

PHILIPS

sense **and** simplicity

Lighting Centric Green Buildings System Solutions

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Philips Research North America

AEC 2010, Nov 9, 2010

Philips Defined: We Are...

“...a global company of leading businesses creating value with **meaningful innovations** that improve people's **health and well-being**.”

Health and Well-Being

- A commitment to healthy, fulfilled lives in our communities and societies
- Our world



Healthcare

Meaningful Innovations

- Improving people's lives
- Going beyond technology
- Introduced at the right time



Consumer Lifestyle



Lighting

Founded in 1891 · Global Company · 133,000 Employees · Sales (2007): €27B · 60,000 Patent Rights

Committed to Innovation



1891



1927



1930s



1940s



1960s



1981



1999



2004



2005



2006



2007



2007

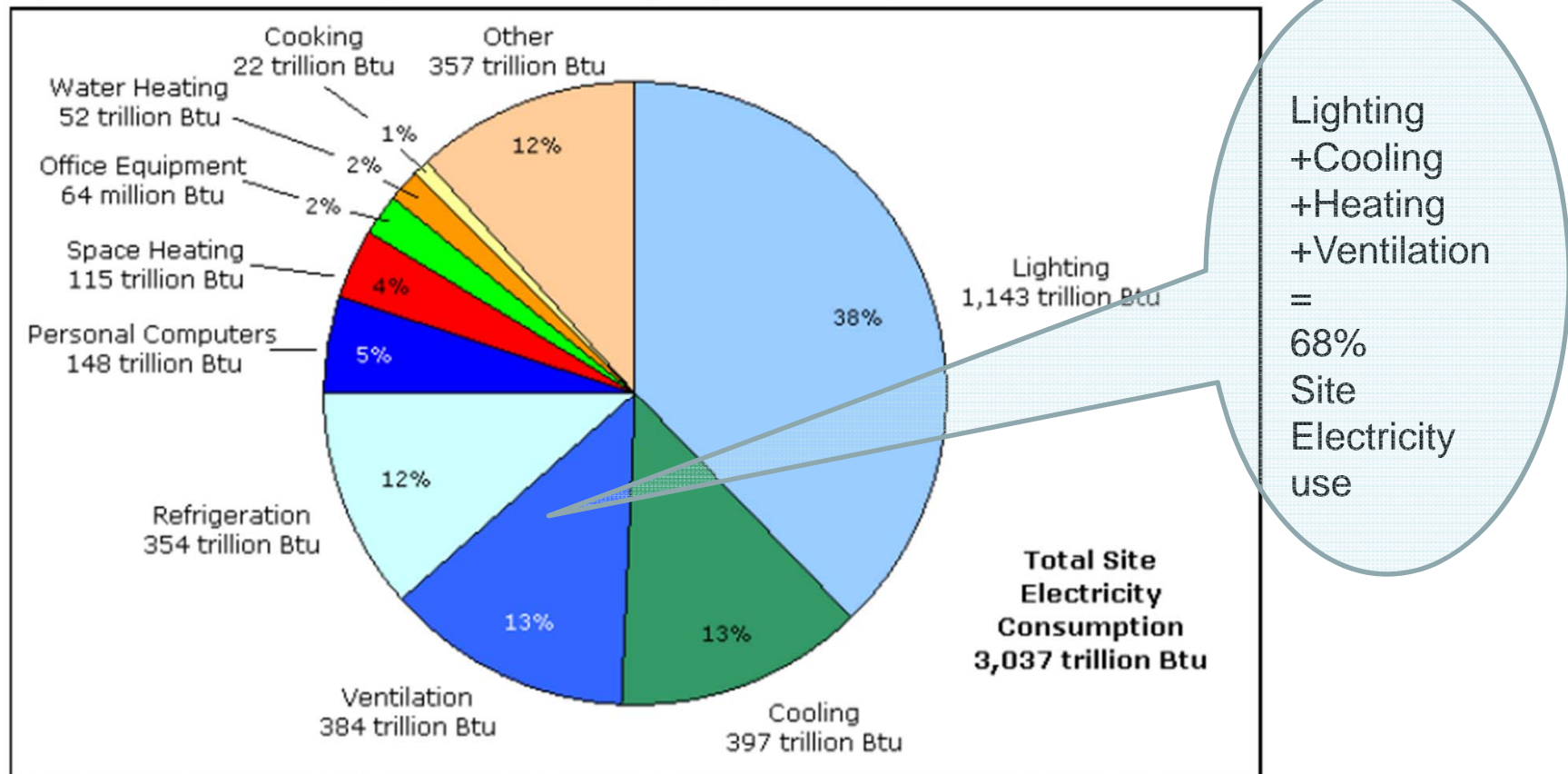
Our Core and Corporate Soul Is a Passion to Improve the Quality of People's Lives Through Timely Introduction of Meaningful Innovations

