

29.06.2023 – Dr. **Antonio Coccia** - VP Business Development DC // Powerbuilding Frankfurt

# Towards more sustainable Data Centres – A **ultra-high Efficiency** Double Conversion UPS



The DC Industry.  
One of the fastest **growing**  
and **transforming** industries  
of the last decade



In terms of Players' **Ecosystem**,  
technical and regional **Requirements**,  
System **Architectures**, and  
**Power demands**.



And because of this,  
also under the **Spotlight**,  
having become very  
**Power Hungry**



150+  
COUNTRIES  
SIGNING OFF  
THE COP  
AGREEMENT

AIMING TO  
REDUCE BY  
2030 THE  
GLOBE  
TEMPERATURE  
BY 2°C

WITH STRONG  
CO2 REDUCTION  
TARGETS BY 2030  
PER COUNTRY  
(BY 20% OR 40% )




**Sustainability**  
has also become the  
main **challenge** for  
the humanity.

INFLATION

GEOPOLITICAL  
INSTABILITY  
& RELATED  
ENERGY CRISIS

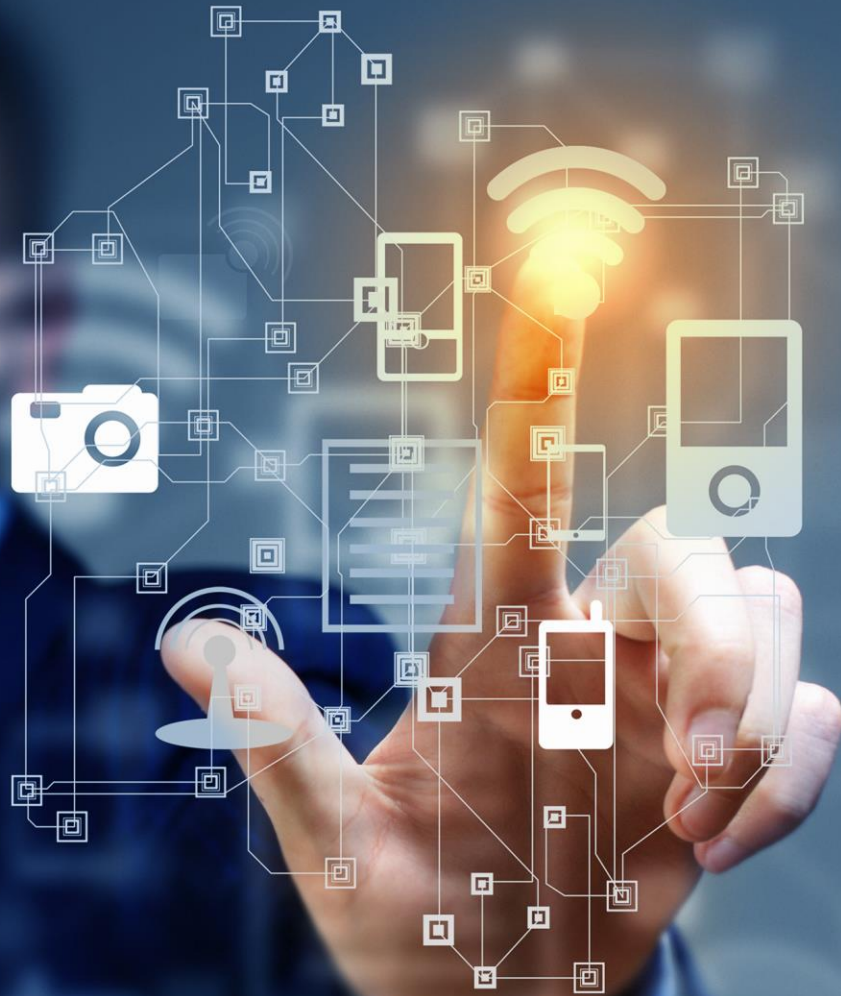
SUPPLY CHAIN  
INDUSTRY  
DIFFICULTIES

Facing, tough **headwinds**,  
making the whole  
business scenario  
even more challenging

A glowing light bulb is positioned on the left side of the frame. To its right, three stacks of coins are arranged in ascending order of height from left to right. The background is a plain, light-colored surface.

Difficulties that translate  
into a direct **Increase** of the  
**kWh cost** by factor  $> 2x$  if  
compared to 2020

Thus, the question is



How can we **help** the DC industry become more **sustainable**, and at the same time **minimise** the Operating **Cost**?



