

The Siemens logo is displayed in a bold, teal, sans-serif font in the upper right corner of the slide. The background of the entire slide is a photograph of an offshore wind farm with several white wind turbines on a blue sea under a clear sky.

SIEMENS

Siemens IT Solutions and Services

Portfolio and Technology Management

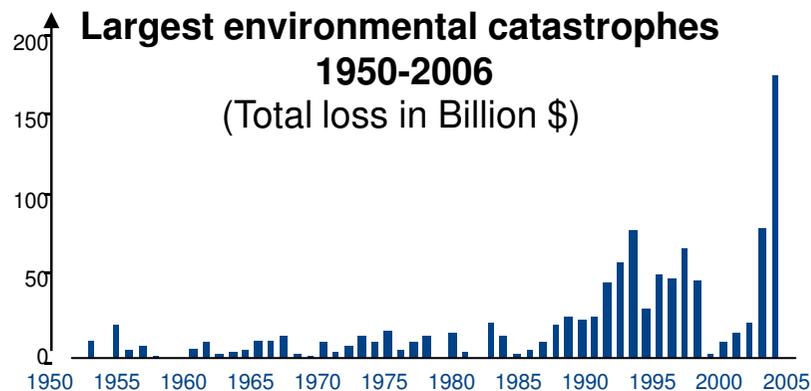
IT and a sustainable society

23rd of October 2008

Confidential / Copyright © Siemens AG 2008. All rights reserved.

The world is faced with a number of environmental & societal challenges

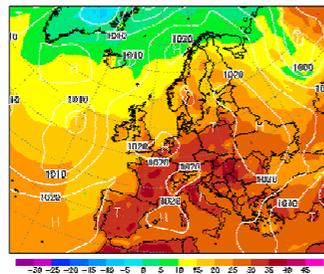
Global warming is a fact



Examples:



Flooding (2002): Damage in Germany 9,2 Billion EUR



Droughts (2003): Damage in Europe ca. 10-17 Billion EUR

Source: Münchner Rückversicherung 2007/Presentation von Prof. Requardt

There are a number of societal challenges

- **Water:** By 2025, two thirds of humanity (over 5 billion) will be living in countries experiencing water stress (shortages for all or part of the year)³
- **Urbanisation:** the increasing urbanisation is massively increasing the pressure on the existing infrastructure
- **Poverty:** 1.1 Billion people lived on less than \$2 a day¹
- **Food:** The absolute number of hungry people is 854 million. There are signs that we are entering a new era of hunger²
- **Health:** populations are ageing, this is causing additional pressure on health systems

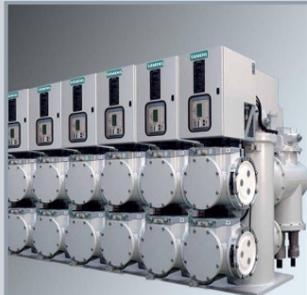
1) World Bank 2001

2) World Food Program 2008

3) UNEP

Action is needed

Renewables, environmental technologies and energy efficient products: Our Environmental Portfolio

Fossil Power Generation 	Renewable Power Generation 	Power Transmission 	Power Distribution 	Environmental Technologies 
Healthcare 	Mobility 	Solutions for Industry 	Lighting (Osram) 	Building Technologies 

