

# Bioenergy for Accelerated Agro-Industrial Development in Ghana

**Keynote Address delivered on behalf of Dr Joe Oteng-Adjei (Minister for Energy), by Prof Abeeke Brew-Hammond (Board Chairman, Energy Commission), at the Bioenergy Markets West Africa Conference, La Palm Royal Beach Hotel, Accra on Tuesday 27 October 2009**

Mr Chairman,

Specially Invited Guests,

Ladies and Gentlemen,

I would like to start by conveying to you the very best wishes of the Minister for Energy, Dr Joe Oteng-Adjei, and his expectation that this conference becomes a turning point in the history of bioenergy development in Ghana, and indeed in West Africa.

Let me also add right away that the President of Ghana, Professor John Evans Atta-Mills, has made employment generation one his topmost priorities and the Minister for Energy would like it very much if this conference addresses the issue and comes out with some concrete and practical recommendations in this regard.

Mr Chairman, Ladies and Gentlemen, I see from the documentation on this conference that you will be covering the whole range of bioenergy forms, from solid biomass through liquid biofuels to biogas.

Let me therefore start with solid biomass where Ghana has significant resources with about two thirds of the land area in the tropical forest zone. Over 70% of total land in the country has soil with non-gravelly medium to moderate heavy texture which is highly suitable for the cultivation of food and bioenergy crops.

Our colleagues, Mr Kwabena Nketia and Dr Ben Hagan, estimated that in the year 2000 some 14 million m<sup>3</sup> of wood was consumed annually for energy production and they

suggested that this could rise to 20 million m<sup>3</sup> by the year 2010. There is some contention about whether or not biomass for energy use is the biggest contributor to deforestation in Ghana and there are new ideas coming up which suggest that woodfuels should be seen not as the problem but as a big part of the solution, when it comes to rural poverty reduction. Nevertheless, the Forestry Development Master Plan has concluded that current levels of consumption will deplete most of the country's woodfuel resources by the year 2020 if corrective measures are not put in place.

An improved cookstoves programme starting in the late 1980s led to the production and marketing of the Ahibenso stove by the Ministry of Energy and erstwhile National Energy Board in the early 1990s and, according to another colleague – Mr Togobo, some 40,000 stoves had been sold by 1993. Subsequently, the Technology Consultancy Centre (TCC) of the Kwame Nkrumah University of Science and Technology (KNUST) developed an improved Ahibenso cookstove with financial support from the UNDP/GEF Small Grants Programme. Another improved cookstove, the Gyapa, was introduced in 2002 by the NGO, Enterprise works.

The improved cookstoves programme was complemented with an LPG promotion programme initiated in 1990 and by 2004 domestic consumption had increased by about ten times, mostly in the urban areas. The Government of Ghana has now decided to relaunch the LPG programme with much higher ambitions of achieving a 2015 target of 50%, well above the levels specified in the White Paper signed by all the governments of the Economic Community of West African States (ECOWAS). A related programme on sustainable production and cleaner use of biomass to address the needs of the other 50% will be considered by the Energy Commission for recommendation to the Government.

Still on solid biomass, one should mention the large potential that exists for cogeneration of heat and electricity from agro-industrial residues in the wood-processing and vegetable oil industries in Ghana. One should also mention the potential for production of briquettes and pellets using these same agro-industrial residues.

Mr Chairman, I would like us to now take a look at biogas, which is yet to make significant impact in the energy sector of Ghana despite its potential for lighting and cooking services in schools, hospitals, slaughterhouses, households, etc. A recent study by one postgraduate

student at KNUST surveyed fifty (50) biogas installations across the country and conducted interviews with both plant users and service providers. The study revealed that as many as 52% of the installations were either functioning partially or not functioning at all. Reasons for non-functionality included inadequate attention to proper training for operators and local capacity for maintenance. The study recommended the development of a national biogas programme using standardized designs to minimize the maintenance challenges, and focussing on three major areas – agricultural fertilizer production, sanitation and energy – in order to improve the system economics.

As we go forward with biogas in Ghana we would do well to seize the many opportunities that exist for modern bio-sanitation systems to clean up the local environment and generate economic benefits as well. Our larger institutions, especially the universities and polytechnics, should all be turning their wastes, and the biological wastes generated in cities and towns around them, into useful products in the form of fertilizer or electricity, and this could also work for hospitals, hotels, large real estate developments, etc. Lives can also be transformed in the rural cattle-rearing parts of the country, notably the Northern and Upper Regions, where we stand to learn from countries like Rwanda which are already coupling biogas programmes more explicitly with agricultural production to improve rural incomes in particular and rural livelihoods in general.

Mr Chairman, Ladies and Gentlemen, liquid biofuels became an issue in Ghana when in August 2003, Anuanom Industries Projects Limited, a local company announced its plans to produce biodiesel from *Jatropha curcas*. This prompted the Ministry of Energy to task the Energy Commission to conduct a preliminary analysis on the production and use of biofuels in Ghana and a report was submitted in September 2003. Subsequently four committees were established to assess elements necessary for the implementation of a successful biofuels policy and programme with representatives from the Environmental Protection Agency (EPA) and Ministry of Food and Agriculture (MOFA) plus stakeholders in the petroleum industry, private sector, academia and civil society. The first draft biofuels policy document was issued in 2005 with various recommendations including a requirement for all Government vehicles which use diesel to switch to 20% biodiesel blends (B20) and a call for the establishment of a Biofuel Implementation Group (BIG) within the Energy Commission to manage the development and implementation of the biofuel programme.

