes.
- Comparison of: 1 PPS for 35 and 70 homes.

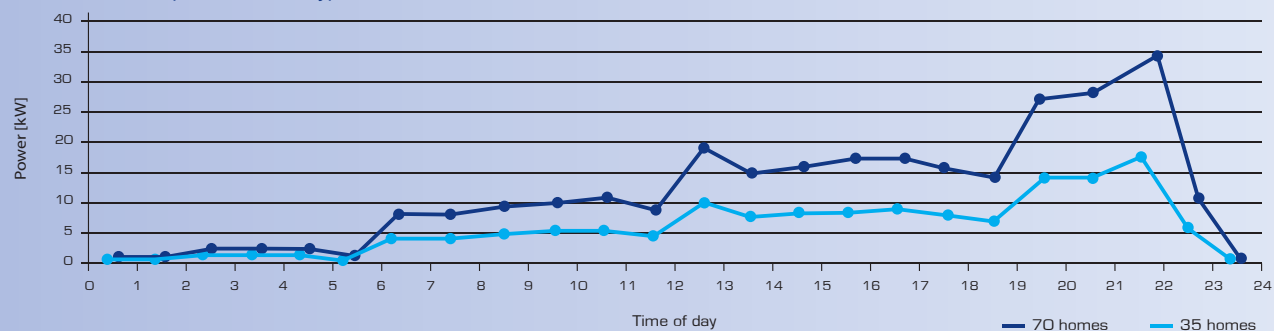
Wind resource:
Weibull distribution



Solar resource:
Horizontal solar radiation and clearness index



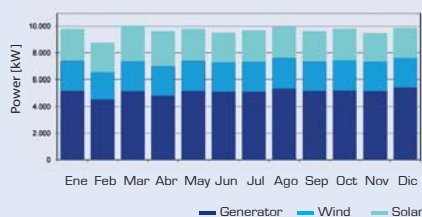
Consumption curve (typical curve for low-income zones)



AVERAGE MONTHLY ELECTRICITY PRODUCTION OF ONE CET 70 IN HAITI

70 HOMES

Average Monthly Electricity Production



35 HOMES

Average Monthly Electricity Production



RENEWABLE ENERGY

47 %

91 %

Solar

24 %

47 %

Wind

23 %

44 %

FOSSIL ENERGY

53 %

9 %

Diesel consumption

17.800 litres/year

2.000 litres/year

Saving on diesel

18.800 litres/year

22.000 litres/year

CO₂ EMISSIONS

46.8 tons/year

5.3 tons/year

CO₂ SAVING

49 tons/year

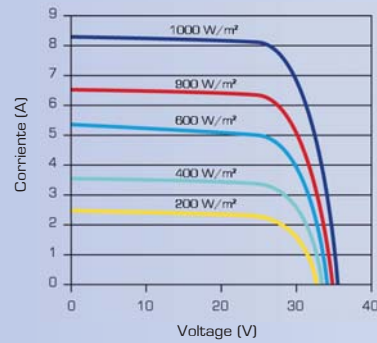
58 tons/year

FEATURES OF THE RANGE

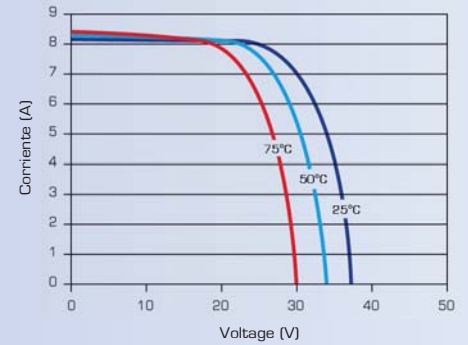
SOLAR MODULES

- Top brand modules
- Guarantees:
 - > Manufacture: 5 years
 - > Power production:
 - 90 %: 10 years
 - 80%: 25 years
 - > Certification: TUV, CE, ISO, PICIM, UL.

