

# Energy Saving Lighting Controls

Improving building energy  
performance

# DANLERS Limited

Designers and manufacturers  
of controls for lighting, heating,  
ventilation and air conditioning.

Julian Kay

Sales and Marketing Director

# Contents

- Benefits of lighting controls
- 5 principles for improving building energy performance
- Example application
- Case study

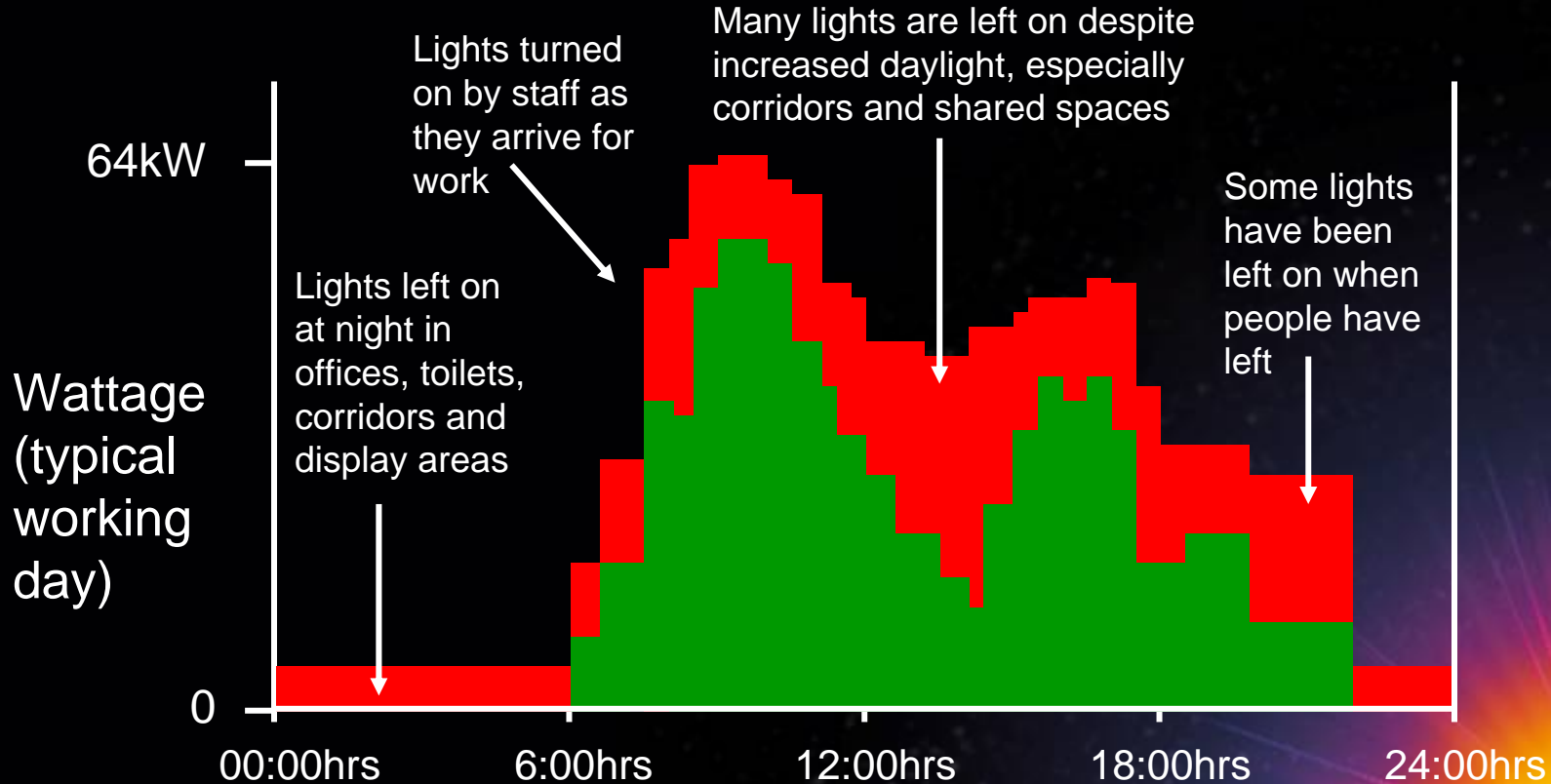


# Benefits of Lighting Controls

- Reduce energy usage
- Reduce carbon footprint
- Improve security and safety
- Achieve better rating on Energy Performance Certificate
- Save money



