THE FUTURE IS NOW…

EXPERT'S WEBINAR

Smart Building & Home Automation

Voltimum ANZ

16 July 2014 | © Voltimum

Expert Introduction - Presenter 1

Ian Richardson

ABB

Senior Product and Standards Engineer, Certified Trainer and Assessor Low Voltage Products

ian.richardson@au.abb.com

www.abbaustralia.com.au

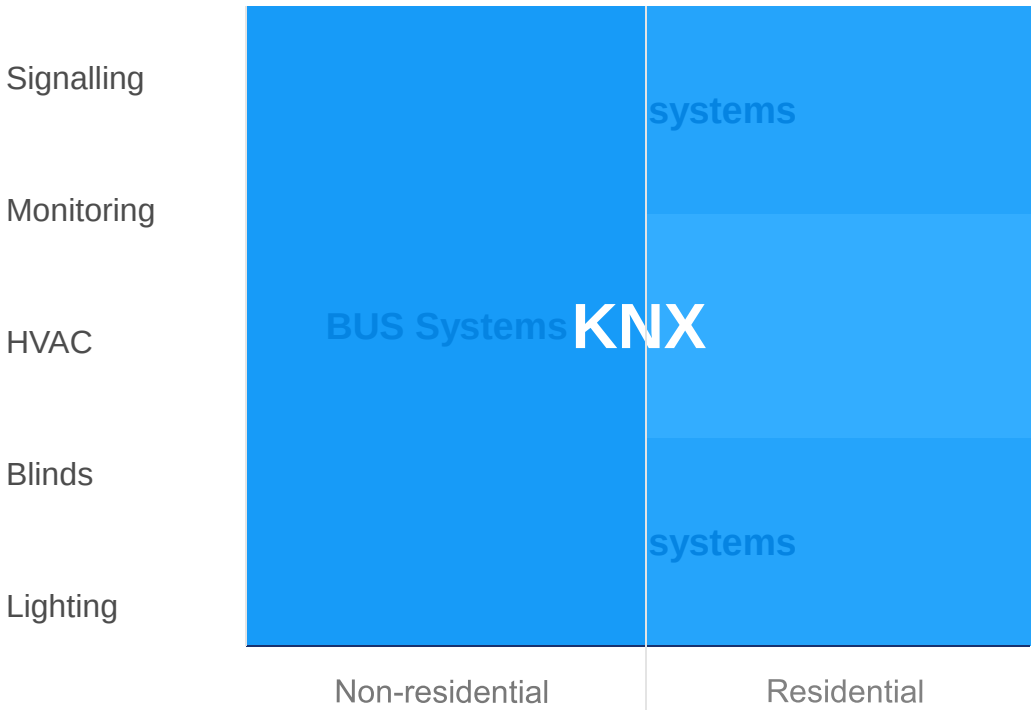
Power and productivity for a better world™

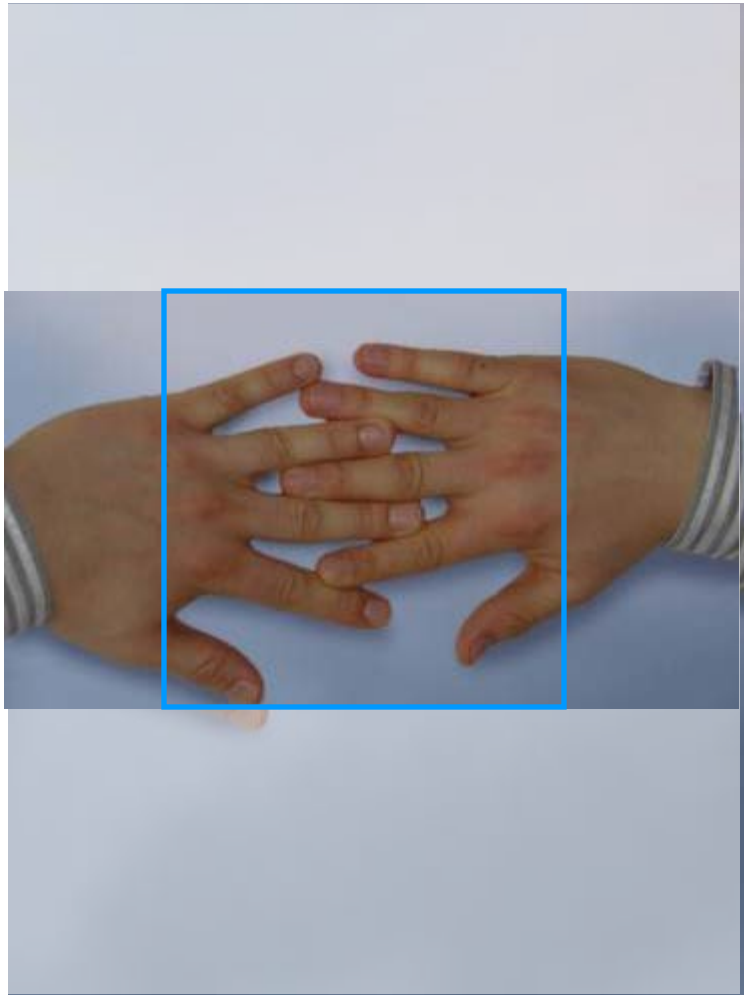
Energy Efficiency Applications: More than just a Lighting System!

- Lighting control and regulation
- Heating, ventilation, cooling
- Blinds and shutter control
- Security and monitoring
- Energy and load management
- Visualisation and operation
- Central automatic
- Remote control / maintenance
- Interface to other control systems
- ...

