

PRODUCTS



UPS

CTS



Cts Energy presents systems and products characterized by **low power consumption** and **low environmental impact**, by means of energy storage from renewable sources, using hydrogen as a vehicle for energy.



The further step that has made possible for CTS Energy to appear on new and promising international markets is the use of **hydrogen as a clean and sustainable source of energy**, by improving electrolysis processes and applied technologies. Indeed, the conversion of energy into hydrogen has been derived from simple rainwater.



The core of the matter is the high pressure storage system. As a matter of fact, the additional amount of energy produced by photovoltaic panels is used to provide hydrogen which will lately be stored in suitable patent containers. When needed, **hydrogen can be converted into electric power** by using Fuel Cell.

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APPLICATION FIELDS



TELECOM
DATA CENTER
BTS APPLICATIONS

Main uses are made in **TELEPHONE COMPANIES** whose landlines and wireless lines need reliable and easy-to-use backups.

In case of blackout, power stations will be provided with this kind of alternative source of energy which allows the constant flow of power in any situation.



UPS HYDROGEN UPS



INDOOR



OUTDOOR

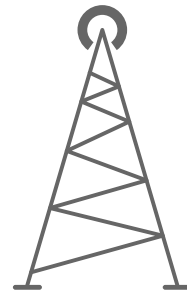
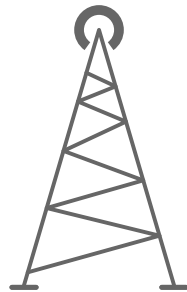


CHARACTERISTICS

- No CO² emission
- Remote control
- Suitable to wield and monitor power emergencies

ACCESS TO THE SYSTEM

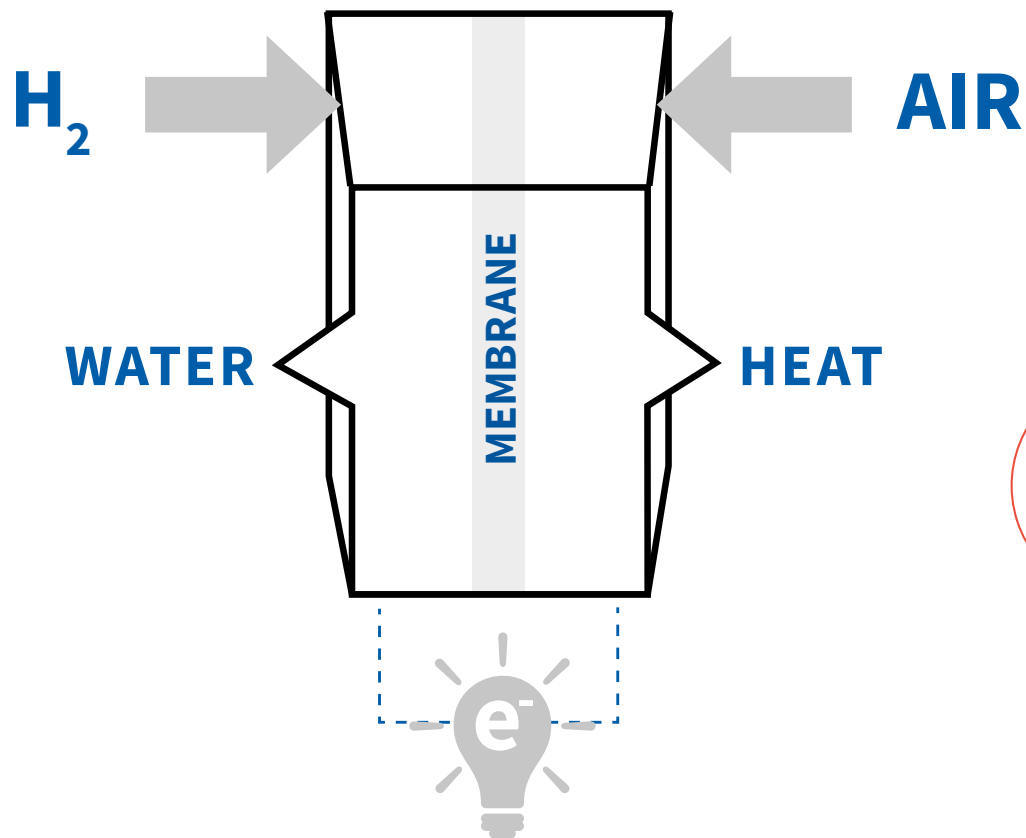
(ENVIRONMENT/FORNITURE)



ELECTROLYSIS



The hydrogen system is made of **FUEL CELLS** capable of giving out power thanks to the chemical reaction between hydrogen and oxygen in the air.