# Lighting usage for a civic building (4000sqm)



42% of lighting energy is saved by use of automatic lighting controls

# 5 principles for improving building energy performance

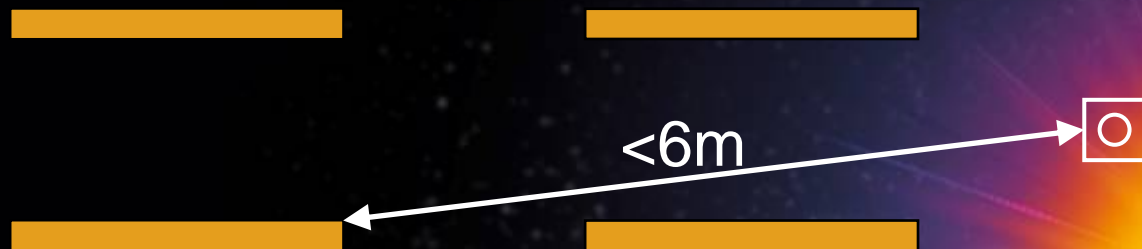
- Easily accessible manual switches
- Day lit areas controlled separately
- Automatic photocell control
- Automatic occupancy control
- Time control for display lighting



# 1. Easily accessible manual switches:

Switch should be within 6m  
(or 2 x light fitting height if greater)  
of the luminaires they control

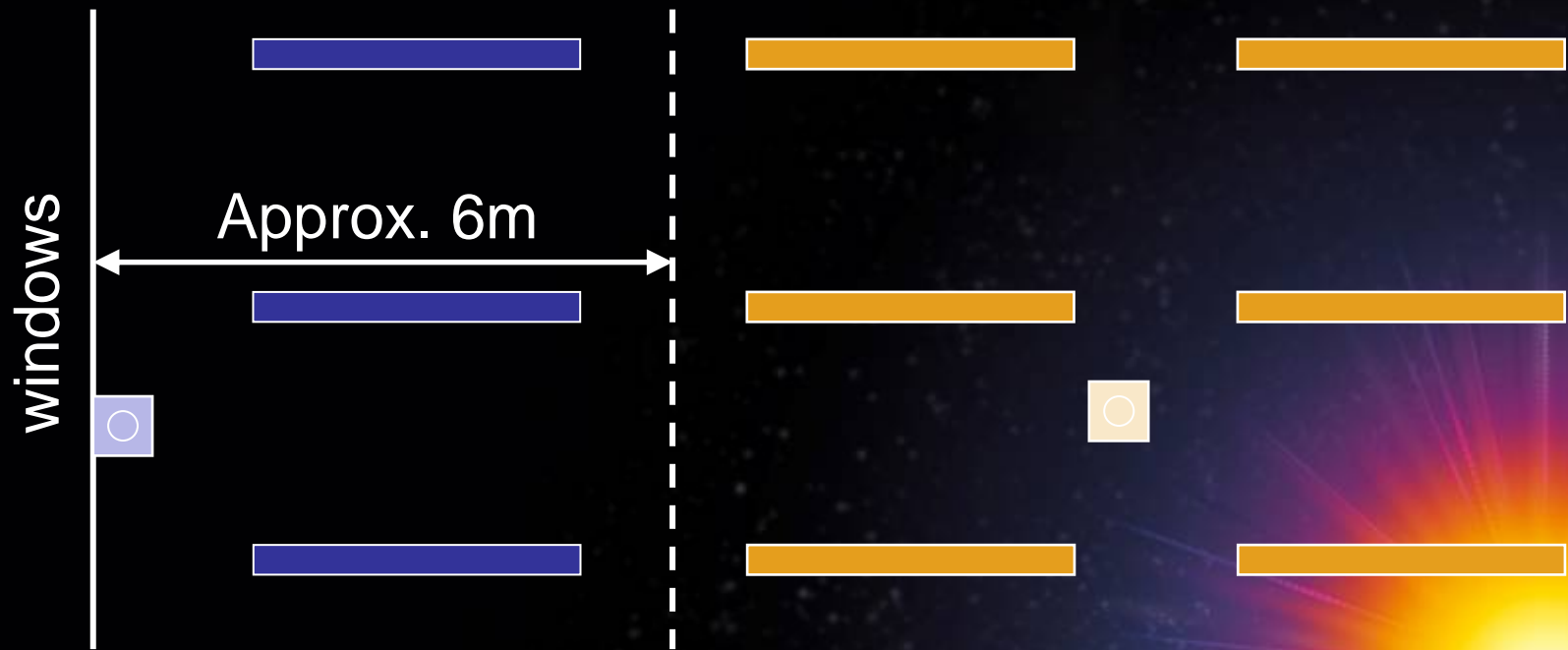
Plan view



# Easily accessible manual switches can include:

- Rocker switches
- Push buttons
- Pull cords
- Dimmer switches
- Remote control switches and dimmers
- Telephone handsets