Convergence of Applications

One complete solution instead of limited individual solutions



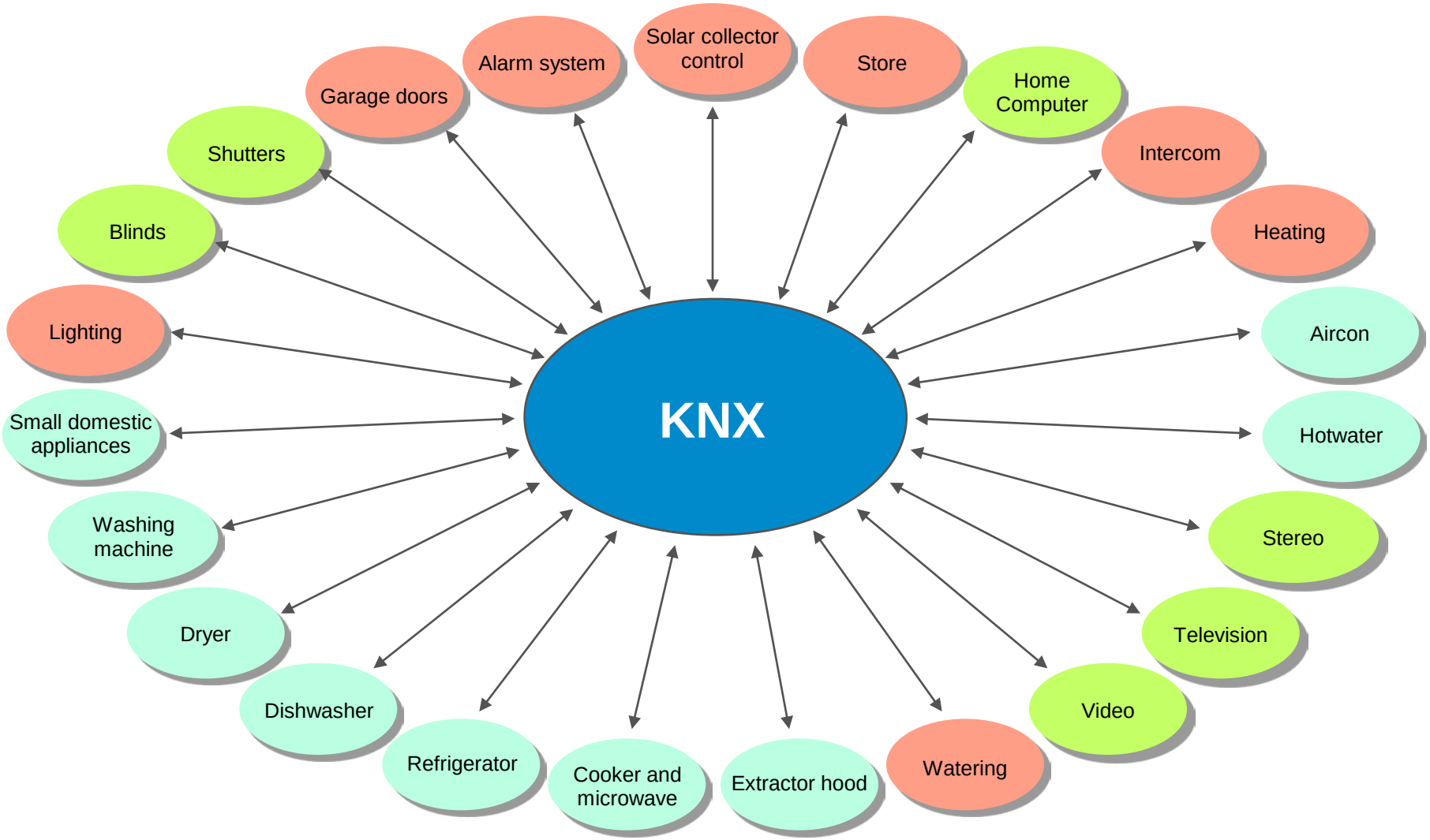


The Future of Home and Building Control

The advantages of standardisation

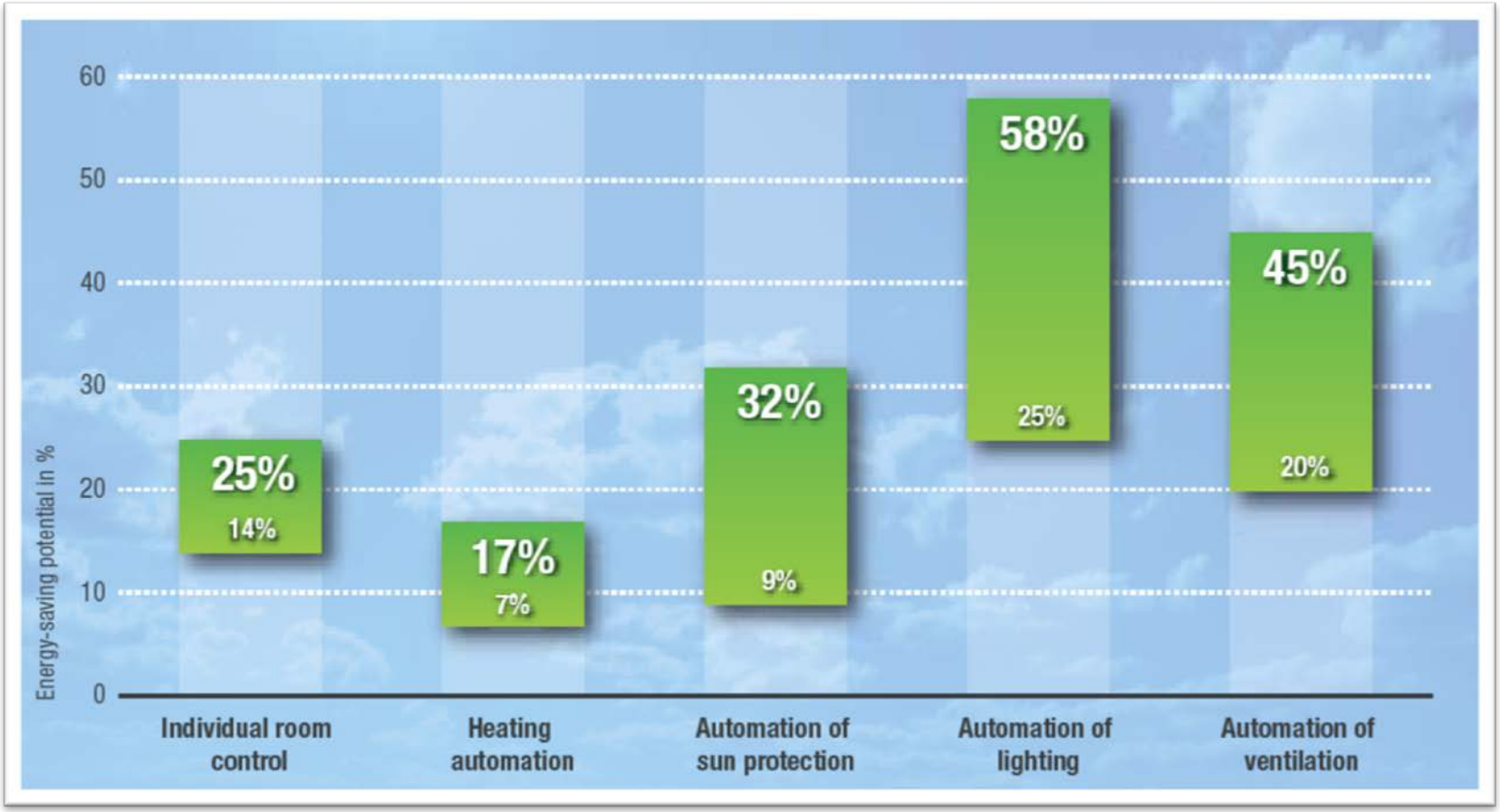
- A platform such as KNX has multiple approvals for global markets.
- Compliance to an IEC standard ensures backward and forward compatibility.
- Multi vendor open protocol allows maximum competition for product costs.