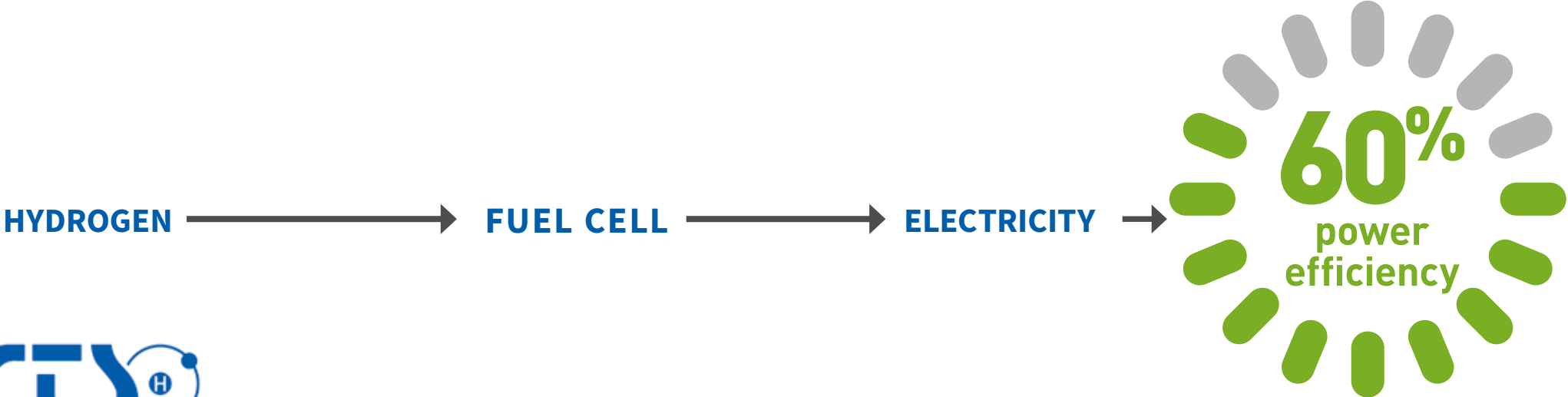
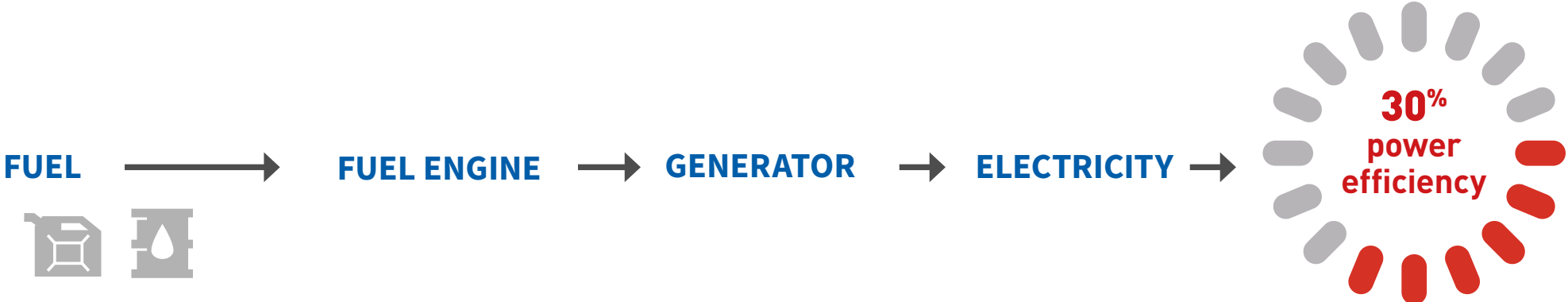


Why use FUEL CELL?