## 2. Luminaires in day lit spaces, e.g. by windows, should be controlled separately from those in non-day lit spaces



# 3. Automatic photocell control

- Lights can be switched off or dimmed down when there is sufficient daylight available
- Photocell switches
- Daylight linked dimmers



# 4. Automatic occupancy control

- Lights can be switched off or dimmed down when nobody is present
- Occupancy switches
- Absence switches



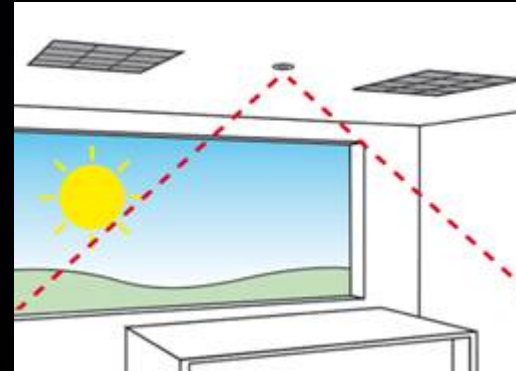
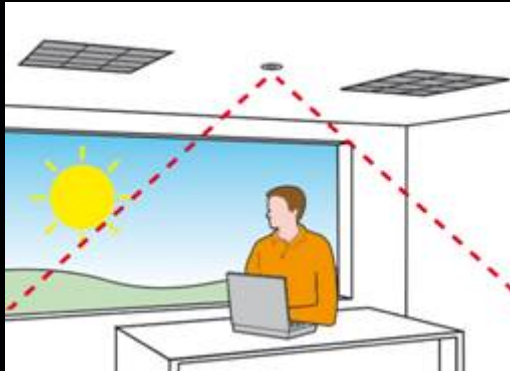
# 5. Time control for display lighting

- Lights can be switched off or dimmed down outside operational hours
- Programmable timer



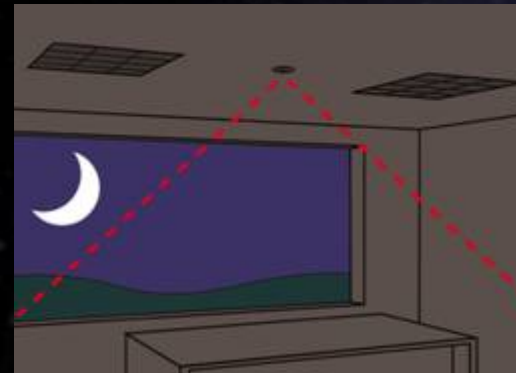
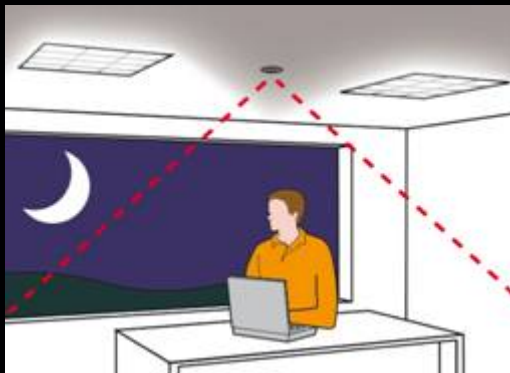
# PIR occupancy switch with photocell

