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Willkommen GST

bei Siemens
Building Technologies Division
Building Automation

It's all about
ME!
Maximize
Efficiency!

Louis von Mandach

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Agenda

- About Building Automation
- Energy Efficiency
- Conclusion
  - Film
  - Questions

Siemens – Sectors and Divisions

Energy

Divisions

- Fossil Power Generation
- Wind Power
- Solar & Hydro
- Oil & Gas
- Energy Service
- Power Transmission

Healthcare

Divisions

- Imaging & Therapy Systems
- Clinical Products
- Diagnostics
- Customer Solutions

Industry

Divisions

- Industry Automation
- Drive Technologies
- Customer Services

Infrastructure & Cities

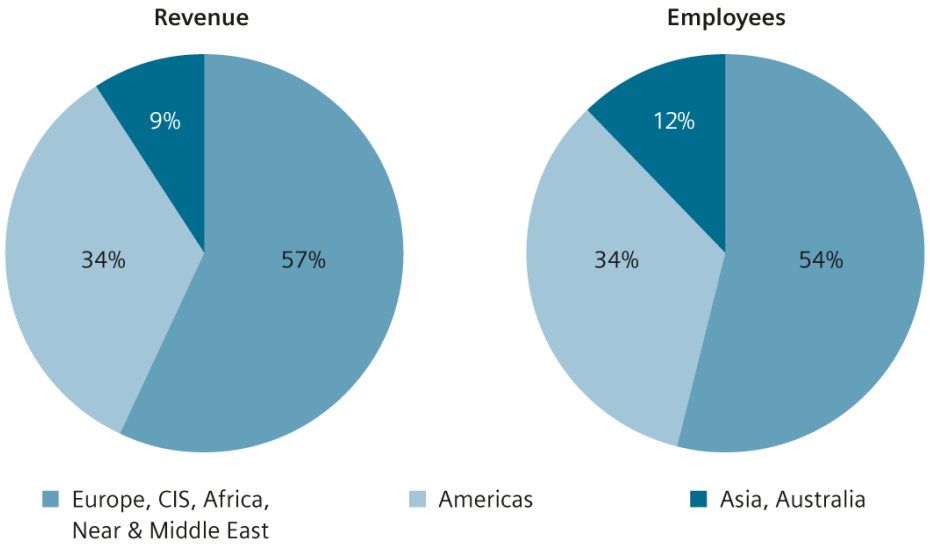
Divisions

- Rail Systems
- Mobility and Logistics
- Low and Medium Voltage
- Smart Grid
- Building Technologies
- OSRAM*

* In March 2011, Siemens announced its intention to publicly list OSRAM and, as an anchor shareholder, to hold a minority stake in OSRAM AG over the long term

Building Technologies
Our key figures

	Fiscal year 2010 October 1 – September 30	Fiscal year 2011 October 1 – September 30
New orders (mio. euros)	7,132	**7,662**
Revenue (mio. euros)	6,903	**7,441**
Profit (mio. euros)	401	**409**
Employees (on 9/30 incl. trainees)	42,221	**43,979**



