



MINISTRY  
OF  
ENERGY



# Ghana's Energy Information Management System and Our Energy Efficiency Status

**Kofi A. Ansong-Dwamena,  
Statistician**

**29 March – 02 April 2022,  
Accra**

# OUTLINE

- Introduction
- Legal Framework for data collection
- Our Energy Data Providers
- Types of data collected
- Data collection strategy
- Data Quality Assurance/Quality Control
- Tools used to develop our national energy balance
- Data Dissemination (Procedures, Methods and Tools)
- Status on energy efficiency
- Challenges
- Way forward

# Introduction

- Energy data is important for developing national energy policies and also serves as a key element in longer-term planning for investment in the energy sector.
- Thus consistency, accuracy and timeliness of energy data and statistics are essential to ensure efficiency and effectiveness of energy policies.

# Legal Framework

- A strong legal framework is one of the most important prerequisites for establishing a credible and sound energy information system.
- The Energy Commission was established by an Act of Ghanaian Parliament, the Energy Commission Act, 1997 (Act 541) to among other functions to secure comprehensive energy database for national decision making for the efficient development and utilisation of the energy resources available to the nation.
- The Act therefore mandates the Energy Commission to collect energy data compile, analyse and make the information available to policymakers, researchers and planners.

# Our Energy Data Providers

The Energy Commission has been executing this mandate in close collaboration with stakeholders such as:

- ✓ Volta River Authority (VRA)
- ✓ Ghana National Gas Company (GNGC)
- ✓ Tema Oil Refinery (TOR)
- ✓ Ghana National Petroleum Corporation (GNPC)
- ✓ Petroleum Commission (PC)
- ✓ National Petroleum Authority (NPA)
- ✓ Environmental Protection Agency (EPA)
- ✓ Ghana Railway Development Authority (GRDA)
- ✓ Ghana Grid Company (GRIDCo)
- ✓ Electricity Company of Ghana (ECG)
- ✓ Enclave Power Company Ltd (EPC)
- ✓ Northern Electricity Distribution Company (NEDCo)
- ✓ Ghana Statistical Service (GSS)
- ✓ Public Utilities Regulatory Commission (PURC)

# Types of Data

## Electricity

Generation: VRA, IPPs  
 Transmission: GRIDCo  
 Distribution: ECG, NEDCo, Enclave  
 Consumption: ECG, NEDCo, Enclave, Surveys

## Petroleum

Crude Oil & Natural Gas Production: PC, GNPC  
 Petroleum product import, export and distribution: NPA  
 Refined Products: TOR

## Woodfuels

Sectoral consumption: Surveys  
 Prices: Surveys

## Demographic and Macroeconomic

Population: GSS  
 GDP: GSS  
 Drivers of Energy Use: GSS



# Data Collection Strategy

Energy Commission gets data through a variety of ways.

- From Utilities (generation, transmission and distribution utilities) as part of their licensing requirements.
- From institutions and regulators of the sub-sector such Petroleum Commission and Ghana National Petroleum Corporation through an established system.
- Through surveys when the data is practically unavailable.

Data is either collected on a daily, monthly, quarterly or annual basis.

# Data Quality Assurance/Quality Control

In the preparation of data for analysis and dissemination, the Energy Commission has the responsibility to generally oversee the QA/QC procedures and performs the following routines:

- ✓ Collect and review data submitted for completeness
- ✓ comparison with published data
- ✓ Consistency checks of categories with totals
- ✓ Identify and fix outliers in data inputs (including checking for dips and spikes in the trend)
- ✓ Calculation checks
- ✓ Peer review

This is done in most cases with the entities where some discrepancy is detected with the data provided. A follow-up meeting is normally arranged to discuss and resolve the issues identified



## Tools used in the development of Energy Balance

- The Energy Commission uses spreadsheet softwares such as Excel to develop energy balances.
- The Commission uses formulas and functions embedded in the spreadsheet softwares to execute some of the calculations and operations when developing an Energy Balance.
- However, Energy Commission is developing a database system with a functionality of automating the development of an energy balance.

