

**BRIDGING THE IMPLEMENTATION GAP FOR RIO+20
WORKSHOP AND OPEN SIDE EVENT TO THE HIGH-
LEVEL POLITICAL FORUM ON SUSTAINABLE
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**BIOENERGY POLICY DEVELOPMENT AND
PRACTICE IN GHANA**

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PRESENTATION OUTLINE

- Country Profile
- Overview of Ghana's Energy Situation
- Nation Energy Policy target
- Renewable Energy Law
- Bioenergy Policy
- Implementation of policy
- Conclusion

COUNTRY PROFILE



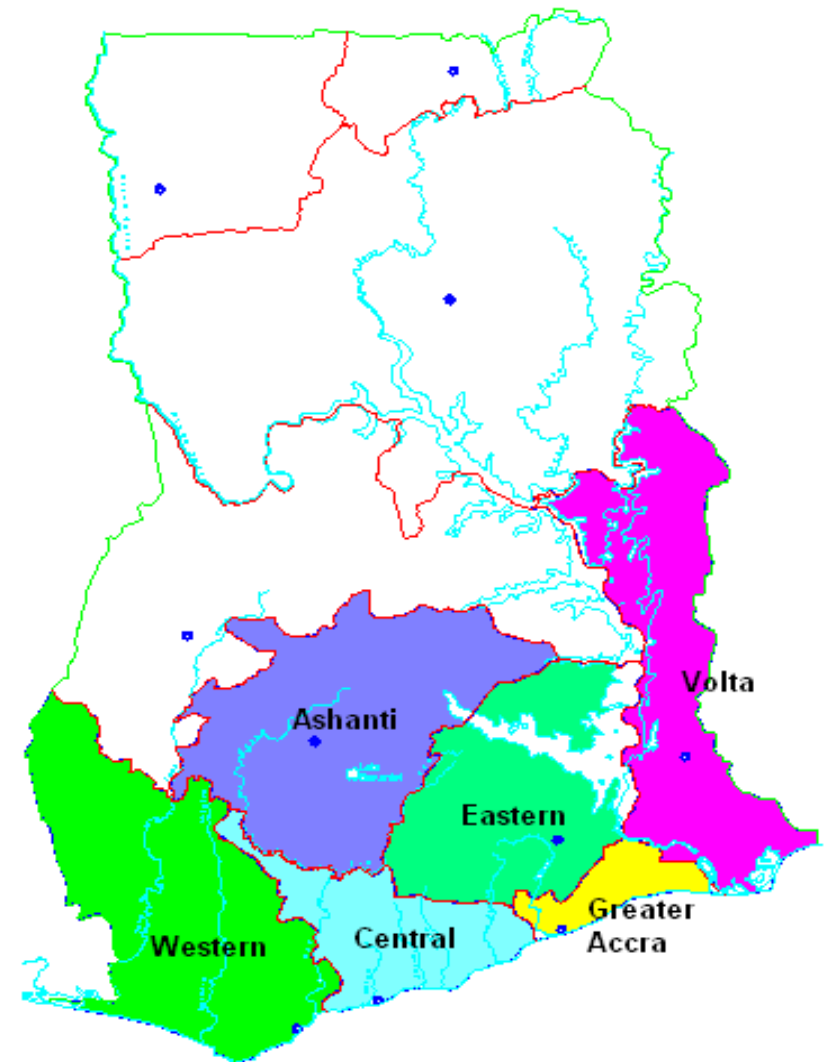
Land Area: **238,500 km²**

Population: **24,658,823** (2010 Census)

Electricity Access: **74%** (2013)

Consumption/Capita: **443.3kWh** (2012)

Major Export: **Cocoa, Gold, Timber, Bauxite, Oil, Electricity to Togo, Benin & Burkina Faso**



GHANA'S ENERGY SITUATION

Bioenergy Resources

- Total Wood supply for fuel **11.4 million tonnes/annum (2012)**
- Woodfuel supply **6.4 million tonnes /annum (2012)**
- Municipal waste **2 million tonnes/annum (2011)**

Electricity & Petroleum

- Electricity Installed capacity **2,280MW** (2012)
- Electricity generation **12,024GWh** (2012)
- Electricity generation:
 - Hydro **8,071GWh (67.1%)** (2012)
 - Thermal **3,953GWh (32.9%)** (2012)
- Transmission losses **4.3%** (2012)
- Crude oil production **80,000b/day** (2012)

NATIONAL ENERGY POLICY

The overall national energy policy target is to attain 10% Renewable Energy (RE) in national energy mix by 2020.

