



Technology Description:

LEDs (light emitting diodes) are an energy efficient alternative to incandescent lamps used for traffic signals. Additional advantages include lower maintenance costs and improved safety due to greater brightness.

Traffic Signal Technology	12" Red Ball	12" Green Ball	12" Green Arrow
Incandescent Wattage	124 W	124 W	124 W
LED Wattage	12 W	12 W	6 W
On-time per year	4,818 hrs/yr	3,679 hrs/yr	876 hrs/yr
kWh saved per year	540 kWh/yr	412 kWh/yr	103 kWh/yr
Dollars saved per year (at \$0.12/kWh)	\$64.80/yr	\$49.44/yr	\$12.36/yr
Est. useful life of incandescent	1 year	1 year	1 year
Est. useful life of LED	7 years	7 years	7 years



Application:

LEDs can be used to replace all the lamps involved with traffic signals. This includes red, yellow and green lights, as well as white and red pedestrian signals.



Potential Energy Savings:

According to the California Energy Commission, over 236,780 old incandescent traffic signals have been changed out. Through the CEC's program offering loans and grants to local agencies, red, yellow and green lights, along with pedestrian signals, have been replaced with LEDs. The new LED lights reduce California's need for electricity by nearly 10 MW - enough electricity to power nearly 10,000 typical California homes.

Case Study:

The City of San Marcos replaced 1,753 lights and 204 pedestrian signals at 57 intersections. The project cost \$263,678. A state grant covered \$135,760 of that cost. According to the City Engineer, the retrofit saved close to \$150,000 per year in energy costs. The City expects to recoup its \$127,918 investment in less than 11 months.



Additional Information:

Rebates are available for LED traffic signals through San Diego Gas and Electric's Express Efficiency Program at www.sdge.com.



Considerations:

Since LED traffic signals use nearly 90% less energy than incandescent lamps, the LED signals can run longer on a battery back up during a power outage. This improves safety and mitigates congestion by allowing the traffic to flow under normal patterns.

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