

## **Hybrid Wind & Solar LED Streetlight**

*Fayez Aldawi*

Department of Mechanical Engineering and Industrial Engineering,  
Yanbu Industrial College, Yanbu, SAUDI ARABIA

### **Abstract**

In the recent times the base of almost everything is the electrical energy. Fossil and nuclear power plants are used mostly to meet the present energy demand. As the demand of electrical energy has increased globally, there is a major threat of fast depletion of the fossil fuel reserves to meet that demand. So, it is important to generate energy from other sources before facing a severe fuel shortage. Renewable energy such as wind and solar are the best alternatives to meet the high demand of energy along with conventional energy. In order to reduce energy consumption and the environmental impact of fossil fuel, a hybrid system which combines solar panel and wind turbine can assist to provide a reliable and fully customized power to operate street light. This project has been designed fabricated and tested to provide a durable, reliable, and fully customized power from hybrid horizontal wind generator and solar system to operate street light. The system uses photovoltaic solar cells that directly convert solar energy into electrical energy, combined with a horizontal wind turbine generator which converts wind power into electrical energy. This electrical energy is stored in a battery . During day time electricity is generated using the solar panel, while the wind turbine is used to generate electricity in cloudy and rainy days, as well as at night. Solar and wind energy combine to provide enough energy to power the light system for 10-hours, without connected to the grid.

**Key words:** solar energy, wind energy, hybrid system, street light, reduce electricity cost, efficient energy.