Off-grid solar dodoma

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Tanzania gets plenty of sunshine in an average year, ranging between 2800 and 3500 hours. With the horizontal solar radiation being between 4 and 7 kWh per m? (each day), Tanzania is naturally suited for using solar power to generate high amounts of electricity. Let us illustrate this with an example of Spain. The estimation of Tanzania"s resources suitable for solar power generation is equivalent to those of such a country. The solar radiation is highest in the center region of Tanzania. This means the potential for off-grid solar power in rural areas is especially high.

As the maps below of Tanzania and the world show, the photovoltaic (PV) power potential, which expresses to what degree solar PV panels can be used to generate electricity, is indeed promising for Tanzania. While not the highest in the world, it is much more than the requirement for solar PV technology to operate well and to generate good amounts of electricity. Most importantly, the high solar insolation rate means that PV panels are more likely to have efficient outcomes in terms of their cost (purchase, installation and maintenance) versus electricity generation capacity.

Below, you can find an interactive map which complements the above solar insolation maps. The tool below shows the locations of the national grid and all separate mini grids (running on various sources of energy) in Tanzania. As visible, the central region with the highest solar insolation rate is also the least connected to any of these sources of electricity. In such areas, there is not only potential for solar mini grids or even utility scale (national grid-connected) solar power systems. There is also potential for independent solar home systems.

SmartSolar Tanzania offers personalized assistance in finding smart solar solutions. Our goal is to provide the right knowledge and tools to choose the best solution.

The construction of the solar power plant is planned to take one year, between March 2022 and March 2023. According to Emmanuel Tutub, the project aims to strengthen the grid of the state-owned Tanzania Electric Supply Company (Tanesco). The future solar power plant, which will probably be the largest in the country with a capacity of 150 MWp, will diversify Tanzania’s electricity mix.

According to the United States Agency for International Development (USAID), the East African country has an installed capacity of 1,504 MW, of which 568 MW is generated from hydropower plants. This hydropower capacity will be increased to 2,668 MW with the commissioning of the Stiegler’s Gorge dam and hydropower plant (2,100 MW) under construction on the Rufiji River.

However, the increasing dry spells in Eastern and Southern Africa are reducing river flows, thus impacting on the operation of the hydropower plants. During the daytime, in the dry season, the Kishapu solar power plant will take over from the dams, which will be charged to come on line after sunset. The Tanzanian authorities estimate that the solar power plant will avoid the emission of 43,460 tonnes of CO2 equivalent per year.

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