# Data Dissemination Procedures

- We do not have a dissemination policy but dissemination is, as much as possible, done according to the International Recommendation of Energy Statistics (IRES).
- The basic procedures followed by Energy Commission include
  - **Timeliness:** Data is made available in a timely manner and to all users
  - **Reference period:** Reference period is clearly defined and contains data up to the preceding year.
  - **Data confidentiality:** Information on particular individuals, households, firm or enterprise is strictly kept confidential and not given out to external persons or organization;
  - **Data availability:** Data is disseminated free of charge at no cost and is available and accessible to everyone

# Data Dissemination methods and Tools

- The methods of data dissemination used by the commission includes
  - Electronic or Digital dissemination
  - Hard Copy
- Data disseminated electronically are published on our website.
- However, the Commission is developing a database-driven platform to facilitate dissemination of energy data and statistics.
- Hard copies of data and statistics are also made available regularly to our stakeholders.



MINISTRY  
OF  
ENERGY



# STATUS ON ENERGY EFFICIENCY

# Energy Efficiency Dissemination methods and Tools

- The Energy Commission as part of its mandate promotes the efficient and productive use of energy.
- This mandate is performed through a variety of ways including
  - Awareness creation
  - Development and enforcement of energy efficiency standards and regulations
  - Appliance verification application
- The Commission performs this mandate with other institutions including Ghana Standards Authority.

# Awareness Creation

- The aim of awareness creation is to inspire changes in energy use behavior and make known to the public energy efficiency measures and benefits.
- Approaches used in awareness creation include
  - Radio/TV programmes/Adverts
  - Jingles, documentaries
  - Leaflets/brochures/posters/stickers
  - Sensitization workshops
  - Trade fairs/exhibitions

# Energy Efficiency Standards/Regulations

L.I	Regulation	Scope & targets	Year passed
1815	Energy efficiency standards and labelling (non-ducted air conditioners and self-ballasted fluorescent lamps) regulations.	Gives legal backing to the use of energy-efficient non-ducted air conditioners and fluorescent lamps.	2005
1932	Energy efficiency (prohibition of manufacture, sale or importation of incandescent filament lamp, used refrigerator, used refrigerator-freezer, used freezer and used air-conditioner) regulations.	Places total ban on the importation and sale of incandescent filament lamp, used refrigerator, used refrigerator-freezer, used freezer and used air conditioners effective January 2012.	2008

## Energy Efficiency Standards/Regulations (Cont'd)

L.I	Regulation	Scope & targets	Year passed
1958	Energy efficiency standards and labelling (household refrigerating appliances) regulations.	Provides for the enforcement of minimum energy efficiency and labelling for household refrigerating appliances.	2009
2353	Energy commission (efficiency standards and labelling (light emitting diode and selfballasted fluorescent lamps) regulations.	Provides for the enforcement of minimum energy efficiency and labelling for light emitting diode and self-ballasted fluorescent lamps.	2017



# Enforcement of Energy Efficiency Standards

The approaches used to enforce energy efficient standards include

- Submission of test reports for approval before importation of appliances
- Enforcement team stationed at main entry ports
- Market surveillance: *Ensures products on the market meets applicable regulations.*
- Monitoring and inspection team
- Installation of test facilities at Ghana Standards Authority

# Appliance Verification App

- An app dubbed “Certified Appliance App” has been developed to aid retailers and consumers to verify the energy efficiency information of appliances using their model number.
- The app also lists nearest retail or distribution shops where one can acquire efficient appliances.
- The app is equipped with energy efficiency tips.
- The app is free for download on Google Play and Apple Store.

