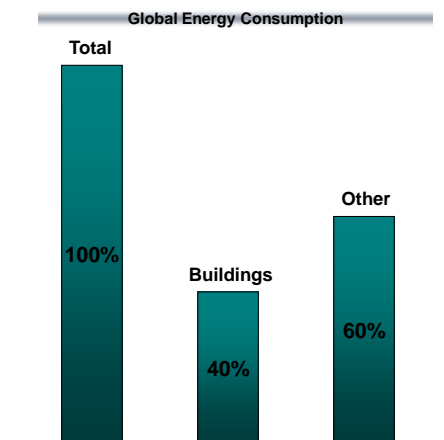


ECO Innovation through energy savings

- ✓ Energy Consumption
- ✓ Transport
- ✓ CO₂ Emission
- ✓ Urbanization
- ✓ Mega Trends

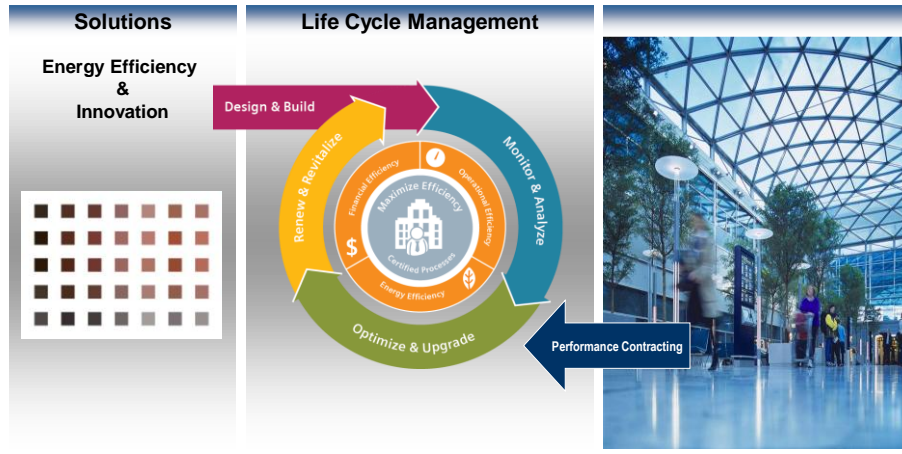


Energy Consumption Installed Base Challenges



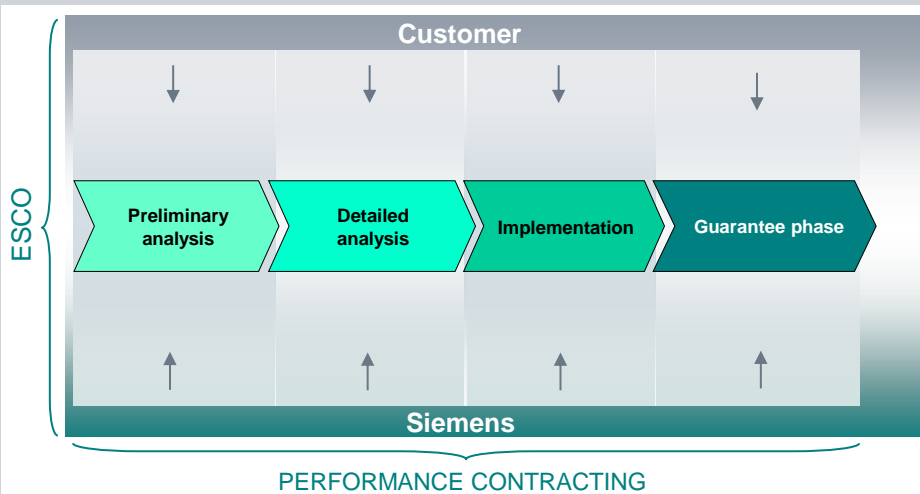
Spinning the Wheel

High Performance and Smart Building Technologies



Performance Contracting

The Block Process



Energy Saving Performance Contracting

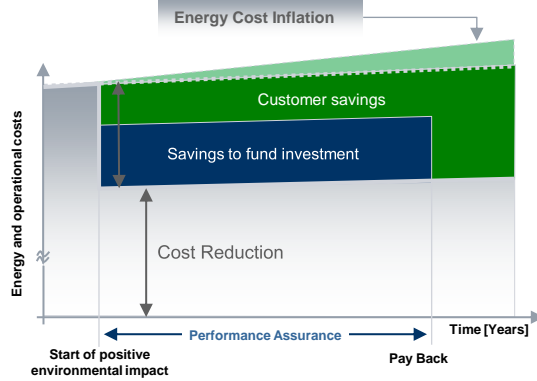
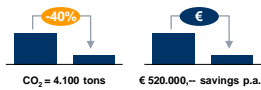
SIEMENS

