CEMEP

Environmental considerations
Focus on UPS

Uninterruptible Power System







Summary

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Global energy consumption down to UPS energy consumption

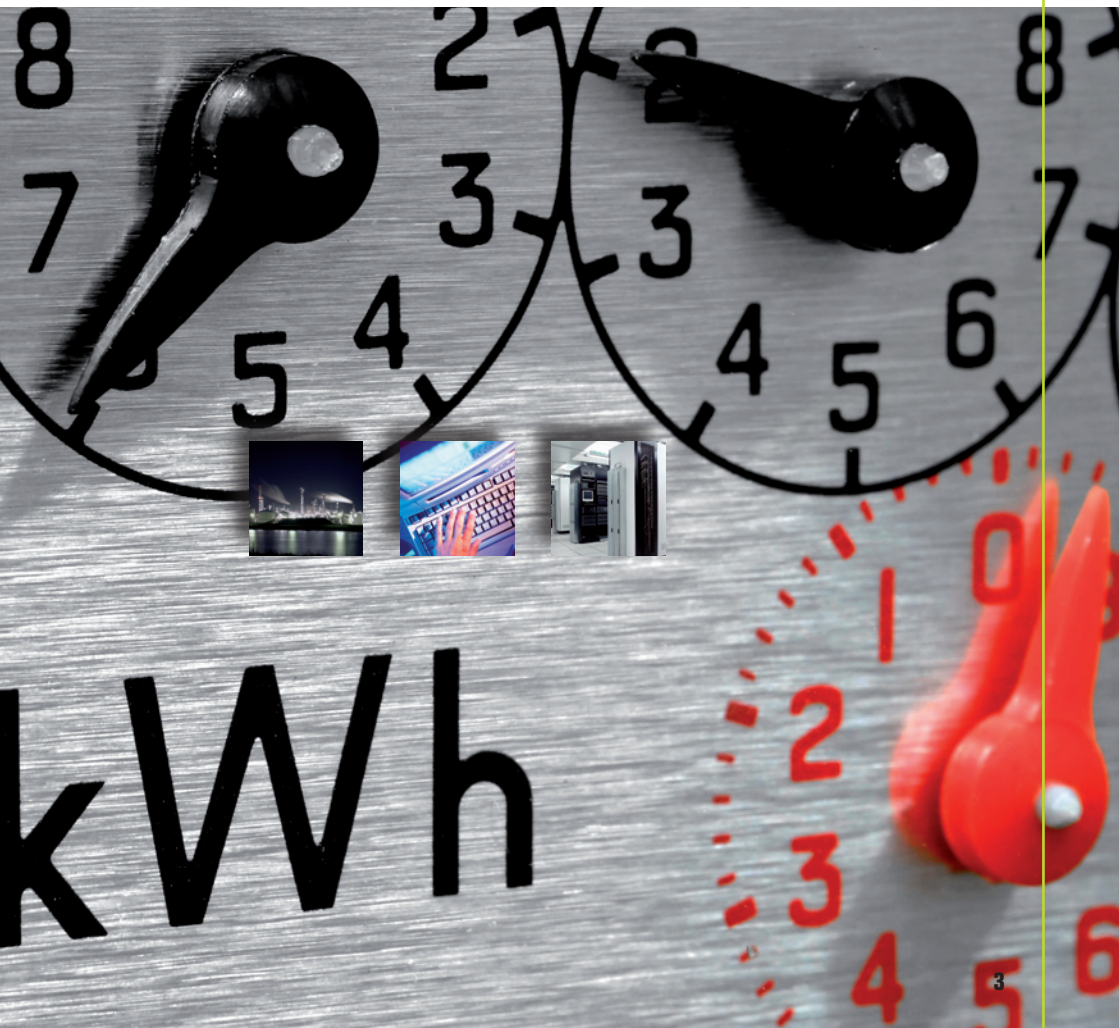
- European Union Energy consumption per market p. 4
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UPS manufacturers work on environmental improvements through complete life cycle

