

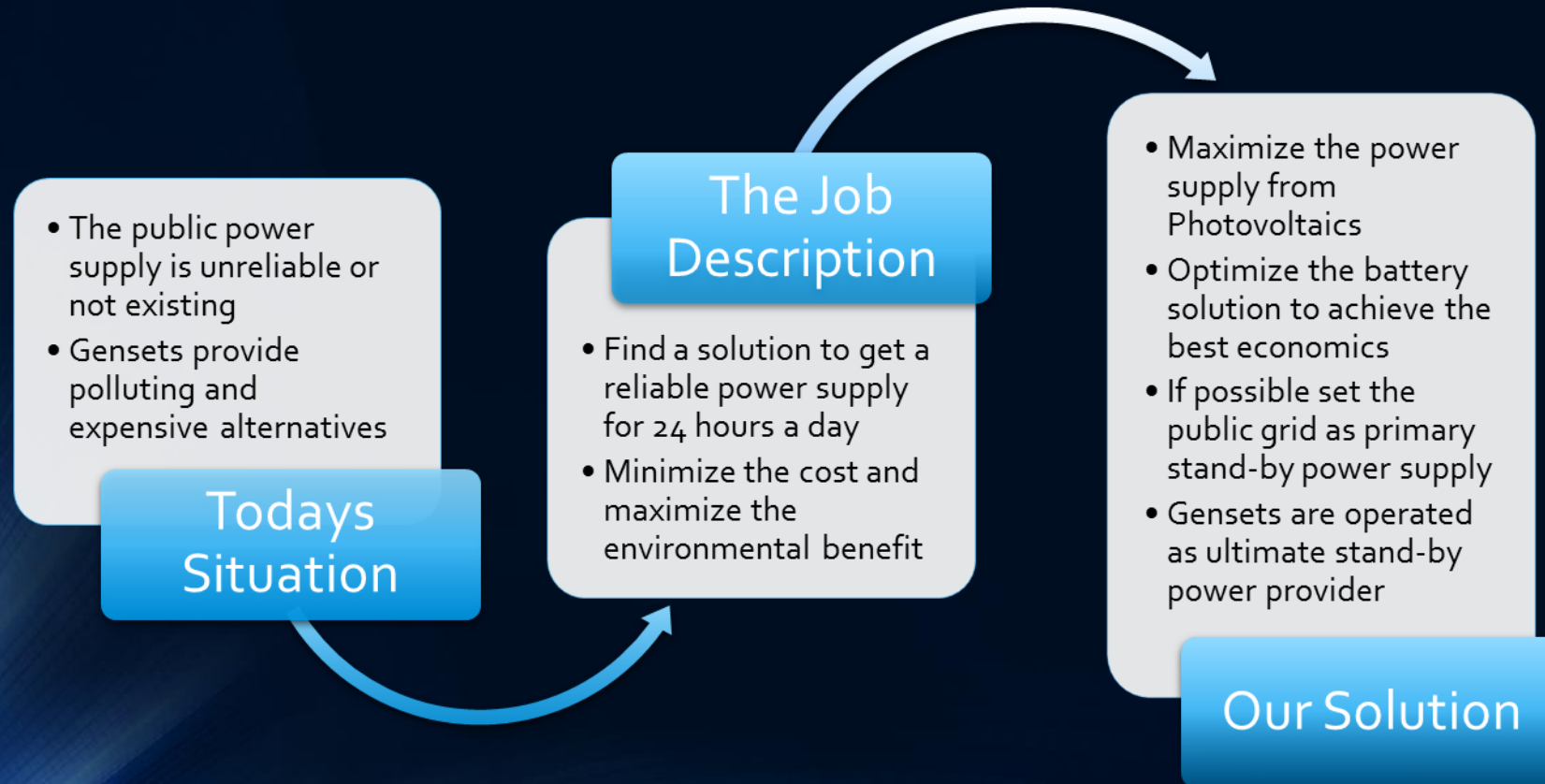
NP smart base 2,4k and 4k

LET US MANAGE YOUR SELF-CONTAINED POWER SUPPLY

Who we are NP Energy AG + E-Projekt d.o.o.

