

# Schneider Electric and *the environment*



Merlin Gerin  
Square D  
Telemecanique

**Schneider**  
 **Electric**  
*Building a New Electric World*

Keeping in line with its conception of a responsible company, Schneider Electric has made respecting the environment a major focus in its strategy.

Our company has embarked on a process to continually improve its environmental performance. It aims to be exemplary in its practices, both with regard to its facilities and its products.

We have set ourselves two ambitious goals for the end of 2004:

- Have all of our manufacturing units be ISO 14001 certified;
- Standardize the eco-design process for all new global products.

Schneider Electric is aware of the global challenges that humanity is being faced with and intends to contribute to building a sustainable world. This involves offering our customers products and solutions that help to better respect the environment, especially in terms of access to energy and reducing energy consumption.

Our innovation efforts also contribute to this.

By getting involved in implementing our environmental policy everywhere we have operations, Schneider Electric's employees together participate in improving our global performance and in giving meaning to our commitment to sustainable development.

Henri Lachmann  
Chairman and  
Chief Executive Officer  
May 2004

## Aligned with it's Principles of Responsibility, Schneider Electric is committed to:

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- > **Meeting** current environmental requirements and exceeding them when relevant,
- > **Designing** products and solutions that respect the environment through an eco-design process,
- > **Offering** its customers products and solutions that are safe, energy efficient and environment friendly,
- > **Linking** innovation and continuous improvement to meet new environmental challenges,
- > **Promoting** environmental awareness by providing training for everyone and developing expert networks for best practices,
- > **Continuously improving** its environmental performance for the ongoing satisfaction of the communities the Company serves, as well as its end users, employees, customers and shareholders, both today and tomorrow,
- > **Reporting** to all stakeholders about the impact of the Company's activities on the environment,
- > **Contributing** to the planet's sustainable development.

## We take action throughout our worldwide operations to:

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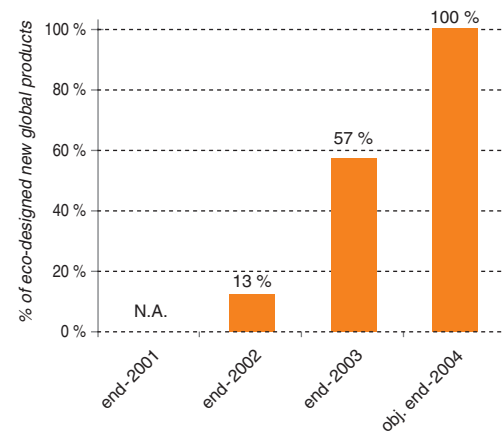
- > **Reduce** the environmental impact of our products and solutions, over their whole life cycle, especially by optimizing their energy and natural resources consumption and by proposing recycling solutions at the end of their life,
- > **Offer** the services that both respect the environment and also help our clients to optimize the energy use,
- > **Minimize** the environmental impact of our facilities, especially by reducing the consumption of natural resources and the generation of waste and emissions related to Company activities, and by implementing Best Available Techniques (BAT),
- > **Involve** our employees, suppliers and partners in our continuous improvement process, with our customers, to better satisfy the community's expectations.

# *Our environmental policy*

# Foundation

Each time a product is created or a product line is updated, Schneider Electric improves the eco-efficiency of its products by combining the reduction of the environmental impact throughout the product life cycle, with a cost-reduction approach.

## Product profile



*Eco-design  
our products*

# Approach

**Limit the environmental impact of products starting with their design:**

- > **Miniaturize** and thus reduce consumption of natural resources;
- > **Select** materials that minimize waste and scrap and improve product recyclability;
- > **Continue** to eliminate lead from electronic circuits and halogenated flame retardants from plastics;
- > **Reduce** power consumption during use, a major impact during the entire product life cycle;
- > **Manage the end of the life cycle** and improve dismantling for components needing special processing (LCD screen, PCBs, metallic inserts in plastics, plastics blends, etc.);

**Develop and deploy tools and methods for standardizing the use of eco-design:**

- > **Systematize** the use of the Lifecycle Analysis (LCA) method and EIME software (*Environmental Information and Management Explorer*);
  - > **Train** designers, marketers, and production and purchasing managers in the eco-design approach to ensure the environmental guidelines in the internal offer creation guide are observed.
- Involve and inform outside partners:**
- > **Integrate** environmental criteria in the supplier approval process;
  - > **Communicate** to the Company's customers and partners on the environmental impact of products thanks to environmental profiles;
  - > **Advise** customers and partners on product dismantling with product end of life brochures.