Module I-V curves for different radiations



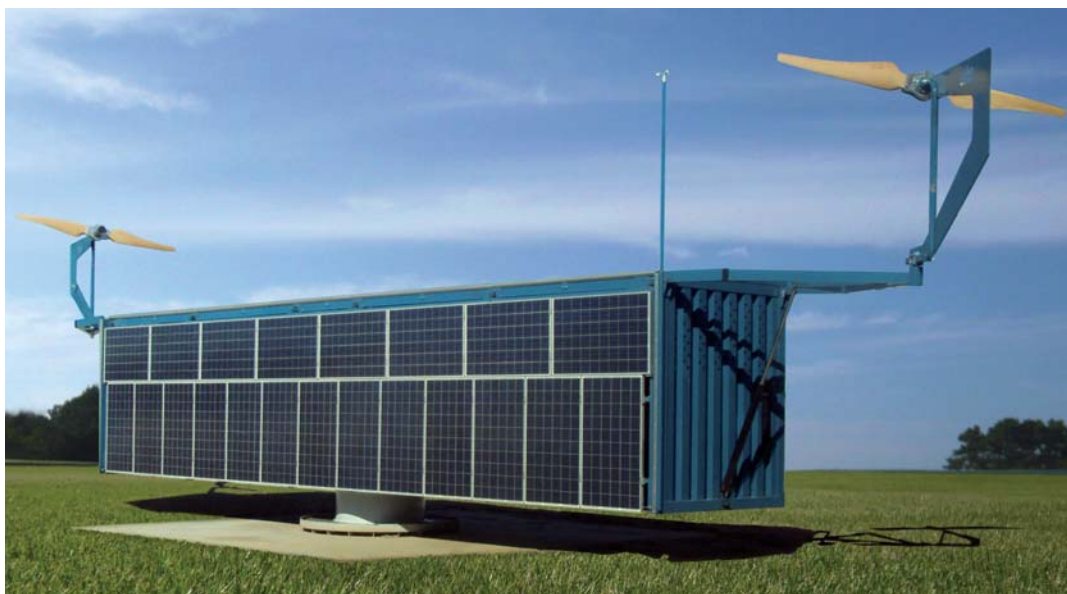
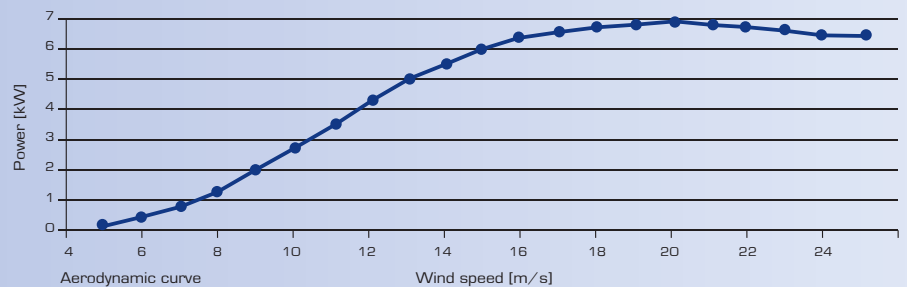
Solar module I-V for different cell temperatures



5 KW WIND TURBINES

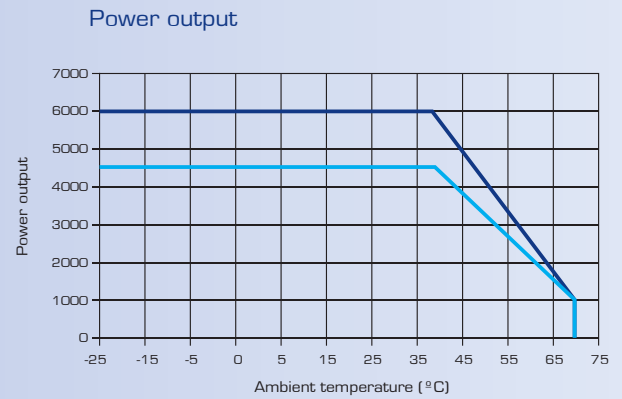
- Models developed by ADES
- Double blade rotor
- Easy maintenance
- Folding mounting

Power curve



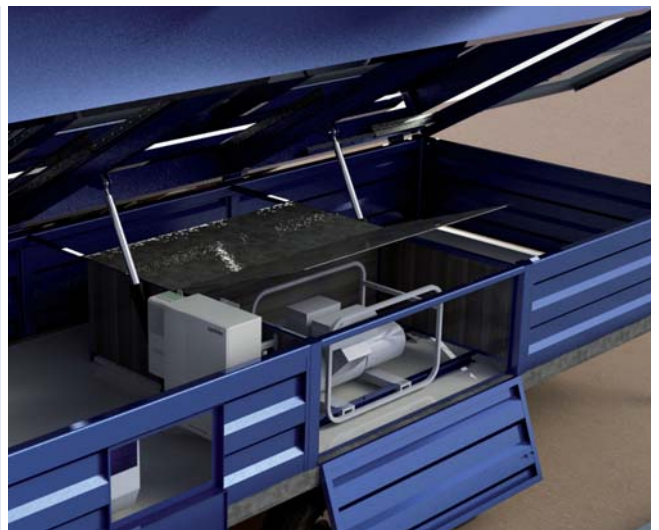
INVERTER

- Pure sine wave output
- Integrated maximum power point tracking
- Monophasic and triphasic configuration (depending on options)
- Dual AC inputs
- All components communicate via network
- Exceptional transient overvoltage capacity
- Efficient charging of high current multi-stage batteries, with power factor correction



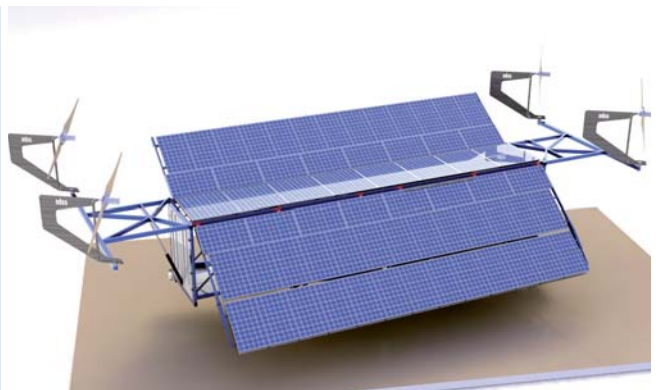
AGM BATTERIES

- Latest technology. Hermetic design which prevents possible leaks even if the battery is damaged.
- Almost nil internal resistance. Can be charged 30% quicker with problems of overheating.
- No maintenance and no need for ventilation.
- Wide working temperature range. Trouble-free operation in both hot and icy environments. High tolerance to extreme temperatures.
- Highly resistant to vibration and external impact.
- Approved for transport by plane.
- Suitable for deep discharges and long cycle life.
- Extensive cycle life and long useful life.