Enough daylight,  
Occupied:  
**Lighting OFF**



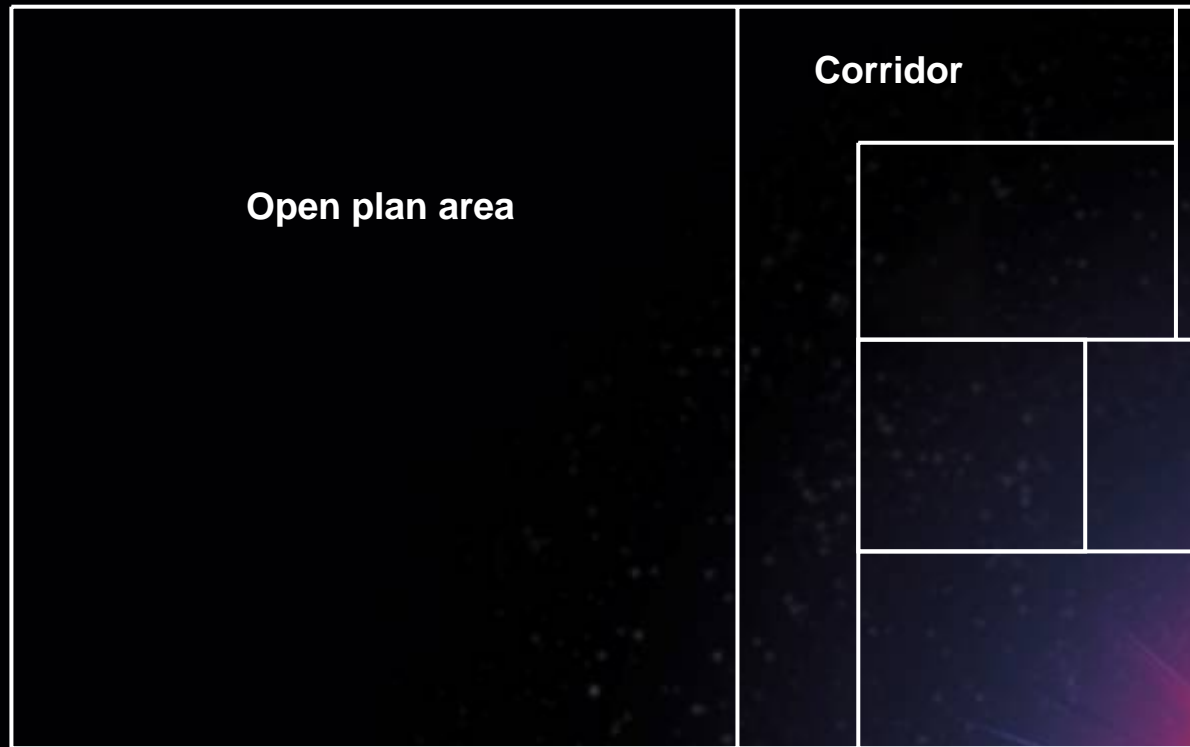
Enough daylight,  
Unoccupied:  
**Lighting OFF**