BIOENERGY POLICY DEVELOPMENT

- Renewable Energy Act, 2011 (Act 832)
- Bioenergy Strategy

RENEWABLE ENERGY ACT

- Feed-in-tariff Scheme for electricity generated from RE sources, such as biomass.
 - Feed-in-tariff rate (FIT Rate)
 - Renewable Energy Purchase Obligation (REPO)
 - Connection to the transmission and distribution system
- RE Fund
- Biomass development

FEED IN TARIFF RATE

- FIT rate is guaranteed for 10 years
- It is subsequently subject to review every two years.
- In determining the FIT rate the following factors are taken into account:
 - *technology being used in the renewable energy industry*
 - *costs associated with construction, commissioning, operation and maintenance of the plant*
 - *reasonable rate of return on investment*
 - *balance between the interest of the consumer and*

RE ENERGY PURCHASE OBLIGATION

- Power distribution utilities and bulk electricity consumers are obliged to purchase electricity generated from RE sources such as biomass.
- In specifying the percentage level of electricity the following factors are taken into account:
 - technology being used to generate electricity from RE resources
 - Assurance of the financial integrity of public utilities
 - net effect of the cost of RE on the end user tariff

CONNECTION TO THE TRANSMISSION AND DISTRIBUTION SYSTEM

There is open access to the transmission and distribution system

Sanction of ten thousand penalty unit is imposed for refusing to connect RE electricity generation to the transmission or distribution network

RE FUND

- RE Energy Fund to provide incentives for research, promotion, development and utilisation of renewable energy resources such as biomass.
- Sources of money of the fund
 - Moneys approved by Parliament
 - Premiums
 - Donors
 - Energy Fund
 - Levy from the export biofuel

CONTROL & MANAGEMENT OF BIOFUEL

Feedstock production

A licensee that has been granted a licence to produce biofuel from feedstock, shall obtain relevant permit from the Ministry of Food and Agriculture and Environmental Protection Agency.

Ensuring balanced sustainable feed stock and food security

CONTROL & MANAGEMENT OF BIOFUEL

Sale of Biofuel Blend

- The Minister shall designate biofuel blend as a petroleum product in accordance with the National Petroleum Authority Act, 2005 (Act 691).
- The National Petroleum Authority shall be responsible for pricing of biofuel blend in accordance with the prescribed petroleum pricing formula provided for under Act 691.
- The proportion of biofuel in biofuel blend offered for sale to consumers at the point of sale shall be determined from time to time by the National Petroleum Authority in consultation with the Energy Commission.

CONTROL & MANAGEMENT OF WOODFUEL

- The Energy Commission is mandated to collaborate with relevant institutions to ensure the development and implementation of programmes to sustain woodfuel production and consumption.
 - Woodlot plantations
 - Improved kilns
 - Improved charcoal stove promotion

GOAL OF BIOENERGY POLICY

To develop and promote the sustainable supply and utilisation of bioenergy to ensure energy security for Ghana whilst maintaining adequate food security

THEMATIC AREAS OF POLICY

- Woodfuel
- Biofuel
- Biomass Waste to Energy

WOODFUEL - SUPPLY SIDE

- Strategies
 - Promote woodlot cultivation, sustainable tree harvesting methods and efficient wood carbonisation technologies
 - Improve packaging and labelling of charcoal for supply to the market
 - Support technology transfer and modernisation of biomass energy systems

- Enact and enforce regulation, standards and codes of practice for woodfuel production, transportation and marketing
- Strengthen institutional capacity for woodfuel sub-sector regulation
- Ensure production and supply of other woodfuel sources such as bamboo

WOODFUEL - DEMAND SIDE

- Strategies
 - Increase the rate of adoption of efficient cookstoves from current levels by 10% by 2020
 - Involve local artisans in the production high quality cookstoves
 - Enact legislation and regulation, standards and codes for use of cookstoves

- Enforce standards for improved woodfuel cookstoves
- Formulate woodfuel research, development and dissemination plan
- Build adequate capacity in woodfuel research and development
- Provide financial support for woodfuel research