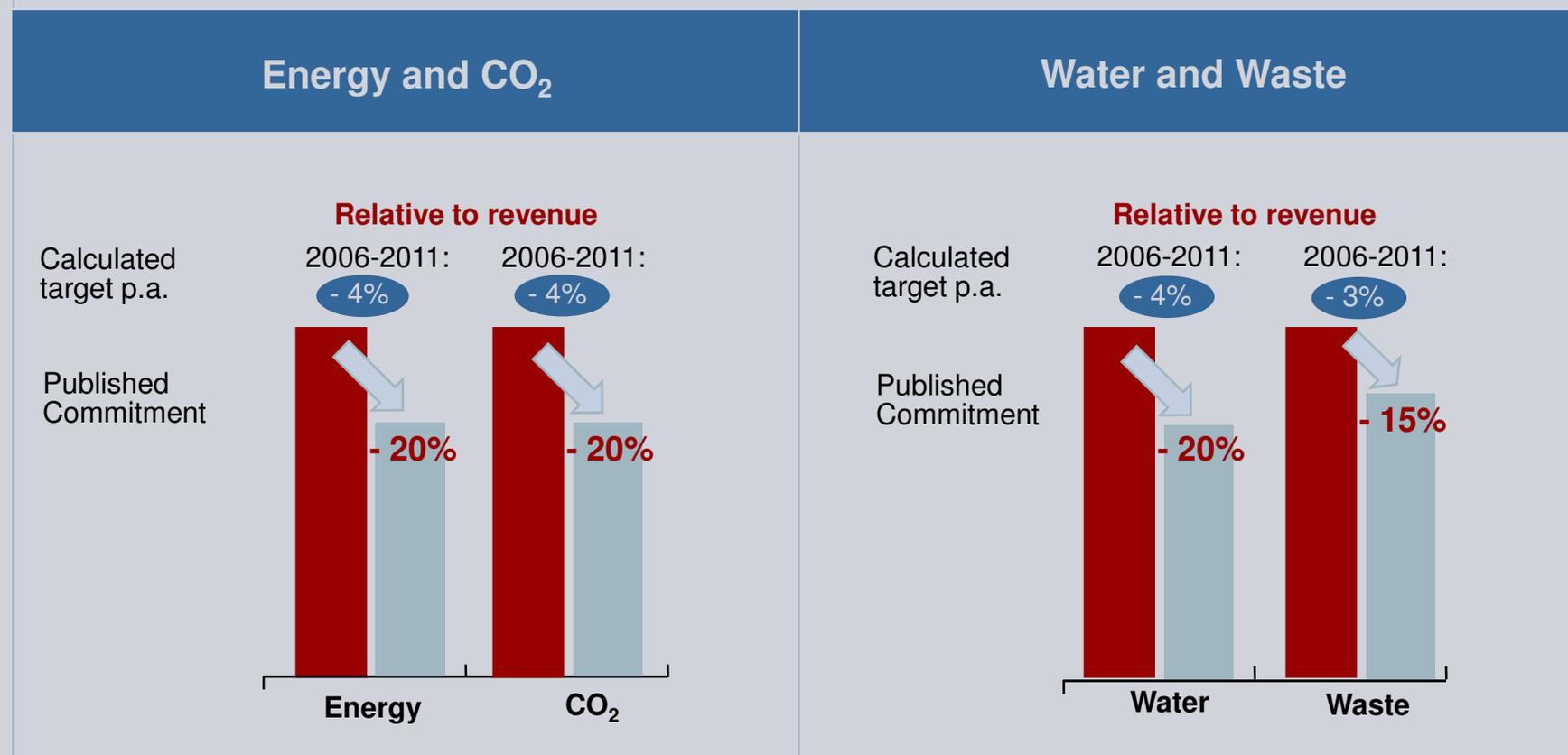
www.siemens.com/environmentalportfolio

Confidential / Copyright © Siemens AG 2008. All rights reserved.

Siemens has set ambitious efficiency targets for energy, CO₂, water and waste



Industrial Environmental Protection at Siemens, quantitative targets 2006-2011



Confidential / Copyright © Siemens AG 2008. All rights reserved.

Although IT contributes to some of these problems e.g. global warming, it will play an important role in creating a sustainable society

SIEMENS

ICT is a major contributor of CO2 emissions

- "IT-Equipment worldwide is responsible for 2% of CO2 emissions which corresponds to the amounts of CO2 emitted by airplanes"¹⁾
- Four virtual figures in the online game "Second Life" create as much CO2 as a real person. This is mainly due to the necessary server capacity²⁾
- In 2006, the Data Centres in Germany used approx. 1.5% of the total energy consumption, this corresponds to 2.5 million Germany households³⁾

