Abstract:

[Renewable energy sources](https://www.sciencedirect.com/topics/engineering/renewable-energy-source%22%20%5Co%20%22Learn%20more%20about%20renewable%20energy%20source) and technologies have the potential to provide solutions to the energy problems. Solar energy can be an [important part](https://www.sciencedirect.com/topics/engineering/important-part) of the Palestinian’s strategies not only to add a new capacity but also to increase [energy security](https://www.sciencedirect.com/topics/engineering/energy-security), addressing the [environmental concerns](https://www.sciencedirect.com/topics/engineering/environmental-concern). In this paper, efforts have been made to summarize the current status, availability, and future potential of solar energy options in Gaza Strip. [Solar radiation](https://www.sciencedirect.com/topics/engineering/solar-radiation)data was provided by Meteoblue AG – Switzerland [[www.meteoblue.com](http://www.meteoblue.com/)] as hourly time-series for 15 years from 2000 to 2015 for five cities in Gaza Strip, which are geographically presenting the entire Gaza Strip. Jabalia, Gaza, Deir-Albalah, Khan-Yunis, and Rafah. These data are used directly to evaluate the potential of solar energy in the three selected sites by means of the System Advisor Model (SAM) from National [Renewable Energy](https://www.sciencedirect.com/topics/engineering/renewable-energy)Laboratory (NREL) software. The potential of solar energy in Palestine using [Photovoltaic](https://www.sciencedirect.com/topics/engineering/photovoltaics)(PV) and concentrating (CS) solar systems have been discussed. The present study can be considered as a road-map to get out of the electricity crisis in the Gaza Strip and to end the suffering of Gazians. In this work, two scenarios are suggested, the first one is urgent, it stipulates to generate the demand load (552 GWh/year) by means of (PV) solar power systems. While the second scenario is leading to terminate the reliance on imported energy by producing all the energy needs locally via (PV) solar system. The study reached to determine the financial budget, the [levelized cost of electricity](https://www.sciencedirect.com/topics/engineering/levelized-cost-of-electricity%22%20%5Co%20%22Learn%20more%20about%20levelized%20cost%20of%20electricity) (LCOE), and the [technical parameters](https://www.sciencedirect.com/topics/engineering/technical-parameter) for both scenarios. The urgent action is building up a 555 MWp of (PV) solar system on the rooftop of Gaza Strip’s buildings. This will cost about 800 million $US and the expected price of electricity will be ranged between ($US 0.07–0.11) per kWh, which is four times less than the present price ($US 0.29–0.46) per kWh. The solar energy can lay a strong foundation for an independent the Palestinian state, generate employment opportunities, alleviate poverty and provide a visionary approach to the dreams of Palestinian youths.