عنوان مقاله:

Possibility of supplying energy to border villages by solar energy sources

محل انتشار:

دو فصلنامه تجهیزات و سیستم های انرژی, دوره 9, شماره 3 (سال: 1400)

تعداد صفحات اصل مقاله: 11

نویسندگان:

Mostafa Esmaeili Shayan - *Department of Biosystems Engineering, Tarbiat Modares University (TMU), Tehran, Iran*

Sahar Esmaeili Shayan - *Department of Management and Accounting, Allameh Tabataba&#۰۳۹;I University,Tehran, Iran*

Abbas Nazari - *Department of Management and Economics, Science and Research Branch of the Islamic Azad University (SRBIAU), Tehran, Iran*

خلاصه مقاله:

Solar Energy is considered the cleanest and the most accessible energy source in the world. Its application is also one of the best electrification and energy transmission methods than other energy transmission models for outlying villages in terms of costs, transportation, maintenance, and similar factors. Accordingly, one of the critical studies on the context of exploitation of this energy is the possibility of establishing and identifying susceptive areas. In this study, the amount of solar energy entering the earth's surface and the number of cloudiness days were studied based on the studied area's meteorological data. Also, we designed and simulated solar photovoltaic power plants through the Meteorological Data on Virtual model. The solar analyzer function in the ArcGIS commercial closed environment was used to estimate the entering radiation to the earth's surface in the studied area. To study the number of cloudiness days has been used from the mentioned area's weather station data. The results showed that the solar analyzer function showed four months of the year available for full exploitation of these systems. The highest amount of radiation occurred after July. Optimal radiation conditions continue until November. In some days of the remaining months, this energy has been confronted with limitations. Nine villages were identified with the highest solar power utilization in the present study. Villages include the following: Kuran, Hurseen, Bavan, Barduk, Betic, Mareush, Jolfan, Sin Abad and Gudel.

کلمات کلیدی:

Solar Energy, Villages, Photovoltaic Power Plants, ArcGIS, Solar Analyzer Function