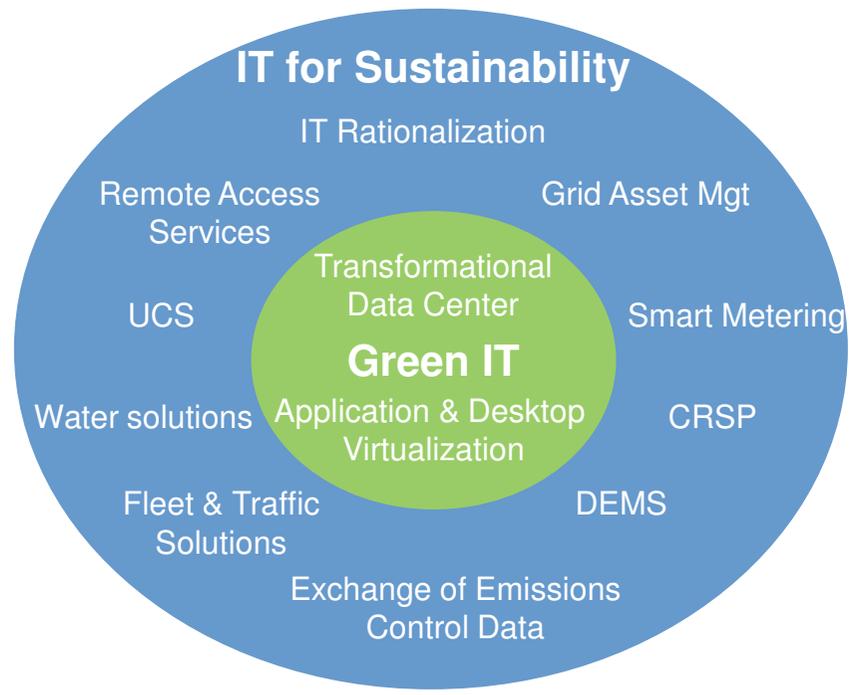
But can also provide solutions

- IT Solutions which help the company reduce their CO₂ emissions i.e. dealing with the remaining 98%
- IT can influence 15% of total CO₂ emissions (McKinsey)

IT for Sustainability addresses both improving the efficiency of data centers as well as enabling organisations to reduce their environmental impact

Confidential / Copyright © Siemens AG 2008. All rights reserved.

SIS can build on successful customer projects proving significant capabilities beyond the mainstream Green IT scope (i.e. energy efficiency in data centers)



NB: The definition of “Green IT” is evolving rapidly. Gartner’s definition is similar to that of SIS’s definition of IT for Sustainability.

Examples of customer references

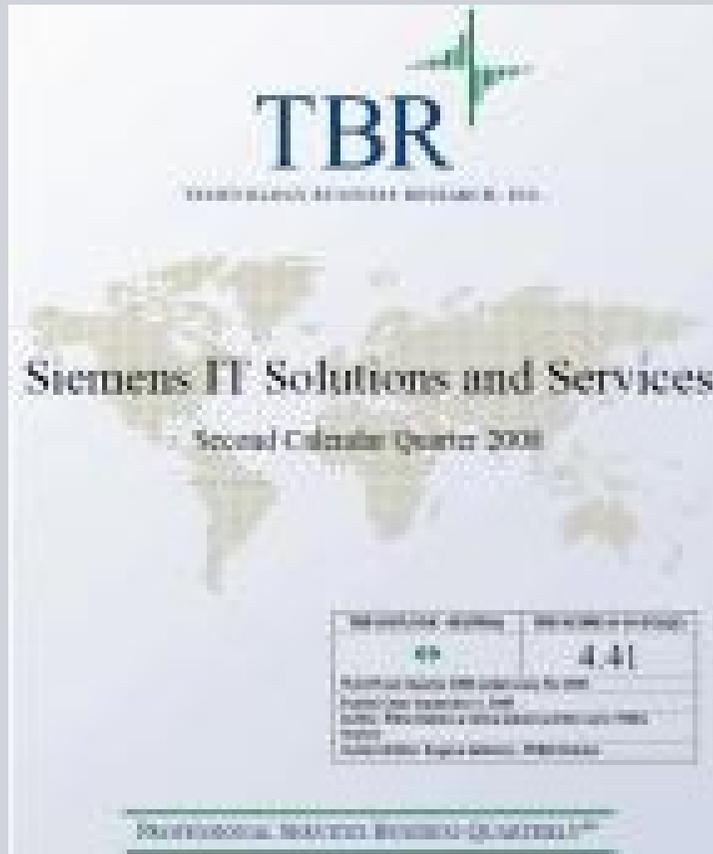
- Decentral Energy Management Solutions: SAPPI
- CO₂ IT Infrastructure: German emissions control authority
- IT Rationalization: Siemens (Spiridon), Daimler Chrysler
- Siemens Data Center: Beijing
- Several energy efficiency examples in Siemens data centers e.g. ground water cooling in Perlach