 **RPS s.p.A.** Established in 1983









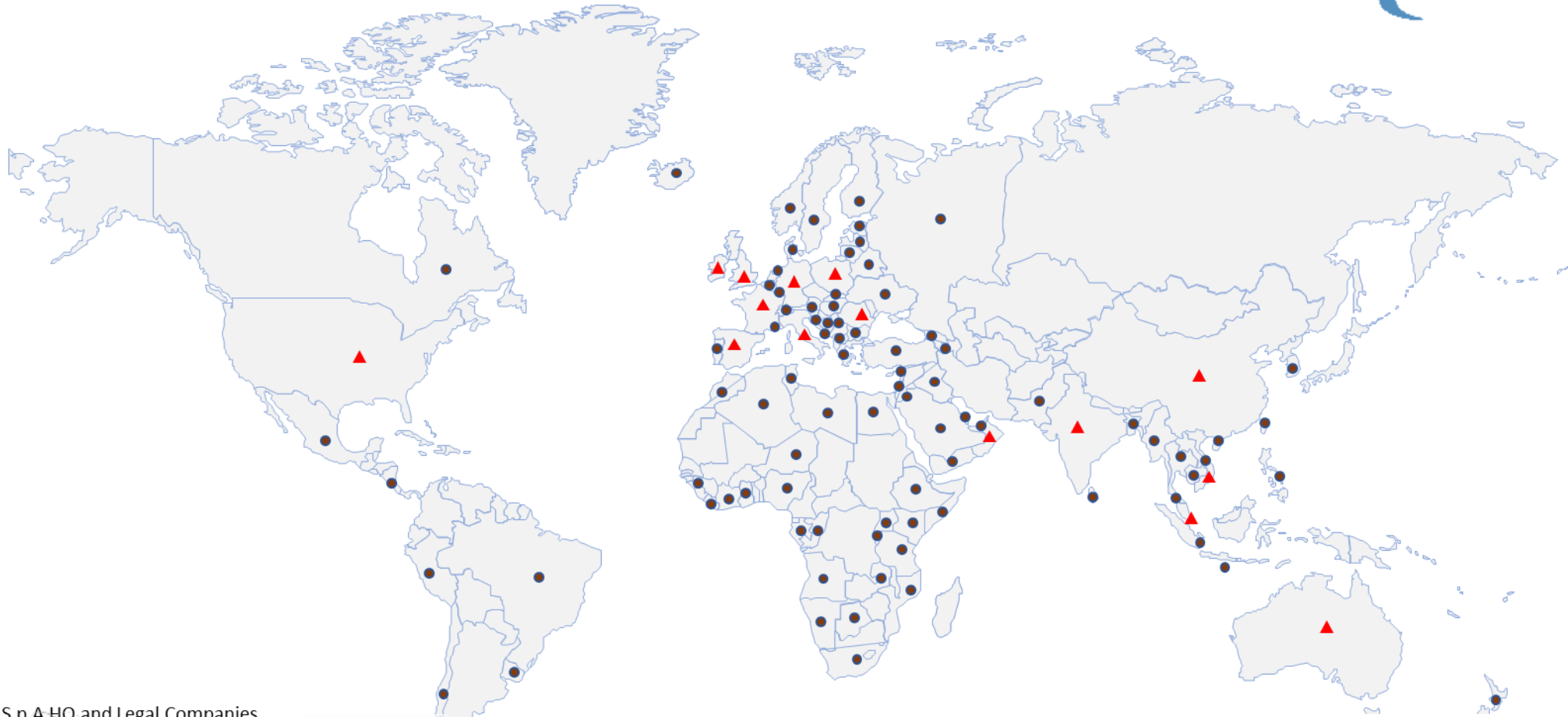
Bespoke Diesel Gen Set up to 3.0MVA



UPS from 400W to 1600kW;  
parallelable up to 6.4 MW



Solar inverter portfolio for residential and commercial applications



- ▲ RPS S.p.A HO and Legal Companies
- RPS S.p.A. Authorized Service Partner

**85x Countries covered**



**17x Own Subsidiaries**



**3 +8 x Mfg Plants (Int - 2xIT, 1x IN)**



**300+ Distribution Channels**



**600'000 UPS's shipped in 2021**

# **Riello UPS – Strong numbers to serve a large variety of customers**



DATA CENTRE



