

Ayitepa Wind Farm, Ghana



The 225MW Ayitepa wind farm is being developed in the Ningo-Prampram district, approximately 60km east of Accra city in Ghana, West Africa. Comprising Mainstream Renewable Power and Actis, the Lekela Power joint venture is developing the project.

Estimated to cost \$525m, Ayitepa is not only the first wind project in Ghana, but also the [biggest](#) in Africa.

Construction on the renewable power project is set to commence in late-2017 and is expected to be completed in 16 months with first power scheduled for 2018.

Designed to operate for 25 years, the project will reduce the electricity supply deficit in Ghana. It will produce enough electricity for approximately 60,000 local households a year in the country.

The project will use local workforce and boost the local economy by generating more than 500 jobs during peak construction period and 50 jobs during operations.

Ayitepa wind project background

Development of the Ayitepa wind project was first initiated by NEK Umwelttechnik in 1998. The company examined the project location and acknowledged it to be suitable for the [operation](#) of a wind farm. The surveyed data served as a basis for development of other wind projects in Ghana.

NEK Umwelttechnik formed a joint venture called NEK (Ghana) with Atlantic International in 2003 to carry out certain activities related to the project including wind measurement campaigns.

A Lidar measuring unit was installed at the site in 2014 to gather more data of the wind conditions at up to 200m above ground level. The data will act as a base for the assessment of the proposed 225MW wind farm.

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NEK and Mainstream Renewable Power entered an agreement in 2014 for co-development of the wind farm until the completion of financial closure and takeover of the project. Upwind Ayitepa, a special purpose legal entity for the project, which can be transferred to the investor in the near future, was set up in the same year.

The Ghana Civil Aviation Authority (GCAA) has granted Airspace Safety Permit for construction and maintenance of the wind farm. The final approval for the project was received in the fourth quarter of 2016.

Financial closure is expected to be achieved in the second half of 2017.

Construction details of Ghana's first wind farm

The Ayitepa wind farm will be constructed in two phases, with the first phase having a capacity of 150MW and the second phase having 75MW capacity.

Construction will begin with renovation of the existing roads and junctions. Excavation work at the turbine sites will begin once the construction of the main roads is completed.

The wind farm will feature 75 turbines rated between 2.75MW and 3.5MW. The turbine rotor will have a diameter of 131m and hub height of 140m. The wind turbines and blades will be transported first to Tema, and further to the Ayitepa wind project site.

Grid connection for Ayitepa wind farm

A new transmission substation will be set up in the wind farm area between the Accra villages of Sege and Dawa. The new substation will be located near an existing 330kV powerline of the West African Power Pool (WAPP).

Underground cables will carry the electricity generated by the turbines to a collector substation from where overhead lines will transfer the electricity to the new substation. The transmission substation will transfer the power to Ghana's National Interconnected Transmission Grid (NITS).

Power purchase agreement

Upwind Ayitepa signed a power-purchase agreement (PPA) with the Electricity Company of Ghana in early-2017 to supply 225MW of electricity generated by the Ayitepa wind farm.