



Energy policy of Ethiopia

Ministry of Mines & Energy

Country Paper

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1. Background on Energy Sector of Ethiopia

Ethiopia's energy consumption is predominately based on

- Traditional Energy Sources (Fuel wood, Charcoal, dung cakes ..) (94%).
- Modern Energy source(mainly products of petroleum and Electricity)6%
 - products of petroleum 90%; Petroleum product are the major part from modern energy and mainly used for transport sector
 - Electricity1.5%
 - Hydropower 83%
 - From fuels 17%
- Per capita electricity consumption is 28kWh



1. Background cont..

Energy Resource	Exploitable Potential
1. Biomass (million t/y)	
* Woody	1120
• Agri-residue + dung	15-20
2. Hydro (MW)	45,000
3. Geothermal (MW)	5,000-7,000
4. Average Solar(KWh/m ² .day)	5
5. Wind (m/s)	5-6
6. Coal (million ton)	320
7. Natural Gas (TCF)	4
	(electricity – access = 31%)
Fuel wood = 77%	
Agri + dung + Charcoal = 15%	
Petroleum = 4%	
Electricity = 2%	



2. COUNTRY ENERGY POLICY



2. 1 Energy Sector Issues

- Ethiopia has inadequate energy supply and utilization;
- There is the need to transform from traditional to modern energy sources to support the development requirement of the country;
- The continued destruction of forestry resources for firewood has resulted in environmental problems, loss of productivity and ecological imbalance



2.1 Energy Sector Issues cont..

- Increasing scarcity and cost of household fuels, particularly firewood; increased stress on women and children who usually are supposed to collect fuel;
- Traditional energy consumption in Ethiopia is associated mainly with environmental problems;
- The impact of rising price of petroleum imports on trade and foreign exchange availability;
- Recent growth in investment has shown that energy supply is not in pace fast growing demand.



2.1 Energy Sector Issues

cont...

- Low energy efficiency utilization in all sector;
- primitive and highly dependent on animate power agricultural sector;
- Lack of access and/or unavailability to modern energy sources in rural areas;



2.2 Objectives and Rationales of Energy Policy

2.2.1 Rationales of Energy Policy

- To develop and utilize the country's energy resources in line with the country's overall development strategy;
- To assist other economic sectors to meet their development objectives by putting in place a clearly defined energy policy;
- To save scarce foreign exchange resources and to ensure that energy is efficiently utilized;
- To ensure reliable and secure energy supplies to cushion the economy from external and internal disruptions of supply as well as price fluctuations;



2.2.1 Rationales of Energy Policy cont..

- To ensure energy resource development for economic profitability;
- To ascertain what energy technologies and equipment are appropriate for and compatible with the country's economic development needs and
- To raise the efficiency of the energy sector and develop the necessary institutional and manpower capabilities to undertake energy development programs.



2.2.2 Objectives of Energy Policy

- To ensure sustainable (reliable, affordable and long lasting) supply of energy;
- To remove bottlenecks inherent to energy resource development and utilization;
- To provide guidelines and strategies for the faster development and supply of energy;
- To ensure a reliable supply of energy at the right time and affordable price;
- To give priority to the development of indigenous energy resources;
- To increase energy utilization efficiency and reduce energy waste and
- To ensure that the development and utilization of energy is benign to the environment.



2.3 Priority of the Energy Policy

- Give high priority on hydropower resource development;
- Encourage energy mix: renewable such as solar, wind and geothermal are to be developed given their cost competitiveness
- take appropriate policy measures to achieve a gradual transition from traditional energy fuels to modern fuels;
- pay due and close attention to ecological and environmental issues during the development of energy projects;



2.3 Priority of the Energy Policy cont..

- set issues, and publicize standards and codes which will ensure that energy is used efficiently;
- develop human resources and establish competent energy institutions; and
- provide the private sector with necessary support and incentive to participate in the development of the country's energy resources.



