

The logo for Intralux, featuring the word "Intralux" in a red, sans-serif font on a black rectangular background.

# Intralux Australia

Energy Efficient Lighting –  
Lighting for the Future

Presented: AIG Environmental Solutions Forum, June 8, 2010 in Brisbane, Australia

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## David Tilbury –

- Founder & Managing Director
- Immediate Past Chairman of Lighting Council Australia

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# Intralux Australia

- Commercial lighting products designer and manufacturer
- Develops products for niche market segments
- International presence in more than 20 countries .
- Extensive R&D, Product Development and Testing
- Sustainability and Energy Efficiency focused

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# Intralux Compliance



Quality  
Endorsed  
Company

**ISO 9001 : 2000**  
Intralux Australia Pty Limited

CERTIFICATE NUMBER: QEC5460

QUALITY SYSTEMS FOR:

- Design ■ Manufacture ■ Sales ■ Distribution



# The Future of Energy

- Electricity prices on the rise and only set to get worse!
- CPRS held off – buying businesses time to prepare for the change ahead.

# Changes are coming – how does your company measure up?

- 2010 Mandatory Disclosure of Energy Consumption
- CPRS – Carbon Pollution Reduction Scheme
- ETS – Emissions Trading Scheme

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# The Technologies

- Prior: Old style Fluorescent and Mercury Vapor
- Now: 'Industry Standard' Metal Halide
- Emerging: New Generation Fluorescent T5
- Future: New Generation Fluorescent and LED



# Technologies for today

## 'Frame' T5 (New Generation Fluorescent):

- T5 lamps up to 104 lumens per watt\*
- Superior optics > 90% LOR
- Instant re-start after power glitch
- Dimming compatible
- Emergency/Battery backup possible
- Long life of 24000 hrs+
- Over 90% efficiency at End of life
- Excellent CRI

## Typical 400W Metal Halide

- Industry standard fixture
- Metal Halide 57.5 Lumens per watt\*
- Optics Value of 80% LOR
- 5 minutes or more to re-start
- Limited dimming options
- Poor and inconsistent colour
- End of life explosions must be guarded against

\*Values at 24,000 hour maintenance point in accordance with AS1680. Based on manufacturers published data (see below)

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# The Products



T5 High Bay



400w Metal Halide

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# Lighting – A Brief Introduction

# How Lighting Affects Us!

- **Physical** – research suggests eyestrain is the leading cause of physical workplace stress.
- **Workplace productivity:** Estimated 15 mins per day lost due to discomfort from poor lighting. (Annually this accounts for 2% drop in productivity = 1 additional week off for each employee each year.)
- **Physiological effects** – Circadian rhythms influence mood, motivation and emotion. This is dependent on light levels.

# Employer Benefits

- Increase productivity.
- Reduce workplace incidents.
- Reduce eyestrain/ headaches and absenteeism.
- Less errors in production.
- Minimize risk of claims or litigation by employees.
- Significantly reduced re-work.
- Improved worker moral

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# Reduce Maintenance Costs Immediately!

- Longer, more efficient lamp life
- Fewer maintenance periods
- Less investment on maintenance.
- Factory/Facility down time due to maintenance being carried out

# Liability – Minimum Expectations

- AS1680 - Recommended minimum light levels and lighting standards
- Compliance to above – what is required?
- Impacts of non compliance
  - Increase & Unnecessary Costs
  - Threats of Litigation due to poorly lit worksite
  - Low productivity levels
  - Higher incidence of accidents
  - Penalties under workplace health and safety legislation

# Government Initiatives Supporting Energy Efficient Business

- **Smart Energy Savings Program (SESP)**
  - QLD Gov't - \$50 million for Small to Medium Businesses
- **Green Build Fund**
  - Aus Gov't - \$90 million over 4 years concluding
- **Retooling for Climate Change**
  - Aus Gov't - \$75 million over 4 years concluding
- **Australian Carbon Trust**
  - Aus Gov't - \$78.5 million

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# Outcomes from making the change

“The replacement of 700 existing MH fixtures with T5 Fluorescent fixtures one for one resulted in double the light levels, while saving \$10,000 per month in utility costs. Maintenance costs were also greatly reduced”

**Bob Ferguson, Facility Manager America Honda Motors, USA**

*“Metal industries, Inc (USA) noted upon their lighting retrofit that productivity increased at least 5% in all areas. Not only that, but the reject rate of goods was reduced from 25%. As a result of this the company saved on labor, energy and materials. Absenteeism also dropped significantly due to fewer accidents.”*