- We are two companies cooperating since several years
- We have 35 years experience in all matters of electricity generation from design till installation
- We formed SOLHYS to break new ground for the decentralised power generation
- We are free to take the best components for our solutions
- We designed our NP smart base product series to cope with any challenge of photovoltaic power supply combined with individual load characteristics

The way to the NP smart base



The NP smart base 2,4 and 4k components

Top Quality PV-modules including patented foldable rack
(6 x 260 W-p units for the 2,4 type and 12 x 280 W-p units for the 4k type)

Strong long life batteries
Up to 2x400 Ah (12V)

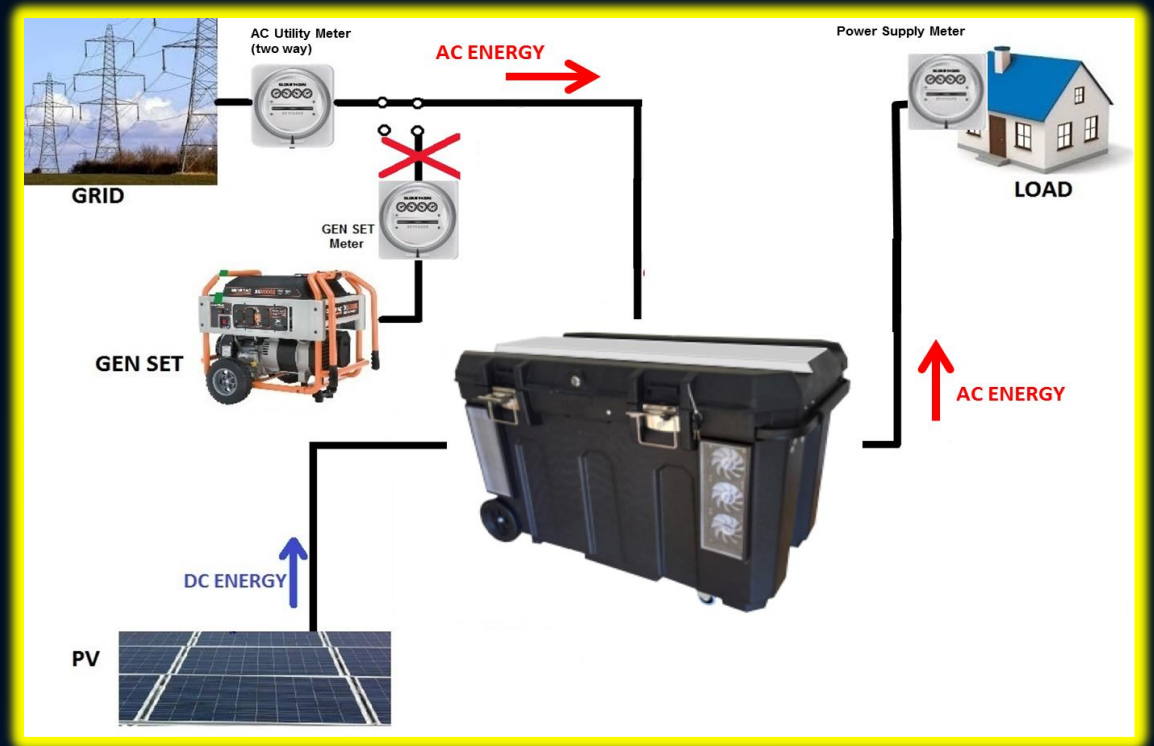


Most advanced Off-grid Inverter
2,4 and 4 kVA (single phase or three phases)

The 3 Basic Functions

A ... GRID AND PV SUPPLY

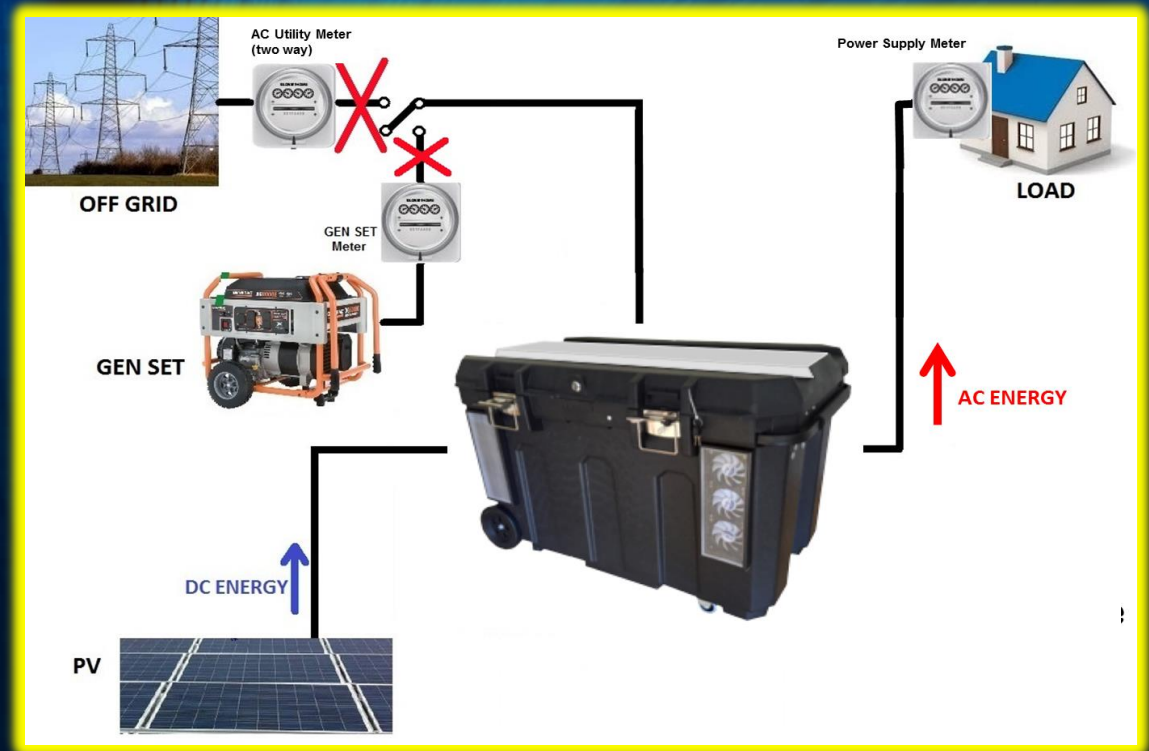
- The NP smart base coordinates the different power sources without human assistance
- Grid supply loads the batteries
- But PV has top priority