# Challenges

- Data quality: secondary data are mainly collected from the institutions and entities in the sector.
  - However, the Commission has minimal control over the compilation of these data hence cannot guarantee with certainty the quality of data being submitted by the entities involved, especially for those institutions that do not fall in the regulatory arm of the Energy Commission.
- Inadequate financial resources: Due to lack of financial resources, the Energy Commission has not been able to update the last survey conducted in 2010 to determine the pattern and quantity of energy consumed in the various sectors of the economy.
  - This survey normally forms the basis for the preparation of energy plans. Currently, we rely on projections based on the 2010 study to allocate fuel shares for the various sectors of the economy based on the projections

# Way forward (Cont'd)

- Continuous capacity building, through trainings and industrial attachment would improve our expertise in new techniques and methodology used in the compilation of energy data and statistics
- Improve upon our data management capabilities by investing in Enterprise Data Management softwares.
- Create a working group for Energy Statistics comprising various stakeholders.
- Create energy efficiency regulations and standards for other electrical appliances.

# Picture of the Energy Database



Welcome to GhED System

The Ghana Energy Database System is a Knowledge Management System combining areas of interactive tools, data and analysis towards the development and utilization of Ghana's energy resources.

Energy Consumption

Final Energy Consumption by Fuel

Energy Supply

Trend in Installed Energy Supply

Inst. and Dep. Capacity

Trend in Installed and Dependable Capacity

Electricity Generation

Trend in Installed Electricity Generation Capacity

Key data categories

Key data categories for Electricity, Demand and Agriculture, Fisheries and Data Dashboard

Electricity and Demand data

Get Access to Electricity

Energy Generation and Resources

Petroleum Product and Services

Outlets

Agricultural Data

Get Access to Agricultural

**636.90 kWh/Capita** 2020

Total Electricity Generation per Capita

[More info](#)

**0.38 TOE/Capita** 2020

Total Energy Supply per Capita

[More info](#)

**0.13 TOE/Capita** 2020

Total Petroleum Product Consumption per Capita

[More info](#)

**163.85 TOE/US\$ 1000 of GDP** 2020

Total Energy Supply per GDP current

[More info](#)

Chart Showing Electricity consumption by sector

Chart Showing Petroleum products consumption by product type - 2020

Key Energy Statistics

Proportion of Household with Access to Electricity (SDG 7.1.1) -2020	82.81%	Electricity Generation By Source - 2020	HYDRO 7299.23 GWh, THERMAL 12365.99 GWh, SOLAR 56.59 GWh, WASTE-TO-ENERGY 0.33 GWh
Proportion of Population using LPG as Primary Source for Cooking (SDG 7.1.2) -2020	25.27%	Crude Oil Production By Field - 2020	JUBILEE 4346.37 ktonnes, OCTP 2671.39 ktonnes, SALTPOOND 0.00 ktonnes, TEN 2342.21 ktonnes
Proportion of population with access to electricity (SDG 7.1.1) -2020	85.33%	Total Energy Supply By Source - 2020	OIL 4120.62 ktoe, HYDRO 627.22 ktoe, NATURAL GAS 2626.65 ktoe, BIOMASS 4273.35 ktoe
Proportion of the population using electricity as a primary source for cooking (SDG 7.1.2) -2020	0.30%	Total Final Consumption by Fuel - 2020	ELECTRICITY 1421.63 ktoe, NATURAL GAS 118.12 ktoe, PETROLEUM 4137.30 ktoe, BIOMASS 2976.57 ktoe
Renewable energy share (excluding woodfuel) in the Total Final consumption (SDG 7.2.1) -2020	6.14%		
Renewable energy share (including woodfuel) in the Total Final Consumption (SDG 7.2.1) -2020	40.59%		

System Statistics

Share	120	Network	120
Visitors	150	Connections	100%

Subscriptions: Total user subscriptions: 150 Users

System Documents: Document Count: 3 files

Database APIs: API Access Count: 1 files

System Messages: Notifications Count: 5 files



MINISTRY  
OF  
ENERGY



**THANK YOU FOR  
YOUR ATTENTION**

