

Energy Efficiency and Demand Side Management

How Governments intervene to
promote energy efficiency – the
Case of Ghana

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Energy Sector Vision

The Energy Sector Vision of the Government of Ghana is to build an Energy Economy that would ensure secure and reliable supply of high quality energy services for all Ghanaian homes, businesses, industries and the transport sector and for export.

Energy Policy Goals

- Maintain energy supply adequacy and reliability
- Achieve self-sufficiency in energy supply
- Reduce energy intensity in creation of wealth and economic growth
- Reduce energy poverty – increase access of modern energy forms
- Achieve high levels of end-use efficiency

Policy Themes

- Energy Resource Development Policy
- Energy Supply Policy
- Energy Consumption and Demand Management Policy
- Institutional Development Policy
- Energy Sector Investment Policy

The Energy Commission

- Energy Commission –
 - Established under Act 541, 1997
 - To plan, regulate, manage and develop energy supply and utilisation in Ghana.

Functions of the Energy Commission -1

- According to the enabling legislation, the EC's main functions are:
 - to advise the Minister on national policies for the efficient economical and safe supply of electricity, natural gas and petroleum products having due regard to the national economy
 - Prepare, review and update periodically indicative national plans to ensure that all reasonable demands for energy are met;
 - Secure comprehensive data base for national decision making the extent of development and utilisation of energy resources available to the nation;
 - Receive and assess applications, and grant licences under Act 541 to public utilities for the transmission, wholesale supply, distribution and sale of electricity and natural gas;

Functions of the Energy Commission-2

- Establish and enforce in consultation with the PURC, standards of performance for public utilities engaged in the transmission, wholesale supply, distribution and sale of electricity and natural gas;
- Promote and ensure uniform rules of practice for the transmission, wholesale supply, distribution and sale of natural gas; pursue and ensure strict compliance with this Act and regulations under this Act; and
- Perform other function assigned to it under this Act or any other enactment.

Functions of Energy Commission - 3

- Management of Energy Fund used for
- Promotion of Energy Efficiency and Productive uses of electricity, natural gas and petroleum products
- Renewable energy resources, including solar energy
- Human resource development in the energy sector

Critical Issues & Constraints

- Urgent need for investments
- Securing adequate supplies to meet rapidly growing demand
- Managing rising import bill for crude oil and pet products
- Attracting major oil companies to explore and develop hydrocarbon resources
- Accelerating development of Renewable energy resources
- Increasing access to modern energy forms
- Creating mature and competitive energy market
- Reducing end-use waste

Challenges in the Energy Sector-1

- Rapidly growing demand for energy by all sectors due to the expanding economy and the growing population.
- Risk of fundamental imbalance between energy production and indigenous resource, which is imminent for all the major energy forms.
- Risk of over reliance on imports to meet local shortfalls of conventional fuels, which could threaten the country's supply security, making it vulnerable to external pressures.
- Operational inefficiencies by utilities leading to high losses and consequently increasing cost of supply and distribution.

Challenges in the Energy Sector-2

- Over reliance on wood fuels, which could threaten the country's forest, cover.
- **High levels of end-use inefficiency culminating in waste of final energy forms.**
- Inadequate investments to match the growing demand due to lack of capital.

BOTTLENECKS TO EFFICIENT ENERGY UTILISATION

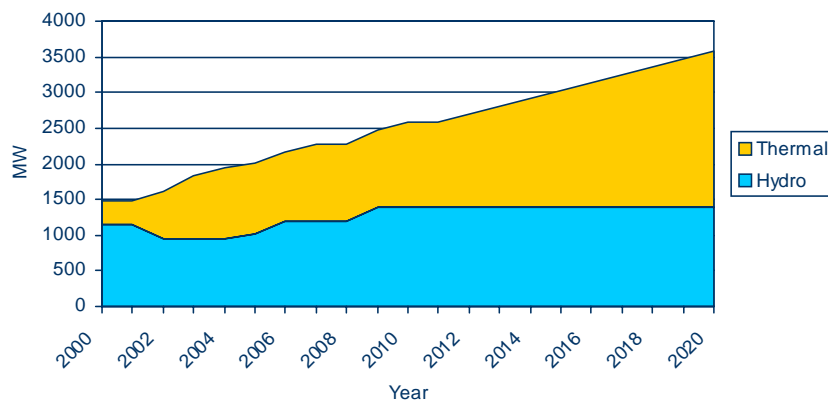
- Lack of Information on efficient methods and technologies
- Shortage of skilled energy management professionals
- Absence of energy efficient technologies on the local market
- **Absence of clear policy, standards and regulations on performance of industrial and commercial equipment and household appliances.**
- Difficulty in accessing financing for energy efficiency projects

