Comprehensive energy mix

INTERVIEW WITH HON JOSEPH KOFI ADDA
MINISTER OF ENERGY, REPUBLIC OF GHANA

JOSEPH KOFI ADDA was born in 1956 and graduated from Wesleyan University, Marion College, USA with a Bachelor of Science cum laude, and obtained a Masters degree from Columbia University, New York. He also has a certificate degree in African Studies. He has also attended Sorbonne University, Paris. He has had a wide range of private and public sector experience and was elected to Parliament in 2003 and was re-elected in the 2004 General Election.

What is the mission and objective of your ministry?

The vision of the energy sector is to provide a reliable energy supply to all sectors of the economy to support growth and poverty reduction and exports. Our mission at the Ministry of Energy is to formulate, co-ordinate and implement Ghana's energy sector policies. Our energy sector policy objectives are to increase access to modern forms of energy to the poor and the vulnerable, to provide support to modernise and expand the energy infrastructure, to secure future energy sources including hydrocarbon deposits, to diversify the national energy supply mix to include the increased use of renewable energy sources, to minimise the environmental impact of energy supply and consumption and to improve the overall management, regulatory environment and operation of the energy sector, as a whole.

What are Ghana's key energy resources, in terms of biomass, renewable and hydrocarbons?

Biomass is Ghana's dominant energy resource in terms of endowment and consumption. Biomass resources cover about 20.8 million hectares of Ghana's land mass (23.8 million hectares) and is the source of supply of over 69 per cent of total energy consumed in the country.

The second most important energy resource is hydro whose potential consist of large hydro sites along the Volta River and several small hydro sites on other rivers flowing in other parts of the country. The largest of the potential sites is located at Bui on the Volta River with an estimated capacity of about 400 MW.

Ghana is also well endowed with renewable energy resources particularly solar and wind energy resources. Solar radiation levels are estimated at about 4-6 kWh/m2 and average wind speed along the coastal areas is estimated at 5 m/s.

In terms of hydrocarbons, Ghana is part of the West African province that has seen giant oil and gas discoveries such as Dalia and Girrasol in Angola, Ngolo, Bonga and Agbami in Nigeria, the Nicossa Field in Congo and the Ceiba Field in Equatorial Guinea.

Ghana's offshore sedimentary basins cover an area of about 50,000 square kilometres. The interior Voltain Basin, which is about 103,000 square kilometres in area, has seen very little exploration despite the fact that it has good potential. Despite indications of the possible existence of oil and gas resources, this potential is yet to be fully explored though a large proportion of exploration wells drilled in Ghana's sedimentary basins have encountered oil or gas, discoveries in commercial quantities have so far been elusive.

How is Ghana's electricity supply infrastructure organised and managed?

Electricity is produced from two main sources: hydro and thermal. Two hydro power plants, with a total installed capacity of 1,180 MW, provide the bulk of electricity produced in the country with an additional 550 MW from thermal sources. To meet total system demand, domestic electricity generation is supplemented with imports (up to 250 MW) from neighbouring La Côte D'Ivoire.

Ghana has a relatively extensive electricity transmission network spanning over 4,000 kilometres and covering a large area of the country.

National access to electricity is estimated at 50 per cent with 77 per cent of urban households having access to electricity compared to 20 per cent of households in the rural areas. Access to electricity in rural areas is currently being enhanced through a Government-Funded Rural Electrification Programme.

What are the petroleum supply infrastructure characteristics in Ghana?

The country imports all of its crude oil requirements which are refined at Tema Oil Refinery (TOR). The TOR, whose capacity is 45,000 Barrels-Per-Stream-Day (BSPD), is wholly owned by the Government of Ghana.

There is an extensive network for petroleum products distribution and retailing with thirty Oil Marketing Companies (OMCs), including five LPG Distribution Companies currently involved in petroleum marketing.

Please explain the regulatory regime, the framework for protecting investors and the transparent pricing regime currently in force.

The regulatory regime for the management of the energy sector is well articulated in the statutes and further strengthened by the creation of independent and autonomous regulatory agencies. Besides licensing energy sector operators and monitoring and enforcing technical regulation, the regulatory agencies are enjoined by statute and good regulatory and industry practice to ensure fair and reasonable

pricing of energy services.

The laws of Ghana protect investors through the enforcement of contractual obligations. In the event of breaches of, or repudiation of contracts, the investor has recourse to various dispute resolution mechanisms, including formal arbitration at the specially created and well equipped Commercial Courts, established for the effective, efficient and speedy dispensation of justice.

Pricing of energy services are based on the principles of full cost recovery which ensures that providers of energy services are able to recover all their costs and also make a reasonable return on investments. These pricing initiatives have led to improvements in the financial health of the energy sector enterprises making it possible for them to finance some projects from their own resources.

The government is unrelenting in its efforts to improve the structure established under the energy sector reforms aimed at attracting and protecting private investment and the management of the energy sector.

What are the medium term financing requirements and what role do you believe the private sector can play in this sphere?