- High energy efficiency
- Clean and environmental friendly energy
- Simple to install
- Easy maintenance

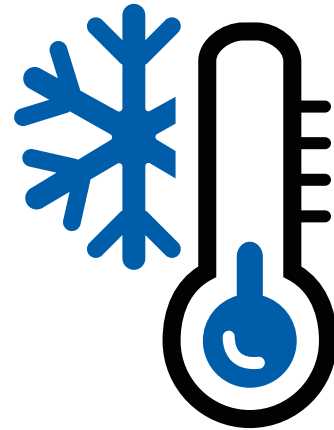
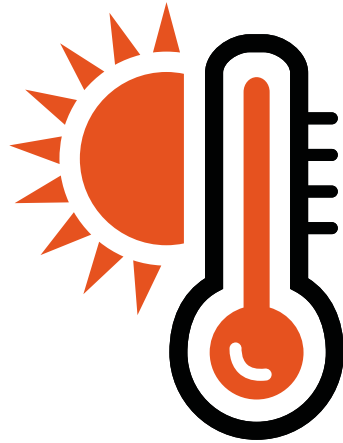
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HIGH ENERGY EFFICIENCY



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TEMPERATURE RANGE RESISTANCE

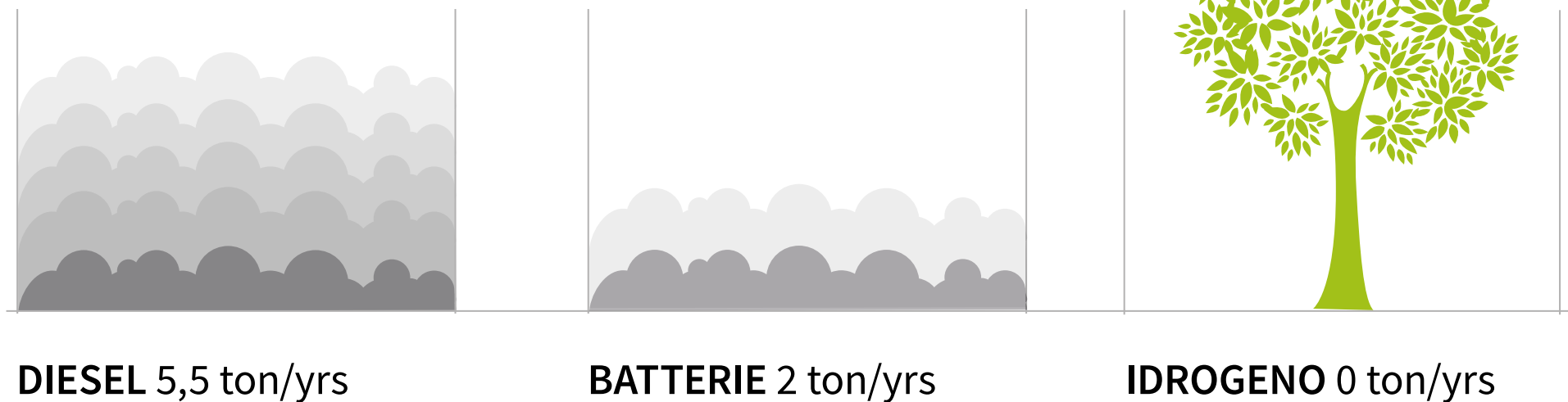


NO WEAR AND TEAR
NO EFFICIENCY DROP

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CO² OFFSET

GAS EMISSIONS 500 H/YRS



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SIMPLE TO INSTALL OPERATING STABILITY

