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## **Economic Feasibility Of Solar Powered Street Lighting System In Libya**

Libya is one of the countries blessed with high potential of renewable energy. Currently, the electricity in Libya is produced from fossil fuel to meet the demand on the local electricity market. In the near future, the demand on the energy will increase significantly. The growth in energy demand will lead to more oil and gas consumption in Libya. Additionally, the CO<sub>2</sub> emissions will increase substantially. Therefore, Libya should make an urgent plan to use its alternative energy supplies to cover some of its load requirements. For example street lighting forms around 20% of the electricity consumption. The street lighting system in Libya is based on the high pressure sodium lamps which are powered from the electricity grid. The lamp rating ranges from 250 to 400 watts. As the country struggles to satisfy its electricity demands we propose replacing the conventional street lighting system with solar powered LED (Light emitting Diode) lighting system. The paper presents a case study for 4 km solar street lighting system in Almarj city. Two proposals are investigated, the conventional lighting system and the solar powered LED lighting system. A feasibility study of the street lighting system is carried out. The cost, energy savings and the CO<sub>2</sub> emission of the two proposed systems are compared. The cost of the solar powered LED street lighting system is 1,250,200 LD, while the cost of the high pressure Sodium lamp street lighting system is 2,117,255 LD. Additionally, the solar powered LED street lighting system has no CO<sub>2</sub> emissions.