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Street lighting poles top solar power generation for typical housing area in Kuwait

(Conference Paper)

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Abstract

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The need for energy is on the rise every year in Kuwait. Currently, largely, generation is fossil fuel-based consisting of power generating stations, transmission lines made from high pylons or towers, and distribution-all networked together in a complicated huge power system, the safe operation and stability of which demands for a generation a extra-bit larger than the consumers' demand. This paper presents a logical study as a solution to the increasing demand on electricity from Kuwaiti consumers from alternative source of solar. This study focuses on presenting a scenario of generating electricity from solar panels on top of street lighting poles in Kuwait. A detailed study has been conducted of street lighting poles types varying in sizes, lengths and the consumption of each lighting pole in Kuwait. This paper discusses the possibility of installing solar systems on all Street lighting poles; thus, the size of different solar systems has been calculated suitable to the length of each lighting pole. It will further highlight how to handle the shortage of generating electricity and cover a part of the growing demand using solar panels installed on street lighting poles. An allocated section of the city with installed streetlight poles solar panels make what is like a micro-grid which will prove helpful in meeting some of the energy demand. The resulting micro-solar system is connected directly with the electrical grid and through it; the generated electricity from the solar system will be injected into the electrical grid during the day without using storage batteries. This process, without batteries, allows avoiding extra costs in terms of purchase, installation and periodic maintenance for batteries. © 2019 IEEE.

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