





Where  
innovation  
comes to  
light.

# A Study into the opportunity of upgrading all of Australia's public Road lighting assets to reduce energy usage and maintenance costs

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# Justification

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- Over a million lamps are changed every two years.
- Re-use this resource elsewhere
- Reduction of Hazardous waste into landfill
- 400 thousand tons of CO<sub>2</sub>e can be saved per year
- The energy savings would be approx \$50m per annum
- Maintenance Savings would grow to twice this amount.

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# Scenario 1

## Do Nothing (Base Case)

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- New technology will form the majority of new replacement lighting by end of 2015.
- This take up approx 5-10% of the lighting inventory will be energy efficient from 2015.
- Approx 5% of the balance of the population will be changed over each year as the old Luminaires wear out.
- A do nothing scenario would lead to a full population changeover by 2035.

Additional Investment:	None
Energy Savings	\$0
Maintenance Savings	\$0

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# Scenario 2

## accelerated replacement program

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- Full replacement at the first scheduled maintenance visit
- Could be replaced in as little as 4 years

Additional Investment:	\$600M over 4 years
Energy Savings	> \$800M over the first 10 years
Maintenance Savings	Reduction by 12.5% per year for 4 years

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# Summary

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- **NPV Savings**
- NPV Investment                   \$       -\$508,081,688
- NPV Energy                       \$       \$914,564,785
- NPV Maintenance               \$       \$635,051,886
- Total NPV                         \$       \$1,041,534,982
- Total Emissions                 CO<sub>2</sub>e 6134 kt Co<sub>2</sub>e over 22 years

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# Assumptions

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Avg Cat P Wattage	85	W
Avg Cat V Wattage	224	W
Cat P Saving	60%	
Cat V Saving	40%	
Hours pa	4200	Hours
Energy Cost	\$0.14	kwH
Carbon Tax	\$20	Mt CO2
Energy Escalation	5%	pa cumulative
Carbon Tax escalation	5%	pa cumulative
Discount Rate	7%	
Cat P growth	2%	pa cumulative
Cat V growth	2%	pa cumulative
Avg Pool co-Efficient	0.9524	kg/kWh
Cat P Maintenance Cost	\$37.50	\$150 per visit 1 visit per 4 years
Cat V Maintenance Cost	\$75.00	\$300 per visit 1 visit per 4 years
Cat P Saving New Technology	50%	1 visit per 8 years
Cat V Saving New Technology	50%	1 visit per 8 years
Labour Rate Increase	3%	

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- Questions ??

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