BIOFUEL - SUPPLY SIDE

- Strategies:
 - Reserve a specified proportion of land earmarked for biofuel feedstock cultivation for food production.
 - Improve and sustain local enterprises in the production and supply of biofuel feedstock
 - Increase biofuel supply in the national petroleum product mix to 10% by 2020
 - Ban the importation of biofuel to encourage local production

- Ban the export of biofuel feedstock
- Impose levies and taxes on biofuel exports
- Establish fiscal incentives for the promotion of biofuel production, supply and marketing
- Enforce standards to ensure quality of the products.
- Establish adequate storage and distribution facilities throughout the country

BIOFUEL – DEMAND SIDE

- Strategies
 - Develop an effective pricing mechanism for the sale of biofuel products
 - Set the proportion of biofuel in the biofuel blend
 - Create awareness for biofuel consumption

- Provide support (technical and financial) from the Renewable Energy Fund for biofuel research, development and dissemination
- Seek alternative sources of funding for the research institutions to provide capacity building in the biofuel industry
- Establish a mechanism for collaboration between research institutions and biofuel producing and marketing companies for the enhancement of the biofuel industry

BIOMASS WASTE

- Strategies
 - Legislate and create incentives for the sorting and use of municipal and industrial wastes for energy.
 - Create incentives for logging offcuts and wood processing residues, municipal and agricultural wastes to be used for energy.
 - Develop regulations for efficient and effective disposal of logging offcuts and wood processing residues, municipal and agricultural wastes to be used for energy purposes.

- Compel by legislation all future housing estates to have a centralised sewage system to enable the production of biogas.
- Compel by legislation both private and public institutions such as second cycle institutions, tertiary, hospitals, housing estates etc to convert liquid waste into energy.

PRACTICE

WOODFUEL SECTOR

- The World Bank has provided technical support for the assessment of Biomass Resources (draft final report being reviewed)
- Pilot woodlot plantation is being implemented with the objective of collecting comprehensive data to facilitate investment in sustainable biomass feedstock production (3 second cycle institutions are involved)
- Three business models are being piloted (School model which has begun, Community and private sector models)

- Three efficient carbonization technologies for charcoal production to be adopted for charcoal production

- Technical standards and labels for improved cookstoves are being developed
- One testing and expertise centre for cookstoves is being established in the country
- Consumer awareness on improved cookstoves characteristics, standards and labels, costs and benefits is on-going

UNDP Ghana office is providing funding for these activities

- Global Alliance for Clean Cookstoves funded the setting up of a Regional Centre for testing of improved woodfuel cookstoves in 2012
- 500,000 improved stoves marketed (as at 2011)
- Improved cookstoves are manufactured locally
- Stoves have saving of 40% of fuel consumption being produced

BIOFUEL SECTOR

- Standards for biofuel (biodiesel and bioethanol) have been developed
- The National Petroleum Authority has started consultation with relevant stakeholders to introduce 5% biodiesel blend in fossil diesel

BIOMASS WASTE

- Feasibility study into setting-up an institutional biogas programme in Ghana under the SE4ALL Country Action Plan has started
- It will be completed by the end of 2014
- The study is funded by EU Climate Support Facility

LICENSING OF OPERATORS IN THE BIOENERGY SECTOR

- A licensing regime has been established for licensing operators in the bioenergy sector
- Four (4) Provisional Licences has been granted to 4 prospective companies for generation of electricity from biomass
- The proposed capacities are
 - Biomass 68MW
 - Waste to energy 254.3MW

- 4 companies have been granted licence to export charcoal abroad
- The licence requirements are
 - To produce the charcoal from biomass waste (offcuts, sawmill wood waste, etc), or
 - To produce the charcoal from woodlot plantation, and
 - To use an efficient combustion technology (such steel kiln, brick kiln, etc)
- 1 company has been granted a licence to produce briquette for export

CONCLUSION

- The Energy sector ministry is coordinating the implementation of the Bioenergy Policy
- The Energy Commission (EC) by its mandate is leading the implementation of the policy
- An inter-agency standing committee comprising bioenergy related sectors such as Energy, Environment, Forestry, Agriculture, Water, Research, and Industry shall be established under the auspices of the EC to manage the cross-sectoral bioenergy issues

THANK YOU