Examples of successful customer projects

- Fleet & Traffic: Toll System – Seattle, Singapore: Intelligent parking guidance - Bratislava
- eTicketing: number of cities
- Common Remote Service Platform: Energy (PG), Medical
- ROMAN route mgt: several train companies

Confidential

Siemens IT Solutions and Services is seen well prepared for supporting the environmental threats



“Technology Business Research, Incorporation believes Siemens IT Solutions and Services (SIS) has well-developed capabilities in the ‘green IT’ area, which represents a strength for the company.”

Data center energy efficiency is an important part of a green IT strategy but



Challenge

- Lack of transparency in energy consumption
- Dramatic increase of increase of capacity
- Lack of expertise in market
- Power cost increasing

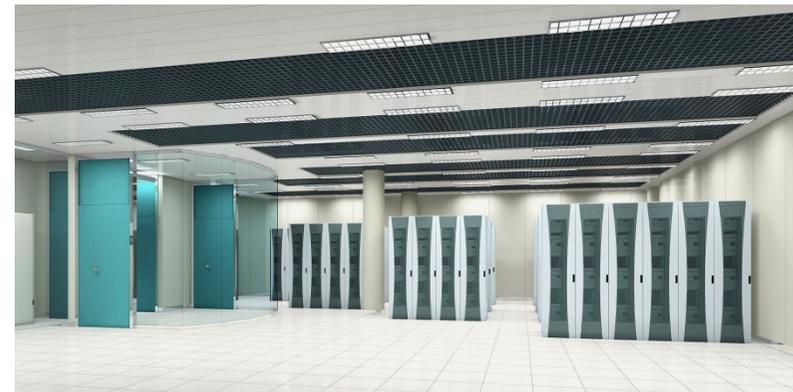
Benefits

- Server consolidation ratio of 15 to 1 which equals energy efficiency increase of 83%
- File storage server reduction by 91%
- Capacity utilization rate of 80% for a storage server (referring to an initial value of 30%)
- Usage of ground water for air cooling leads to energy savings of 50% compared to conventional chiller

Solution

Siemens Data Center Beijing

- Tier-2 regional site comprising 100 racks, 630 servers and 490m² of floor space.
- Green by design and operation
- Environmental construction
- Free air-based cooling
- Energy-saving lighting



Confidential / Copyright © Siemens AG 2008. All rights reserved.

..there are many opportunities outside of the data center

SIEMENS

Solution

- Intelligent Energy Management Solution
- Online energy flow monitoring and energy reports
- Demand forecast and optimized plant set points
- Day-ahead optimized plant commitment

Competitive position of Siemens

- Combination of Energy production supplier and IT Service provider
- Single source SW development, solution design and integration for SW-part
- Successful implementation examples

Benefits

- Reduced fuel costs
- Reduced contract penalties due to limit violations
- Lower energy production and thus consumption
- Lower CO2 emissions
- Better position for contract negotiations
- <5% imbalance and ROI <1 year



Confidential / Copyright © Siemens AG 2008. All rights reserved.

IT can aid the implementation of environmental legislation

SIEMENS

Challenge

- Tight schedule
- Complex technical requirements
- Complete electronic recording of emissions reports on the Internet
- High expectations of user behavior at the end of the reporting period
- Plant operators' heterogeneous IT infrastructure

Benefits

- Cost savings in applications, data storage and communications
- Enhanced data quality and data security
- Significant reduction in processing
- Greater effectiveness thanks to a webbased workflow without media breaks
- Ease of use and availability 24x7

Solution

FMS as a central tool for electronic reporting:

- Server-based Application with access via Internet for concerned users (e.g. plant operator, expert assessor, official authority in the federal state)
- Emission reports according to the European Union's monitoring guidelines
- Integration of a "Virtual Post Service"

Forms Management System (FMS)