Infrastructure & Cities Sector – Divisions and Business Units

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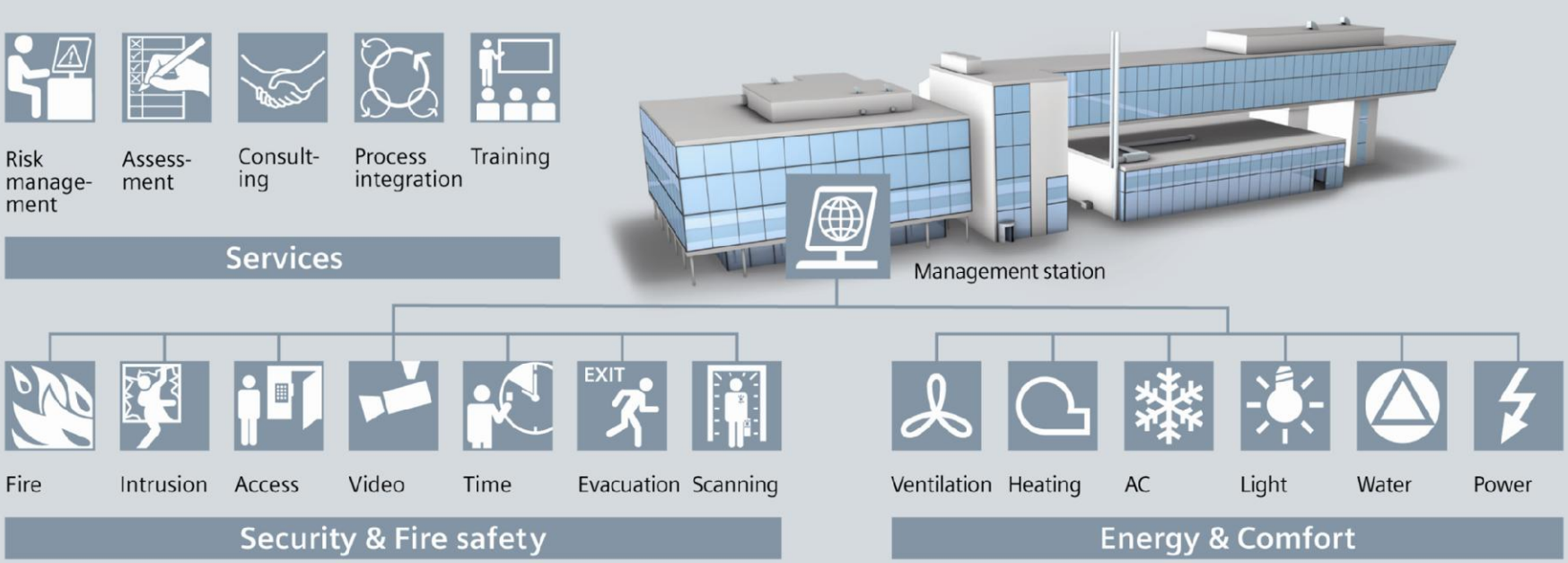
Infrastructure & Cities				
Rail Systems	Mobility and Logistics	**Building Technologies**	Low and Medium Voltage	Smart Grid
▪ High Speed and Commuter Rail ▪ Metro, Coaches and Light Rail ▪ Locomotives and Components ▪ Customer Service and Transportation Solutions	▪ Rail Automation ▪ Complete Transportation and e-Vehicle Infrastructure ▪ Infrastructure Logistics	▪ Building Automation ▪ Fire Safety and Security ▪ Control Products and Systems	▪ Low Voltage ▪ Medium Voltage	▪ Energy Automation ▪ Rail Electrification ▪ Services

What is Building Automation?



With Total Building Solutions, Siemens increases a building's value and efficiency throughout its life cycle

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Energy consumption accounts for 40% of life cycle cost of a building