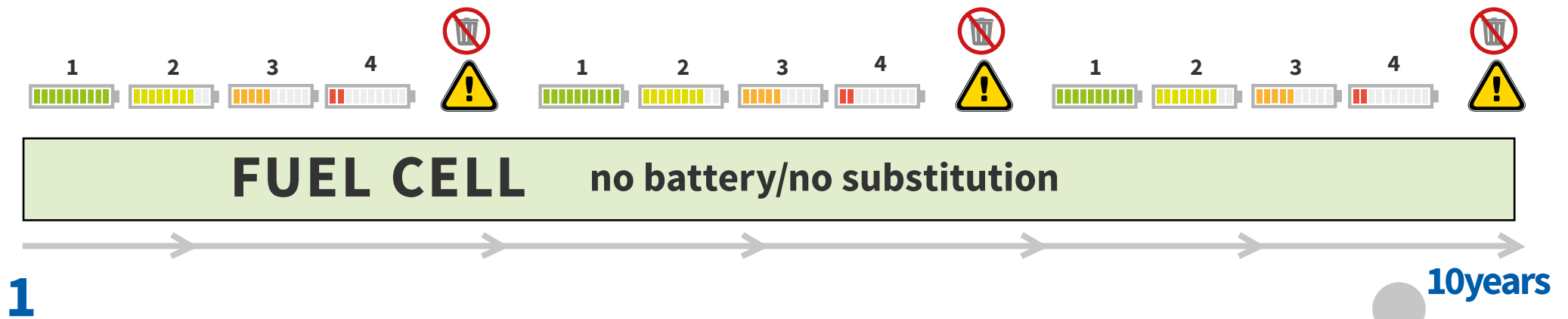
**24/24h
7/7days**

**365
DAYS A
YEAR**

**STANDBY
POWER**

UPS

EASY MAINTENANCE



MEMBRANE MAINTENANCE
5% OF THE TOTAL COST

- UP TO 4.000-HOUR LASTING
- OVER 1.000 START/STOP CYCLES







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REMOTE CONTROL
SECURITY WARRANTY



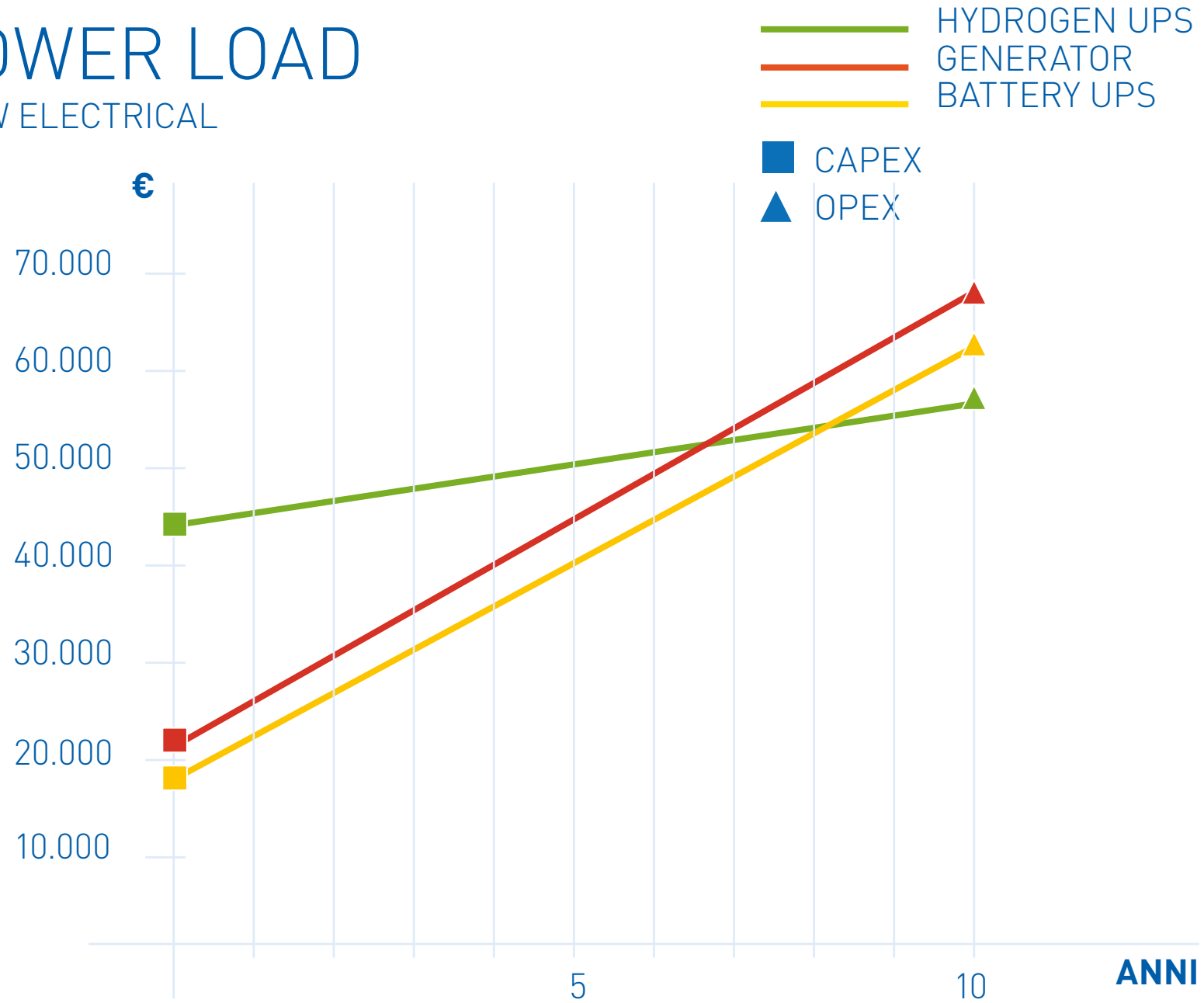
- Tracking of any UPS device
- Input and output checking
- Fuel cell status
- Temperature monitoring
- H₂ storage level

