

Energy Management

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Schneider Electric

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Schneider Electric – the global specialist in energy management

22.4

billion € sales
(last twelve months)

39%

of sales in new economies
(last twelve months)

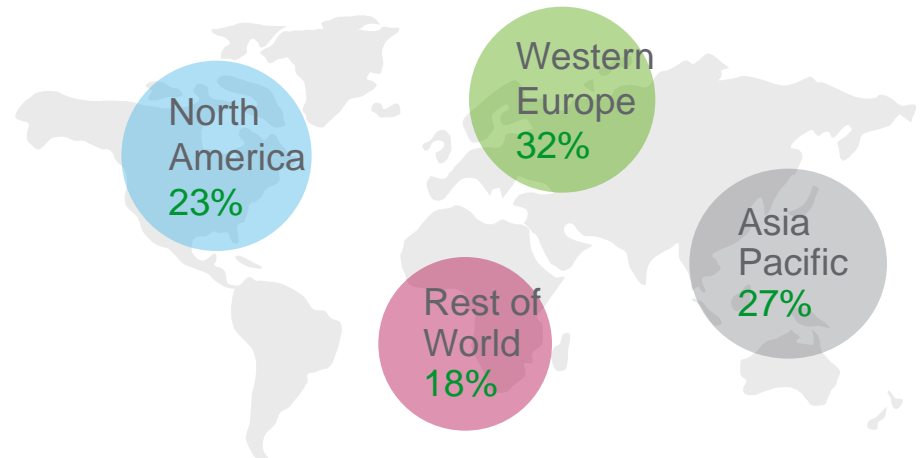
130 000+

people in 100+ countries

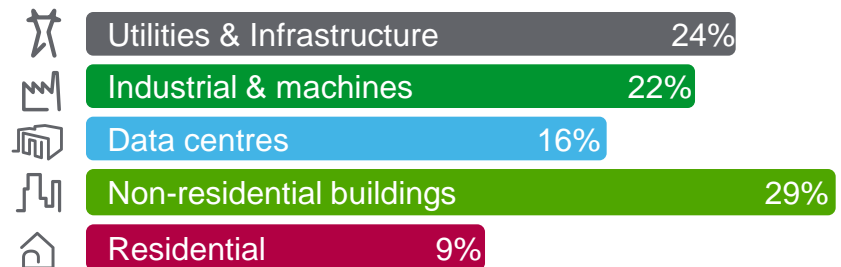
4-5%

of sales devoted to R&D

Balanced geographies – FY 2011 sales