Convergence of applications - simplified integration



Possible Savings with KNX Intelligent Building

Potential saving ranges according to application

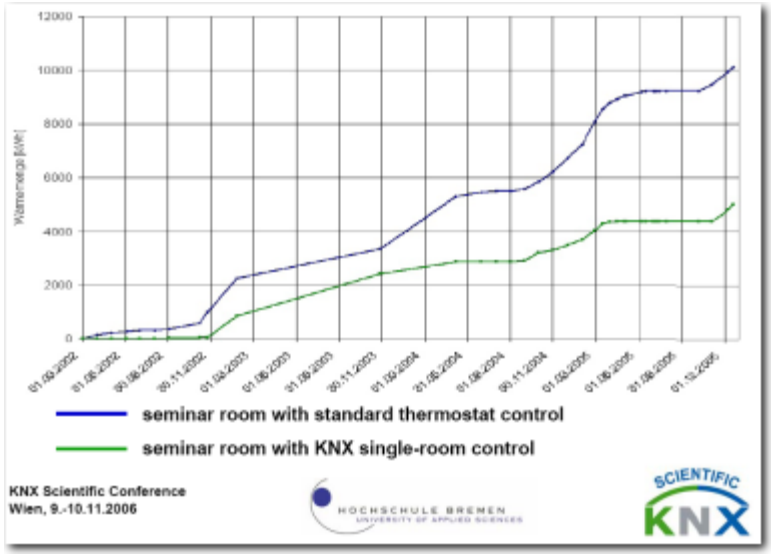


Source: KNX Association www.knx.org

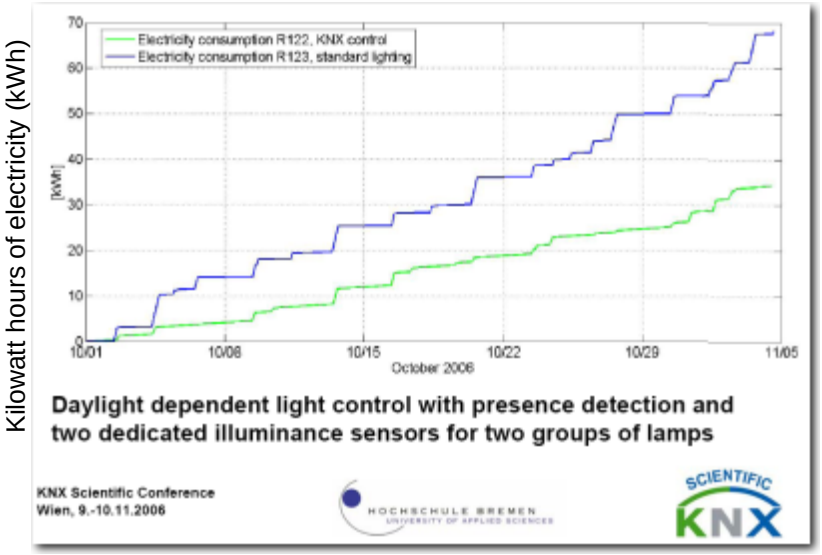
Energy Efficiency Study-University of Bremen

University of Breman seminar rooms: Comparison of two identical rooms

Energy for Heating



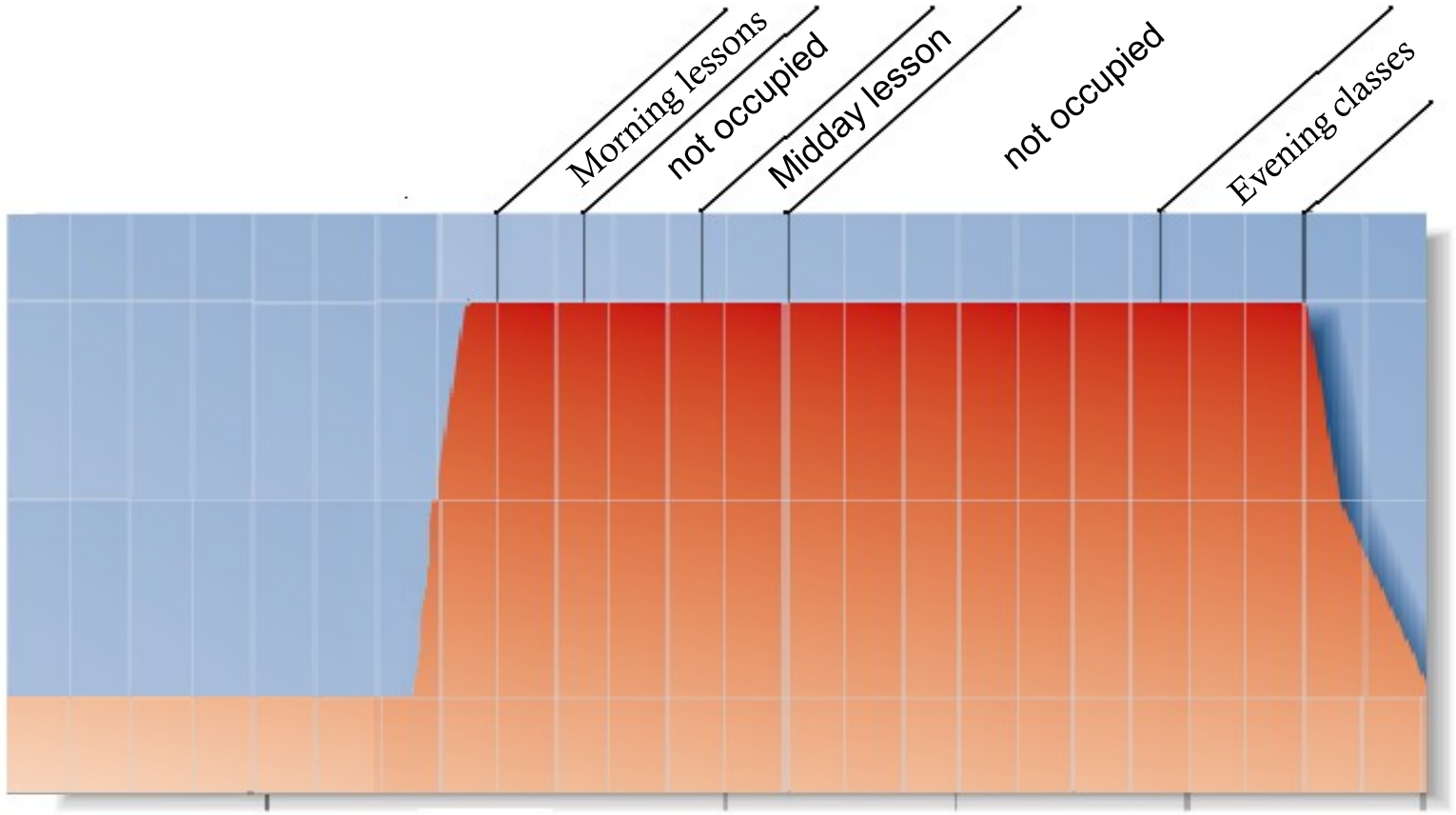
Energy for Light



Implemented Functions	Savings*	Parameters (positive)
Constant light control in combination with blind control	up to 44 % for cooling up to 50% for lighting	- High daylight factor (light from outside) -
Constant light control in combination with blind control and presence detection	up to 50 % for cooling up to 52% for lighting	- High daylight factor (light from outside) -