Clinical Center Bremerhaven



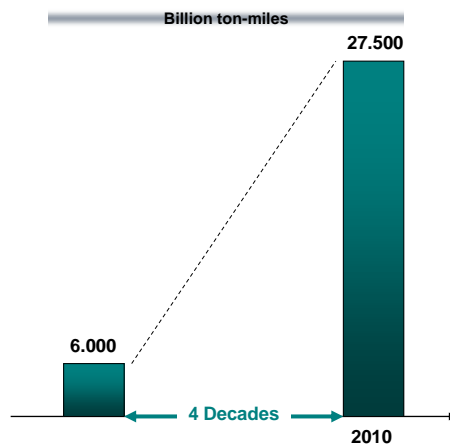
- Annual energy cost € 2 Mio p.a.
- 700+ beds

Effect - Performance Contracting



Ocean Freight Taking Energy Saving to Sea

SIEMENS



Nautic Migration

Taking Energy Saving to Sea

SIEMENS

Optimized & Migrated - 2011

Emma Maersk

- Booster
- Waste Heat Recovery

Shaft power
49.3%



Exhaust gas
29.4%

Scavenge air
14.1%

Jacket water
6.3%

Lubricating oil
4.3%

Radiation
0.6%

Fuel input
100%
(171 g/kWh)

Optimized & Migrated - 2010

MS Disney Wonder

- Migration of room control
- Chiller optimization

MS Prinsendam

- Migration of Intelligent Control
- Chiller optimization

MS Carnival Glory

- Migration of Intelligent Control
- Chiller optimization



MS Disney Magic 1998



MS Rotterdam 1997



MS Oosterdam 2003



MS Disney Wonder 1999



Emma Maersk 2006



MS Prinsendam 1988



MS Carnival Glory 2002



MS Westerdam 2004



MS Statendam 1993

Performance Contracting

Within Siemens

SIEMENS

CoC – Centres of Competence

Americas

- US
- Canada

NWE

- Sweden
- Norway
- Denmark
- Finland
- Poland
- Netherlands

Germany

- Germany

CEE

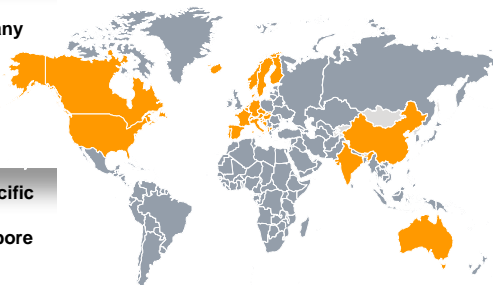
- Austria
- Czech Republic
- Slovakia
- Hungary
- Croatia...

SWE

- Switzerland
- Italy
- Spain
- Portugal
- France
- Luxemburg
- Belgium

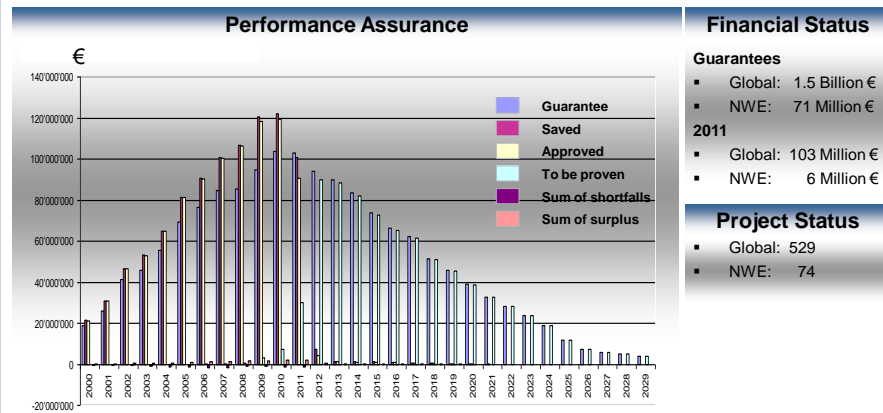
Asia Pacific

- Singapore
- Korea
- China
- Taiwan
- Australia
- Hong Kong
- (India)