Diversified end markets – FY 2011 sales



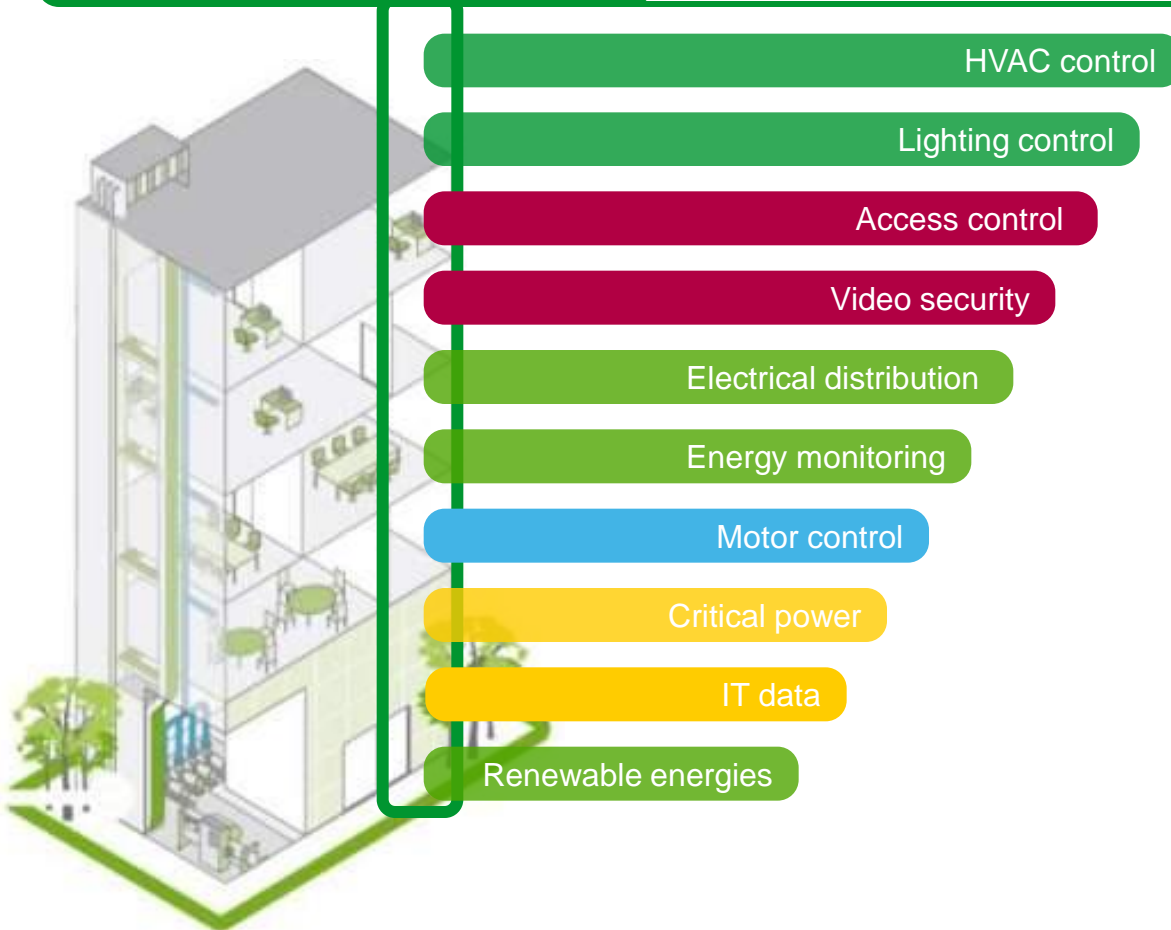
More than 175 years of history

Providing integrated solutions

Integration

Make energy visible
Make systems work together

EcoStruxure™



Efficient & productive:

- Measure and control energy, automate, provide relevant diagnosis
- Manage processes
- Make all the utilities of any Infrastructure more efficient

Reliable

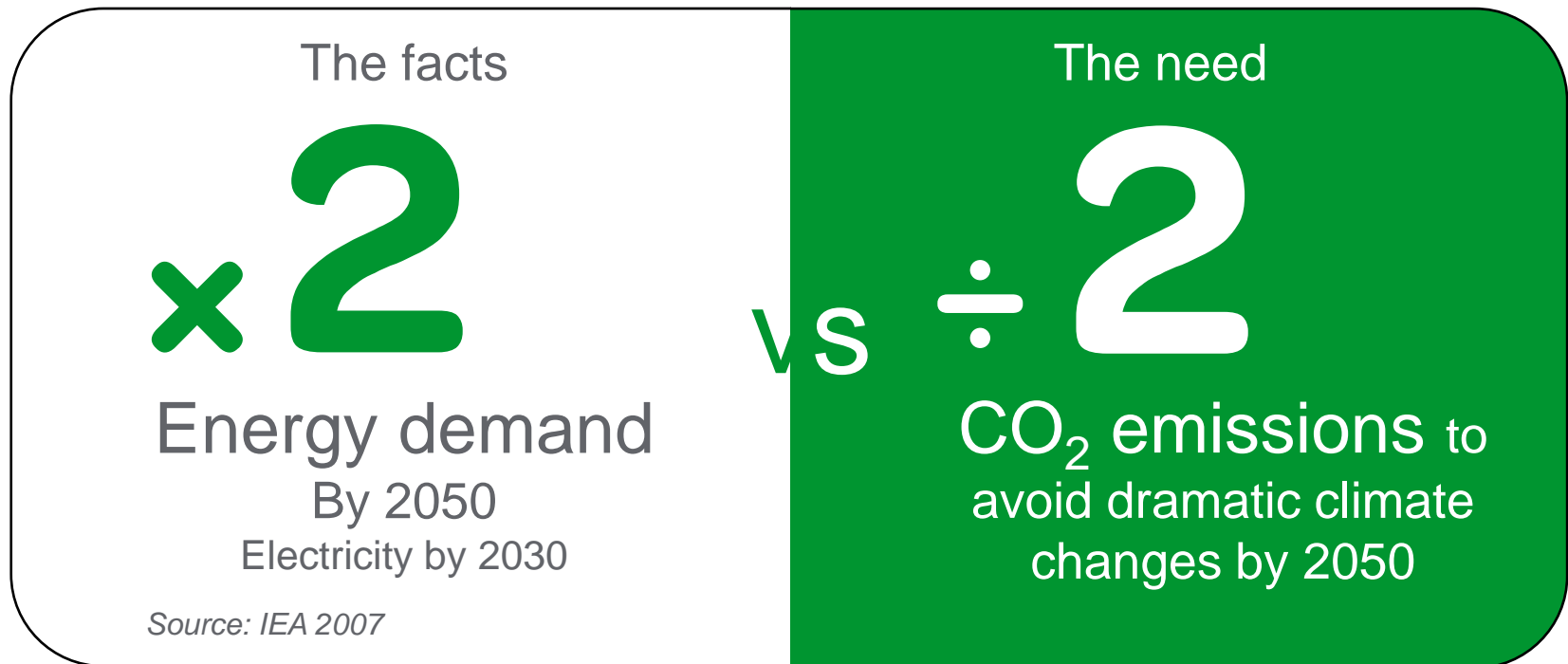
Prevent from power outage & quality variance

