Use of solar power in ghana

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Ghana generates electric power from hydropower, fossil-fuel (thermal energy), and renewable energy sources such as wind and solar energy. Electricity generation is one of the key factors in order to achieve the development of the Ghanaian national economy, with aggressive and rapid industrialization; Ghana"s national electric energy consumption was 265 kilowatt hours per each one in 2009.[2][3]

Ghana exports some of its generated energy and fossil fuels to other countries.[2][4] Electricity transmission is under the operations of Ghana Grid Company.[5] The distribution of electricity is under Northern Electricity Distribution Company and Electricity Company of Ghana.[6]

The first Ghana government-sponsored public electricity supply in Ghana commenced in the year 1914, at Sekondi-Takoradi, operated by the Ghana Railway Administration (Ghana Railway Corporation). Power supply was extended to Sekondi-Takoradi in 1928. The Ghana Public Works Department had commenced a limited direct current (DC) supply in Accra during 1922. A large alternating current (AC) project started on 1 November 1924, and a small plant consisting of three horizontal single cylinder oil-powered engines was installed in Koforidua in 1925.

The Tema power station was commissioned in 1956 with a 3 x 650 kilowatts (870 hp) diesel generating set.[7] The Ho power station followed in 1957 and from 1961 to 1964.[7] The Tema power station was extended to a maximum capacity of 35,298 kilowatts (47,335 hp), thus, making it probably the biggest single diesel-powered generating station in Africa.[7]

In 1963 the Ghana Electricity Division brought into operation the first 161 kV transmission system in Ghana, which was used to carry power from the Tema Power Station. At its peak in 1965, about 75 percent of the power was used in Accra.[7][9]

The balance of Ghana"s electricity was produced by diesel units owned by the Electricity Corporation of Ghana, by mining companies, and by a 160MW hydroelectric plant at Kpong, about 40 kilometers downstream from Akosombo. A third dam at Bui on the Black Volta River had been studied, and was completed in 2013.[7]

Other sites with the potential for power generation, on the Pra River (Ghana), the Tano River, the White Volta River, and the Ankobra River, would also require substantial investment.[7]

Ghana has attempted to increase distribution of its electricity throughout the country. One program Ghana has initiated will provide reliable and widespread electricity in the urban and southern parts of the country. In addition, the extension of the national grid to the Northern Region was commissioned in 1989. The extension

links northern Ghana to the power generated from the Akosombo Dam.[7]

Since 2007, Ghana has become an electricity exporter and since 2011 an exporter of crude oil, and natural gas,[10] and a generator of electricity by thermal energy, hydropower, solar energy and renewable energies since 2012.[11]

A Ghanaian oilfield which is reported to contain up to 3 billion barrels (480,000,000 m3) of crude oil was discovered in 2007,[12][13] and according to the Ghanaian government, the country could expand its petroleum reserves up to 5 billion barrels (790,000,000 m3) of crude oil in reserves within a few years.[14]

Ghana produces 200,000 barrels of crude oil per day on average from an expected 1-2 million barrels of crude oil per day,[10] and an expected crude oil production revenue of US$ 30 billion a year; as with Angola, also a crude oil producer, has an expected 2 million barrels of crude oil production per day[15] and receives an expected $33.7 billion a year in crude oil revenues.[16]

The biggest photovoltaic (PV) and the largest solar energy plant in Africa, the Nzema project, based in Ghana, will be able to provide electricity to more than 100,000 homes.[19] The 155MW plant will increase Ghana"s electricity generating capacity by 6%.

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