Night,  
Occupied:  
**Lighting ON**

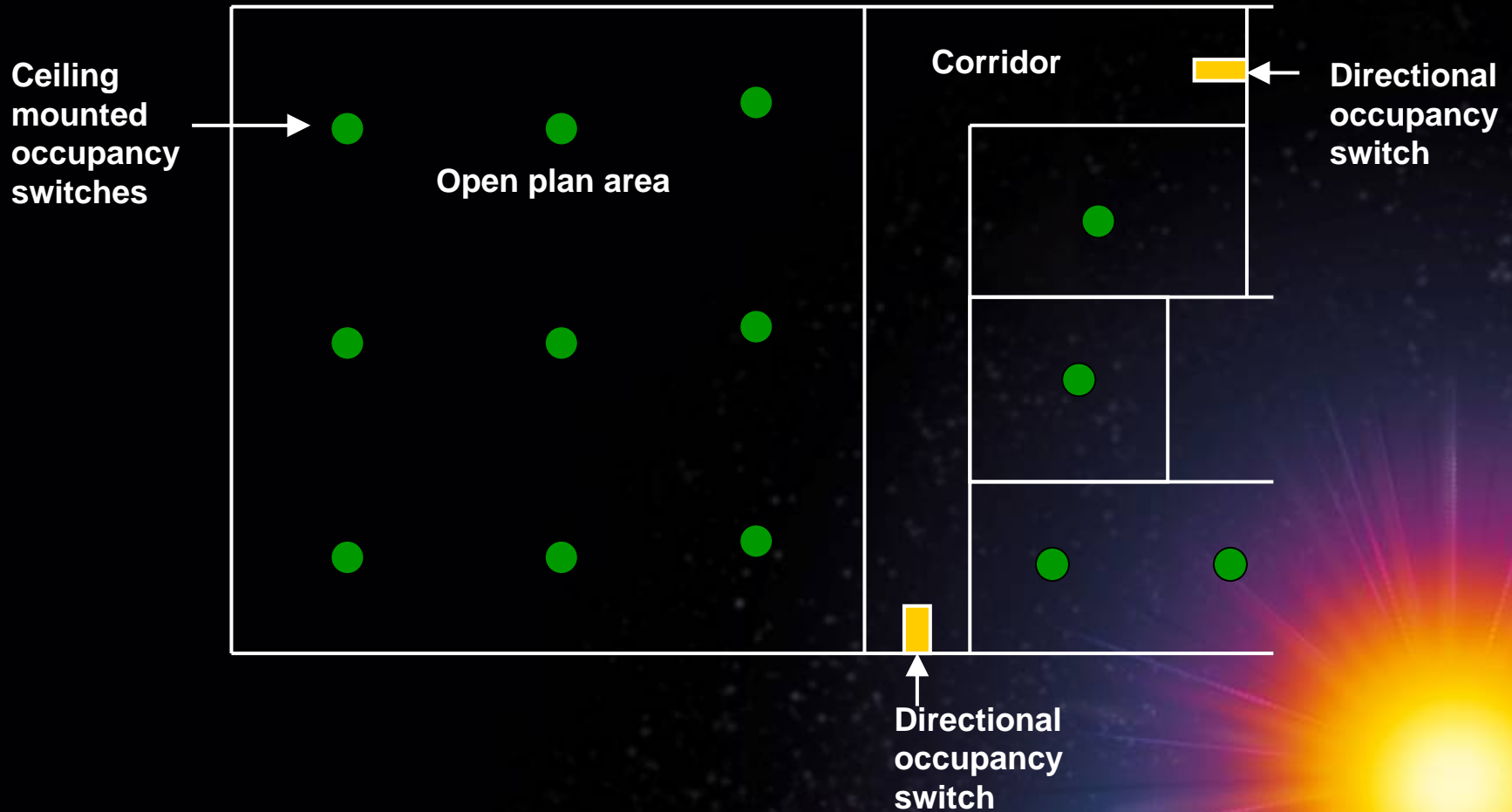


Night,  
Unoccupied:  