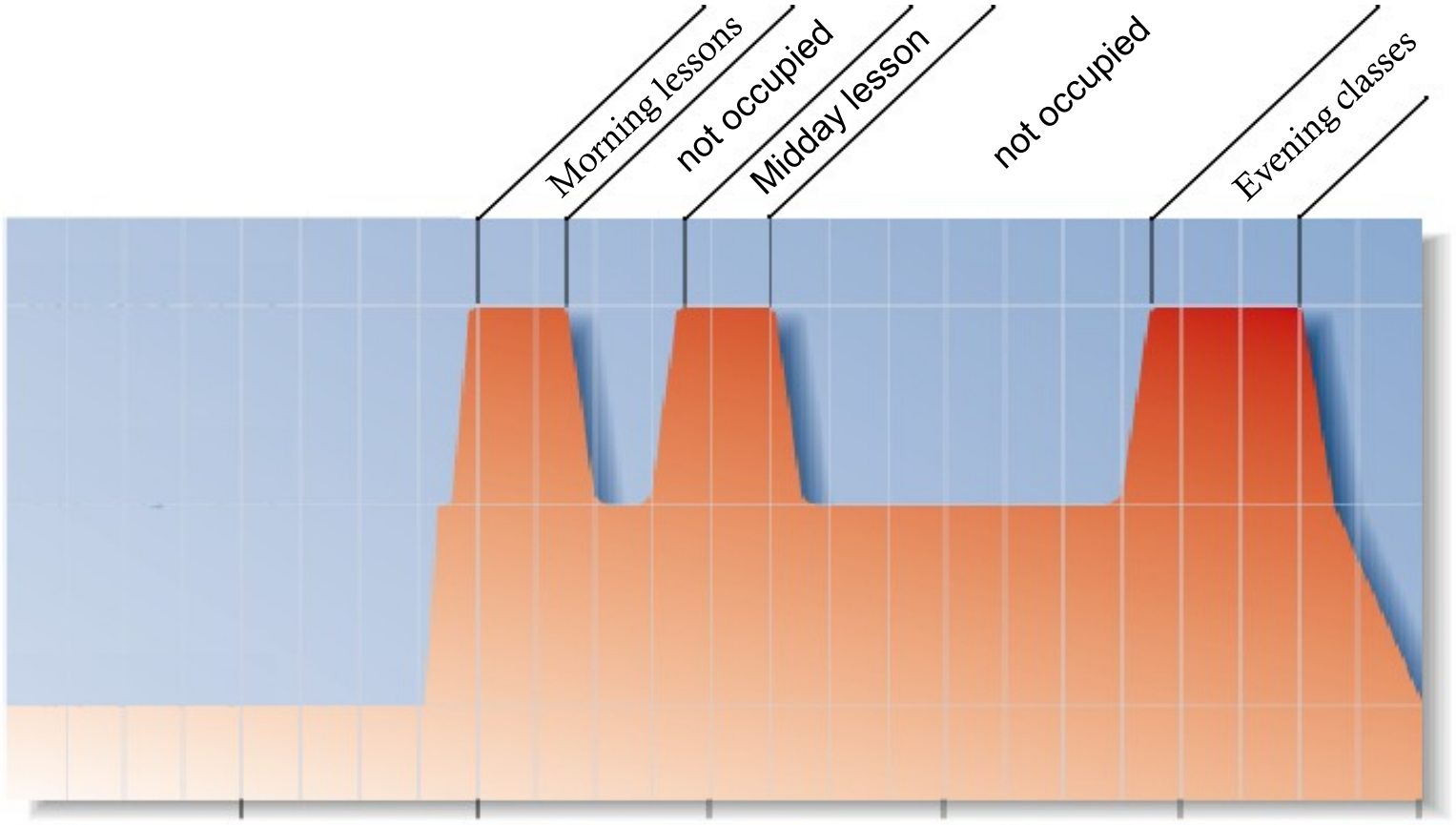
Typical Example - conventional heating approach

School Classroom



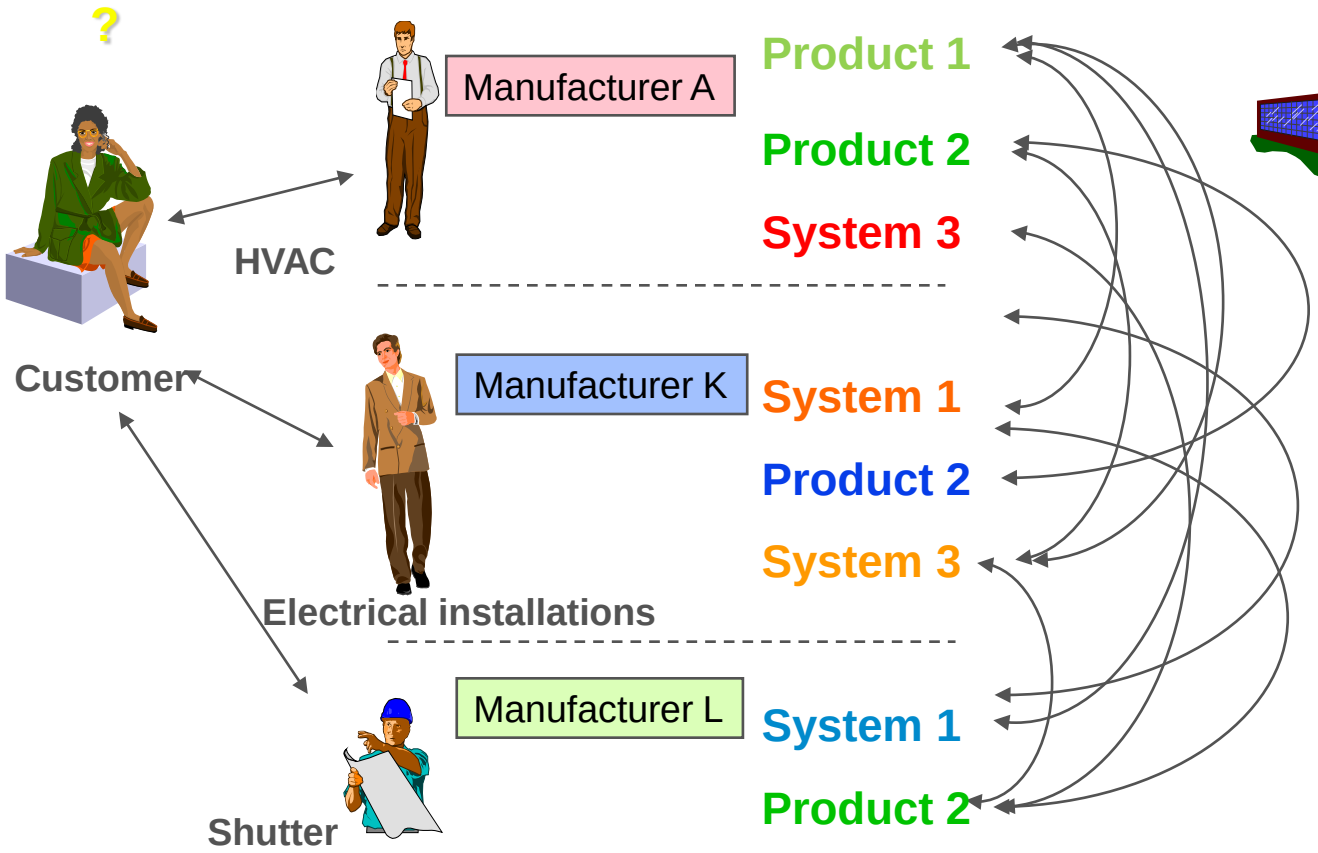
Typical Example – heating according to demand