# 75% reduction

The Telemecanique brand TeSys model U is an integrated motor-starter-controller solution.

It combines into one product power and control functionality that was previously made possible by using a TeSys D contactor in connection with a GV circuit-breaker from Telemecanique.

It also includes additional automation and communication functionality.

The product has been entirely developed using a **comprehensive eco-design approach** during all phases of the life cycle: design, production (ISO 14001 certification of plants), end of life (recycleability analysis and packaging modification).

It has been supported internally by training and involvement of project teams, and externally, by including an environmental section in the specifications for suppliers.

**Energy consumption** during product use was **reduced by 75%**, compared with the energy consumed by a TeSys contactor and a GV circuit-breaker.

## Better recycleability

Merlin Gerin brand Sepam is a protection relay for medium-voltage networks.

The technological choices made for the design of the new series have increased the product's end of life value.

The **amount of waste** was limited starting from the design phase by reducing the quantity of materials by close to **70%**.

The thermoplastic materials used are **recycleable** and **easy to identify** due to individual part marking. Finally, **dismantling** has been **optimized** by limiting the number of mechanical links and by replacing screws with a single-material simple click system.



### The European RoHS directive

Published in the February 13, 2003 Official Journal of the European Communities, the European Restriction of Hazardous Substances directive bans the use of lead, mercury, cadmium, hexavalent chromium, and two polybrominated fire-retarding agents (PBB and PBDE) in low-voltage electrical and electronic products sold in the EU as of July 1, 2006.

Schneider Electric has decided to eliminate these substances from its low-voltage electrical distribution and industrial control products and has prepared a program to implement appropriate actions in the areas of design, process engineering, purchasing and production.

## Challenge

*"Certain schools of thought are based on the belief that in order to create a sustainable society, we need to be close to a point where we use only 10% of the resources that industrial societies consume today".*

*Opportunities for sustainable solutions, UNEP 2002*

The planet is a **finite space**, with non-negotiable physical limits. It is estimated that our current **lifestyles** exceed the earth's natural capacity for resource regeneration and absorption of emissions (industrial and household waste and emissions) by **30%**.



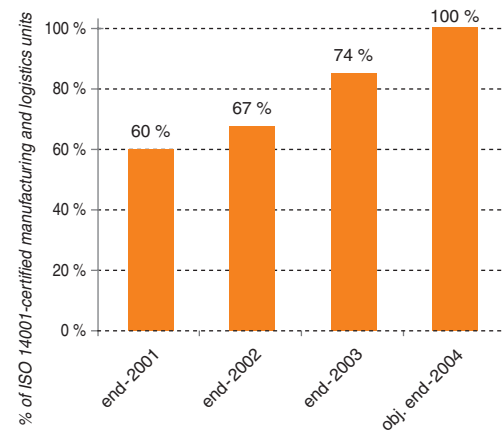
*Minimize the impact that our products have on the environment*

# Foundation

Since the release of the international standard ISO 14001 in 1996, Schneider Electric has set up an environmental management system and has obtained ISO 14001 certification at 5 of its manufacturing units. In 2004, more than 130 manufacturing units are certified.



## Site profile



*Minimize  
the impact of our  
manufacturing units*

# Approach

## Certify:

- > **Continue** the certification of manufacturing units, especially in North America, Greece, Hungary, Indonesia, Ireland, Italy and Mexico;
- > **Extend** certification to other types of units, especially internal design offices, and commercial and administrative facilities.

