

# RIELLO UPS PROTECTS THE ENI GREEN DATA CENTRE



**Riello UPS, world leader in uninterruptible power supply (UPS) and power solutions has been selected to supply power to one of the most "green" data centres in the world with a PUE value below 1.2.**

**Eni is a global company operating in the areas of petroleum and natural gas, electricity, petrochemicals, engineering and construction, with a presence in 85 countries throughout the world and with 79,000 employees.**

## THE PROJECT

Ferrera Erbognone, in the province of Pavia, Italy, was the site chosen for the construction of the new data centre that will host all the Eni central processing computer systems, including administrative information and high-performance computing systems. The aim was to reach an average P.U.E. value of less than 1.2 per year; a truly exceptional target for a data centre with energy consumption of up to 30MW of useful IT power, in an area of 5,200 square meters and across six IT rooms. Riello UPS has been involved since the

early stages of the project with a very ambitious double aim for the UPS: to guarantee and safeguard absolute power without compromise whilst simultaneously achieving maximum energy efficiency. The project was developed through a rigorous tender procedure during which Riello UPS once again managed to put its skills to the test by providing highly technological and innovative solutions, and succeeding in providing the required UPS solution. Riello UPS has benefited from a collaboration with Eni, with Ariatta Ingegneria dei Sistemi Srl, experts in Re-order ICT infrastructures and the

University of Bologna. Innovative 200 kW and 500 kW UPS were created, able to achieve 99.5 per cent efficiency in a revolutionary off-line mode, i.e. with the power converters in stand-by mode, which instantly activate if the electrical power supply is disrupted, as defined by the Eni parameters and the rules on electrical power supply quality.



## THE RESULT

Riello UPS created the Master HP Ultra High Efficiency (UHE) UPS with smart technology (on-line + off-line) made entirely with IGBT and DSP control (Digital Signal Processor). Meeting Eni project specifications, this ensures a record efficiency of 99.5% at 50% load, and 99.4% at 100% load as certified by TÜV Rheinland (German electricity certifying body) with the methodologi-



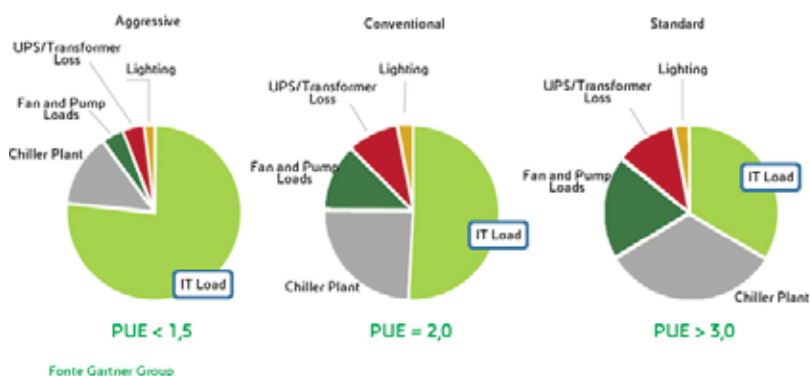
cal support and analysis of the Department of Electrical Engineering of the University of Bologna.

## WHAT IS PUE

P.U.E. (Power Usage Effectiveness, according to the standard definition of international body The Green-Grid) indicates the ratio between the total electrical consumption of a data centre (including IT

equipment, air conditioning systems, fans, UPS, etc.) and the consumption exclusively of IT equipment: 1 is the optimum theoretical value, where all the energy absorbed by the system is used for the IT equipment.

PUE = Power Usage Effectiveness = Total Facility Power / IT Equipment Power  
DCiE = Data Center Infrastructure Efficiency = IT Equipment Power / Total Facility Power



## A WINNING SOLUTION

Master HP UHE:

- High efficiency (up to 99.5%)
- Power Factor = 1 (kVA = kW)
- Input stage with IGBT technology
- Compact and reliable
- Galvanic isolation
- High overload capacity

### PROJECT

<b>Name</b>	ENI GREEN Data Centre - ZEPHYR PROJECT
<b>Site</b>	Site: Ferrera Erbognone, Pavia, Italy
<b>Description</b>	Next-generation high-reliability Data Centre (TIER IV) and with very low energy consumption (annual PUE < 1.2)
<b>Year of commencement and end of project</b>	2009
<b>Year of commencement and end works</b>	2013 - works in progress
<b>Project management</b>	Reorder Srl – Starching Srl
<b>Project Management, Executive Design and Systems Works Management</b>	Ariatta Ingegneria dei Sistemi Srl
<b>Main contractor / Sub-contractor</b>	CMB / Siemens SpA
<b>Building surface area</b>	45,000 m <sup>2</sup>
<b>Computer systems surface area</b>	5,200 m <sup>2</sup> and in six IT rooms (2,600 m <sup>2</sup> phase 1)
<b>UPS phase 1 electrical power</b>	7.2 MW on 40+40 (A+B) 200 kW UPS
<b>UPS final electrical power</b>	30 MW on 180+180 (A+B) 200 kW UPS
<b>UPS UHE efficiency (Ultra High Efficiency)</b>	99,5%
<b>Primary cooling system</b>	Outside air direct free-cooling