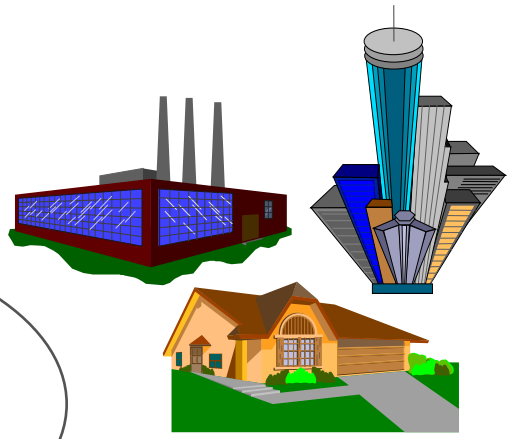
School Classroom



A temperature reduction of 1ºC can mean energy savings of 6%.

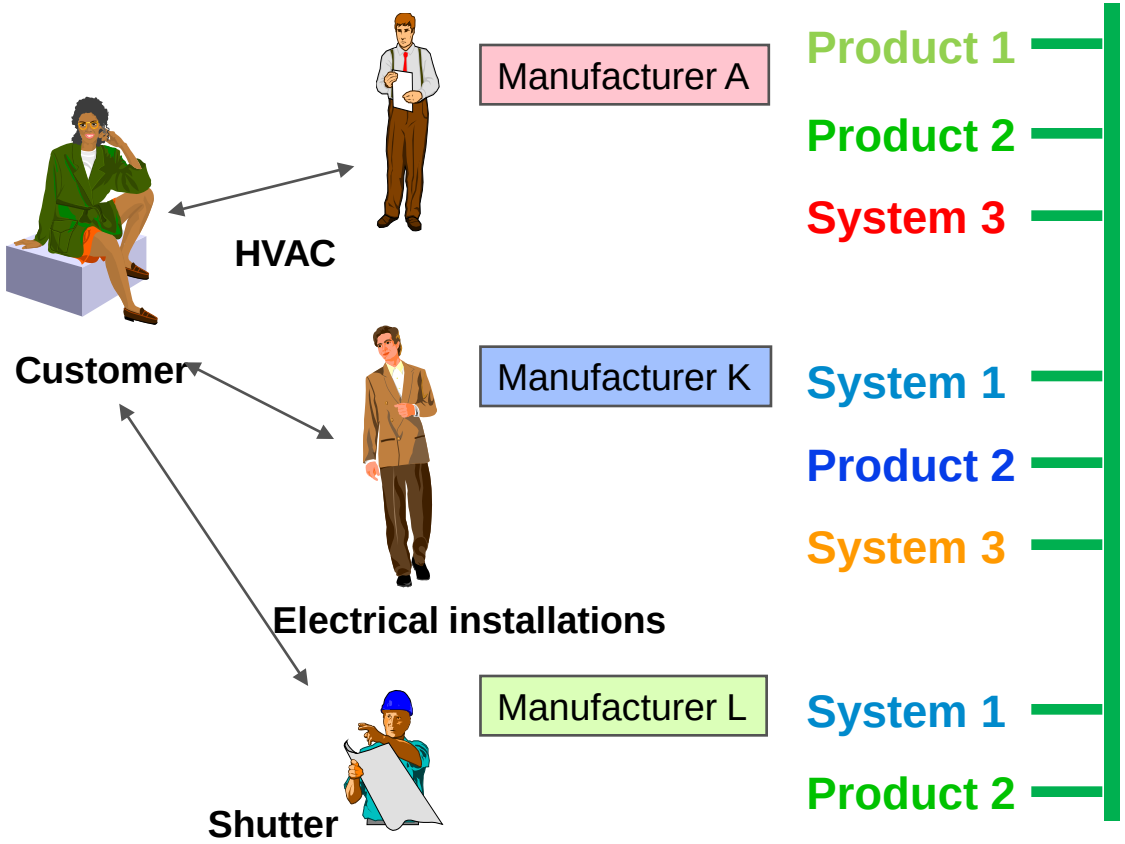
Conventional Installations

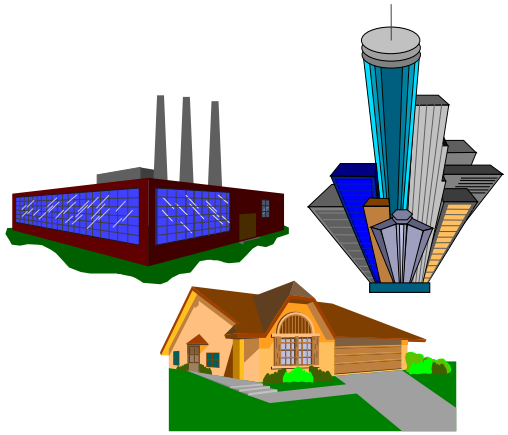




- **Linking several functions**
- expensive
- cost-intensive
- inconveniently arranged
- complex