Outline

- Introduction – Building performance
- Lighting Role and Control Strategies
- Applications in Buildings and Cities
- Philips Sustainability and Open Innovation
- Conclusions

Commercial Buildings Site Electricity Consumption by End Use

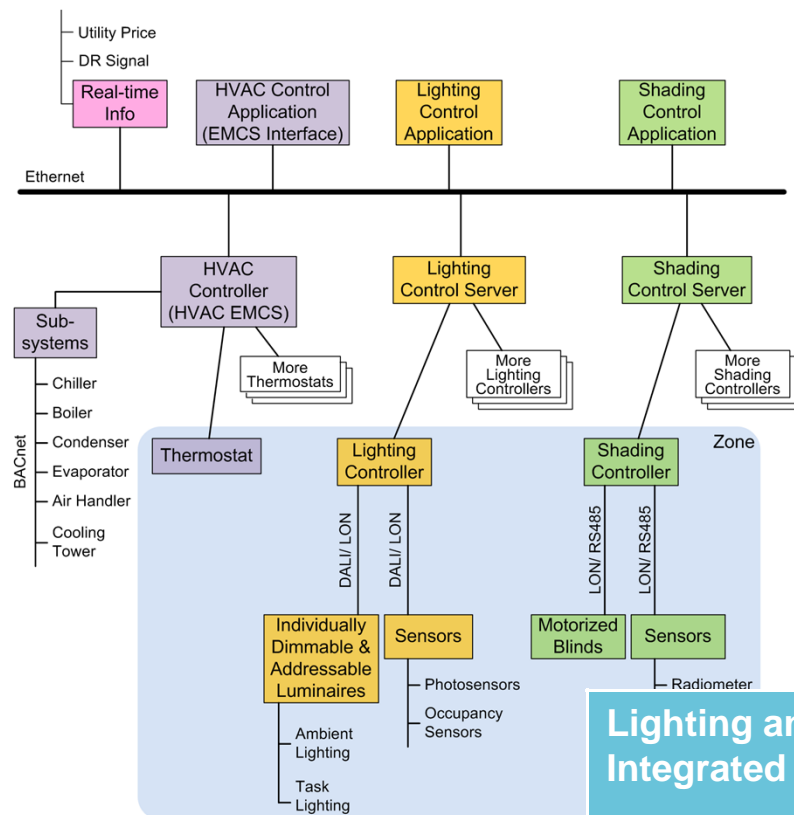
Figure 4. More site electricity is consumed for lighting than for any other end use.