About US$4.5 billion is needed to meet the infrastructure development requirements of the Energy Sector in the medium term up to 2011. The government is unable to raise all the investment capital from its own resources. The challenge, therefore, is how to raise or access adequate capital from other sources to supplement its own in a highly competitive global market. The government is therefore seeking to embrace other financing sources and in particular private sector investment capital. Reforms have been initiated which allow private investment adequate leverage in the ownership, operation and management of energy infrastructure.

Most of the estimated financing for the energy sector will be generated from non-government sources particularly through direct private sector investment capital. Specifically, the role of the private sector will be to (i) provide equity financing for long term energy infrastructure projects as sole owners or in partnership with government, (ii) assist in loan syndication for government-sponsored projects and (iii) provide advisory services on sourcing and packaging of debt and equity financing for energy projects.

Private sector investors are encouraged to participate in financing energy sector projects which provide attractive returns on investment. Build Own Operate and Transfer and other innovative financing arrangements are being encouraged, where appropriate.

Divestiture of state-owned enterprises also provides an opportunity for private sector and institutional investors to invest in the sector. Besides their own resources, Energy Sector Enterprises are being encouraged to explore other non-traditional financing instruments such as The Ghana Stock Market to raise financing for their activities.

What are the key investment opportunities and prospects in the energy sector?

Investment opportunities include (i) long-term investments in private sector-sponsored energy production and distribution projects (ii) financing support for Government-sponsored projects and (iii) financing support for state-owned energy enterprises.

The area of greatest potential for private sector investment in the power sub-sector is in electricity generation. Electricity demand is projected to grow from the current level of 1,400 MW to about 3,500 MW in 2020. This represents average annual capacity additions of 100 MW for the next 15 years. It is anticipated that most of the capacity additions will be financed by the private sector as Independent Power Generators. Prospective off-takers of power are large power consumers, including the mining companies and industries which constitute the de-regulated market and the distribution companies who purchase power for resale. Another attractive area for private investment capital in the power sector is the local manufacture of electrical appliances and equipment including cables, transformers, lighting such as Compact Fluorescent Lights (CFLs).

The petroleum sector is dominated by private companies with the state-owned agencies GNPC

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The Hon Minister of Energy discussing Ghana's energy issues with EU Ambassadors at the Tema oil refinery

Ghana is well endowed with renewable energy resources

and TOR involved in promoting hydrocarbon development and crude oil refining. Prospects for private sector investments in the petroleum sub-sector are significantly high.

What are the prospects for hydrocarbon exploration and crude oil refining in Ghana?

Ghana's hydrocarbon potential has not been fully explored and developed. The government has put in place a favourable fiscal and regulatory regime for the exploration and development of the country's hydrocarbon resources. The government is reaching out to oil companies and other investors to explore and develop the country's hydrocarbon resources. Five Petroleum Agreements were signed in 2006 with international Oil Companies to explore Ghana's sedimentary basins.

The government has opened the business of crude oil refining to include private sector-owned refineries to serve both the domestic market and also for export and is currently seeking strategic partners regarding the ownership and management of the existing state-owned refinery which is intended to be expanded from its current capacity of 45,000 Barrels Per Stream Day (BPSD) to 105,000 BPSD.

What is the position on bulk petroleum product pipelines and storage?

The Bulk Oil Storage and Transportation Company Limited, a state-owned agency, requires significant investment in the construction of petroleum products pipelines and strategic storage depots nationwide and private sector investors are also encouraged to construct storage depots at strategic locations in the country.

The development of alternative transportation fuels such as biofuels also provide opportunities for private sector investment.

What will be the impact of the West African Gas Pipeline Project (WAGPP) in Ghana?

The West African Gas Pipeline Project will enable Ghana to secure natural gas supplies from the huge reserves in Nigeria. While the primary use of the gas will be for power generation, the Ghana Government intends to develop a secondary gas market for the distribution and sale of natural gas for other purposes particularly as a substitute fuel for industrial production. The development of the infrastructure for the secondary gas market and the operation and management of the natural gas distribution business is to be undertaken by the private sector in partnership with the Government.

What will be the most attractive investment opportunities in the renewable energy sector?

Ghana is well endowed with renewable energy resources particularly solar and wind but their contribution in the national energy mix is minute. Government policy is to accelerate the development of renewable energy, not only to contribute to the energy supply but also to increase the contribution of environmentally friendly energy sources to the national energy mix. For example the development of Wind Farms for electricity generation is a key feature of the national energy plan. Wind Farms are to be developed by the private sector with Government providing adequate fiscal and pricing incentives and protection for investments in this area. Another key component of the national energy strategy is to produce, locally, energy products with good prospects for indigenous manufacture. Local manufacture of solar panels will bring down the cost of solar energy and enhance its wider adoption as a preferred energy source to meet small load requirements. The Government intends to encourage the local manufacture of solar panels by the private sector.

The government has recently embarked on the installation of solar systems in schools, hospitals and remote police stations and other security outposts as well as all government office buildings, to supplement electricity supply from the national grid.

The government is seeking concessional and low cost financing for these projects which will help solve supply problems, show case the efficiency of these systems and also provide off-grid access to the remote areas. F

The Minister of Energy and EU Ambassadors on a tour of Tema oil refinery