Home and Building Management System with KNX





Installation bus

- Easy
- Cost - oriented
- Conveniently arranged
- flexible

Expert Introduction - Presenter 2

Ben Brady

OSRAM Australia

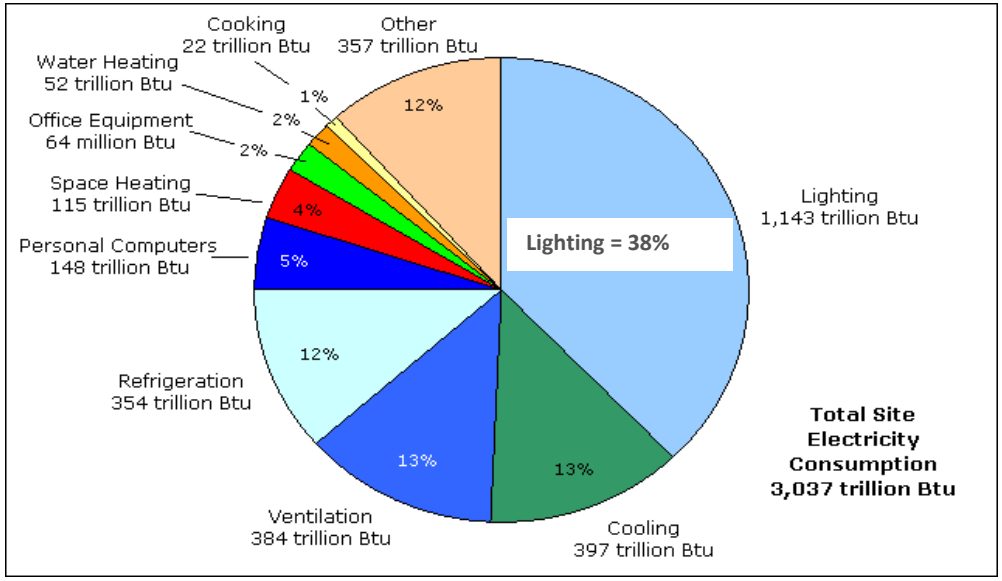
Product Manager

ben.brady@osram.com

www.osram.com.au

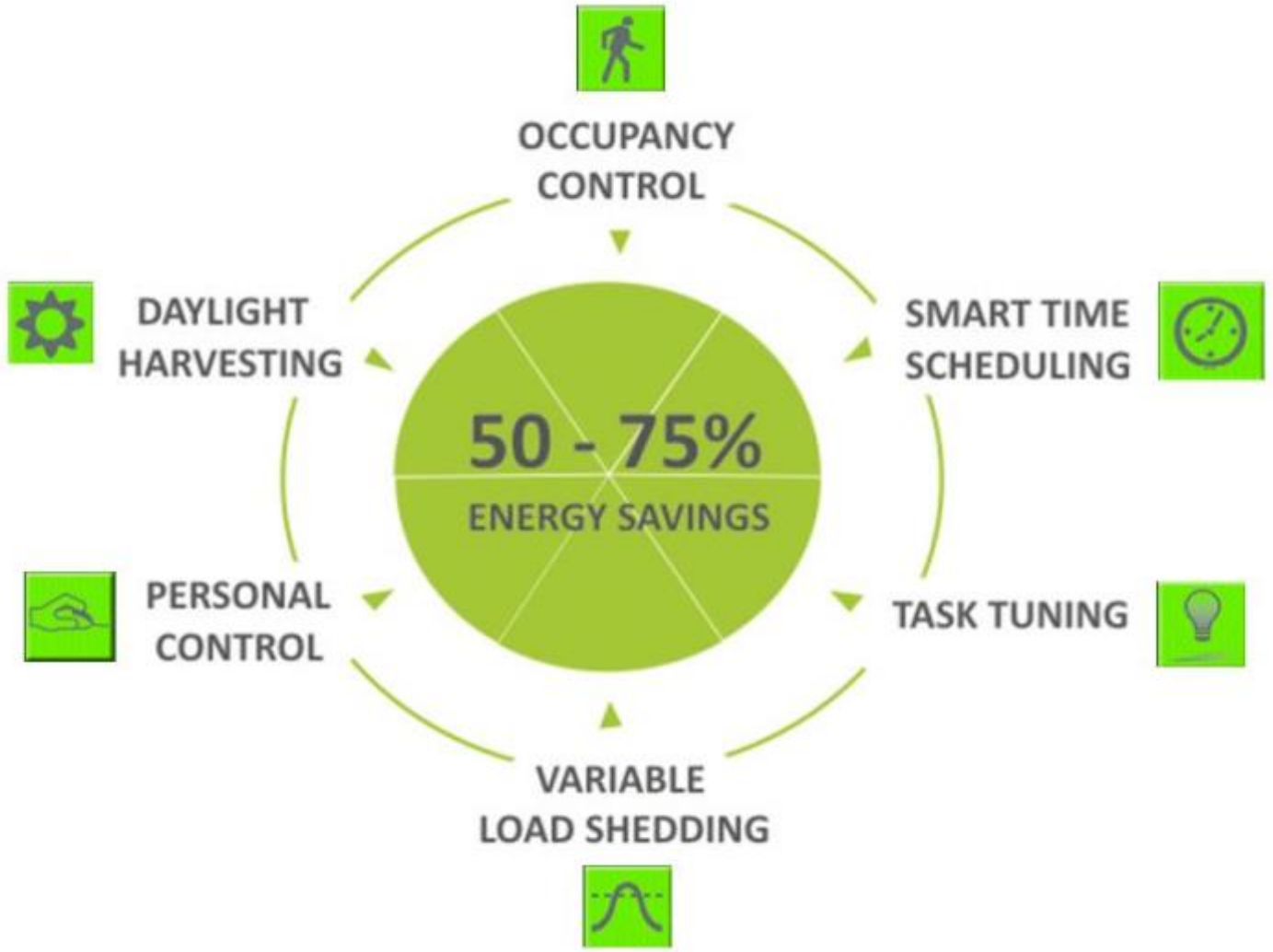
Energy Management Through Lighting Control

On average, lighting accounts for approx one-third of energy use in office buildings, and thus often dominates the opportunity for energy savings among all electrical systems.