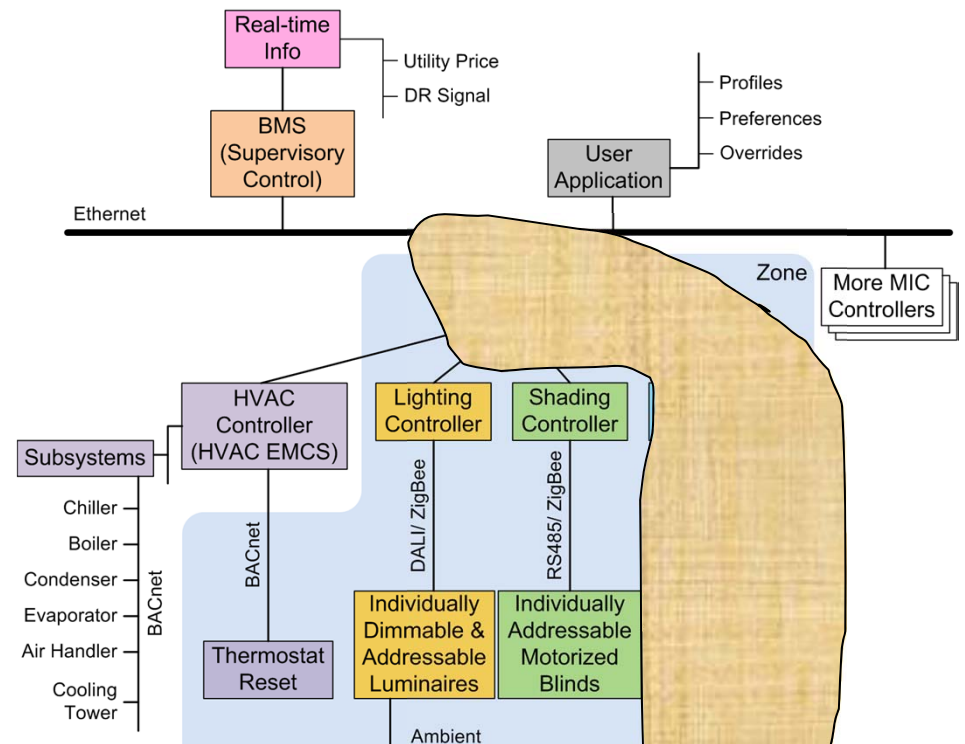
Note: Data are for non-mall buildings. Site electricity excludes energy used to generate and transmit electricity.
Source: Energy Information Administration, 2003 Commercial Buildings Energy Consumption Survey, [Table E3](#).

Building wide Control System

Independent Control



Integrated Control



Lighting and shading Integrated

Day time average
(7 am to 5:30 pm)

Reduction in Average Power consumption

Independent

27%

Integrated

52%

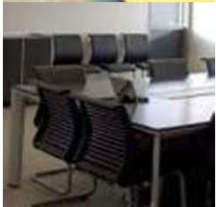
Lighting applications in office

Whether you're working, resting, learning or relating, light carves out space for the activities that carve out life



Reception

Create a memorable first impression. Put guests at ease. Communicate the corporate culture.



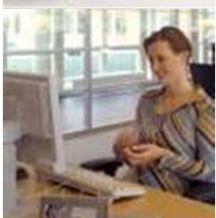
Conference rooms

Design for visual comfort and maximum flexibility: presentations, collaboration, communication. Relax or stimulate as appropriate.



Open offices

Facilitate communication. Reduce glare. Engage employees in the corporate culture.



Private offices

Flexible. Customizable. Enable comfort and well-being.



Corridors and stairways

Promote safety. Save energy. Accent displays.



Outdoor and parking

Convey corporate image through attractive lighting and signage. Promote safety. Efficiency and easy maintenance.



Touchdown areas

Enable social contact and individual short-term work.



Classrooms and training rooms

Improve concentration and comprehension. Visual comfort. Adaptable for different activities.



City People Light as Platform Packed with Three Themes



Future Asia City: Megacity

Lighting for Rapid Urbanization from Philips

PHILIPS

Managing
the Mass



Brilliant Iconic Cities

World-Class Lighting for
World-Class Places from Philips

PHILIPS

City as Icon



Make the Nighttime Playtime

Urban Happiness from Philips Lighting

PHILIPS

Harmonious City
for Sustainability

City · People · Light



Sustainable Urban Innovation

1

Healthy Water

- Insights in local needs in China
- Advanced treatment options
- Sensor solutions for process control, bacteria, viruses, hormones