Safe

- Protect people and assets
- Transform and distribute power safely

Green: Make the connection of renewable energy sources easy, reliable and cost-effective

The energy dilemma is here to stay



**Frequent
power outages**

**Rising
energy prices**

Climate change

**Conflicts for
resource access
& control**

World today's 5 Megatrends



Geographical shift



Digitization



Everything as a service



Sustainability



Comeback of governments

Standards

- ROHS
- ISO9000 Process
- ISO14000 Environment
- ISO(OHSAS) 18000 Safety & Sanitation
- EN16001 - ISO50001 - Energy Management
- International Products/Communication/Lighting/building Standards:
 - IEC
 - NEMA
 - ZIGBEE
 - KNX / C-BUS
 - Green Building

Today's top challenges



Total life cycle costs

initial capital, ongoing operations and energy cost



The energy dilemma

energy demand versus the environmental impact



Connectivity

too many disparate systems and devices,



Security

as a growing concern

Making energy ...

Green

- Renewable energy solutions

Reliable

- Ultra secured power for critical applications

Efficient

- Energy Efficiency
- Open & integrated systems for optimised Capex & Opex

Productive

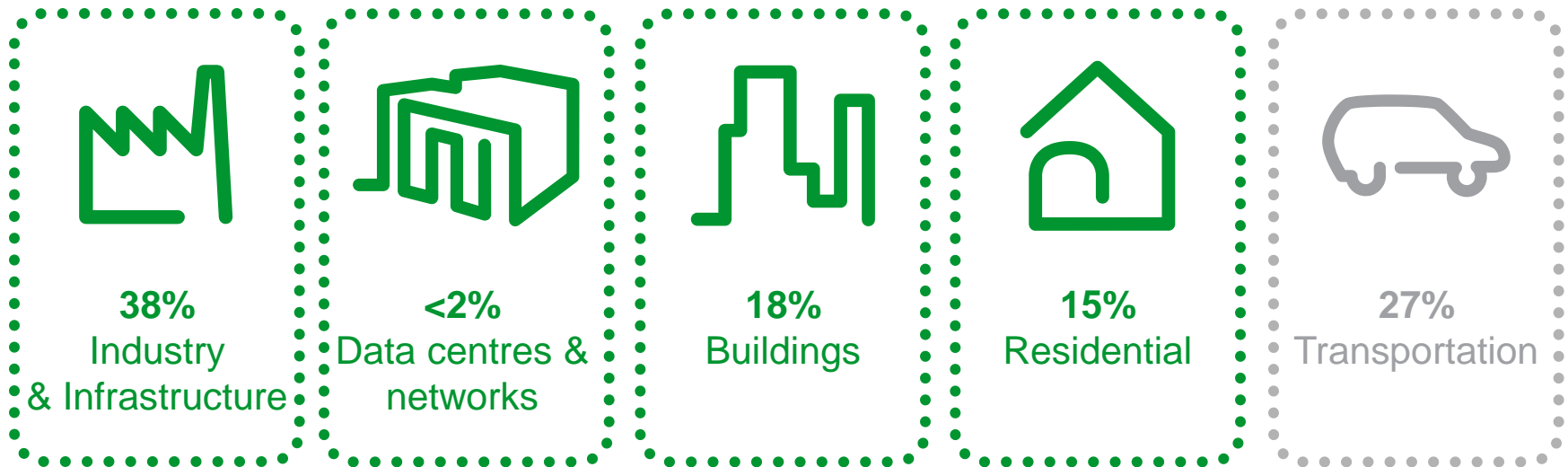
- Automation everywhere
- Connectivity everywhere
- Services at every phase of the lifecycle