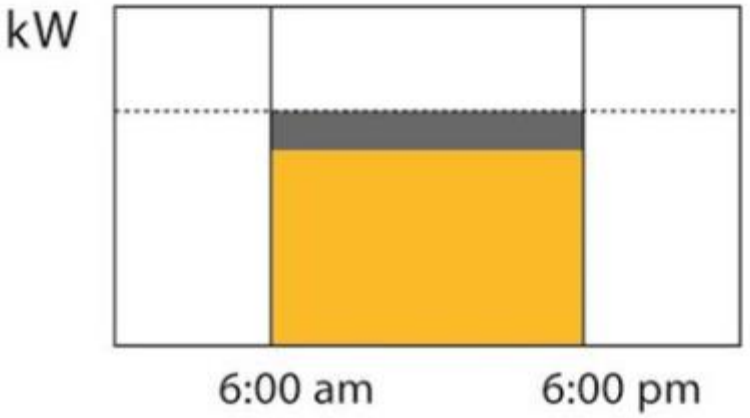
Source : U.S. Energy Information Administration

Energy Management Strategies



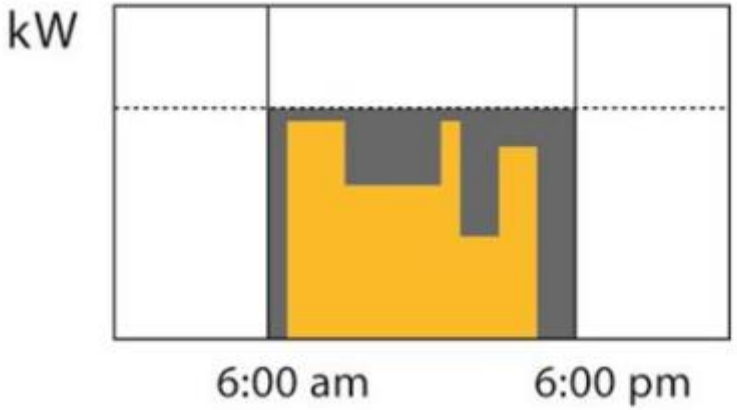
Task Tuning

- Eliminates ‘over lighting’ by setting default (maximum) light levels to suit the particular task or use of a workspace.
- Built in flexibility - can retune light levels via software as building usage changes



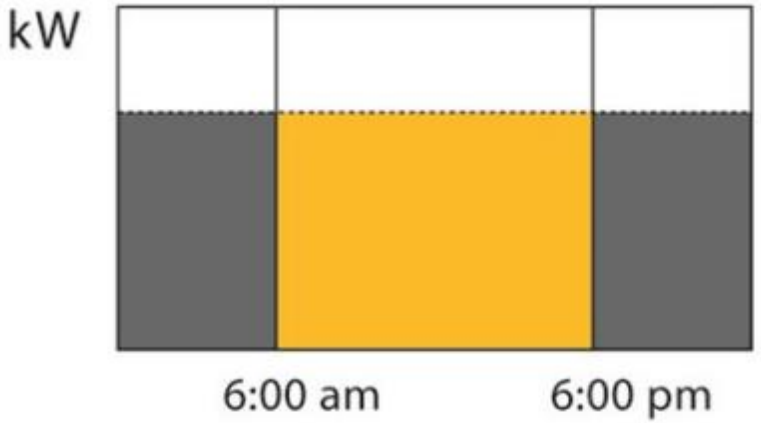
Personal Control

- Occupants can control light levels in their workspace from their own control point (PC, remote, wall controller etc) to suit their personal preferences
- Each light fixture can be dimmed or turned off individually allowing users ultimate flexibility in setting preferred light levels



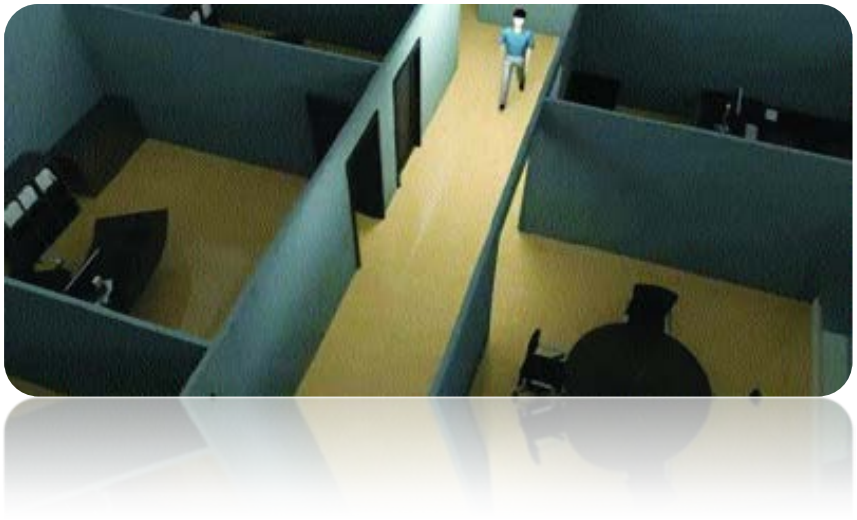
Smart Time Scheduling

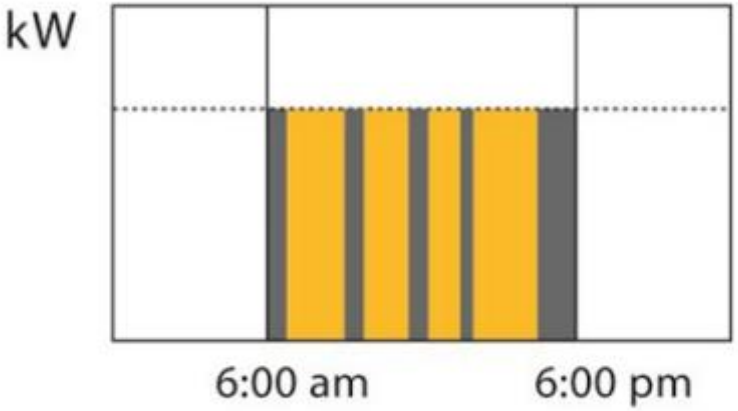
- In areas of a building where occupancy control is not appropriate, time schedule switching or dimming of lights can be employed for zones as small as a room or even an individual light fixture.



Occupancy Control

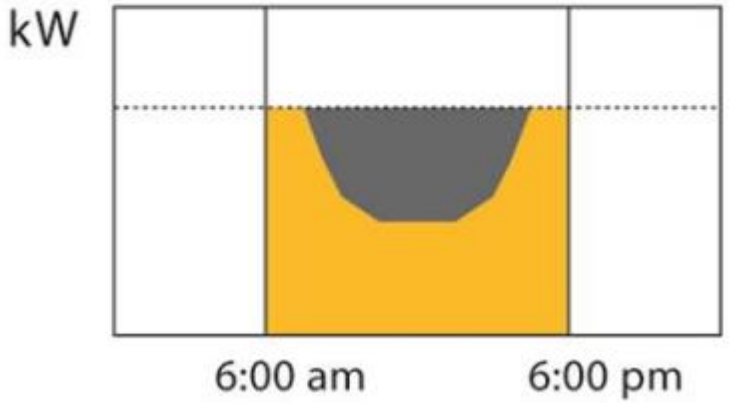
- Through the use of occupancy sensors, lights are automatically turned on or off or dimmed based on occupancy detection.