2.5 MAIN ENERGY POLICY

- 2.5.1 Policy on Energy Resource development
- 2.5.2 Policy on Energy Supply
- 2.5.3 Policy on Energy conservation and Efficiency
- 2.5.4 Policy on Comprehensive measures



2.5.1 Energy Resource Development

2.5.1.1 Traditional Fuels

- Countrywide afforestation program will be undertaken to enhance the supply of fuel wood to consumers and
- to reduce the negative effects of agric-residue use for energy on soil fertility

2.5.1.2 Modern energy resource development

- Hydropower will form the backbone of the country's energy sector development strategy as it is the country's most abundant and sustainable energy resource;
- Ethiopia's geothermal and coal resources will be developed on the basis of their economic profitability;



2.5.1 Energy Resource Development cont..

2.5.1.3 Alternative energy resources development Policy

- Solar and geothermal will be used, wherever possible for process heat and power generation;
- Ethiopia's wind energy resource will be developed to provide shaft power for water pumping and irrigation and;
- Coal will be developed and used as alternative fuel in local industries.



2.5.2 Policy on Energy Supply

2.5.2.1 Households energy Policy

- this is *to achieve a balance between the supply and demand for household utilities*. Government will seek to stabilize their prices by increasing the supply of alternative fuels and relieving the pressure on wood resources.

2.5.2.2 Transport energy Policy

- to formulate measures and give emphasis to the introduction of improved and appropriate transport technologies in the rural areas
- to adopt conservation measures to reduce the use of petroleum products in the transport sector
- to decrease the use of petroleum products in the transport sector by substituting where ever possible to new non petroleum fuels



2.5.2 Policy on Energy Supply cont..

2.5.2.3 Agricultural energy policy

Government's agricultural sector energy supply policy is *to increase the supply of modern energy sources to the agriculture sector.*

2.5.2.4 Industrial Energy Policy

- Government's industrial sector energy policy is *to ensure that industrial energy supply will be compatible with the industrial development of the country; and*
- *to ensure the industrial energy use and supply will be based on economic and efficiency criteria*



2.5.3 Policy on Energy conservation and efficiency

- *it is necessary to adopt energy conservation and efficiency measures in all sectors. It is also necessary to establish the necessary mechanisms to ensure adherence to such standards and codes.*



2.5.4 *Policy on Comprehensive Measures*

- Energy and environment (power generation, transmission, distribution)
- Energy Science and Technology (Traditional energy and electricity)
- Energy Policy Manning and Management (least cost)



3. Energy demand and supply statistics

Table1. Estimated Fuel wood Supply & Demand (million m³)

Year	Demand	Sustainable Supply	Deficit
1997	52.9	11.7	41.2
2000	58.4	11.2	47.2
2005	68.5	10.4	58.1



3. Energy demand and supply statistics cont..

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3. Energy demand and supply statistics

Cont...

Table 2. Supply & Demand Balance (MWh)

	2005/06	2006/07	2007/08
Total production	2896600	3301859	3547000
Total supply	2896600	3301859	3547000
*Own use	5670	8100	24700
*T +D losses	535320	664959	329300
Total final Consumption	2361280	2636900	3217700
*Industry	na	921200	1236400
*Transport	na	na	na
Others			
*Com + Pub.	572640	662700	794100
*Household	780240	998900	1116700
*Streetlight	33120	46000	45800



3. Energy demand and supply statistics Cont...

Table 3. Petroleum products supply and Consumption

year	Petroleum products supply (Tons)					
	gasoline	Jet fuel	Kerosene	Diesel oil	Fuel oil	total
2005/06	137233	368670	Na	811013	158207	1475122
2006/07	148368	411357	Na	927939	158841	1646505
2007/08	138993	na	482219	1072793	187287	1881272

Year	Petroleum products consumption (Tons)					
	gasoline	Jet Fuel	Kerosene	Diesel oil	Fuel oil	Total
2005/06	147514	145775	229898	851381	161942	1536510
2006/07	144637	177049	242925	927939	163268	1655819
2007/08	1430224	218500	265665	1077193	175926	1880308



4. Shortcomings in Energy Policy Formulation

- a. Shortage of qualified personnel for formulating proper policy for the various energy sub-sector;
- b. Insufficient Assessment of Energy Resource and Technologies;
- b. Lack of Timely Updating;



5. Participant's interest Areas in the Training

Important areas needed are:

- Energy policy and strategy formulation
- Effect of energy demand and supply on the environment;

This will help us to recognize the possibility of having a sustainable energy supply for the growing demand while keeping our environment safe and sound and the use of environmentally friendly technologies..