

Economical Impact of Partial Replacement of Diesel Generators by Wind Turbines in a Rural Site in Jordan

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Abstract

Jordan is a poor country in its oil resources so it imports more than 80% of its needs from other countries like Saudi Arabia. This affects the country's economy people's lives and economy as well. Therefore, seeking for renewable sources of energy is one of the responsibilities of the government in Jordan. The other challenge is the consecutive refugee's problem that puts pressure in Jordan different resources in which energy sector is occupies a high percentage.

Royal armed forces is vital sector in Jordan that depends on diesel engines for electricity generation. These sources have become a problem for the budget of the RAF from an economical point of view, one the other hand they are highly polluted to the environment and the persons who either live in these locations or as workers to maintain these engines. So the headquarter of RAF decided to start installing wind turbines in some rural areas of its military locations in which the grid is not available there. The price of energy generated by wind decreases day after day compared with a continuous increase in crude oil prices. In the present work, the focus will be on the economic impact of wind/PV (photovoltaic) hybrid system in rural areas. Unlike the previous projects, which were either in pilot or experimental form, the present study considers a commercial type project. An actual site of the applied study was studied in terms of electricity consumption, wind energy availability and pollutions effects as well. An evaluation of the partial replacement of the existing engines for electrification in the selected site is studied regarding economic and environmental impacts.