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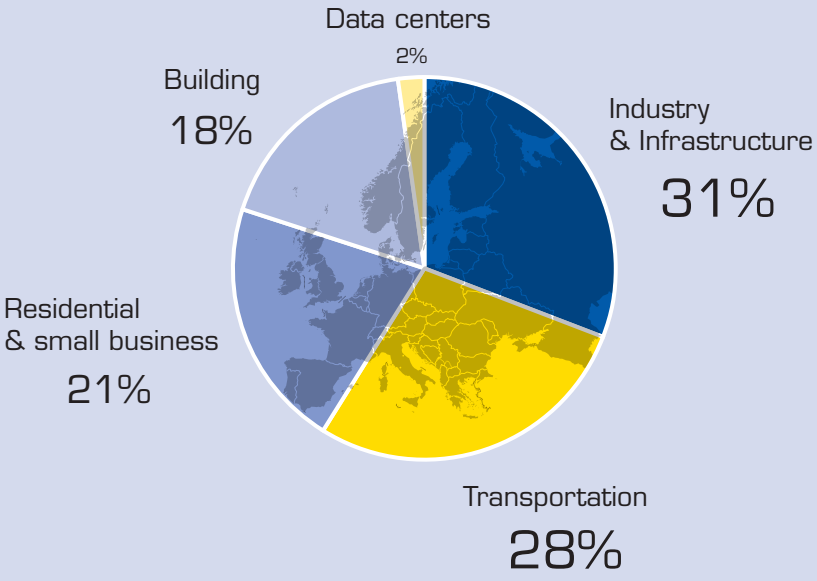
1 A low power consumer but a high contributor to power consumption reductions



Global energy consumption down to UPS energy consumption

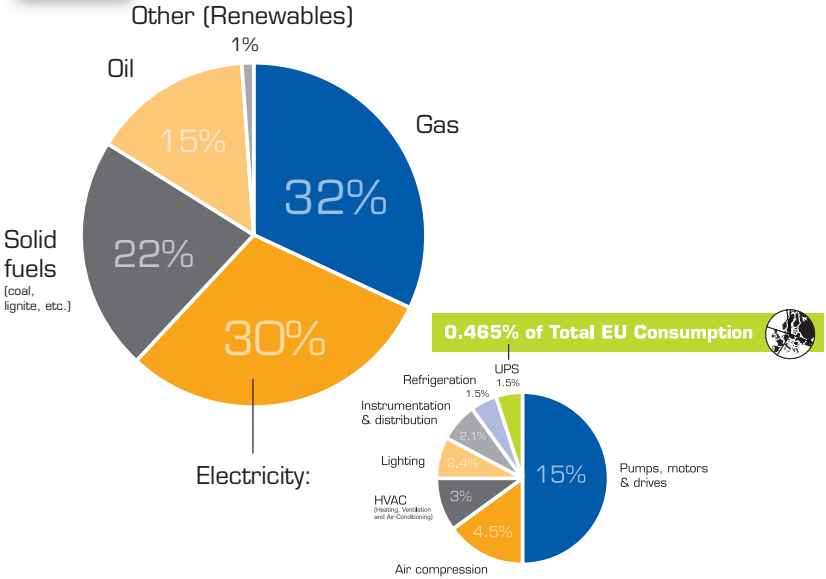
UPS are critical equipments which ensure a clean and permanent power to electrical installations. It guarantees service continuity to IT, industrial processes, home electronics, medical, transportation etc. Despite their growing importance, UPSs only represent a small part of the total energy consumption in these various markets.