The 3 Basic Functions

B ... OFF GRID AND PV SUPPLY

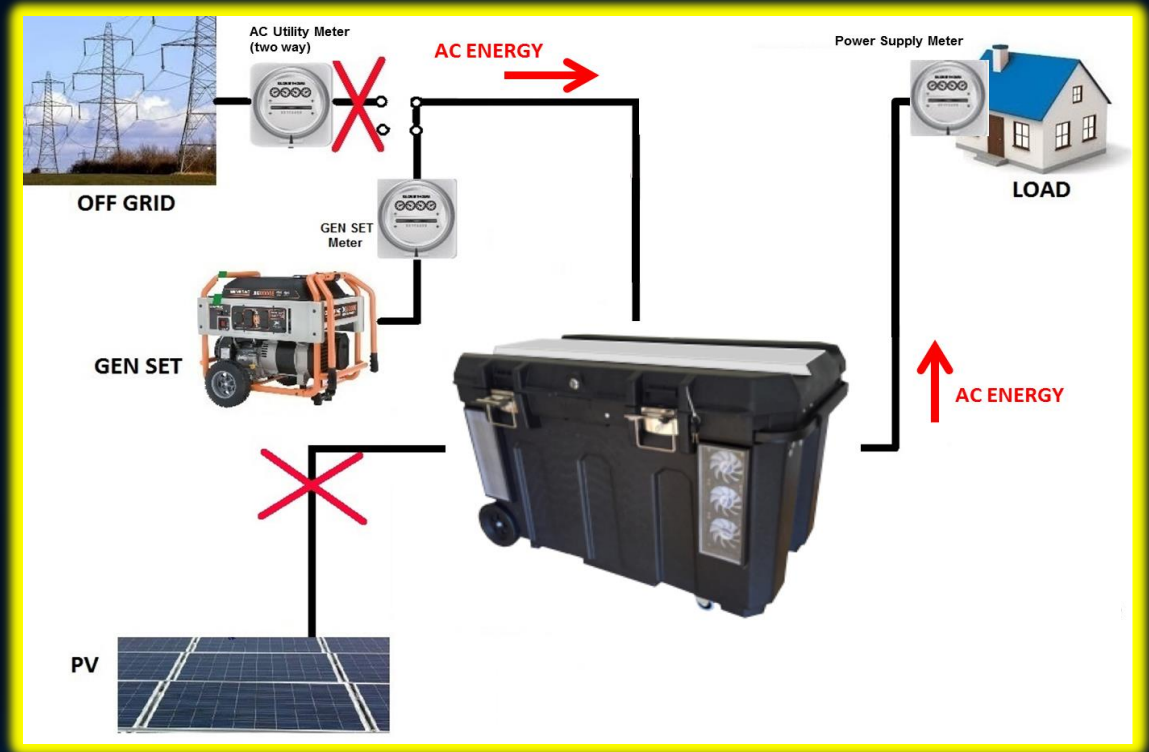
- PV power can feed the load and the batteries
- Full batteries are the reserves for the off-PV periods
- The power quality will be compliant with any grid code