2

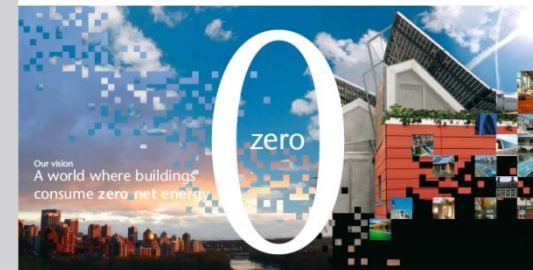
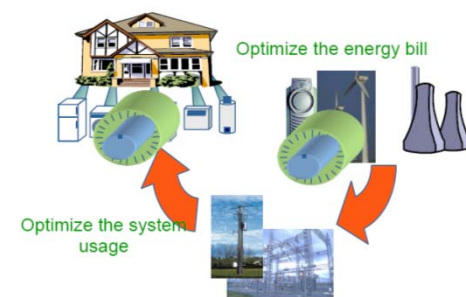
Fresh Air

- Insights in local needs
- Advanced filter and air treatment
- Sensor solutions for air quality in buildings and the home



3

Energy Management



Three Steps Are Essential Evolution

Energy Efficiency

Increase the Efficiency with Which People Use Energy

Attractive Solutions That Integrate Non-Disruptively into Homes and Buildings

People Engagement

Changing Patterns of Consumption

Lighting

One of the Most Efficient Ways to Cut CO₂

- New innovative lighting solutions could realistically save up to 40% energy on all today's installed lighting
- Global savings of €106B in energy costs per year
- This equates to:
 - 555 million tonnes of CO₂ per year
 - 1.5 billion barrels of oil per year
 - Annual output of 530 medium-sized power stations @ 2TWh/yr



Area of lighting	Energy savings		CO ₂ savings per lamp per year
Street lighting	HPL	57%	CosmoPolis 109 kg CO ₂
Retail lighting	Halo	80%	CDM 115 kg CO ₂
Office & Industrial lighting	T8	61%	TLS 77 kg CO ₂
Home lighting	GLS	80%	CFLi 34 kg CO ₂
LEDs	GLS	82%	LED 34 kg CO ₂



Philips in Tianjin Eco-City

- Harmonious and sustainable community where 350,000 residents can live, work, and play
- First residents expected around 2011
- Collaboration with Philips on **test-bedding** and **application** of energy efficient lighting products and solutions
 - Lamps
 - Luminaries
 - Intelligent lighting control
 - Renewable energy for lighting
 - Daylight harvesting



Simplicity

Optimal Response to Personal Need...

Technologies 2010

- Easy setup and commissioning of control systems
- Connectivity architecture
- Access control
- Asset and person tracking
- Wireless proximity charging

Wireless Lighting Control



On-Demand Public Lighting

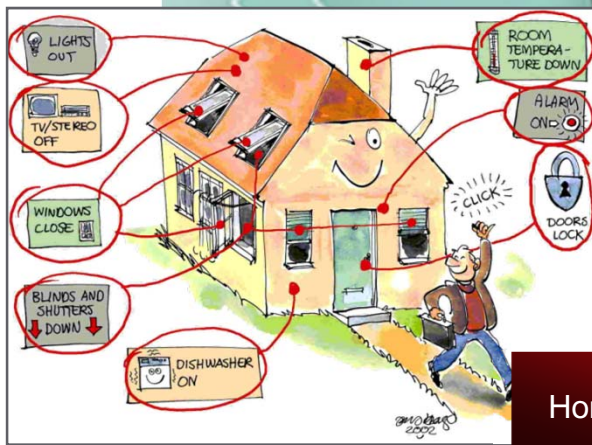


Building Control



Technologies 2015

- Sensor data fusion and aggregation
- Learning environment methods
- Ambient sensors, e.g., air quality
- Wireless proximity power
- Connected control



Home Automation

Our Open Innovation Strategy

- Principles
 - Good ideas are widely distributed today
 - First to discover is neither sufficient nor necessary for commercial success
 - Better business model beats better technology
- What is it
 - Collaborative innovation
- We do it to
 - Create value by leveraging expertise
 - Create critical mass to cope with ever increasing complexity
 - Be able to define standards
 - Reduce time to market by co-operating with partners in the value chain
 - Reduce cost and share risk



From



To

Wrap Up

- Buildings represent the largest energy user in the US
- Lighting is the single largest electrical energy user in commercial buildings and influences cooling, heating and ventilation loads
- Integrated control systems can provide better optimization of energy and occupant comfort and well being
- Sustainability will be a key driver for Philips and others.
- Philips is committed to open innovation