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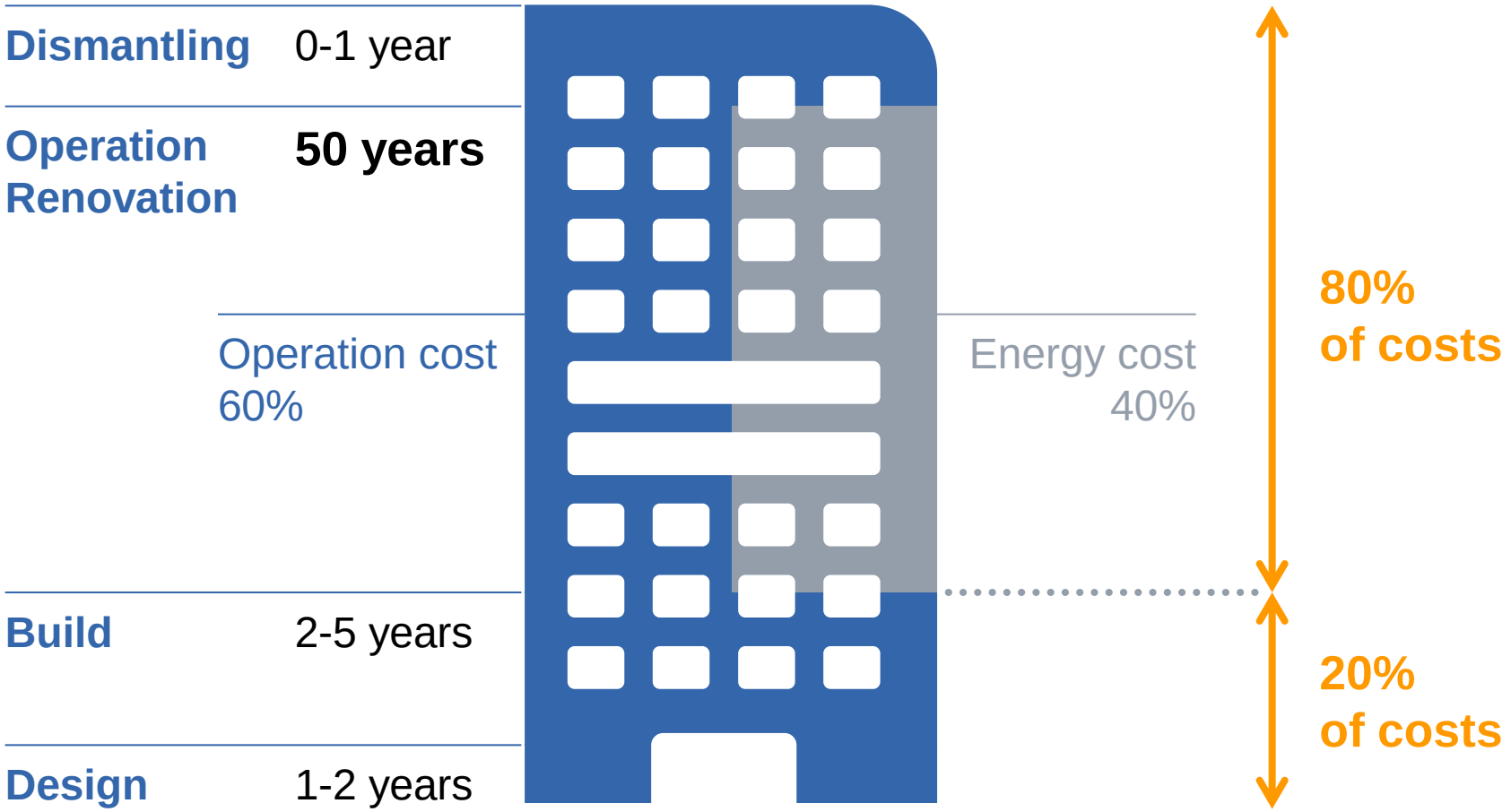

On-going efficient operation requires continuous optimization and monitoring

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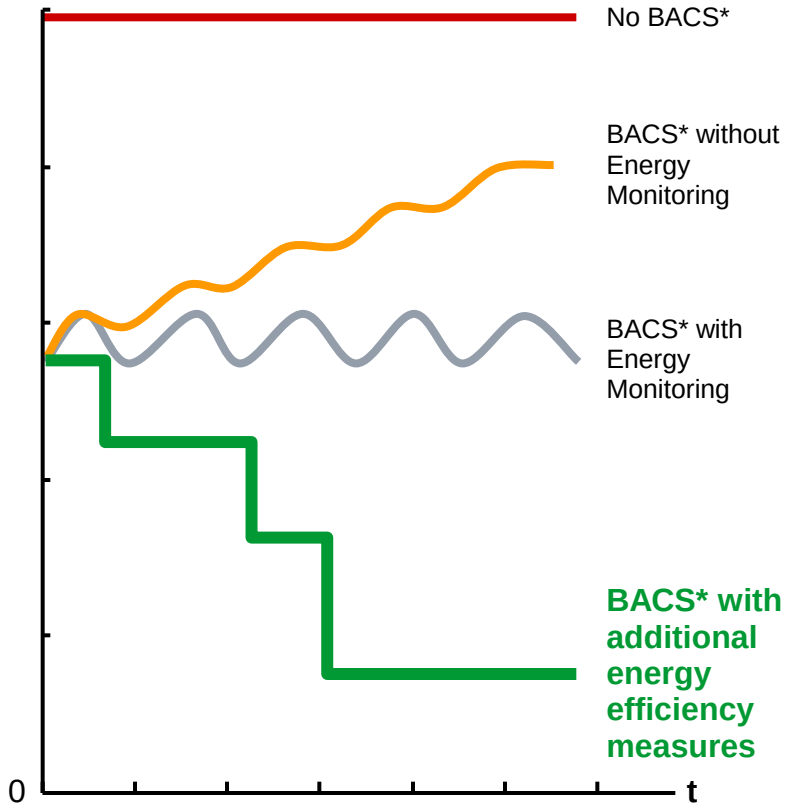
Energy consumption in buildings