Current Electricity Situation

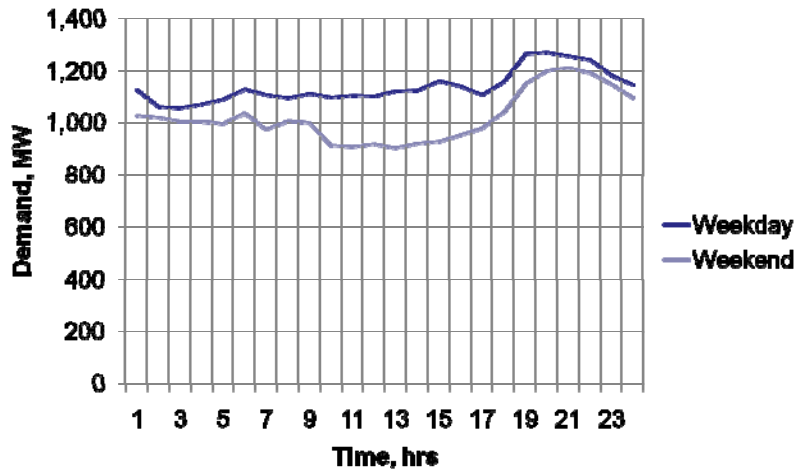
- Hydro generation in Akosombo Plant down from 1020MW to just 300MW
- Deficit of 300MW due to low water levels in the Volta Lake.

The Electricity Demand-Supply Situation-2

Electricity Generation Mix (2000-2020)



Ghana Electricity Demand, (MW), Feb-May 2007



Actions being taken to mitigate shortages and forestall future occurrences

- **Supply Side Actions**

- Emergency Power Plants 186MW to be on line by end of May, 2007 (50MW already online)
- Mines Reserve Plant (80MW) being installed, ready in July
- VRA Tema Thermal Power Plant 126MW to be ready by September 2007

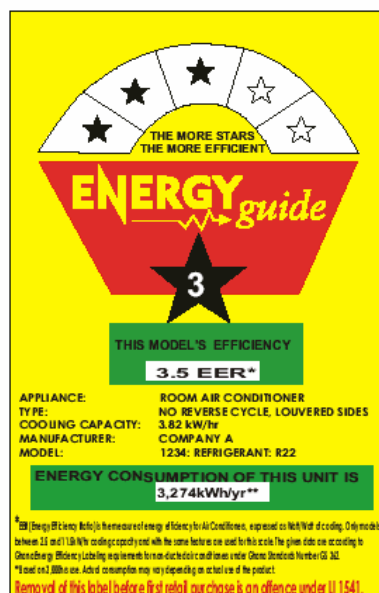
- **Regulatory Framework for IPPs being strengthened**

- Power generators Licensing Manual Completed
- National Grid Company Established , CEO appointed
- Wholesale Electricity Regulations and National Grid Code ready for Cabinet

Demand Side Actions

- Intensification of Energy Efficiency Education
- Implementation of Mandatory Efficiency Standards for Room Air Conditioners and Compact Fluorescent lamps
- Supply and injection of 6million CFLs by government expected to reduce peak demand by 200-240MW
 - *cost of this option is US\$60/MW capacity compared to US\$1,000/MW for SCGT

Ghana Air Conditioner Label



Future Demand Side Actions Proposed

- Immediately prohibit the importation of Incandescent lamps, used Air Conditioners
- Medium term –prohibit the importation of used refrigerators and deep freezers
- (Energy Commission survey 2006 refrigerators in Ghana consume 1,140kWh/year compared with 550-570kWh world average attributed to mass usage of used discarded and dumped equipment

Strategic Framework for Accelerated Growth

- Energy Commission has completed the Strategic National Energy Plan –ready for publication
- Energy Commission has developed legislation on Electricity Supply and Energy Efficiency Standards of Appliances
- Energy Commission developing rules and regulations for Natural Gas Market
- Energy Commission developing rules & regulations for wholesale electricity market
- Performing mandate in collaboration with PURC to develop performance standards for utilities and mechanism to monitor

Thank you