CONTROL AND PROTECTION SYSTEMS

- Protection against short circuits and lightning.
- Complies with solar power regulations.
- Selection between two or three stage charging algorithm to maximise output, prolonging battery life.
- Input and output electrical protection systems.
- Charging process optimised via use of a temperature sensor.
- Maximises energy capture.



CHARACTERISTICS

	PPS 10	PPS 60	PPS 70
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GENERAL CHARACTERISTICS

Size during transport	6,6 m x 2,2 m x 1,7 m	13,6 m x 2,55 m x 4,2 m	13,6 m x 2,55 m x 4,2 m
Weight	3.500 Kg	24.900 Kg	25.300 Kg
Wind stability	65 km/h downwind y 80 km/h upwind • Automatic protection for stronger winds		
Sea transportable	2 per 40 foot container	Ferry or special transportation	
Land transportable	Light vehicle	Tractor unit	

PHOTOVOLTAIC

Power	3.760 Wp (16x235 W)	13.630 Wp (69 x 235 W) • Optional ext. + 2.000 W	
Type	No tracking	Dual-axis astronomical tracking	
Zenith angle regulation	Manual up to 30°	Automatic (hydraulic cylinders controlled by sensors and hydraulic power station)	
Azimuth angle regulation	—	Automatic up to 359° (2 gears + 2 brakes)	
Self-consumtion	—	Max. 600 Wh / day	

WIND

Power	—	2 x 5 kW = 10 kW	4 x 5 kW = 20 kW
Rotor	—	3.4 m diameter _ 415 rpm	

BATTERIES

Type	Stationary. Gel composition.	Stationary. Gel composition.	
Nominal capacity	420 Ah	3170 Ah	
Voltage	48 V	48V	

	PPS 10	PPS 60 / PPS 70
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FREQUENCIES

	AC 50 Hz +/- 0.1	AC 60 Hz +/- 0.1	AC 50 Hz +/- 0.1 AC 60 Hz +/- 0.1
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INVERTER

Power	4,5 kW		6 x 6 kW = 36 kW	
Peak efficiency	95 %		95 %	
AC output power	230 +/- 3 %	120 +/- 3 %	L-L = 400 VAC +/- 3 % L-N = 230 VAC +/- 3 %	L-L = 208 VAC +/- 3 % L-N = 120 VAC +/- 3 %

POWER GENERATOR

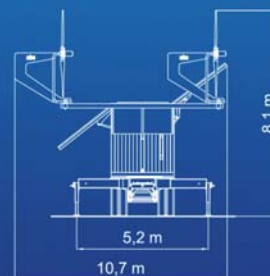
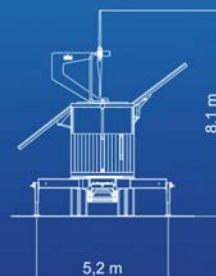
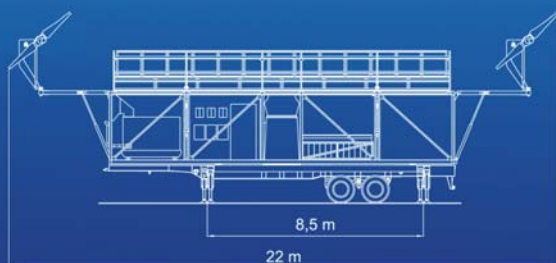
Continuous power	6,8 kW		36 kW	
Voltage	230 V	120 V	L-L 400 VAC +/- 3 % L-N 230 VAC +/- 3 %	L-L 208 VAC +/- 3 % L-N 120 VAC +/- 3 %
Fuel tank	4 liters (optional)		124 liters (optional)	
Fuel type	Petrol or Diesel		Diesel	

DIMENSIONS

CET 10



CET 60-70



AUTONOMOUS MOBILE CLINICS WITH ITC

- Medical attention at any location
- Fully equipped multi-functional facilities
- Type of facility:
 - 1 room for general medical attention
 - 1 infirmary
 - 1 speciality room as selected [dental care, gynaecology, etc.]
 - 2 general purpose rooms [possible uses: vaccination, blood sample extraction, health and nutrition promotion]
 - 1 store



AUTONOMOUS MOBILE UNITS WITH ITC

- Improve community development thanks to the access to and use of ITCs
- Full communications from any location with internet connection, radio television and telephone via satellite
- Possible uses: capacity for 20 workstations for use as classroom, IT centre, office, etc.





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