Siemens building Munich-Perlach

Heating energy	↘	**34%**
Electricity	↘	**15%**
ROI	$	**2 years**

* Building Automation and Control System

Technology and innovation enables energy efficiency

Heating systems[1)]


© Bruderus

- Modern boilers achieve up to 40% fuel savings
- Compared to low-temperature boilers, the combination of condensing boiler and solar plant reduces fuel consumption by up to 30%

Chiller systems[2)]


© Carrier corporation

- Modern chillers require only about 50% of the energy consumed by older centrifugal machines
- Running on alternative fuels (e.g. natural gas) during higher electricity tariffs leads to reduction in energy costs

Lighting[3)]

- Efficient light management systems reduce energy consumption up to 82%
- Light management systems can be fully integrated in building automation and control systems
- Efficiency factor of LED-systems is still increasing and able to replace traditional light sources

Building Automation and Control Systems

- Controlling heating, cooling, ventilation and other technical systems based on demand in the building and adapt to the building‘s usage requirements
- Advanced building automation and control systems offer energy savings of 20 to 40%(3)

Energy efficient technologies are available and ready to use

1) Comparison of different types of heating boiler. 2008, Germany Energy Agency GmbH
2) Carrier Corporation 3) Source: Siemens Ltd

Buildings consume most of energy and generate most of CO_2 emission in developed cities

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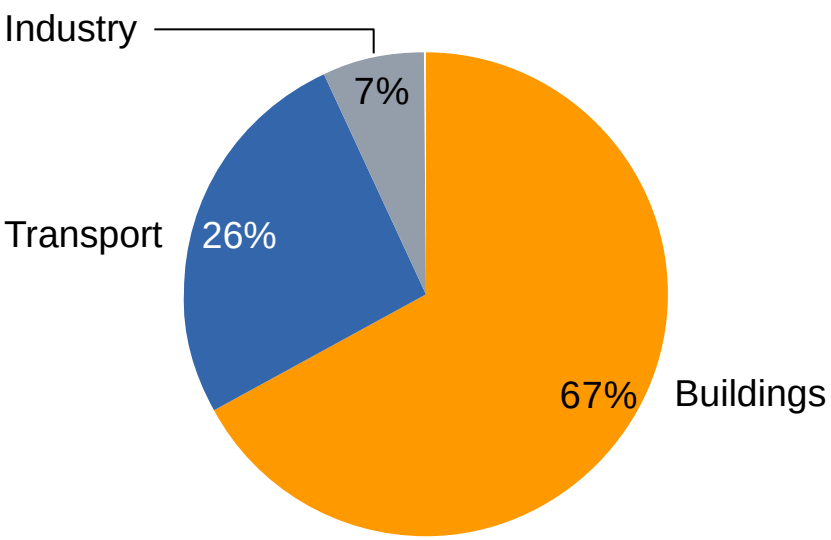
Example: **London**

Mix of CO_2 emissions (Total 47 Mt 2005)