Unfortunately this document remained at the draft stages until June 2006 when a new Minister for Energy tasked the Energy Commission to finalise the government strategy in 3 months for a final decision to be taken. A revised document was then submitted to Government specifying some quite ambitious targets including mandatory blends of gasohol and biodiesel at five percent (5%) by 2010 and ten percent (10%) by 2015. These same mandates are captured in the Strategic National Energy Plan (SNEP) also published in 2006.

Ladies and Gentlemen, I started off by saying that the President of Ghana, Professor John Evans Atta-Mills, has made employment generation one his topmost priorities. Professor Atta-Mills and his Minister for Energy, Dr Oteng-Adjei whom I am representing today, are taking the whole renewable energy agenda very seriously and we see a strong role for bioenergy in terms of the life-transforming employment opportunities that stand to be created across the whole country, rural and urban areas alike. A draft National Renewable Energy Law has been prepared with provisions for a Feed-in-Tariff Scheme and Renewable Energy Purchase Obligations. The draft Law also has provisions on the control and management of biofuel and wood fuel with respect to feedstock production and sustainability issues. The draft Law has already reached Cabinet level and should go shortly to Parliament for enactment by the end of this year.

In order to keep up the momentum a decision was taken at the 66th Meeting of the Board of the Energy Commission, held in Accra on Monday, 10th August 2009, to accelerate the biofuel agenda by initiating the process to prepare Policy, Regulatory Framework and Legislation on Biofuel and Woodfuel Markets in Ghana. The plan is to take this through the necessary stakeholder consultations as well as political and legislative processes towards formal adoption by the Government soon after the passage of the RE Law to pave the way for a truly dynamic bioenergy industry in Ghana.

As I bring this address to a close, I wish to salute companies like Biofuel Africa Ltd who share our cardinal principle of sustainable biofuels for local agro-industrial development. Biofuel Africa Ltd which has begun commercial production of jatropha oil in Ghana, claims to have increased additional acreage for local farmers' food crops tenfold, with plans to cultivate another 2,550 hectares of maize, rice and soybeans in 2010, producing approximately 6,000 – 8,000 tons of additional food crops for the 2010 season. Their food first policy is one that

we would want to see more biofuels companies adopt in Ghana. I am aware that Biofuel Africa's claims are disputed in some NGO and academic circles. I wish to affirm at this conference that much as I personally admire Biofuel Africa for leading the way in our journey from talk to action, I would in my capacity as Board Chairman of the Energy Commission strive to see that a forum is created for claims and counterclaims in the biofuels industry to be researched and reported on through more objective media so that in the end we all might enjoy the benefits of a truly sustainable people-oriented biofuels industry.

Mr Chairman, all the options I have talked about so far stand to benefit to a large degree from effective R&D support from local institutions, and that is what we are doing at The Energy Center, KNUST where I currently serve as the Acting Director. We decided from the onset to make biofuels our flagship programme area and quite apart from a range of graduate and undergraduate student projects on topics ranging transesterification of palm kernel oil to the agronomy of jatropha, we have recently developed a project document for the establishment of an Africa-wide Consortium of 7 Higher Education Institutions in Tanzania, Rwanda, Uganda, Ethiopia, Senegal, Burkina Faso, and Ghana linked to the Biogas for a Better-Life-in-Africa Initiative.

At the moment, we have a number of externally-funded activities in our pipeline, namely,

- the EDULink Renewable Energy Education Project (REEP), supported by the European Union's African, Caribbean and Pacific (ACP) Secretariat,
- the Biofuel SMEs Project, supported by Trust Africa, a joint venture between IDRC of Canada and Ford Foundation of the US, and
- the preparation of Background and Issues Papers for the upcoming UNIDO Roundtable on Biofuels Industries in Africa to be held in Vienna, December 2009.

Fellows at The Energy Center, KNUST are also working with colleagues at UNIDO's International Centre for Science and High Technology based in Trieste, Italy, to develop a major Africa research programme in next generation biofuels. The Energy Center, KNUST is a virtual center that counts on some 800 academics from practically all disciplines in the University and we have active linkages with other academics throughout Africa and the Diaspora. Our doors are open to any company that needs or wishes to strengthen local bioenergy research capacity and it is very much my hope that those of you present here will

talk to my two colleagues attending this conference, Dr Ahmad Addo and Mr Francis Kemausuor, to explore possibilities for mutually beneficial research activity.

So, Mr Chairman, Ladies and Gentlemen, I would conclude by admitting that I am not Martin Luther King Jnr, but I too have a dream, and my dream is that one day soon,

1. The highway from Accra in the South to Paga in the North, and indeed roads crossing the country from East to West, will be good roads lined with lush well-kept plantations of food and fuel crops,
2. Every District in the country will have some production and/or value-adding activity along the bioenergy supply chain,
3. Clean biosanitation facilities that save money and enhance the local environment will be employed in every major institution and industry across the country (schools, hospitals, hotels, real estate developments, mining establishments, etc),
4. Every Ghanaian will have access to sustainably produced bioenergy for cooking, transport and industrial activity as needed, and
5. Ghana will become the No 1 country for bioenergy in Africa with the sustainable production, development and use of bioenergy contributing to quantum leaps in rural incomes and employment, and GDP growth rates of 10% and above for the country as a whole.

I invite you to share in this dream and I truly hope that this conference becomes the turning point in our journey towards the realisation of a dynamic bioenergy-based agro-industrial economy in Ghana.

Thank You.