TRANSPORT



INDUSTRY



EMERGENCY

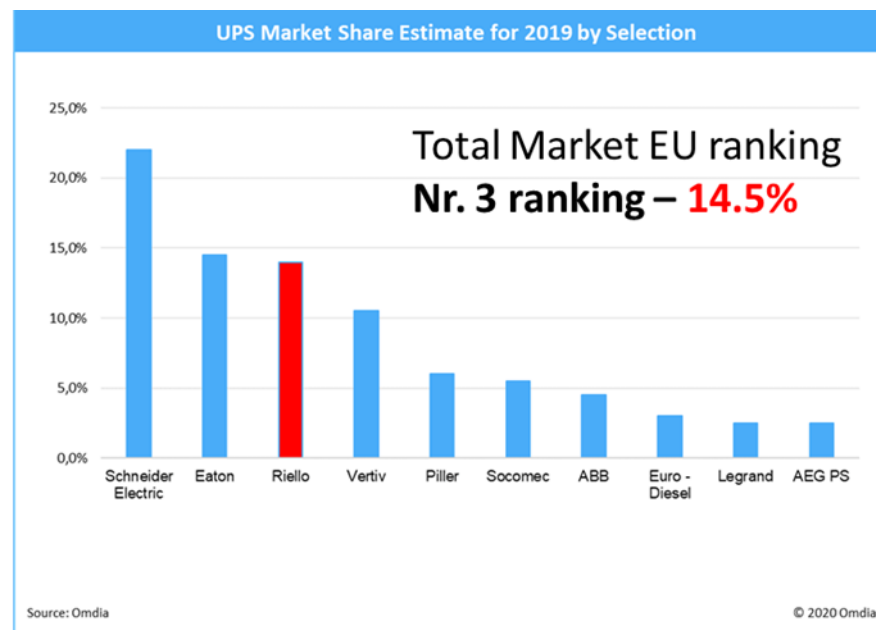
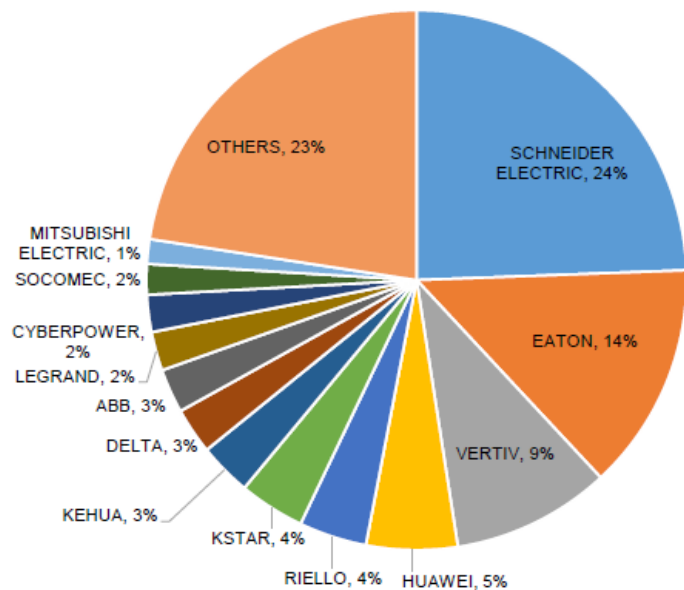


E-MEDICAL



SOHO

WW UPS Revenue Share (\$9.9 B)



IT ONLY-DO NOT DISTRIBUTE



Reliable Power for a sustainable World



# Optimizing Energy Efficiency...

60% of TCO relates to running energy cost

Total Operational Cost Breakdown into DTC Segment



The energy efficiency of Power Protection Equipment becomes essential for the reduction of the annual **energy bill** and pivotal to the reduction of the **CO2 emissions**