Safe

- People & assets protection



The focus must be on the biggest final energy consumers



Government Goal towards Academics

Governmental Energy Saving & CO2 Emission deduction Goals

1. Energy Saving Goal

- ❖ Starting from Year 2008, to increase the energy efficiency 2%/year ◦ Energy density at least 20% less in year 2015 than year 2005, at least 50% less in year 2025 than year 2005

2. CO2 Emission deduction Goal

- ❖ Year 2020 back to the level of year 2005
- ❖ Year 2025 back to the level of year 2000 ◦

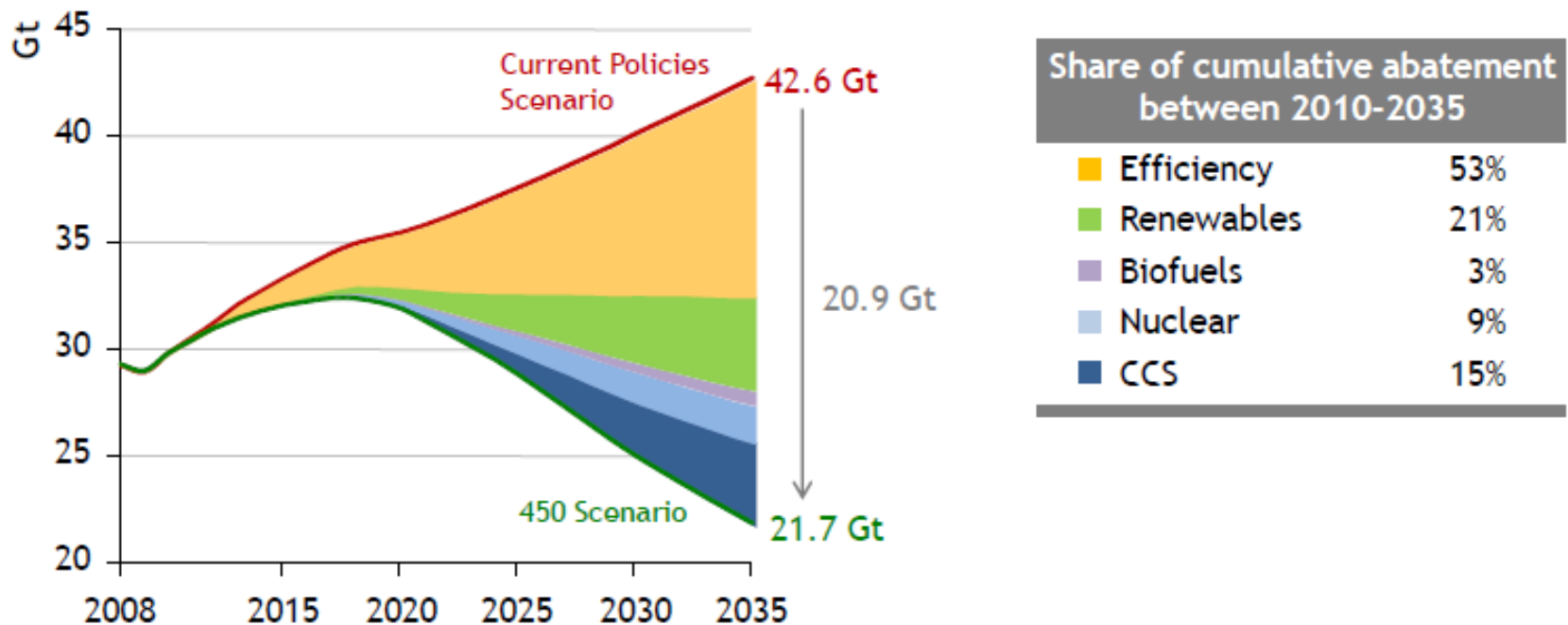
Towards Academics

Goal

7% less energy consumption in year 2015 than year 2005

Over 50% of CO2 emission abatement will be from end use efficiency

World energy-related CO₂ emission savings by technology in the 450 Scenario relative to the Current Policies Scenario



Source: World Energy Outlook 2010

National Central University

Needs of Customer:

- To reduce their energy cost
- To reduce the CO2 emission
- To have a useful tool to do the energy management
- To be green and sustainability , to be competitive

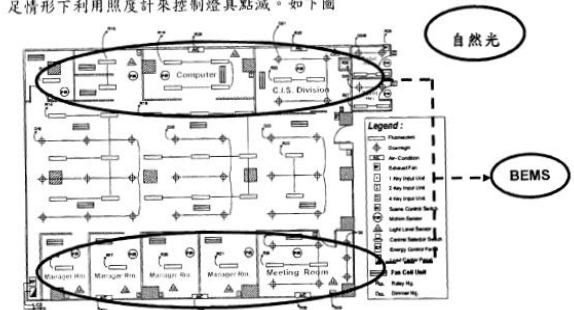


National Central University

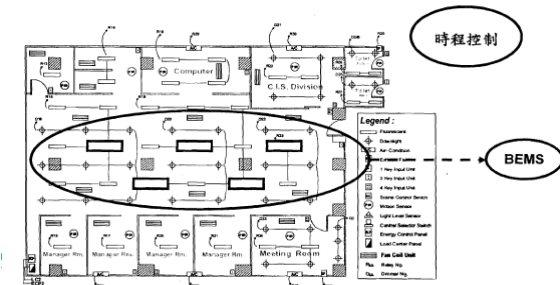
Energy Efficiency Solutions provided

- Lighting system :the lights & lighting system control(time schedule, motion, Lux sensing)
- Air Conditioning system: system controlling(time schedule & temperature)
