

Building a robust energy sector the need to tap into the potential of wind energy

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An assessment of Ghana's wind energy potential in a study conducted by National Renewable Energy Lab (NREL), a United States (US) institution, in collaboration with the Ghana Energy Commission and Meteorological Service between 2002 and 2005, revealed that the country had a huge potential in wind energy resource.

The study, which was funded by the United Nations Environment Programme (UNEP) concluded that, Ghana had classes four to six wind resources at the highest ridges near the border with Togo and the highest ridges northwest of Accra.

The study further revealed there is approximately 413 km² area with viable wind energy resource which could support over 2,000 MW of wind power, and if moderate-to-excellent wind resources were included, that could go up to 5,640 MW.

The Energy Commission did a more diligent job that showed that the higher wind energy potential areas in the country were located at areas such as Nkwanta, the Accra Plains, and Kwahu and Gambaga mountains.

Further work showed that the maximum energy that could be tapped from the country's available wind resource for electricity is estimated to be about 500 – 600 Gigawatt hours (GWh) per year.

Ray of hope

It is in the light of the above that one sees the giant step being undertaken by Swiss wind farm developer, NEK Umwelttechnik, to develop a wind farm to be located within the Ningo traditional area in the Greater Accra Region as refreshing.

The wind farm which is being built by NEK Umwelttechnik AG's local branch, NEK Ghana Ltd NEK, will lead to the generation of 225MW of wind power upon completion.

NEK Umweltechnik began reviewing wind conditions in Ghana in 1998 and by 2005, it had gathered enough confidence that there were adequate wind speeds for power generation along the coast of Ghana. Based on these favourable results, it partnered Atlantic International Holding Company Ghana Limited in 2003 and established NEK Ghana Ltd.

In order to develop preliminary wind parks by 2006, a number of wind parks were ready to be built, but it was only after the Renewable Energy Act was enacted in 2011 that the relevant regulatory framework, laws, obligations and tariffs have been put in place to create the enabling platform.

“The concept is to develop, finance, build and operate a 225MW grid connected wind project that will provide approximately 700,000 MWh of annual production of clean, homemade electricity at a total investment cost of approximately \$525 million. Funding for the project is to be provided by IFC and OPIC as mandated by the lead arranger, the World Bank,” country manager for NEK Ghana, Mr Michael Wuddah-Martey, said in an interview.

“Plans are far advanced to kick-start the project with a financial closure in the fourth quarter of 2017. This would ensure that within nine months, the first 40MW could be connected to the grid, and given another 13 months, the full capacity would have been completed.

“After completion, it will then serve as quick emergency power and complement power supply from other sources. Its production will help reduce problems encountered with gas supply and availability, susceptibility to fluctuations in oil prices and foreign exchange utilisation.

“The project now requires support from the government to reach financial closure and take-off. This involves getting parliamentary approval for a Put and Call Option Agreement (“PCOA”) and a World Bank partial risk guarantee to back the power purchase agreement signed with the Electricity Company of Ghana (ECG). Issues relating to tax exemptions are also critical,” he stressed.

Other benefits

Apart from the main benefits the project has for the energy sector, the wind turbines will have large stretches of land between them and as is the practice now, farmers will be allowed to continue farming within the Wind Park.

“Also irrigation and modern farming technologies will be provided to support the district assembly’s vision of making the Ningo area a food basket for the Greater Accra Region while more than 600 employment opportunities will be created during construction.

“At least, 40 permanent staff jobs will remain for the 25 years’ lifespan of the project. In addition, through its community investment strategy of between \$500,000 and \$1million annually, the project will fund initiatives to meet the needs of the local communities in skill training, education, health and women support actions,” Mr Wuddah-Martey added.

On the political front, the project, which is set to be the largest wind park in West Africa, will solidify Ghana’s position in the sub-region as a hub for energy production and export of affordable electricity.

If Ghana will be able to generate enough power to transform her economy and keep pace with the developed world, all avenues, especially the potential in alternative sources of energy, must be tapped.

Source: <http://www.graphic.com.gh/features/features/building-a-robust-energy-sector-the-need-to-tap-into-the-potential-of-wind-energy.html>