ENERGY BILL SAVINGS THANKS TO AN INCREASE OF 1% EFFICIENCY (FROM 96% TO 97%) FOR A 1MW SYSTEM



## Energy Bill Savings by deploying a higher Efficiency UPS



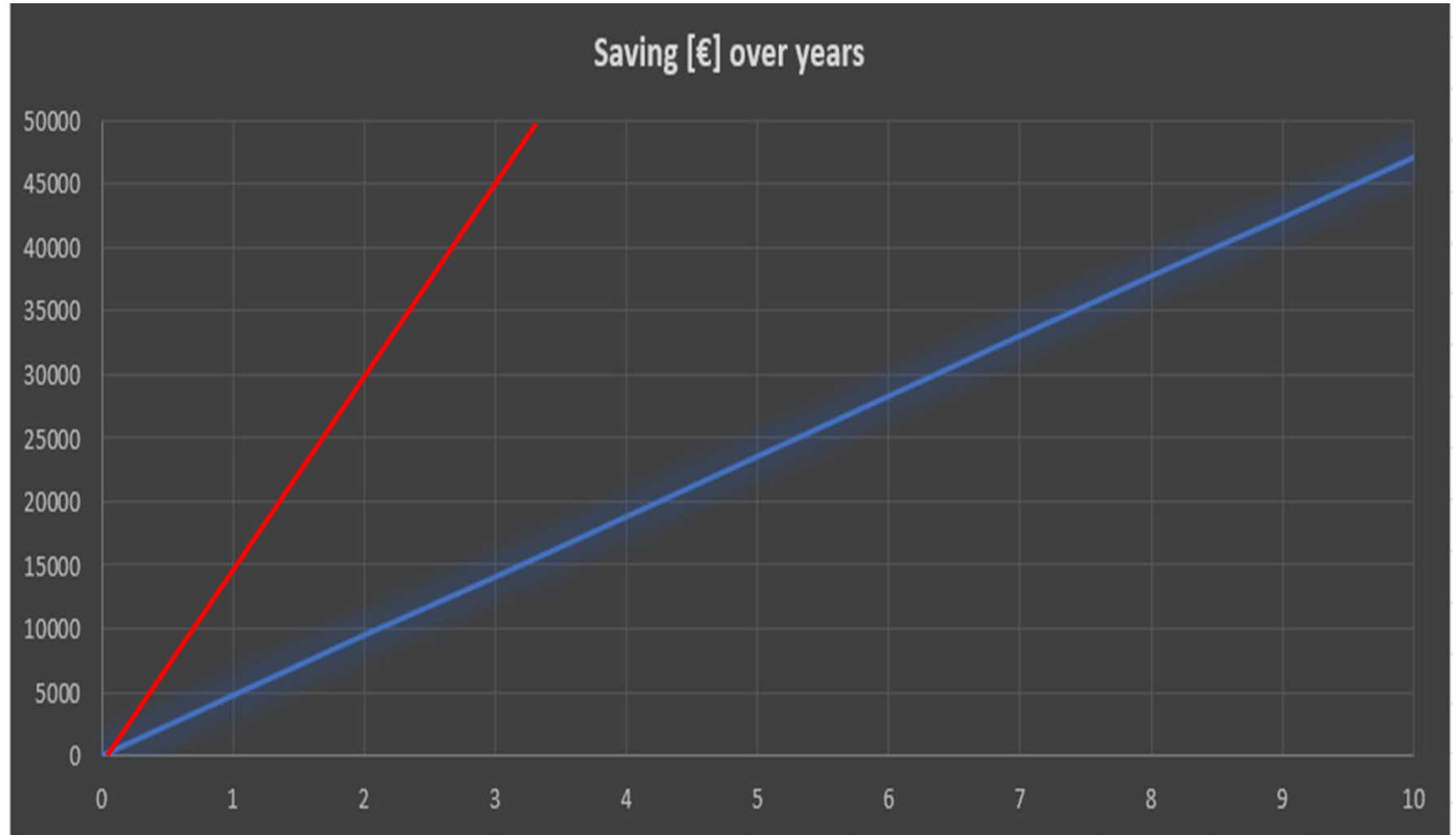
BLUE LINE:  
CALCULATION FOR  
0,1 EUR/KWH