Energy consumption: European markets



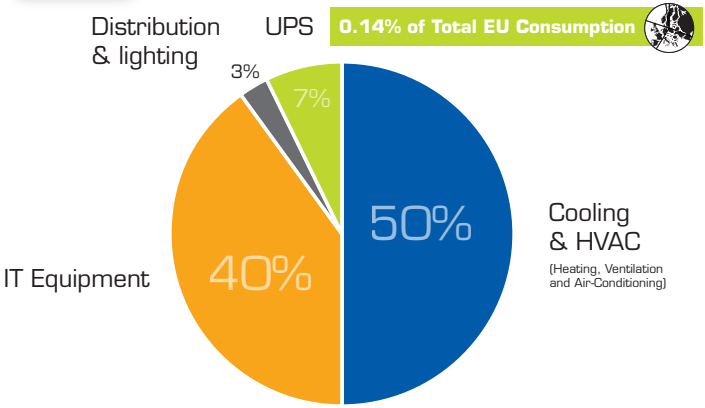


Energy consumption:
Industry & Infrastructure





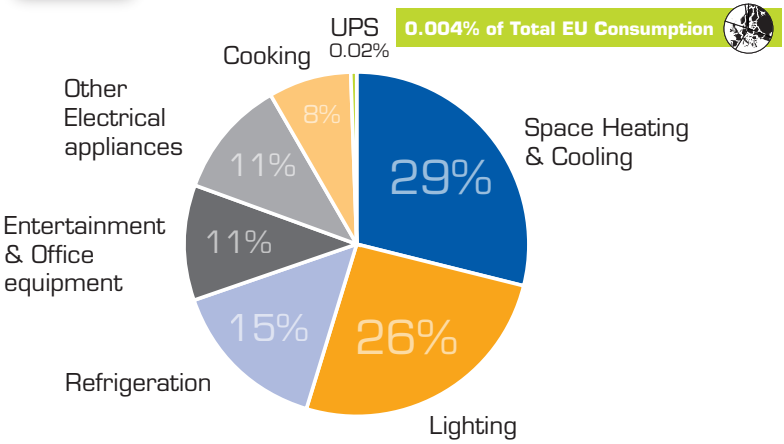
Energy consumption:
Data Centers



UPS



Energy consumption:
Residential & Small Business





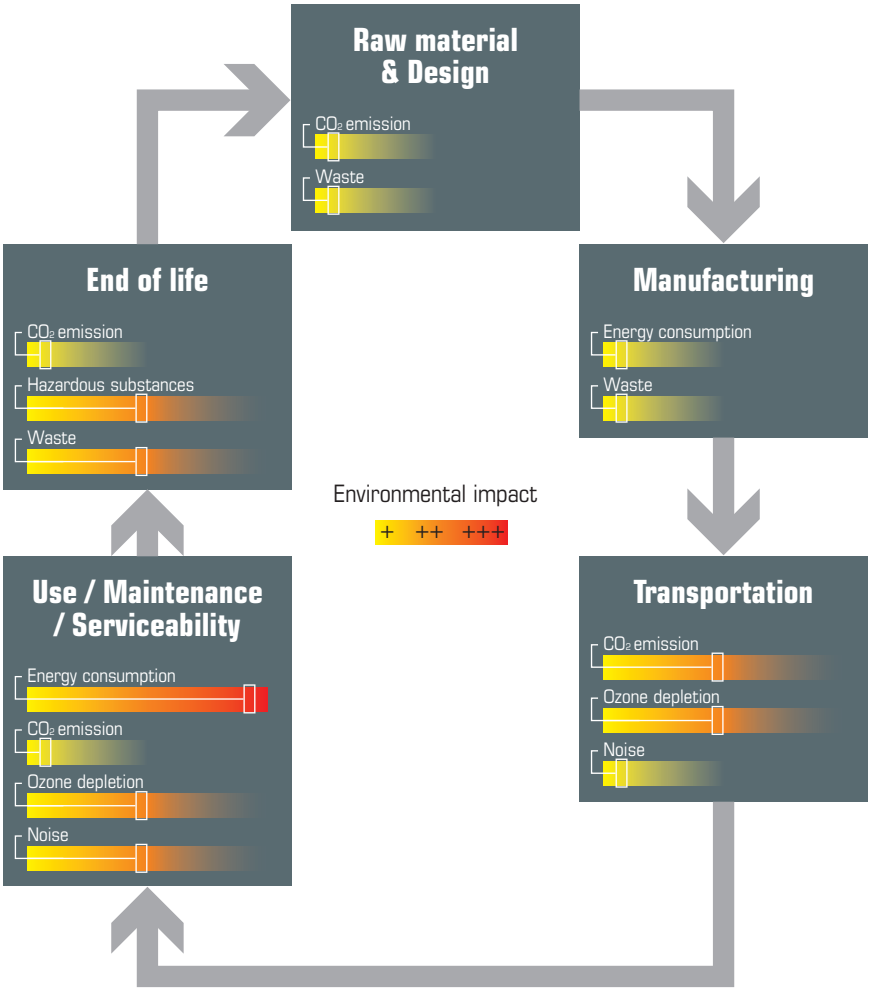
2 Energy efficiency and environmental impacts have always been at the forefront of the UPS industry