The distribution of CO_2 emission in other developed cities varies

Population size, industrial activities and weather conditions

Option 1

CO_2 emission reduction with building automation is financially profitable

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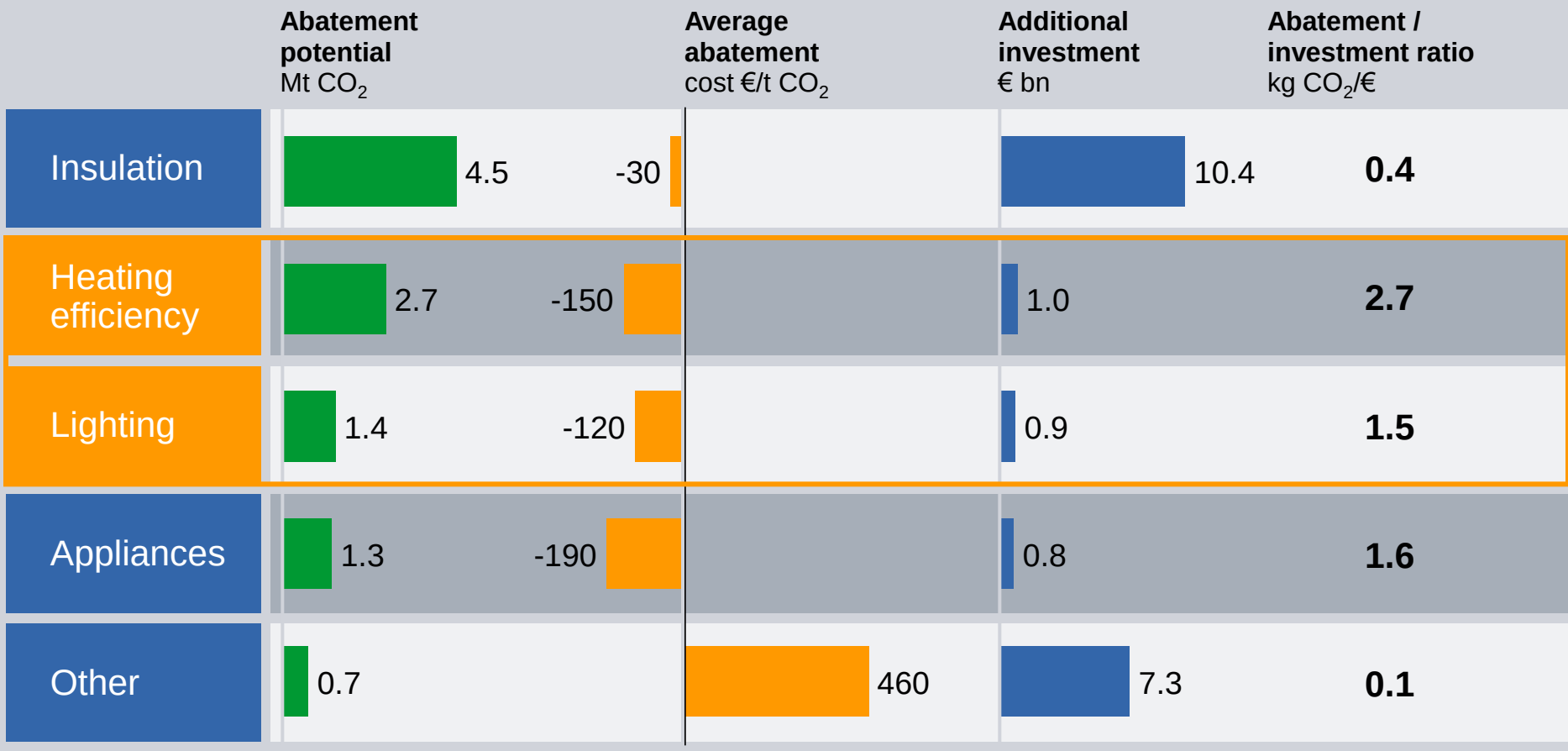

CO_2 emission reduction with building automation is financially profitable

Source: "Sustainable Urban infrastructure, London Edition – a view to 2025"