RED LINE:  
CALCULATION AT  
0,3 EUR/KWH

2020: SAVINGS UP TO 5KEUROS IN YEAR 1

2022: SAVINGS UP TO 15KEUROS IN YEAR 1

DATA PER 1XUPS



ENERGY BILL SAVINGS THANKS TO AN INCREASE OF **2%** EFFICIENCY (FROM 96% TO **98%**) FOR A 1MW SYSTEM



## Energy Bill Savings by deploying a higher Efficiency UPS



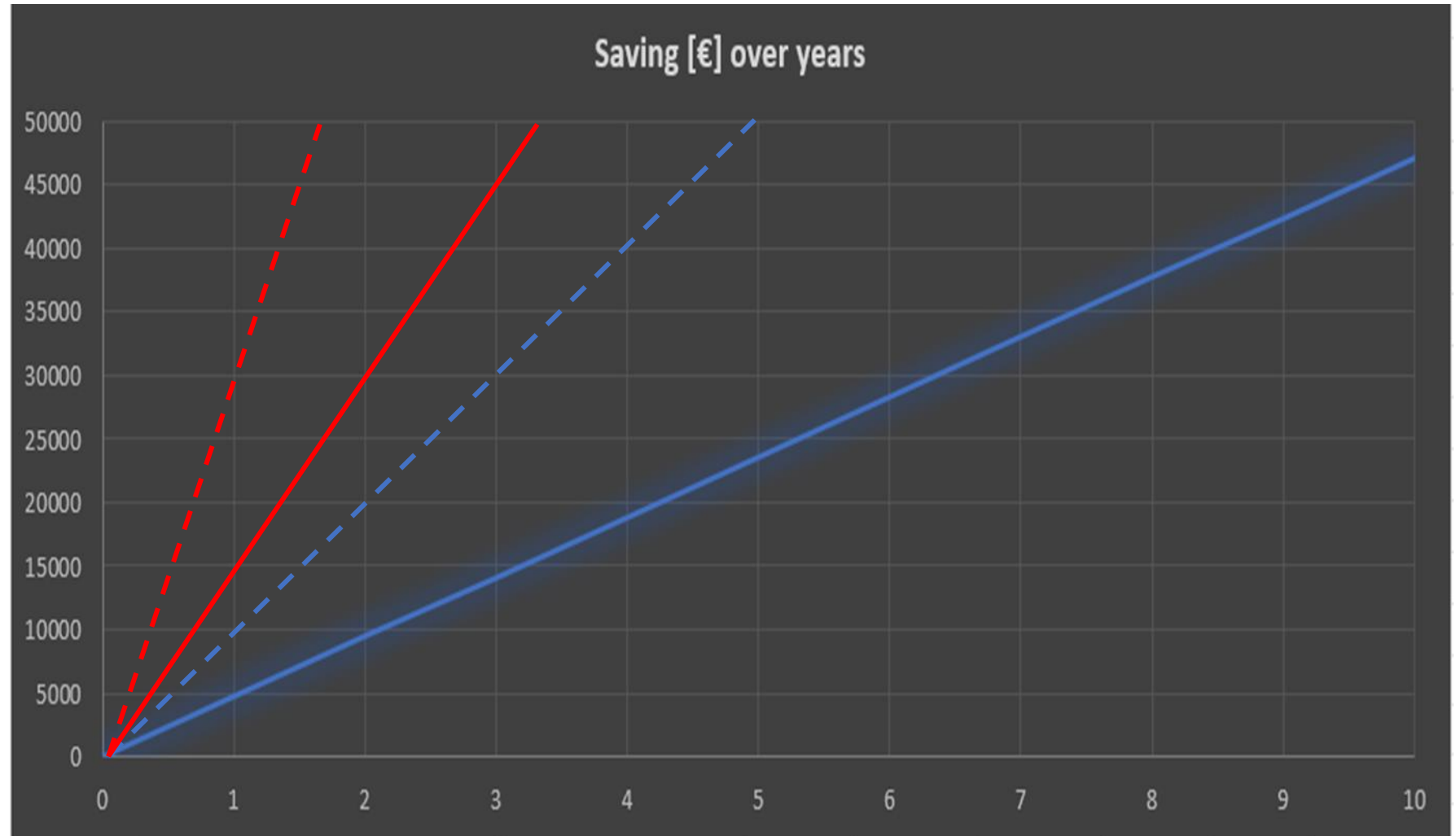
BLUE LINE DASH: CALCULATION FOR 0,1 EUR/KWH

RED LINE DASH: CALCULATION AT 0,3 EUR/KWH

2020: SAVINGS UP TO **10KEUROS** IN YEAR 1

2022: SAVINGS UP TO **30KEUROS** IN YEAR 1

DATA PER 1XUPS



>>> Yet, Another Question!



A Double Conversion UPS  
showing an Efficiency higher  
than 98%?, really?



