Siemens Real Estate

Green Building – Efficient life cycle
Rainer Kohns, Siemens AG, Siemens Real Estate
Siemens Real Estate (SRE)
The real estate arm of Siemens

- SRE plans, builds, finances, develops and manages Siemens sites and provides advice on all real-estate issues
  Focus areas: Cost effectiveness and space efficiency

- In its governance function, SRE has global responsibility for the principles of real estate business at Siemens

- Worldwide, SRE has direct commercial responsibility for around 17 million square meters of land and just over 10 million square meters of floor space
### Facts and figures

#### SRE at a glance

<table>
<thead>
<tr>
<th></th>
<th>FY 2006</th>
<th>FY 2007</th>
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<tbody>
<tr>
<td><strong>Sales</strong></td>
<td>€1.71 billion</td>
<td>€1.69 billion</td>
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<tr>
<td><strong>Earnings</strong></td>
<td>€122 million</td>
<td>€228 million</td>
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<td><strong>Employees in</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>real estate-specific functions</strong></td>
<td>approx. 1000</td>
<td>approx. 1100</td>
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<tr>
<td><strong>Property area:</strong></td>
<td>SRE</td>
<td></td>
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<tr>
<td><strong>SRE</strong></td>
<td>approx. 20 mill. m²</td>
<td>approx. 17 million m²</td>
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<td><strong>Rentable building space</strong></td>
<td>SRE</td>
<td></td>
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<tr>
<td><strong>SRE</strong></td>
<td>approx. 10 mill. m²</td>
<td>approx. 9 million m²</td>
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<tr>
<td><strong>Assets:</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Land and buildings</strong></td>
<td>SRE</td>
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<tr>
<td><strong>SRE</strong></td>
<td>€2.7 billion</td>
<td>€2.5 billion</td>
</tr>
</tbody>
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As at: Sep. 30, 2007, all figures in accordance with US GAAP
Source: SRE FC
GREEN BUILDING Initiative

Intention

- **Holistic approach:** from planning, through construction and operation, to renovation or demolition

- Examination of **life cycle costs** during the conception phase for new buildings

- **Certification of all new buildings:** Green Building (Europe), LEED (Leadership in Energy and Environmental Design)

- Natural Resources Management for existing buildings:
  - **Optimization** of technical systems (energy, electricity, water consumption, waste disposal and waste management)

- Long-term: **development of a zero-energy standard** for Siemens buildings

**Goal:** To reduce electrical, heating and water consumption in SRE's strategic core inventory by 20% by the year 2011
GREEN BUILDING Initiative
Resource efficiency in all aspects of the building life cycle

- Sustainable Building Design
- Idea/Design
- Requirements analysis
- Planning
- Construction (modification)
- Utilization
- Commissioning
- Renovation or demolition
- Natural Resources Management
- Life Cycle Cost Analysis
- Green Building Certification

GREEN BUILDING Initiative
Resource efficiency in all aspects of the building life cycle
Sustainable Building Design

Business drivers at start of project

- Make a preliminary draft of an **integral energy concept**
- Minimize the **primary energy demand** and **CO₂ emissions**
- Pre-define **limit/target values** for later operation
- Make best-possible use of **renewable energy sources**
- Reach the required **comfortable room temperature** with minimal use of energy
- Use **daylight** to avoid turning on artificial light
A **zero energy building** is one that does not need to show **any primary energy** such as coal, oil or natural gas on its annual balance sheet.

**Strategy**

- Reduce final energy consumption (heat and electricity)
- Use local environmental energy (groundwater/air/geothermal/solar energy)
- Meet remaining energy requirements through alternative energy sources

**What does a zero-energy building look like?**

- Compact construction, oriented in accordance with the position of the sun
- Thermally insulated and air-tight facades
- Controlled building ventilation, efficient heat recovery
I. Location
II. Architecture
III. Energy
IV. Building insulation
V. HVAC systems
VI. Electrical systems
VII. Water
VIII. Working environment that promotes health
Building & landscape
IX. Building management
X. Reinstatement
Life cycle costs analysis
A look at follow-up costs of real estate

- Selection of structural elements based **not only** on investment costs
- Additional consideration of usage costs
- Identification of **strategic structural elements** in the early planning stages

Life Cycle Cost Analysis – LCCA
Green Building Certification
Visible success of sustainable building

- **LEED certification** for major renovation and new building projects worldwide
- **GreenBuilding Label** for major projects in EU countries
Green Building Certification
SRE GREEN BUILDING certification strategy

LEED certification worldwide for major renovation and new building projects

* The Leadership in Energy and Environmental Design

For all SRE buildings worldwide: Requirements-based energy pass for new construction and sales objects. Usage-based energy pass in all other cases.
Natural Resources Management
Sustainable optimization in the portfolio

- Reduction of resource consumption in **existing buildings**
- Introduction of a standardized consumption and cost reporting system
- **Best practice** examples for maintenance and modification projects in the portfolio
The guidebook outlines resource-saving measures for the following areas:

1.1 Water
1.2 Heating
1.3 Air conditioning and ventilation systems
1.4 High voltage supply
1.5 User-specific office equipment

It also includes:

• A matrix for the climatic application
• Valuable suggestions for internal and external sources

→ Target group: location and facility managers
Marketing & Communication
Posters for raising user awareness of the issue

Going home? 
Forgot anything?

Ever thought about using the stairs?

Please do not waste precious water.

Help us to save energy and to protect the environment.
Siemens Real Estate

This will keep you fit and help us to save energy and to protect the environment.
Siemens Real Estate

Help us to save water and to protect the environment.
Siemens Real Estate
First EU Green Building Certificate for SRE Munich-Perlach

- Optimized according to proposals from a building inspection performed by SBT
- Improved and extended building management, leading to substantial savings
- Key data: Heat energy demand reduced by 34%; electricity demand reduced by 15%; investment costs: €164,000; annual cost savings: €99,000; amortization period: less than two years
New regional center
Shanghai

- A modern four-building office complex with a gross floor area of 35,000 m² built on an 18,000-m² plot
- Scheduled completion: 2009
- Total investment of around 70 million euros
- Environmental milestone: The entire new construction is aligned with the new Green Building guidelines of Siemens Real Estate
- Goal: to achieve the LEED Gold certificate and to implement energy efficiency measures with a maximum amortization period of 15 years
Building for the future
Key projects

- **Shanghai:** New building for company HQ
- **Beijing:** New building for company HQ
- **Moscow:** New building for company HQ
- **Zug:** SBT, new HQ
- **Vienna:** Siemens City, new building
- **Munich:** First EU Green Building Certificate
- **Shanghai:** New building for company
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