

Because LED technology has several key benefits compared to alternative technologies it is difficult to provide direct and fair comparisons.

We have identified several parameters in the table below that allows a comparison to be made, however each application is unique and dependant on the project criteria.

Key Aspect	Tungsten	Halogen	Fluorescent	CFL	Low Pressure Sodium (SOX)	High Pressure Sodium (SON)	Metal Halide (HQI MBI)	RAYLUX LED's
Efficacy [1] (lm/w)	10 - 12	15 - 25	60-95	65-70	180 - 200	90 – 120	70 -80	55-75
Operational Life (Hours)	1000	2000-4000	8000 -20,000	8000 -15,000	7500	20,000 - 24,000	15000 -20,000	44,000+
Quick Start*	Yes	Yes	No	No	No	No	No	Yes
Health & Safety concerns	No	No	Yes	Yes	Yes[2]	Yes[2]	No	No
Dimmable	Yes	Yes	Yes	Yes	No	No (Yes in steps)	No	Yes
Good Colour Rendering	No	No	Yes**	Yes**	No	No	Yes	Yes
Flicker issues	No	No	Yes (Historic) ***	Yes / (Historic) ***	Yes	Yes	Yes	No
Cold Temperature Sensitive	No	No	Yes	Yes	Yes	No	No	No
High Temperature Sensitive	Yes	Yes	Yes	Yes	No	No	No	Design Dependant
Beam Control	Yes	Yes	Limited	Limited	Limited	Limited	Limited	Yes

* Almost full light output immediately

** Modern day tubes provide good colour rendition

*** Usually in older technologies

The key challenge is to select the correct product for the project; LED's are extremely versatile when utilised correctly. It is possible to switch almost every existing lighting technology with an LED equivalent; however the economics of switching high power projects to LED tends to be uneconomical at this stage, although as power and cost relationship becomes more economical LED's are set to play an increasingly significant role.

It is also worth bearing in mind that often making the decision based on consumption is not the best starting point. It is dependent on how efficiently the alternative technology is being employed. For example a 300W Tungsten Halogen unit may be used to illuminate a narrow scene yet the beam pattern may not suit the scene and hence the lamp may be highly inefficient. As such, it may be possible to replace the 300W halogen unit with a directed RAYLUX product (eg a RL25 at 10 Degree) consuming less than 15W to achieve better results. Please note, replacing like for like (or closest equivalent) is not always the best solution.

1. Based on actual lumens per watt achieved by the installed Raylux product (not source lumens)
2. The Environment Agency has determined that fluorescent tubes, sodium and metal halide lamps are now all classified as hazardous waste.
3. Can be dimmed by a gradual ramp down may take up to 15mins to operate