*(Source: National Lighting Bureau, USA)*

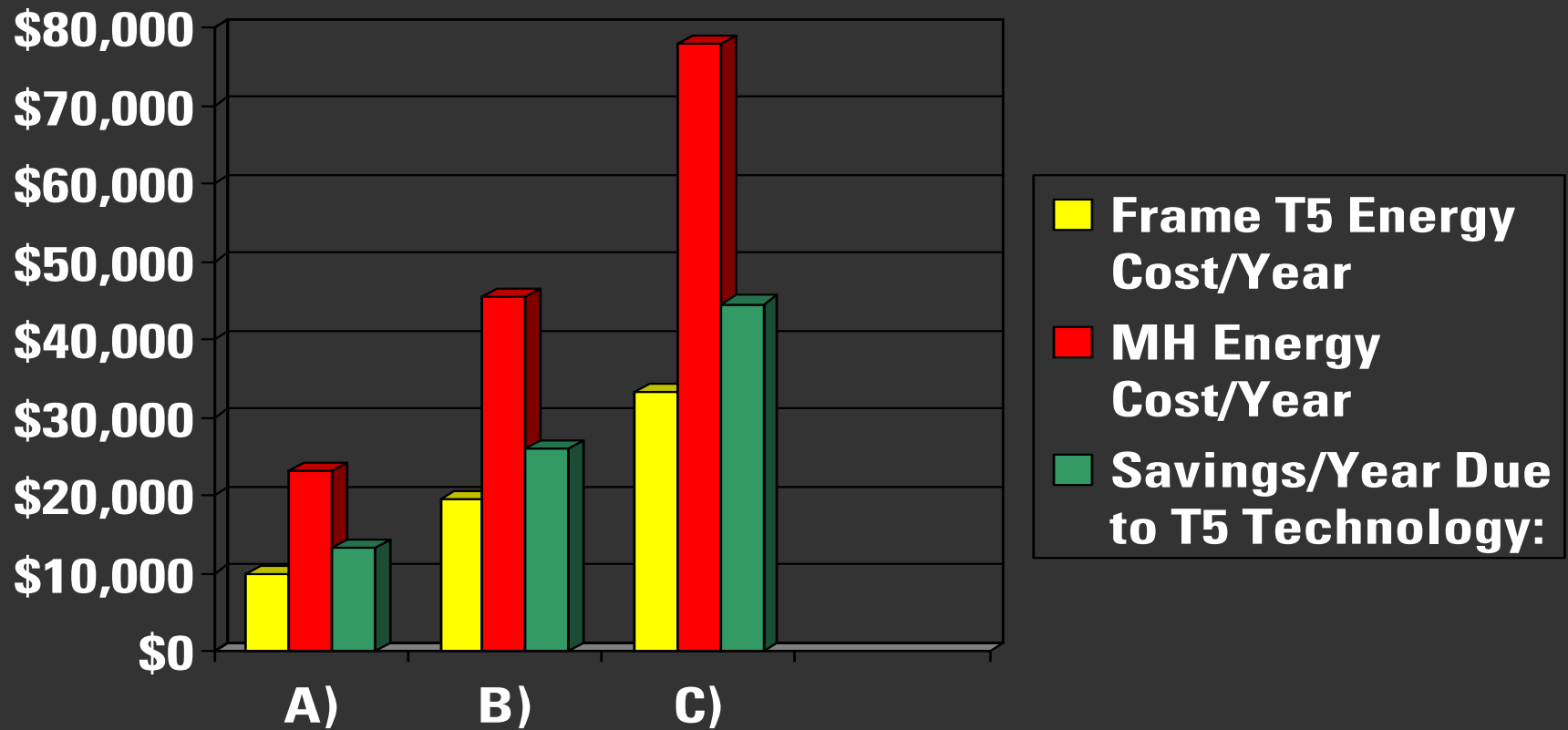
Motorola, USA experienced a 83% Return on Investment and reduced their annual energy costs by US\$ 70,954 due to the replacement of their Metal Halide fixture With T5HO Fluorescents. There annual energy reduction was 210 634kWh (Source: Motorola USA)

# Comparative Building Examples

- Scenario:
  - Building Type: Warehouse/Factory of 3000m<sup>2</sup>
  - Building Operational Examples:
    - Example A) 10 hrs/day, 250 days per year
    - Example B) 14 hrs/day, 350 days per year
    - Example C) 24 hrs/day, 350 days per year
- Fixtures:
  - Industry Standard Metal Halide Fixture – 400W
  - Frame T5 Fixture – 4x54W

\*No other energy saving devices used.

# 3000m<sup>2</sup> Building Energy Comparison



\*based on 19.2c consistent energy cost

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Before

→



After

→





# Carbon Foot Print Reduction Comparison by Product



# Lighting Controls

- Split lamp switching/Dimming – use only half of the fitting when needed (ie use half the power)
- Occupancy Sensors/Motion Detectors – lights turn on when there is movement in the room.
- Timers
- Daylighting

# Conclusion:

- So what has been achieved by making the change?
  - Achieved an incredible Return on Investment
  - Attained excellent light quality
  - Created a much more employee friendly working space
  - Increased productivity
  - Reduced Rework
  - Reduced Absenteeism
  - Improved worker moral

# References:

- Seeing the Difference – The Importance of Quality lighting in the workplace 2001, Workplace Issues, USA
- National Light Bureau USA
- Motorola USA
- America Honda Motors, USA

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**Thank you!**