UPS COMPARISON

CHARACTERISTICS	GENERATOR	BATTERY UPS	HYDROGEN UPS
LOAD POWER APPLIED	10kW	10kW	10kW
HOUR LIFETIME (BATTERY SET)	4 hours	4 hours	depending on the fuel load 
KIND OF BATTERY	leaded	leaded	none 
PESO	190kg + 1300 kg = 1490kg	315kg + 1300kg = 1615kg	250 kg 
SERVICE LIFE	> 30%	> 94%	> 60% 
RANGE TEMPERATURE BATTERY SET SELF-DISCHARGE	>24° C <21° C	>24° C <21° C	none 
CO ₂ INTAKE AT ROOM TEMPERATURE	1liter hydrogen 2,68 kg di Co₂*	1kwh 0,4332 di Co₂**	1 m ³ hydrogen 0 kg Co₂ 

UPS POWER LOAD

10 kW ELECTRICAL



UPS HYDROGEN UPS

PRODUCT SPECIFIC MODEL No.		UTH-01 KW	UTH-03 KW	UTH-06 KW	UTH-10 KW
Basic	Product Description	Fuel Cell UPS	Fuel Cell UPS	Fuel Cell UPS	Fuel Cell UPS
	Max Output Power	1000W	3000W	6000W	10000W
Output	Output current and Voltage	20A @48Vdc	60A @48Vdc	120A @48Vdc	200A @48Vdc
Input	Input Voltage	220-240Vac	220-240Vac	220-240Vac	220-240Vac
	Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz
	Rated Input Current	2A	2A	2A	2A
Fuel Requirement	Hydrogen Purity Requirement	>99.95%	>99.95%	>99.95%	>99.95%
	Operating Fuel Pressure	100 psi (6.8 bar)	100 psi (6.8 bar)	100 psi (6.8 bar)	100 psi (6.8 bar)
	Fuel Working Pressure	80 - 120 psi (5.4 - 8.2 bar)	80 - 120 psi (5.4 - 8.2 bar)	80 - 120 psi (5.4 - 8.2 bar)	80 - 120 psi (5.4 - 8.2 bar)
	Oxidant Composition	Air	Air	Air	Air
	Oxidant Humidity	0 - 100 %RH	0 - 100 %RH	0 - 100 %RH	0 - 100 %RH
Mechanical Info	Outer Dimensions	L100 x W75 x H126 cm (39.3 x 29.5 x 49.6 in.)	L177 x W60.6 x H165.4 cm (70 x 24 x 65 in.)	L177 x W60.6 x H165.4 cm (70 x 24 x 65 in.)	L120 x W60.6 x H194.7 cm (47.2 x 23.6 x 76.6 in.)
	Weight	250kg*	360kg*	400kg*	250kg*
	Cooling Type	Air Cooling	Air Cooling	Air Cooling	Air Cooling
Environment Requirement	Ambient Temperature	-20° - 50°C	-20° - 50°C	-20° - 50°C	-20° - 50°C
	Normal Working Temperature	0 - 35°C	0 - 35°C	0 - 35°C	0 - 35°C
	Storage Temperature	-40 - 70°C	-40 - 70°C**	-40 - 70°C**	-40 - 70°C**
	Humidity	0 - 95 %RH	0 - 95 %RH	0 - 95 %RH	0 - 95 %RH
Operation Efficiency	Hydrogen consumption	752 Liter / kW-hr	752 Liter / kW-hr	752 Liter / kW-hr	752 Liter / kW-hr
	Fuel Cell Efficiency (LHV)	>40%	>40%	>40%	>40%
	Noise	< 65 dB	< 65 dB	< 65 dB	< 65 dB
Others	Graphic User Interface	Optional	yes	yes	yes
	System Start-up Time	0 second	0 second	0 second	0 second



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