Energy Saving Performance Contracting

Major energy retrofit projects with guaranteed results

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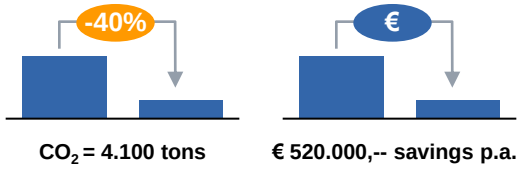
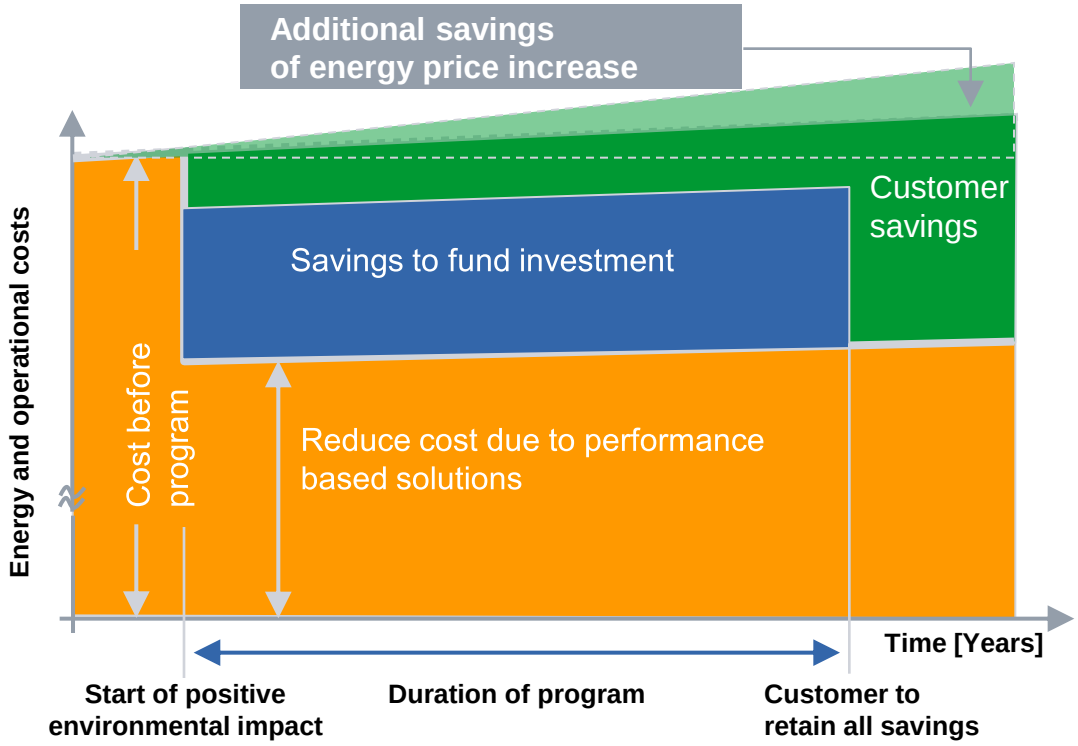
Clinical Center Bremerhaven

- Annual energy cost € 2 Mio p.a.
- 700+ beds

Energy Saving Performance Contracting





Allows customers to modernize and optimize buildings, financed through guaranteed energy savings

Advantage Operations Center

Achieving continuous improvement and comfort

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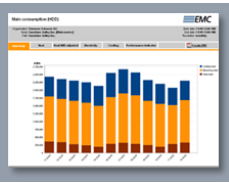
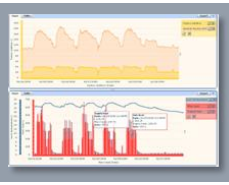
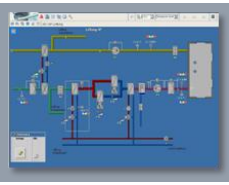
Ongoing efficiency monitoring