The 3 Basic Functions

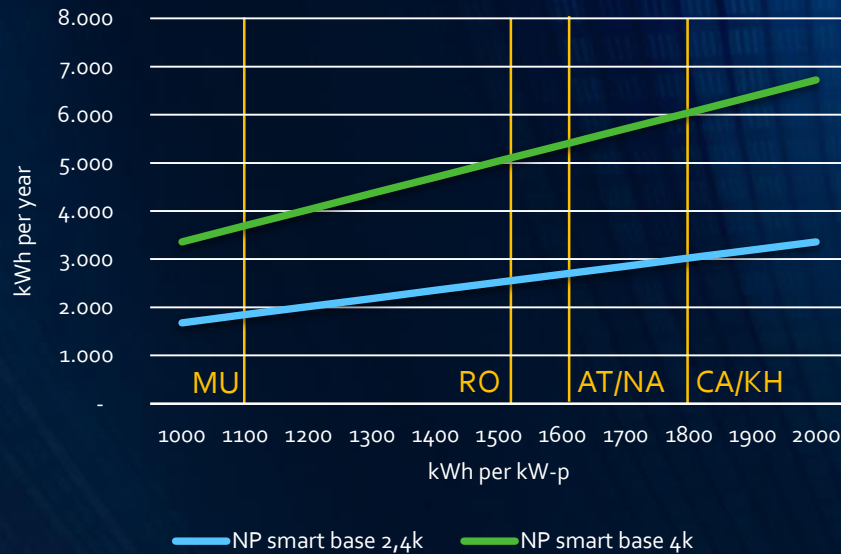
C ... BATTERIES EMPTY AND NO PV SUPPLY

- The Genset starts automatically
- The load will be supplied by sufficient power
- The batteries will be charged in parallel
- Even without sunshine you get your power 24h/day



Some Economics

Expected PV Yields



The PV yield does not only depend on latitude, but also on climatic conditions like rain periods

seasonal PV yield



Sample Calculation

NP smart base 2,4k replaces existing Genset 2,5 kW

- Production of NP smart base 2,4k (1.650 kWh/kW-p) 2.770 kWh / year,
- Genset 2,5 kW (13% load or 3,0 hours/day) 2.770 kWh / year
- Average fuel consumption (20% load) 500 g/ kWh *)
- Fuel Cost (Diesel) 0,6 EURCts/ liter
- Diesel Specific Weight 0,83 kg/ liter
- Maintenance&Repair 2,0 Cts/kWh

- ✓ Savings are $(0,36+0,02) \times 2770 = 1.050$ EUR/year (0,36 EUR/kWh)
- ✓ Reinvestment after 4 years Genset operation not considered

*) see test results in https://www.victronenergy.com/upload/documents/VE_Marine_generator_test_RVA_07-jan-2008.pdf

The Main Features of our „Offgrid“- Series

- Plug-in ready solution
- Grid/Genset standby options
- Top economics
- Long life batteries (18 years design)
- Outdoor option
- Genset operation limited to charging batteries (remote start/stop) when grid is off or not existing
- Monitoring software
- LAP-Top with WLAN/Bluetooth/GSM options
- High frequency pure sine wave design
- Total system charging: 50 A + 60A = 110A
- Wide AC input range
- 4kW parallel support up to 24 kW (optional three phase)

“Off Grid”- Series	NPsmart base 2,4k	NPsmart base 4k	NPsmart base 4k inhouse
AC-INPUT			
AC-Input	2.400 W	4.000 W	4.000 W
AC-Input-Voltage	170-280 V		
AC-Input-Frequency	50/60 Hz		
AC-OUTPUT			
Continuous Output	2.400 W	4.000 W	
Max Output	4.800 W (5 seconds)	8.000 W (5seconds)	
Output-Voltage	230V AC (+/- 5%)		
Output Frequency	50/60 Hz		
Output-Waveform	Pure Sine Wave		
Max DC/AC Conversion Efficiency	>95% line mode 95% inverter mode		
Output Short Circuit	Circuit Braker		
Battery Storage			
Battery Type	Lead Crystal		
Battery Voltage	24 V	48 V	
Battery Capacity (C10)	4x100 Ah/12V	8x100 Ah/12V	8x100 Ah/12V
PV-Input			
PV Power	1.680 W-p	3.360 W-p	
PV-modules	6x280 W-p	12x280 W-p	
MPP-Tracker	1	1	
Max PV-Input V	60 Vdc	90 Vdc	
Operating Modes			
Power Sources	PV, Grid, Genset (battery loading)		
PV/Battery grid feeding-back	No		
General Features			
Dim. Base Station (PE-Box)	960 x 600 x 580 mm	2x 960 x 600 x 580 mm	800 x 400 x 1.400 mm
PV- area	15 m²	30 m²	
Included Equipment (plug-in ready)	Base Station, Batteries, PV-Modules, Foldable Patented Racks, DC-Wires, Connectors		
Parallel Suport	No	Yes -up to 24 kW (optional three phases)	
Operating Temperature	0-50°C		0-40°C
Special Features	Outdoor (in shadow), On Castors		Indoor, Fixed
Operating Control	Laptop (WLAN/Bluetooth/GSM)		
Metering	Separate Power Meter		
Internet remote control	Yes		
Genset (optional)			
Engine Type	Gasoline / LPG / Diesel		
Genset output	5 kW (one phase)	7 kW (one phase)	
Automatic Start/Stop	Yes		