**Lighting OFF**

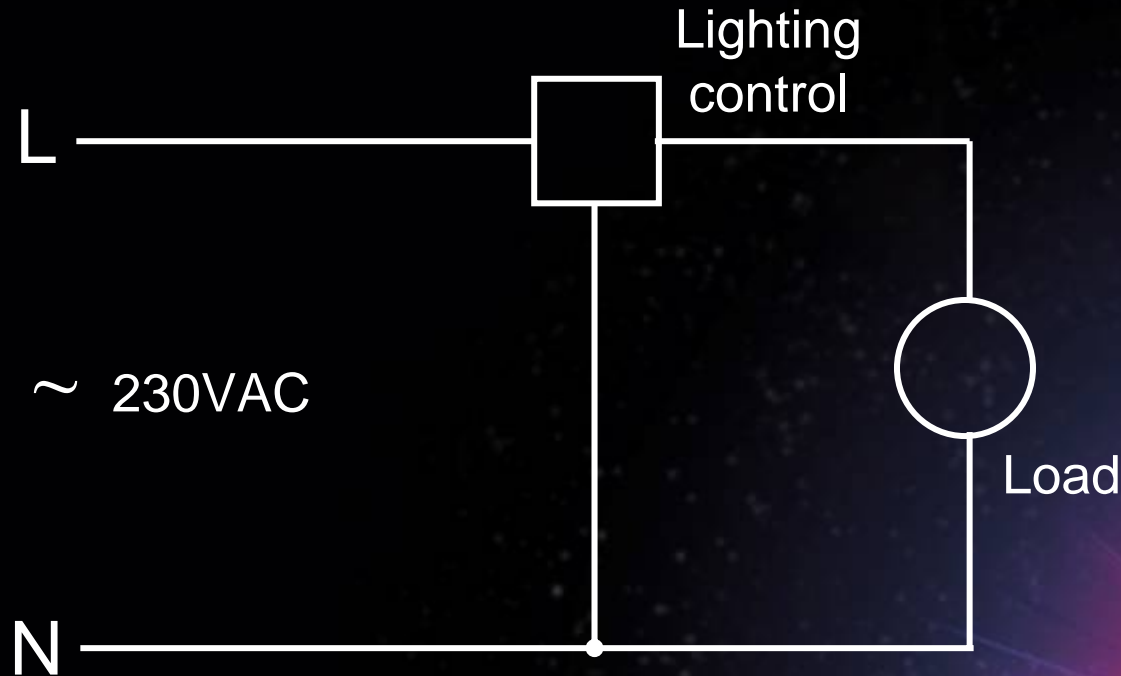
# Part of civic building



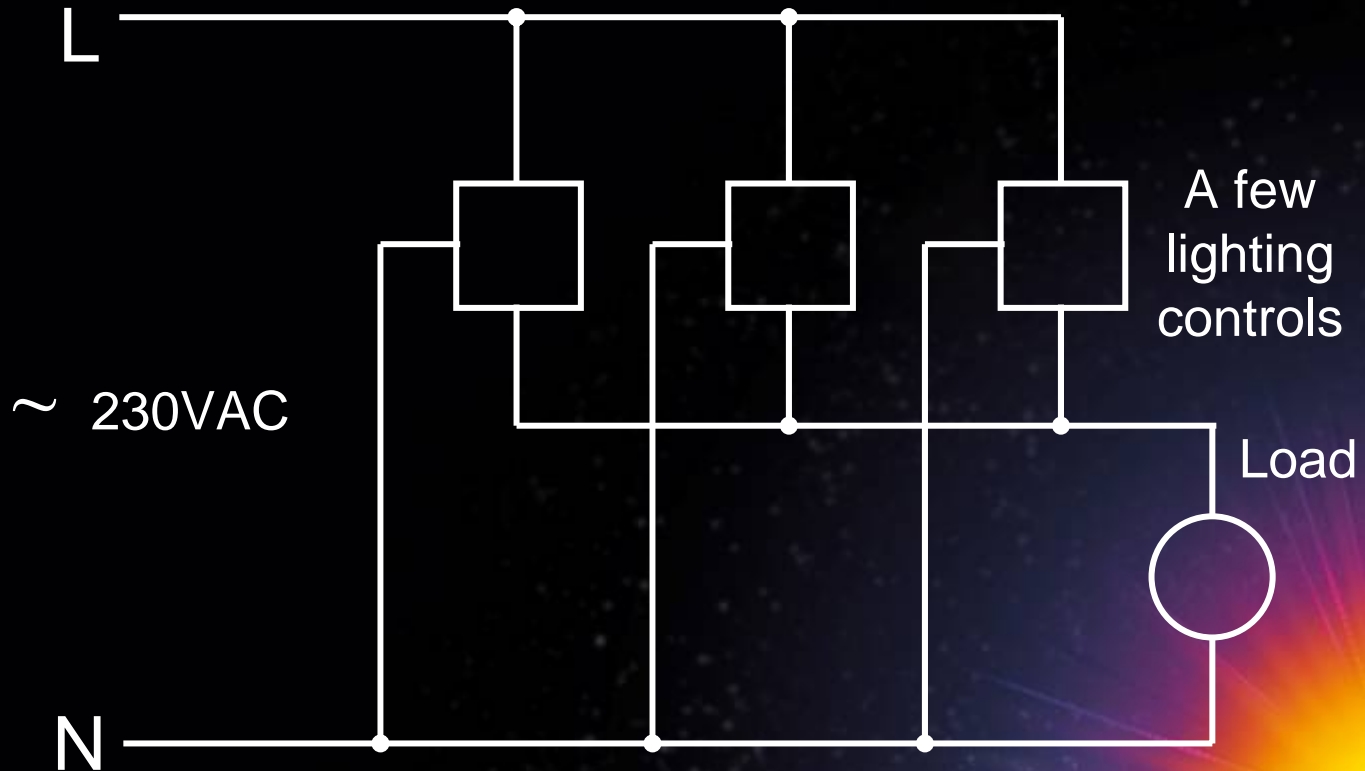
