Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

School of Physics UG Teaching Labs

Analysis of the potentials of switching from Fluorescent bulbs to LED Lighting

	Existing Bulb/Lamp	LED Replacement
Wattage (W)	36	18.9
Number of Lamps	222	111
Lamp Life (hrs)	15000	50000
Light (Lux)	500	590

Hours ON per Day	10	10
Electricity Cost per Day *1	€16.80	€4.41
Days used per Year (Normally)	261	261
Cost per Year	**€4384**	**€1151**

Savings per Year	€3233
Percent Saving	73%
Payback Period – Years *2	1.35
Emissions reduction *3	3.9 tons of CO2 per Year

***1 Estimated cost of unit of electricity = €0.21 / kWh**

***2 Estimated cost of unit of LED replacement = €50**

***3 2019 Average All-Island CO2 emission for electricity 254 gCO2/kWh**

The School of Physics "UG Teaching Labs" has a potential to reduce 3.9 metric tons of carbon dioxide per year by switching from Fluorescent bulbs to LED Lighting.

If this lighting was replaced, it would save an estimated €3233 per annum on TCD's Electricity costs while payback for the investment will take 1 year and 3 months.

Potentially, the overall lighting would be improved by 18% making the environment more comfortable and safer.

Lamp life was also improved by 30% which reduces the amount of service calls to E&F for bulb replacements and reduces bulb waste.

Using the manufactures specifications and the amount of time the lights are on in the workshop, the estimated lifetime of the LED lights is 19 years (Ideally).

Facts:

A typical airline flight from Dublin to New York emits approx. 0.65 metric tons of carbon dioxide per trip

A typical passenger vehicle in Ireland emits approx. 4.6 metric tons of carbon dioxide per year

A typical Irish home has a carbon footprint of approx. 11 tonnes, which is one of the highest in Europe