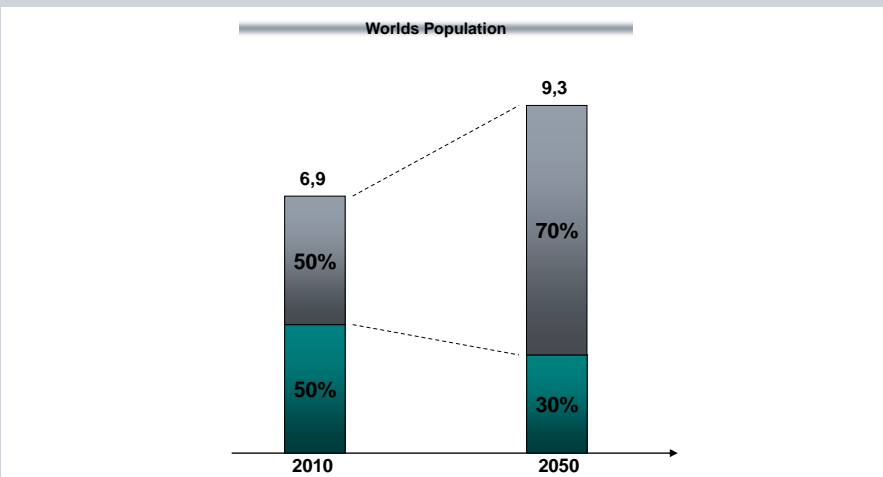
Performance Assurance Mount ROI

SIEMENS



Urbanization City or Ghetto

SIEMENS



1) Renewables

All renewables qualify:

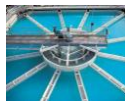
- Wind power
- Grid access for wind power
- Steam turbines for solar thermal power plants



2) Environmental Technology

All environmental technologies qualify:

- Water technologies
- Air pollution control



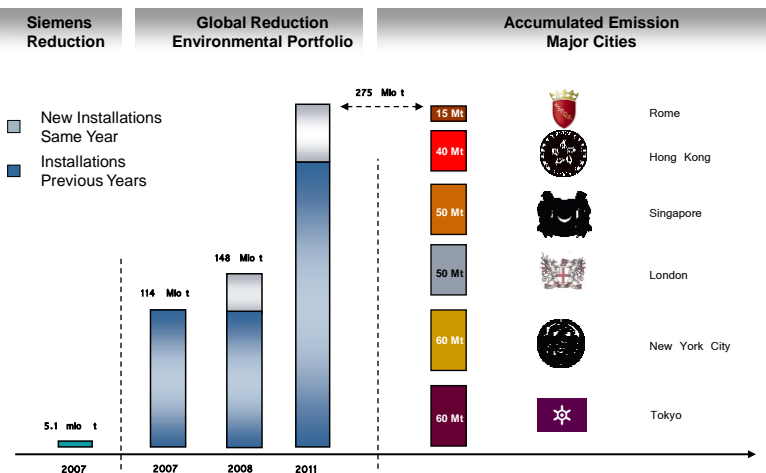
3) Energy Efficiency

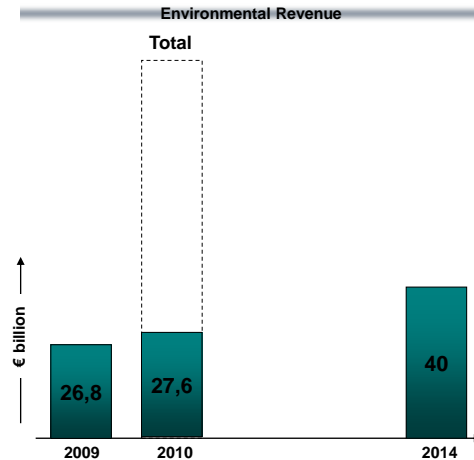
Products and solutions with exceptional energy efficiency qualify:

- Combined-cycle power plants
- Industrial drive systems
- High Voltage Direct Current (HVDC) power transmission
- Traffic management solutions
- Efficient lighting
- Energy performance contracting



CO₂ Reduction
Effects of the Environmental Portfolio





1) Desertec Industrial Initiative

Desert power for Africa and Europe



- Siemens as technology driver
- Goal: meet 17% of Europe's demand for electricity with solar and wind by 2050

2) Smart Grid

The smart grid of the future



- Flexible grid that enables decentralized feed-in and better capacity utilization
- Smart grids to abate more than 1 billion tons of CO₂ by 2020

3) Electro Mobility

Shaping the future of transportation



- Siemens offers comprehensive solutions from (charging infrastructure to drives)
- Integration of electric cars in power grid: batteries used to store power

4) SMART Products

Understanding requirements in emerging countries



- Customized portfolio for medium price segment
- Affordable, high-quality products for the growth markets of the future

SIEMENS

ECO Innovation
through energy savings

Performance Contracting

Henrik B. Hansen

Siemens A/S

Infrastructure & Cities

SIEMENS