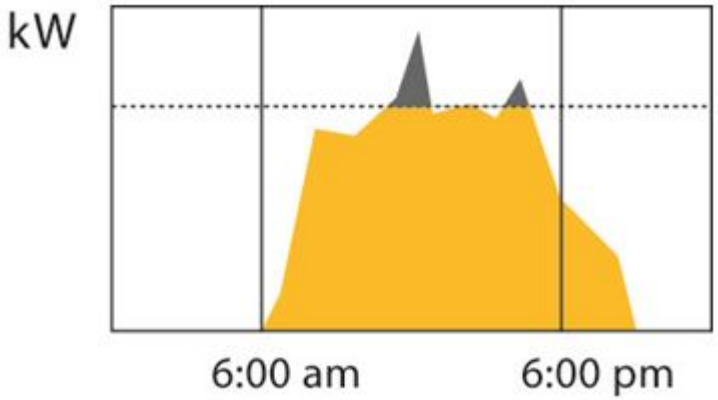
Daylight Harvesting

- Through the use of photo sensors (PE Cells), light levels are automatically adjusted to take into account available ambient natural sunlight. Appropriate light levels are maintained and artificial lighting is dimmed to save energy.



Variable Load Sharing

- The automatic reduction of electrical demand in a building by shedding lighting loads dynamically (through dimming or switching) either to shave peak demand or reduce energy consumption. Load shedding can be done selectively by lowest priority areas first.



Expert Introduction - Presenter 3

Jacek Lipiec

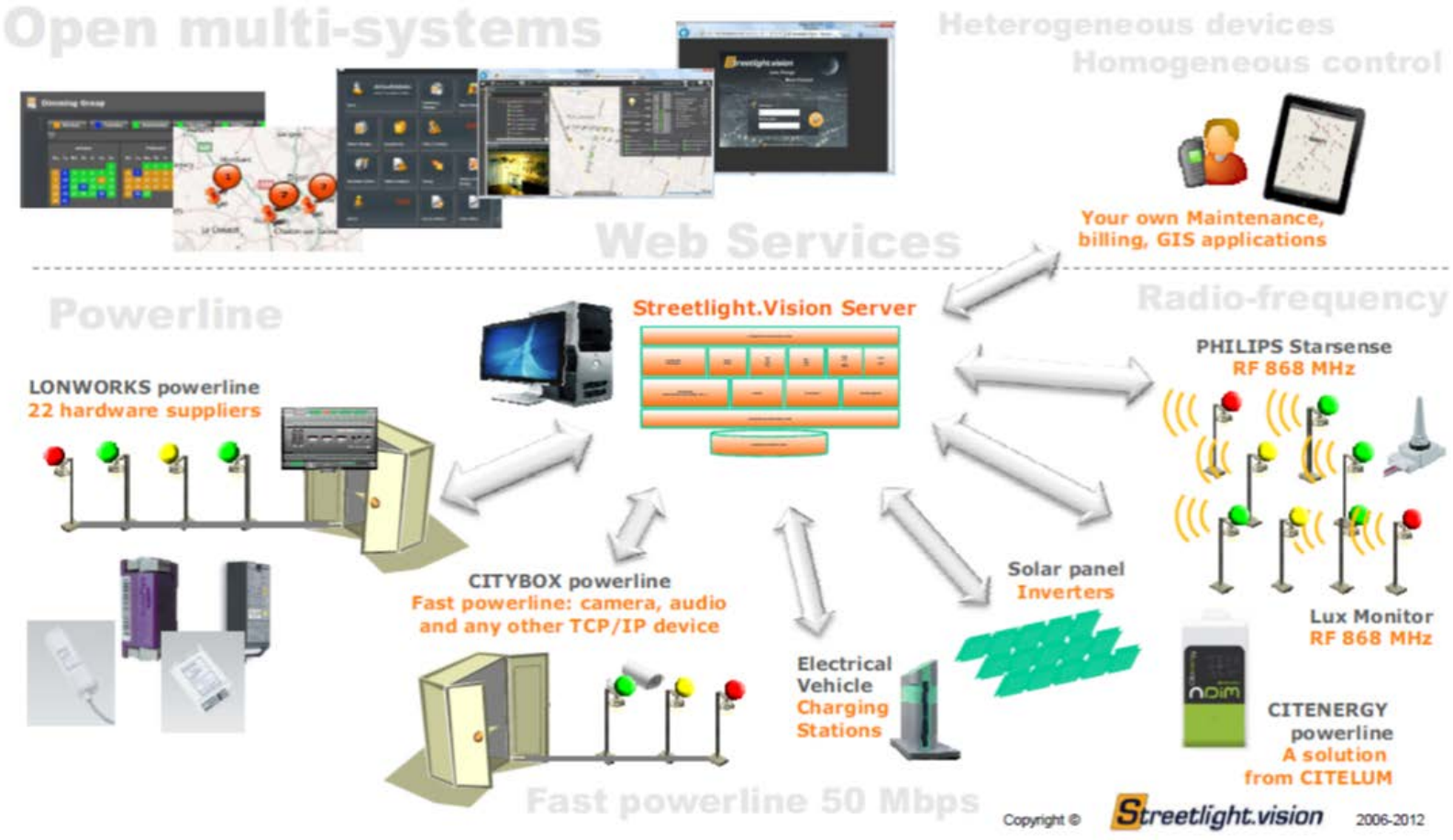
Gerard Professional Solutions
Assistant Business Manager
Outdoor Lighting Controls

jlipiec@gerardlighting.com.au
www.gerardlighting.com.au

Exterior Lighting Control

- Building Automation doesn't only refer to indoor applications, but can be used in outdoor applications
- Examples include outdoor lighting control for streetlights, floodlights and architectural lighting (imagine the Sydney Opera House or Harbour Bridge lit during the Vivid Festival)
- Various methods for control can be Power Line Communications, Wireless, RF and 3G/4G telecoms
- Additional to lighting, the connectivity can include various sensors and triggers such as light sensors, rain sensors, motion and traffic sensors

Link between Building Automation and Exterior Control = infinite possibilities



Internet of Things / Internet of Everything

- Controls and communications between meters: electricity, gas, water, solar panels
- Data can be used to load share: extra electrical loads from homes can be used to power large factories instead of straining main electrical distribution networks
- The future is mind boggling – the ability to use all this data from controlled and metered devices can be used for everything from energy saving through to advertising and road safety management

Conclusion

- Smart Homes and Building Automation is the start of the future and the beginning of the Internet of Everything

Jump on board now, before you miss the boat!

Do you have questions?

Voltimum ANZ

www.voltimum.com.au