# Part of civic building



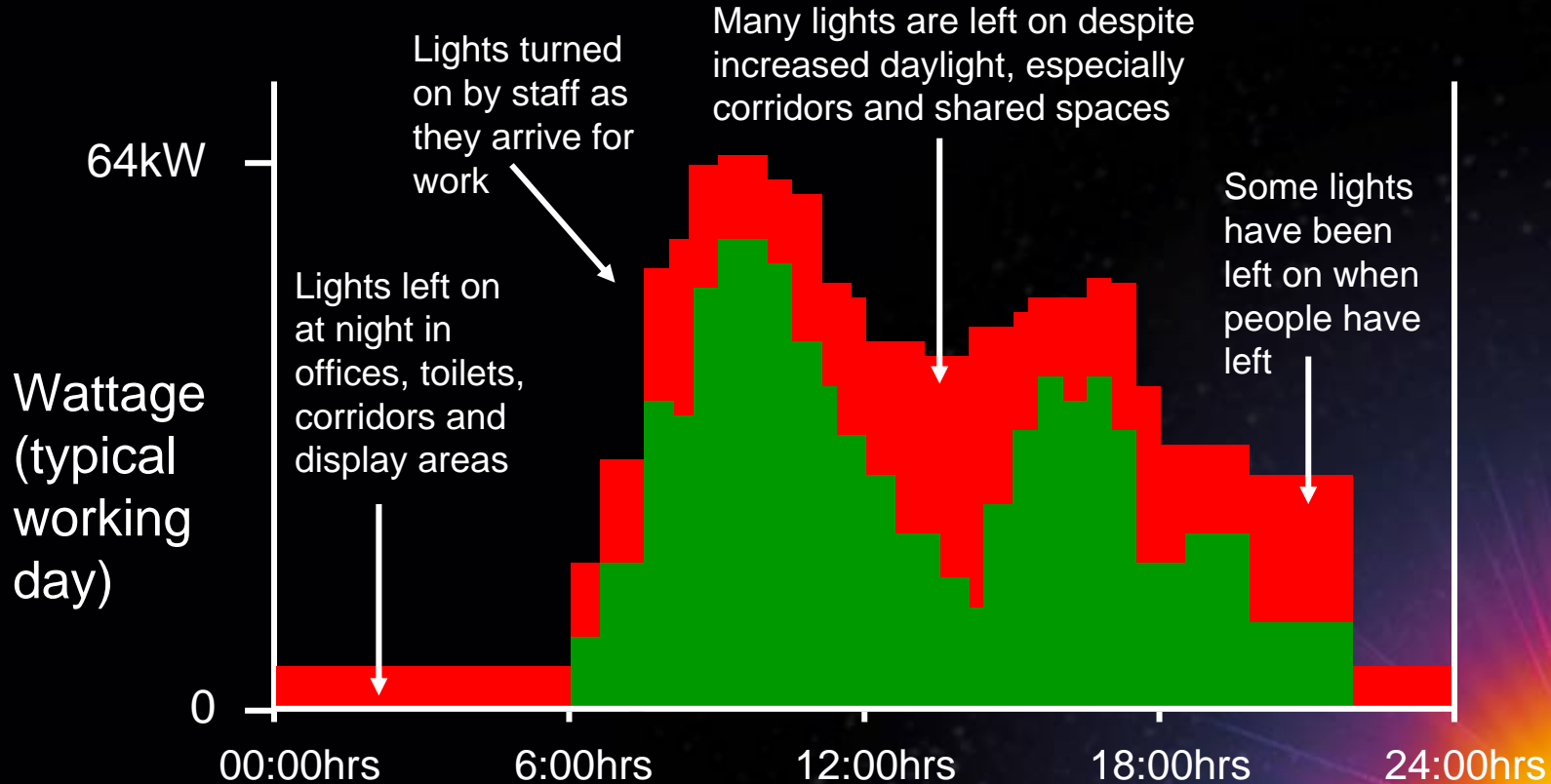
# Single lighting control typical circuit diagram