# Introducing the Multipower 2 – Multipower 2 Scalable



500 kW / 400-415V

1000 – 1250 kW / 400-415V

1300 - 1600 kW / 400-415V

Full Power Range



## Power Module



- Model: MP2 67 PM BLUE
- Power Rating: 67 kW
- Input performances: 400V +/-20% - THDI <3%
- Output performances: 400V – THDV <1.5%
- Dimensions: 450x630x135 mm (3U)

Reliable Power for a sustainable World

Product Shipments

Q4/2023



# MULTI POWER2

FLEXIBLE, SCALABLE, RESILIENT, SUSTAINABLE!

Fully rated  
bypass



Hot swap  
Power modules

**500 kW**

8x PM

Extra free slot  
for redundancy

**1000 – 1250 kW**

15x PM – 19x PM

Extra free slots  
for redundancy

**1600 kW**

24 x PM

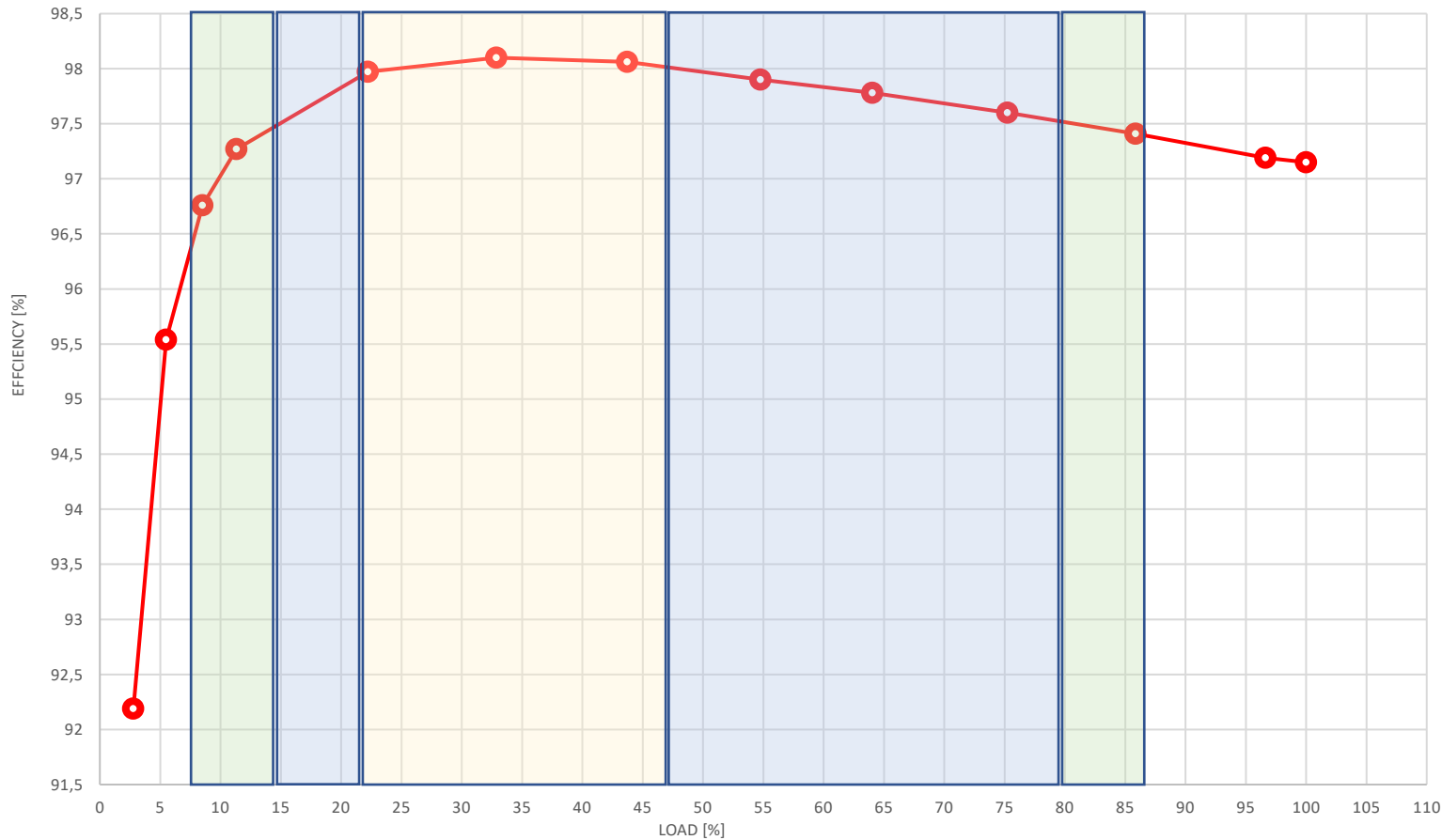
Extra free slots  
for redundancy



# Efficiency Measurements Vn 230V / Double conversion MP2 – 500kW unit



Efficiency Level - Double Conversion Mode  
Pn = 500kW, Vn = 230V, Fn = 50Hz



Double Conversion Efficiency > 98% in UPS Loading Range from 23% to 47%

Measured Sweet Spot Efficiency at 98,1% in full system configuration