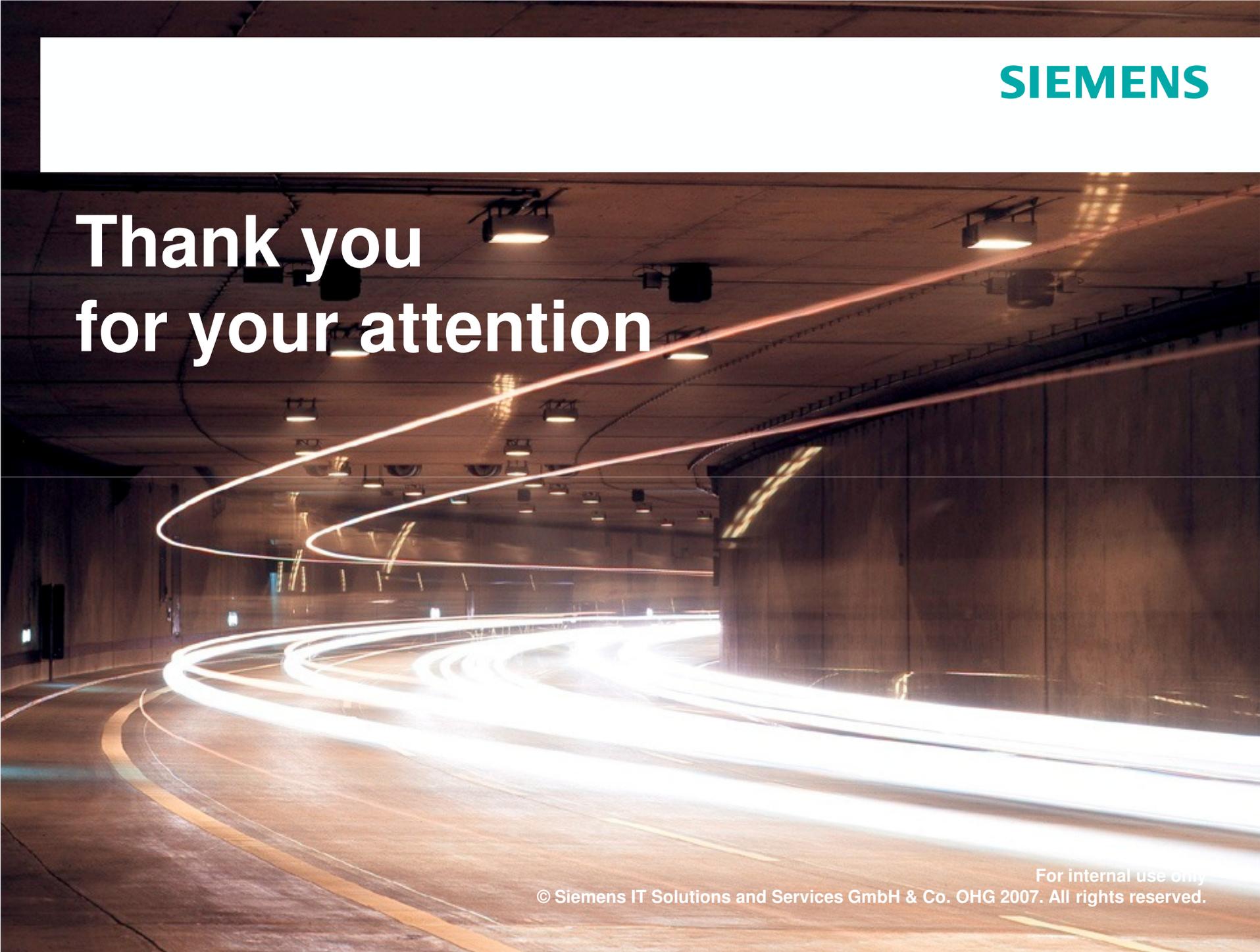


Confidential / Copyright © Siemens AG 2008. All rights reserved.

Siemens: learnings from “Green” IT

Learnings

- Green IT should be integrated into overall environmental strategy
- Green IT: evolution required
- Are all initiatives really sustainable? E.g. LCA
- Transparency is so important, but also rarely available
- Existing technologies are not sufficient to reach environmental targets



SIEMENS

**Thank you
for your attention**

For internal use only
© Siemens IT Solutions and Services GmbH & Co. OHG 2007. All rights reserved.