Detailed analysis



Rapid online adjustments



Implementing efficiency solutions

Monitoring more than **34,000** buildings and **100,000** meters worldwide

Option 3

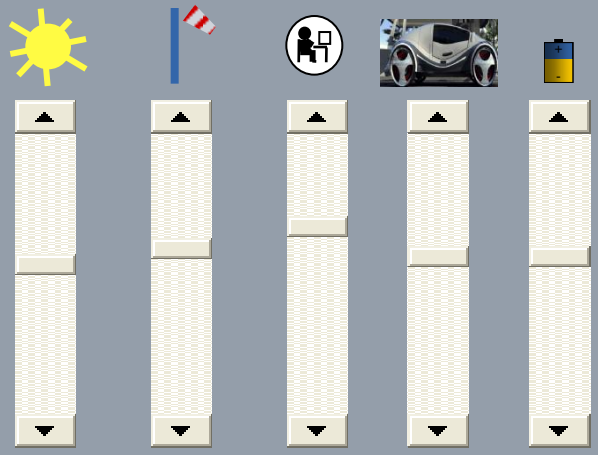
Green Building Monitor

Maximize your facilities economic and environmental performance

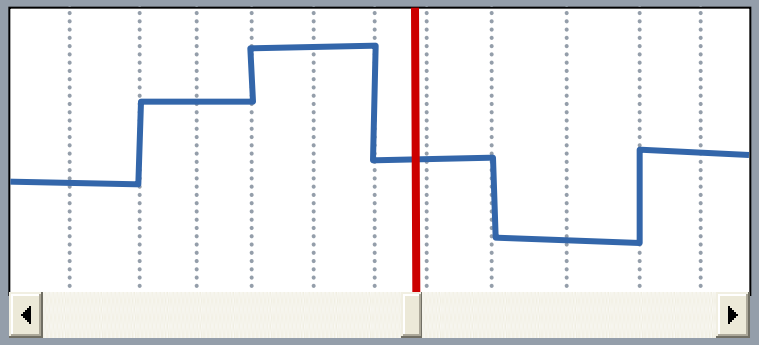
- Visibility of building‘s energy performance
- Shows sustainability initiatives and achievements
- Motivates building users to contribute
- Provides weather forecast and other environmental related information
- Can include company specific information such as stock prices, etc.

Communicates sustainability messages to the building occupants and visitors

sol53, win59, con-136, ev-56, sto56, -24



Electricity price prediction



Reset

Siemens Takes a Unique Integrated Approach to Sustainability and Energy Management

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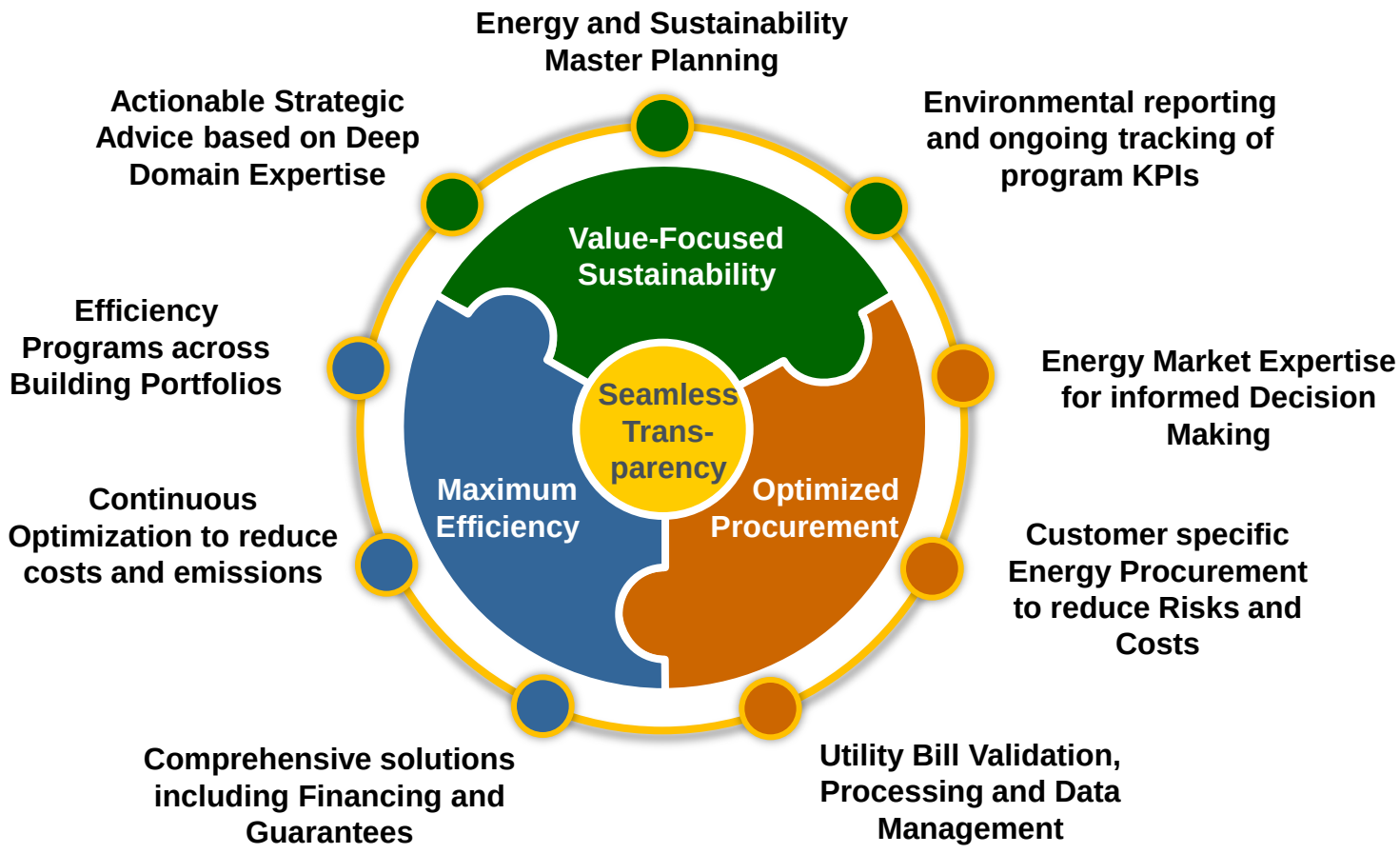