## Reduce consumption of resources and limit the impact of waste and scrap:

- > **Perform** measurement and monitoring audits of consumption and emission areas;
- > **Define and implement** optimization solutions.

## Use the Best Available Techniques (BAT):

- > **Systematize** the use of "techniques aimed at avoiding, and when not possible, at generally minimizing emissions and the environmental impact" of manufacturing processes, in accordance with the European directive on *Best Available Techniques* (BAT).

# 20 pilot units

Following the United States and Spain, France has developed remote monitoring and auditing procedures for electrical power consumption at 20 of its manufacturing plants.

The goal is to reduce consumption by 10% and thus save 1 million euros out of the 13 million euro energy bill for all manufacturing units in France.

Optimization solutions have already been deployed at certain units, in particular, with the use of variable-speed drives and technical building management solutions.

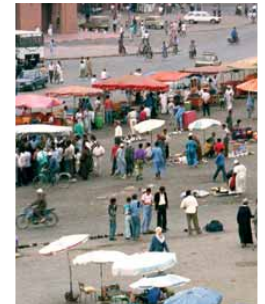
# R.O.I.\* = 2 years

At Schneider Electric units, it has been noted that ROI on a deployed environmental management system is 2 years.

\*Return on investment

Following the ISO 14001 certification of the Limoges plant in 1997, **electrical power consumption and related expenses** decreased respectively by **19%** and **26%** per year on the average.

The **quantity of waste** has also decreased at an annual average rate of **31%**, thus each year reducing **management costs** by **28%** on the average.



## Challenge

A company's **continuity** depends on how it is able to meet its economic, social and environmental challenges. Today, faced with growing community demands, a company's **license to operate** depends more and more on its ability to meet the requirements of all of its **stakeholders**. And first of all, the requirements of the communities close to where its units have operations.



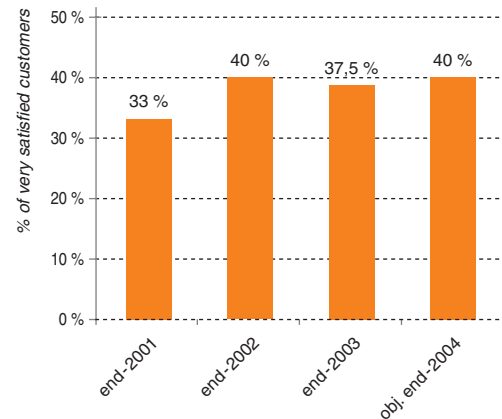
*Combine product eco-design with eco-manufacturing processes at our manufacturing units*

# Foundation

Schneider Electric is committed to anticipating the needs of its customers. Together with its partners, the Company brings adapted solutions in order to help its customers to improve their environmental and business performance.



## Customer profile



*Improve our customers' overall performance*

# Approach

**Assist customers in controlling their electrical processes with Transparent Ready™ and TAC\* solutions to:**

- > **Reduce** energy consumption and costs by using several tools to monitor and control energy quality and availability; metering and analysis of consumption; supervision of power loads and magnitude (voltage, intensity, power factor, etc.);
- > **Optimize** investment through consulting services for architectural choices.

**Capitalize on the sharing of knowledge and technologies in partnership structures.**

**Assist customers in anticipating regulatory developments,** especially in terms of obligations relating to the European Directive on Waste Electrical and Electronic Equipment (WEEE), through the development of an offer to collect and reclaim electrical and electronic products at the end of their life cycles.

**Enlarge our lineup of energy-efficient products and solutions,** with performance contracting services from T.A.C\*.

[www.transparent-ready.com](http://www.transparent-ready.com)  
[www.tac.com](http://www.tac.com)

*\* T.A.C is a Swedish-based company that joined the Group in June 2003. It is a world leading player in the global building automation and control market.*

# Quality, availability

PowerLogic Systems is a **Transparent Ready™** solution first marketed by Square D in the United States, and is currently being extended to the worldwide market.

It enables the efficient monitoring and management of energy quality and availability, reduces losses due to breakdowns by 10%, and cuts operating costs.