UPS industry reduces the global environmental impacts by considering the complete product life cycle



Qualification of the environmental impact at each phase of the product life cycle

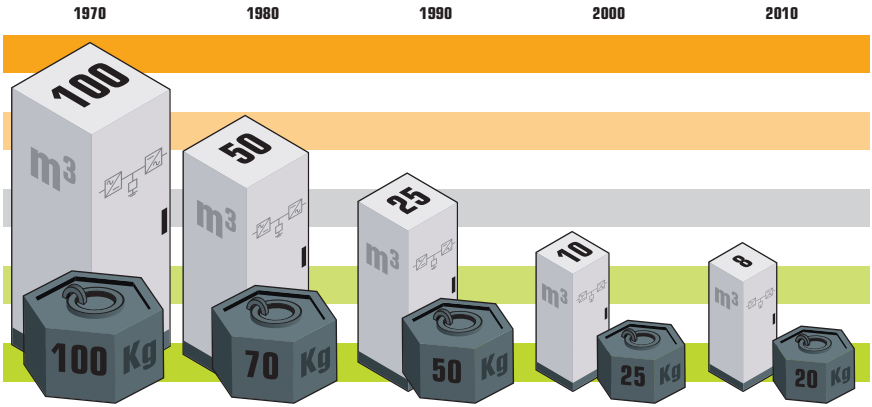


Raw material



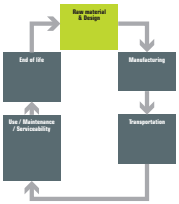
UPS manufacturers help preserving natural resources by making great efforts on:

- Developing lighter products with less material
- Enhancing UPS power density to provide equipments with less footprint and volume
- Designing transformer-less UPS to reduce copper content
- Improving the recycling rate of batteries
- Increasing usage of recycled materials



Evolution of a typical 40 kVA UPS's volume and weight (10 min autonomy)

Design



UPS product engineering stage integrates Green Design in the development process.

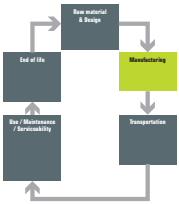
By following this concept, the UPS industry is committed to four key points:

1. Consider worldwide environmental regulations on:
   - Substances: REACH, RoHS…
   - Energy efficiency: European Directive on EcoDesign
   - End of life management: WEEE, battery, packaging
2. Meet customer environmental expectations
3. Communicate environmental characteristics
4. Invest in Research and Development for new technologies to improve energy efficiency.





Manufacturing



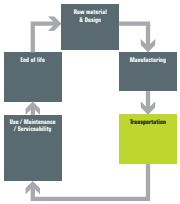
UPS manufacturing plants are engaged in reducing environmental impacts.