Seamless transparency through **state-of-the-art Data Management platform**, enabling **optimal coordination** between efficiency and supply side initiatives

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Conclusions

- **Software is Key to be successful in the market**
  - Embedded SW
  - Controls and BMS
  - Integration of other System (Fire, Security etc.)
  - Energy Management, Monitoring & Reporting
  - Integration with ERP
- **Software alone is no sustainable differentiation**
  - Application know-how, domain expertise
  - Comprehensive solutions
  - Proof of performance

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Questions?

Sierra Nevada College, USA
LEED Platinum building

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Highlights

- LEED Platinum building
- 60% energy savings
- 65% water savings
- Pay back in 15 years

Project / site	▪ Liberal Arts college at Lake Tahoe ▪ Tahoe Center for Environmental Sciences ▪ LEED Platinum building
Challenges	▪ Meet the high expectations of the center to reflect the core mission of environmental education and research

Siemens solution	▪ Siemens building management system is the backbone for the Center's main energy systems, including the controls of:
	  ▪ Solar water heating
	  ▪ Utilization of rainwater / Water filtration
	  ▪ Co-generation/heat recovery
	  ▪ Evaporative cooling/humidification

Customer benefit	▪ LEED – NC Platinum building (first in Nevada) including a LEED Platinum laboratory ▪ 60% energy savings over ASHRAE 90.1 ▪ 65% water savings over traditional automation systems ▪ 7% higher upfront cost - pay back in 15 years

Clinical Center Bremerhaven-Reinkenheide, Germany

Reference for life cycle management

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Project / site

- Maximum care hospital with 700+ beds, opened in 1976
- CO_2 reduction: 4,130 tons annually
- Guaranteed energy savings: €520,000 annually
- Facility improvements implemented during normal business hours

Challenges

- Annual energy costs were €2.1 million in 2004
- Health reform, intensifying competition demanded profitability
- Bremen Energy Consensus climate protection agency helped pursue energy performance contracting

Siemens solution

- 120 measures led to 25% energy savings
- New building automation system
- New air conditioning and ventilation system
- Optimized heating systems, new heat-recovery system, load-demand heat supply, upgrades to heating circuit control system
- Energy-efficiency improvements to steam and water supply
- Innovative cooling absorption and screw chillers

Customer benefit

- Primary energy savings of more than 25% earned ‘BUND Gütesiegel' award in 2008
- Improved comfort with zero budget impact
- Siemens Energy Services monitoring and controlling ensure guaranteed energy savings

Saturn Tower, Vienna
Total Building Solution

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Challenges	▪ Flexible building control solution, savings of energy costs, while maintaining optimal comfort conditions ▪ Security for occupants and asset values

Siemens solution	▪ Building Management System:
	  ▪ 3 DESIGO Insight Management Stations
	  ▪ 2 VISONIK Systems
	  ▪ SiPort Access Control
	  ▪ SIGMASYS fire detection
	  ▪ Video surveillance system with digital image storage

Customer benefit	▪ Clear overview of all operating states ▪ Efficient operation of all disciplines ▪ Economical and ecological management ▪ Short intervention times