

Can a standalone solar-wind hybrid energy system be used in Ethiopia?

Feasibility study for a standalone solar-wind hybrid energy system for application in Ethiopia Wind energy potential assessment at four typical locations in Ethiopia Tamrat B. Comparative analysis of feasibility of solar PV, wind and micro hydropower generation for rural electrification in the selected sites of Ethiopia.

Can a wind/PV hybrid system electrify 200 model families in Ethiopia?

Bekele , determined solar and wind potentials of selected locations in Ethiopia and studied feasibility of wind/PV hybrid system to electrify 200 model families. In the study, HOMER is used for optimization and sensitivity analysis.

Does Ethiopia have a hydropower potential?

Ethiopia has a lot of small hydropower potential. Due to the seasonal nature of these resources, wind and solar resources together with diesel generator and battery system as a backup can be used for better reliability of rural electrification.

Is Homer a viable option for independent electrification in Ethiopia?

In the study, HOMER is used for optimization and sensitivity analysis. Tamrat has done a feasibility comparison of independent electrification at Dillamo and Gode sites in Ethiopia using either of the wind, solar PV or micro hydropower system.

What is the energy demand growth rate in Ethiopia?

For an economic growth rate of 7-10%, the resulting electric energy demand growth rate is about 17%. But, Ethiopia is developing at an economic growth rate of 8-12% which indicates that the energy demand growth rate is more than 17%.

Is independent electrification possible at dillamo and Gode sites in Ethiopia?

Tamrat has done a feasibility comparison of independent electrification at Dillamo and Gode sites in Ethiopia using either of the wind, solar PV or micro hydropower system. The author did not consider the possibility of combining the resources into a hybrid system and the analysis is done without the use of computer tool.

The solar PV-wind energy-diesel generator and battery system is studied in Debrezeit, Ethiopia, rural villages and the energy cost is \$0.376/kwh, which is feasible [13]. The northern Tigray...

[Show full abstract] demonstrates that the best optimal hybrid system consists of solar photo voltaic, wind turbine, biogas generator, biodiesel generator, converter and battery under load...

Another study found that a wind-solar PV system was feasible for remote rural household electrification in

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Ethiopia [23]. Yet another study identified that the generation cost from wind-PV systems was higher than the existing tariff in Ethiopia [24]. Another study using the HOMER model presented a hybrid micro hydro and wind power system for a ...

A hybrid system that integrates and optimizes across solar photovoltaic and complementary energy sources, such as wind and diesel generation, can improve reliability, and reduce the unit...

The aim of this paper is to investigate the possibility of supplying electricity from a solar-wind hybrid system to a remotely located model community detached from the main electricity grid in Ethiopia. The wind energy potential of four typical

During the hybrid energy system's lifetime, the cost of a grid extension power supply is \$22.185 million, which is nearly \$17,808,000 more than the cost of the proposed standalone system. So, developing solar/wind/micro-hydro hybrid power generation will save \$17,808,000 versus extending the national utility grid.

The current energy tariff of Ethiopia is below \$0.04/kWh. A previous study of Wind/PV hybrid system in Ethiopia (without hydropower resource) [25] has suggested an optimal system with a levelized COE of \$0.3-\$0.4/kWh. Global electricity tariff varies in a wide range.

Another study found that a wind-solar PV system was feasible for remote rural household electrification in Ethiopia [23]. Yet another study identified that the generation cost from wind-PV systems was higher than the existing tariff in Ethiopia [24]. Another study using the ...

This research presents the daily load demand characterization of residential homes, as well as the optimization of a hybrid wind/Photovoltaic (PV) renewable energy system for electric power generation. The chosen households have better financial conditions than ...

The major sensitive components of the system recognized are the changing price of PV panels and the ever hiking price of diesel oil. From the results it is concluded that the solar energy potential is the most promising resource that can be utilized.

This research presents the daily load demand characterization of residential homes, as well as the optimization of a hybrid wind/Photovoltaic (PV) ...

The major sensitivity components of the system recognized are the changing price of solar panel and wind turbine against increasing Diesel oil price. From the sensitivity result, solar ii energy is not promising in the study area. But, wind turbine is ...



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