Double Conversion Efficiency > 97,5 % in UPS Loading Range from 15% to 80%

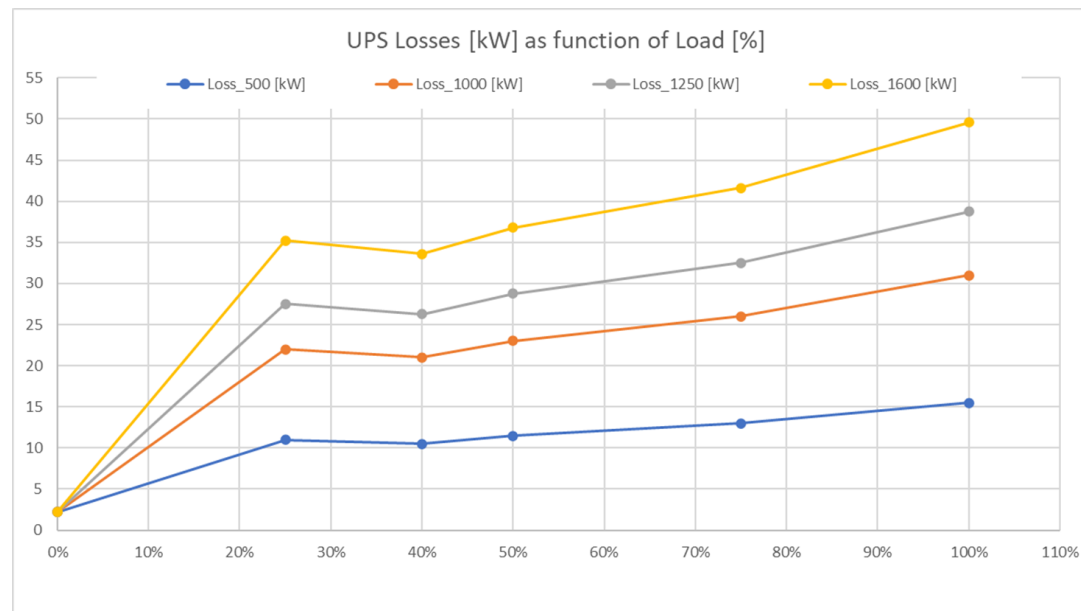
Double Conversion Efficiency > 97,0 % in UPS Loading Range from 10% to 100%

### Remark

Efficiency Measurements have been taken with Intelligent «Efficiency Control Mode» deactivated → by activating this SW function through HMI, efficiency can be further boosted in the range -10% 20%, by 0,5% additional



Being both Green &  
Sustainable  
and at the same time  
**COST ORIENTED**



Efficiency	% Loss Reduction vs 96% Eff
95 %	+ 25%
96 %	-
97 %	- 25%
98 %	- 50%

- Reduced UPS energy bill
- Reduced CAPEX for UPS Cooling Equipment
- Reduced Cooling Energy bill






# SMART, SCALABLE, SUSTAINABLE POWER

-  VFI TYPE
-  ONLINE
-  Modular
-  Lithium compatible
-  SmartGrid ready
-  USB plug



**98%**  
**EFFICIENCY**  
in Double Conversion mode.

-  **45 tons** of CO<sub>2</sub> saved
-  **30 k€** energy bill savings
-  **Ultimate Scalability** from 500 kW to 6.4 MW



DESIGN

MANUFACTURING

CUSTOMER  
CARE

360°  
MADE IN ITALY