By implementing ISO 14001 certification of facilities, UPS manufacturers demonstrate the voluntary approach to:

- Reduce waste
- Optimize energy and water consumption
- Reduce CO_2 emission

In addition, they implement the “Best available technologies” to further improve energy savings.

Transportation



UPS manufacturers are involved in reducing CO_2 emissions by transporting smaller and lighter products on shorter distances.

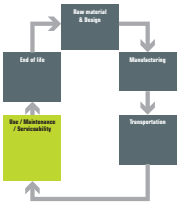
To achieve this, the UPS industry is involved in:

- Manufacturing close to market
- Optimizing logistics organisation
- Reducing product size





Use / Maintenance / Serviceability



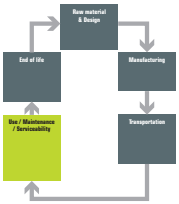
The UPS contributes to **better energy efficiency** of the global electrical installation.

Over the last decade, further energy savings have been possible thanks to the following technological improvements:

- The new topologies (conversion mode, Eco-mode) provide better UPS efficiency
- The newly-developed IGBT-rectifier UPS allows further savings for the user (smaller electrical network devices e.g. cables, breakers, gen set)
- The transformer-less UPS reduces heat dissipation, thus allowing additional savings on power and cooling infrastructures
- The power monitoring and remote management help minimizing on-site service engineers intervention
- The intelligent management of battery increases battery lifetime
- The modularity of UPS brings adaptability (right size for needs of each newly-purchased equipment) and scalability (capability to expand equipment without complete product replacement)

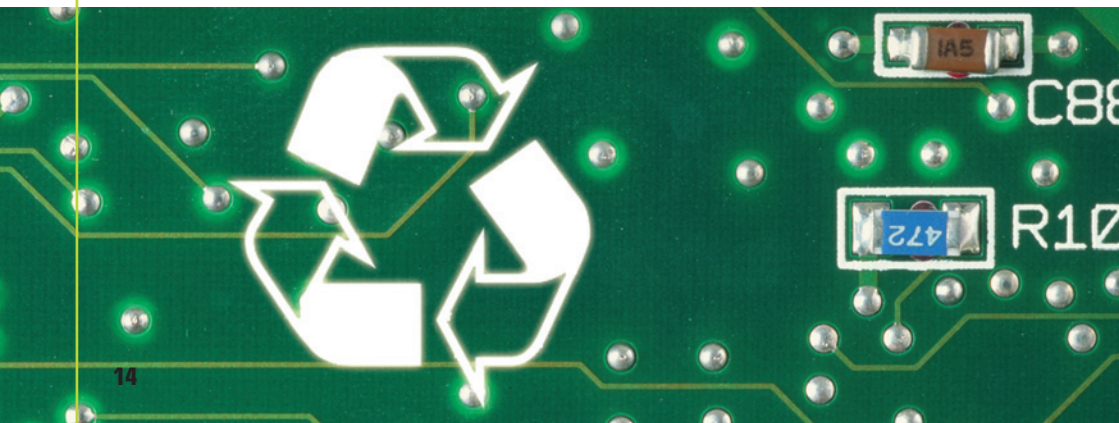
In addition to these developments, the compliance with UPS standards and European UPS Code of Conduct demonstrates the UPS manufacturers' involvement into environmental care.

End of life



As the UPS reaches its end of operation life, this is not the end of the UPS industry involvement into environmental considerations. That's why manufacturers are able to:

- Offer services to help customers for a clean dismantling of their products and batteries including recycling locations and return policy
- Provide End of life instructions for an environmental safe dismantling
- Increase recycling rate:
  - Avoid hazardous substances
  - All batteries are recyclable
  - …



Other publications available:
UPS European Guide (English, French and German versions)



Data sources: CEMEP members

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CEMEP
European Committee of Manufacturers of Electrical Machines
and Power Electronics