Ghana’s Potentials in Solar Energy Generation and Development

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The future of Ghana’s solar industry seems promising considering the recent add-ons in the sector. Solar has seen various faces of transformation in Ghana, despite major setbacks such as intermittency and volatility. Currently, solar has become the most popular renewable energy source in Ghana and has great viability especially if the future security needs of the country are to be considered. It is undeniable that Ghana’s energy sector has a promising future if favorable policies are carved to promote solar technology. It is also worthy to note that electricity from solar PVs has gained a lot of prominence and attention in various economies across the world partly due to the general drop in the production cost. This has made it relatively competitive to consider against other counterparts such as wind and hydro. Ghana’s solar energy generation potentials are enormous, considering the amount of sunlight received. Governments have kept the drive to improve electrification across the length and breadth of the country which to a large extent, has been successful with about 82.4% of the population having access to electricity. Previously, Ghana was locked in to the use of hydropower for electrification but recent competitive prices in solar PVs have gradually inspired the desire for utility and off-grid solar systems among the general populace. Various data gathered over the past 50 years by Ghana Meteorological Agency (GMA) and other authoritative bodies suggests that the amount of sunshine received in the various regions across the country is more than enough to generate the radiation needed for solar PV’s to function to capacity with a potential error in radiation at +/−5%. The initial increase in solar was a result of various projects pushed across by the Ghana Energy Access and Development Project (GEDAP) funded by a host of donors. Several campaigns have been made to push solar such as the “200 MW Government Goes Solar” by the Energy Commission with the sole aim of distributing free solar panels with up to 500 W capacity to especially off-grid remote communities in 2018. Indeed, it can be said that various solar projects are underway to augment the current energy sources in Ghana especially as the government is determined to uphold the renewable energy target of 10% by the year 2020.

Public-Private Partnerships Ghana solar energy

1. Potential Impact of a Robust Solar Energy Industry in Ghana’s Energy Transition

The advancement of a country’s energy needs is as crucial as issues of food security, health, and general well-being of the people since energy is a backbone of economic development and sustainability [1]. Growth in solar technology in the energy mix of Ghana is much anticipated, as various attempts to fully integrate solar started in the early 1990s [2][3]. In 2007, a once over-dependent low-income country migrated to middle-income status as the

availability of energy services increased and economic activities boomed up [4]. The clean energy status of solar makes it a worthy addition, considering the impact of traditional biomass on human health and the environment which forms the major source of energy for heating and cooking in many developing countries, especially in Africa [5].

Unarguably, scarcity of energy resources has a direct bearing on the poverty levels of society with various pointers such as child mortality, rural-urban migration, lack of education, and basic healthcare in a developing country like Ghana. It is estimated that the average Asian and African spends about 1/3 of their salary on fuel which unfortunately is the traditional biomass [6]. The recent expansion of solar in Ghana is of great significance as it promises to introduce an overall reduction in the cost of energy, especially for off-grid poor communities. Indeed, targeting major solar projects in especially rural and off-grid communities could have a major impact on the livelihood of these rural households. Major mono-industrial towns could also benefit from a constant power supply and all the numerous environmental and economic advantages [7][8]. In a country where job creation is a major challenge for the government, a vibrant solar energy industry can employ thousands of people through direct and indirect jobs which will further reduce rural-urban migration.

2. Underscoring the Significance and Impact of Effective Private Sector Participation (PSP) in Ghana’s Solar Energy Industry

Energy is as essential as water, agriculture, and health; therefore, the government must team up with the private sector to ensure sufficiency in production and sustainability across the nation. The significance and impact of effective Private Sector Participation (PSP) in Ghana’s solar is enormous and visible especially considering the milestone Ghana has achieved in recent years.

PSP in Ghana’s solar industry is not a new concept, considering its inception in the 1980s when missionaries and non-governmental organizations first introduced various forms of solar products for their personal use [9]. Solar received less attention from the government when it was brought at its initial stages due to the uncertainty of the technology. The technology mainly came with the installation of basic panels on the rooftops of various chapels and clinics, especially in remote areas. The most prominent government institutions to adopt solar through private partnership were the Ghana post and the then Ghana telecommunications [10]. These government agencies started replacing their defunct rickety diesel power plants with stand-alone solar power plants. Solar gradually proved with time to be a worthy option to be adopted by the government to alleviate energy poverty and hence its current progress.

One of the most overriding drivers for considering energy investments from the private sector is to have ingress into the copious volume of capital this sector has to offer. Access to sustainable electricity has been a hunch back for Ghana’s economy for many decades partly due to the huge financial demands of the energy sector, as donor parties and the government is constantly unable to meet the financial requirement. The input of the private sector is

therefore viewed as the most feasible option to augment the government in the quest to expand electricity through solar.

The overall benefits of PSP in Ghana’s solar energy industry go far beyond the provision of capital for electrification. The few attempts government has made to pioneer solar projects in Ghana followed the same old trend of lack of expertise and inefficiency among the employers as well as negative attitude towards work. Ghana’s electricity sector has witnessed various issues of property destruction and non-payment of bills due to an improper management system. The private sector on the other hand offers clear-cut managerial advantages, technical expertise, and overall efficiency in operation which the state-owned outfits lack [11].

Effective PSP in Ghana’s solar energy industry could thus initiate both a boom in the initial capital requirement as well as enhance the human resources and technical expertise needed to ensure the success of the solar sector. Full PSP is therefore the roadmap to the growth of Ghana’s solar industry.

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