Conversion From Fluorescent Lamps to Solar Powered LED Lamps

A Project Overview

Shaan Technologies (PVT) Ltd

An affiliate of LEDtronics (USA)

Project Overview

- Shaan Technologies (PVT) Limited is one of the Leading electronic contract manufacturer. Since its inception in 1998 Shaantech is engaged in manufacturing of world class quality Solid state LED lamps for Ledtronics Inc. USA. Currently Pakistan is facing worst electricity shortfall. To bear our social responsibility, Management of Shaantech has decided to replace all fluorescent tube lights of production lines with in-house built Solar Powered LED lamps. This is a first step toward a green factory.

Why LED Bulbs:

- Last an average of 100,000 hours (or about ten years). 50,000 hours for White LEDs
- Withstand shocks, vibrations, frequent switching and temperature extremes that rapidly incapacitate fragile incandescent lamps.
- Reduces maintenance and replacement costs
- Are 10 to 50 times more energy-efficient, thus reducing your operating costs by up to 90%.
- Produce little to no heat, cool to the touch, so they are safer then traditional lighting products

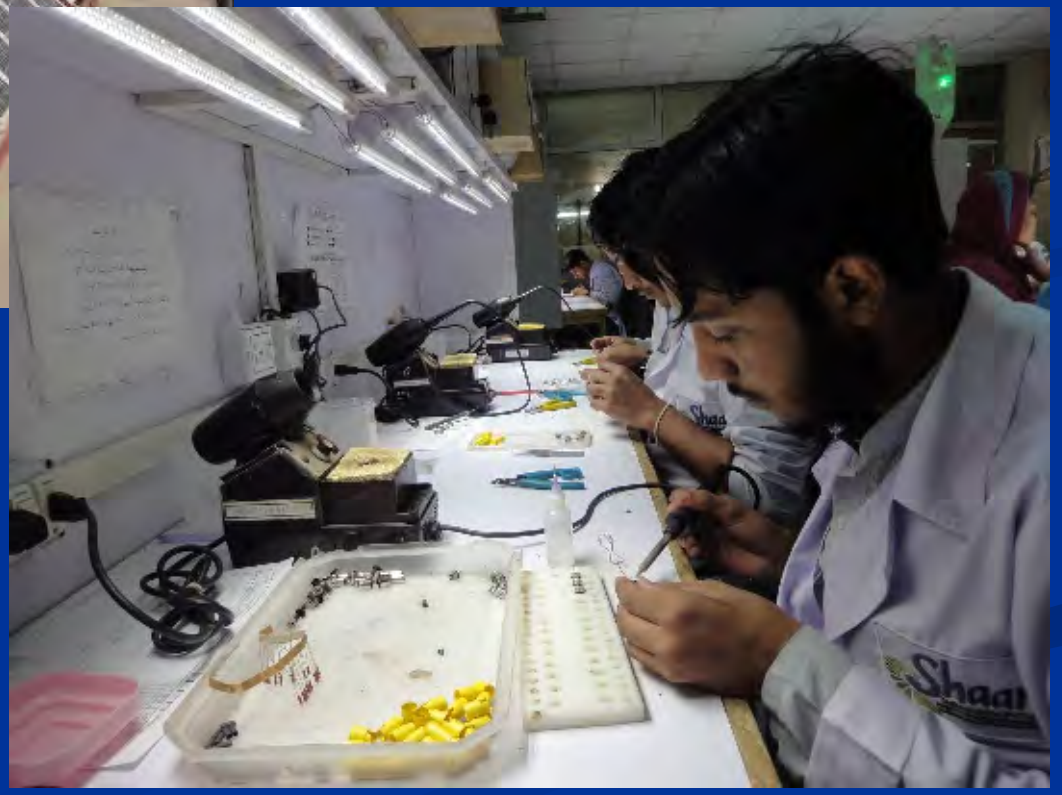
Why LED Bulbs:

Although energy saving is obvious with LEDs, there are many other benefits too.

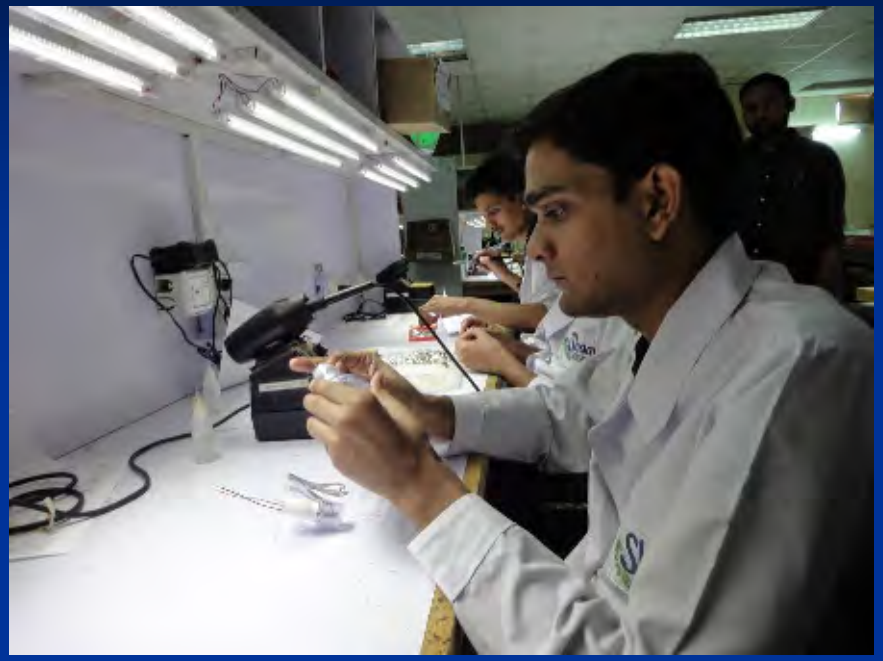
- High Color rendering index led light is close to the natural sunlight thus show natural colors.
- Such Lamps produce less glare & their light is very comfortable for users.
- LED Lamps produces almost zero heat, which reduces air-conditioning cost.