The system was adopted by Mercedes-Benz USA International. After posting two-year ROI on the PowerLogic Systems, the German carmaker now plans to standardize its use when extending its electrical infrastructure.

[www.powerlogic.com](http://www.powerlogic.com)

## 40% reduction

The Lubio offer from Merlin Gerin reduces electrical power consumption in public lighting by 40%.

It adapts public lighting luminosity to local needs and requirements thanks to its integrated voltage and lighting-duration regulators in the network's metering stations.

In 2003, the town of Montluçon, France, replaced 138 of its units with Lubio technology, thus signing the **largest contract** for the renovation of a public lighting control system ever made in France.

If a system comparable to Lubio was installed in all public lighting in the world, carbon dioxide emissions, the main greenhouse gas, would be reduced by **42 million tons a year\***, i.e. the equivalent of current annual emissions of a country like Switzerland.

\* 2000 data



## Challenge

Globalization has multiplied and intensified relations between industry players. Companies increasingly rely on out-sourcing, and their **scope of responsibility** is being gradually extended to include business players upstream and downstream of their value chain.

A company's environmental responsibility requires both the involvement of internal staff, as well as the development of a **chain of interlinked interests** in an environment that all partners are involved in and in adequation with.



*Enlarge our portfolio of solutions and develop partnerships to improve our customers' environmental performance*

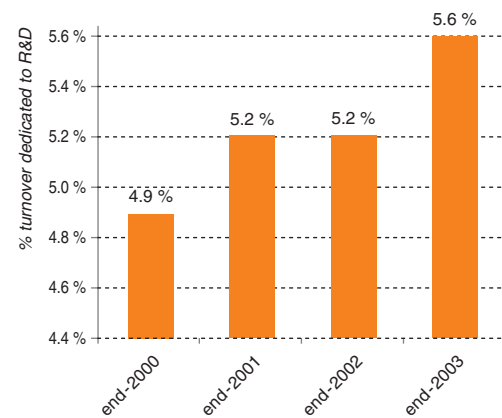
# Foundation

Thanks to its operations in 20 countries, Schneider Electric's R&D activities are directed at meeting the needs and expectations of global markets.

Sharing research findings is encouraged by close cooperation between R&D centers in its subsidiaries worldwide.



## R & D profile



# Approach

Continue the technological development of products and solutions with enhanced functionality, especially with additional performance analysis and energy consumption management features.

### Develop new markets:

- > **Market solutions** for extending the water and electricity distribution networks in developing countries and controlling consumption;
- > **Contribute to the expansion** of local electricity generation, especially the emerging **micro-generation** technologies (small-scale power generation).

*Innovate  
for tomorrow*

# 3,000,000 meters

The technologies from Conlog, a Schneider Electric subsidiary, have made it possible to install over 3 million special electricity meters which enable users to monitor their consumption themselves.

These technologies, while reducing energy consumption by up to **50%**, contribute to providing **access to electricity** for rural and suburban populations in countries, and to ensuring that local power companies will be able to collect nearly all their receivables, thus making it possible to continue **extending their electrical power grid**.

## 85 % yield

One of the focus areas of Schneider Electric's R&D is the development of products that significantly contribute to the expansion of micro-generation techniques, in particular, solutions enabling co-generation and local energy generation.

Co-generation increases **energy yields** of current power generation infrastructures by **40-85%**: the heat given off by an operating power generator is recovered and used as an addition to the electricity generated. Local electricity generation, especially from renewable energy sources, **reduces losses** due to power transmission and distribution which amount to approximately **10% of the world's electric power generation**.

## Challenge

According to the United Nations Environment Program, **20%** of individuals today consume **60% of the world's energy resources**. According to the International Energy Agency, **80% of our current energy requirements** are met with the use of **fossil fuels** – mainly oil – the combustion of which is the source of the increased greenhouse effect. **Constant innovation** improves access to energy and contributes to the battle against climatic change, just as **adapting lifestyles**.



*Contribute to meeting global sustainable development challenges*



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