

البحث رقم (4)

التقييم الفني الاقتصادي لأنظمة الطاقة المتجددة الهجينة: خيارات التكامل لقطاع السياحة المصري	عنوان البحث
Technoeconomic assessment of hybrid renewable energy systems: Integration options for the Egyptian tourism sector	
جيان سونج ، كاي وانج ، أنطونيو ماركو بانتاليو ، كريستوس ن.ماركيدس ، <u>سوزان عبد الهادي</u> ، أحمد شعبان ، ودومينيكو بوريلو	المؤلفون
Jian Song, Kai Wang, Antonio Marco Pantaleo, Christos N. Markides, <u>Suzan Abdelhady</u> , Ahmed Shaban, and Domenico Borello	
In: Proceedings of the 15th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES 2020), September 1-5, 2020 ISSN: 1847-7178 (digital proceedings). https://www.cologne2020.sdewes.org/programme .	تفاصيل النشر
<p>The reliable provision of clean energy is a key target of Egypt Vision 2030, and plays an important role in the sustainable development and expansion of Egypt's tourism sector. Based on assessments of local renewable-energy resources, specifically solar, wind and biomass, this paper compares a shortlist of hybrid renewable energy system configurations aimed at satisfying the combined heat, cooling and electricity demands in a selected hotel in the region of Fayoum. A list of renewable technologies, including photovoltaic (PV) panels, solar thermal and hybrid PV-thermal (PV-T) collectors, as well as wind turbines and biomass boilers, are considered as part of the configurations for decentralised (onsite) generation by matching the hotel's known energy demands. The results of technoeconomic assessments reveal that system configurations with PV panels or PV-T collectors, plus a wind turbine and biomass boiler, can generate more electricity (covering up to 27% of the hotel's electricity demand), whereas solar-thermal systems with evacuated-tube collectors can only cover 9% of the electricity demand, while also generating thermal energy to cover 43% of the heat demand; PV-T-based systems can account for 35% of the heat demand. The shortest payback time, 13.7 years, is achieved by a PV-based system, featuring PV panels, a wind turbine and a biomass boiler, thanks to the low panel cost. An equivalent PV-T-based system, in which the PV panels are replaced by PV-T collectors, pays back in 14.8 years, which is also considered attractive given this system's capability to generate both electricity and thermal energy, as well as the room for further technical development and cost reductions as the market share of this young technology grows.</p>	
المرفقات: شواهد تصنيف الدورية.	