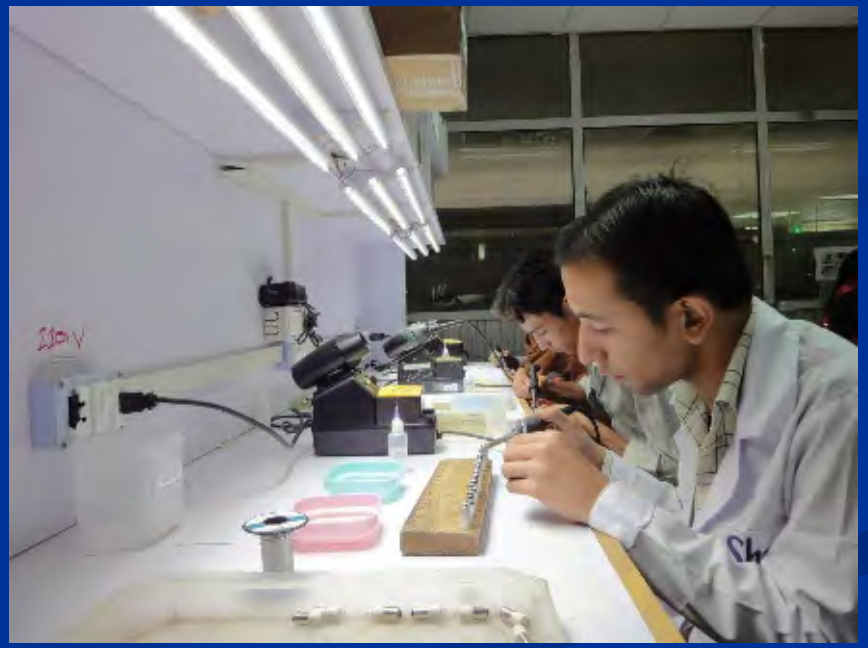
Project Photographs

Production line illuminated with Solar powered Led tube Lamps. Above is 1.5 KW solar panel bank that provides sufficient power for 144 sets of LED Lamps.



Project Photographs





Project Photographs

LED Lamps Vs Fluorescent and Incandescent Lamps

	LED	Fluorescent (CFL)	Incandescent
Life Span (How long will the light bulb last?)	100,000/ 50,000 for white LEDs	10,000	1000
Watts Per Bulb (Wattage Equiv. at 60w)	3-6	14	60
Ecology and Environment	Very Friendly/Min. Issue	Damaging-Mercury/Argon	Damaging
Heat Issue	Least	Ballast Heat	Largest
Light Control	Most Control	Least Control	Variable Control
Maintenance	Zero	Ballast Issue/Replacement	Replacement
Weather Temperature Changes	Not Sensitive	Sensitive	Some Sensitive

LED Lamps Vs Fluorescent Energy Saving

Lighting System	Fluorescent Tubes	LED Lamp	Notes
Lamp Life	10,000 Hrs	50,000 Hrs	
Lamp Wattage(including Ballast losses)	50 W	7.50 W	3 lamps of 2.5 watt each
Annual Operating Hrs(12 hrs per dayX300 days)	3,600	3,600	
Electricity rate /KWh	11.50	11.50	
Total numbers of lamps in use	144	144	144 sets(144x3=432 Led Lamps)
Numbers of Lamps needed for replacement during 50,000 hours time span	05	00	
Annual Energy Consumption	25,920 KW	3,888 KW	
Estimated annual procurement, replacement & maintenance cost	PKR 20,000	0.00	
Solar Bank Capacity	1.5 Kilowatt		
Annual Energy cost	PKR 298,080	PKR 44,712	
Annual Energy Saving	22,032 KWh		
Annual Energy Saving in PKR	PKR 253,368		
Net Annual Saving when used on Electricity	PKR 273,368		
Net Annual Saving when used on Solar Power	PKR 318,080		
Annual Carbon Emission controlled	15,202 Kg		

Project Outcome

- We are proud to be first facility in Pakistan that is using Solar powered LED lights for its production lines.
- Presently our all operational lights are on Solar powered. By this small effort Shanntech is saving a significant amount of electricity thus slashed operational expenses.
- Our production line staff feels more comfortable with LED lights. Major improvement in efficiency observed.