- Energy Management : a tool to allow them to monitor the energy consumption, to verify their energy saving result, to manage and control their energy demand contract

第一方式:邊間區域設計,此方式系採用靠近自然光之區域在白天亮度充足情形下利用照度計來控制燈具點滅。如下圖



第二方式:中間區域設計,靠近中間走道之區域或是隔間辦公區域在白天採用二線式及BEMS時間管理來控制燈具點滅,舉例白天走道可以採用間隔式照明(1/3/5/7...燈具開啟)。如下圖



National Central University

1st Year Electricity consumption decreased 121,693 Kwh / year , Energy Saving NTD329,000/year, 40.02% ◦

(kWh)	121,693
(kloe)	30.23
Energy saving amount (NTD)	328,571
Saving % in amount	40.02%
Saving % in Kwh consumption	40.02%
CO ₂ reduction(tons)	75.81

2nd Year Electricity consumption decreased 126,397 Kwh/ year , Energy Saving NTD329,000/year, 49.38% ◦

Every building should be efficient

Example: Schneider Electric's headquarters



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Final energy consumption vs. previous sites in the Paris region

80 kwh/m²/year

Final energy consumption target for end 2010
ROI in **5 to 7 years**

Solution et project management

- Integrated building management system EcoStruxure
- Collaboration between partners
- Employee engagement in continuous improvement



Certified

ISO14001
HQE Exploitation
NF EN16001

Make the most of your energy

工業局委任工廠節能量測單位

台灣建築中心低碳社區資詢輔導顧問團委員

智慧綠建築 / 綠建築 / LEED 輔導申請

ISO50001能源管理系統輔導申請

(全球第一家ISO50001 認證通過公司)

台灣能源技術服務產業發展協會理事監事(ESCO)

節量績效測驗證專業人員

美國能源工程師協會(AEE)認證



ISO 14064:2006

溫室氣體排放量主任查證員



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Schneider
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