# A few lighting controls wired in parallel

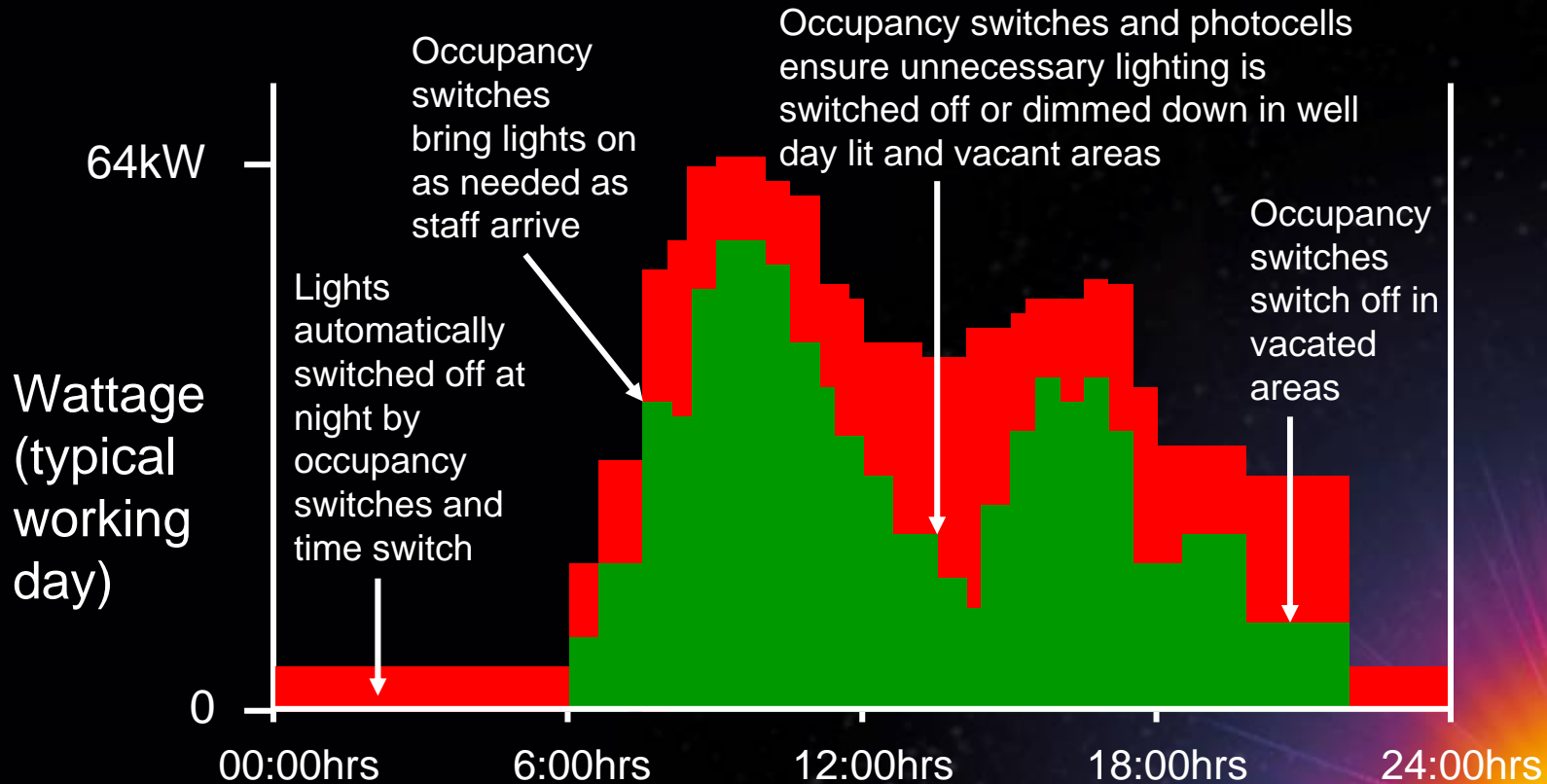


# Lighting usage for a civic building (4000sqm)



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# Payback period for civic building (4000sqm)

- Energy saved = 120 000 kWhrs/year
- Money saved = £9 600/year
- Cost of buying and installing lighting controls = £16 800
  
- Payback period = 21 months
- Carbon footprint reduction = 50 640 kgCO<sub>2</sub>/year

# Case study

- UK Storage Company, Bridgwater, Somerset



# Corridors in storage company

- Covered by plug-in long range directional PIR occupancy switches



# Estimated savings

- Total lighting load of 16.2kW in treated areas
- Average of 6.65 hours of lighting saved per day
- Average of 2075 hours of lighting saved per year
- Total of 33 600 kW hours saved per year
  
- Annual saving of £2016
- Cost of installation £2450
- Payback period of 14.6 months
- Carbon footprint reduction 14.2 tonnes CO<sub>2</sub> per year

- “DANLERS Limited have worked closely with us to provide quality products that are very reliable, so that we can fit and forget them.
- “They look nice and allow us to provide our customers with the environment that they like, whilst allowing considerable savings at the same time.
- “As we develop other sites, we have the confidence to specify DANLERS whenever we can.”
  - Keith Taylor, Managing Director

# Conclusions

- Reduce energy usage
- Reduce carbon footprint
- Improve security and safety
- Achieve better rating on Energy Performance Certificate
- Save money