

The Legal and Institutional Frameworks for Regulating Energy Resources: The Ethiopian Context

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Faculty of Law
School of Graduate Studies
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Table of Contents

Table of contents	I
List of Acronyms	V
Acknowledgments	IX
Abstract	.....	X

Chapter I

Thesis Proposal	.....	1
1.1 Introduction	.....	1
1.2 Statements of the Problem	.....	4
1.3 Objective of the Study	.....	5
1.4 Significance of the Study	.....	6
1.5 Methodology and Approach of the Study	.....	7

Chapter II

General Notion of Energy Resources	.....	8
2.1 General	.....	8
2.2 Renewable Energy Resources	.....	9
2.2.1 Bioenergy	.....	10
2.2.2 Hydropower	.....	10
2.2.3 Geothermal energy	.....	11
2.2.4 Wind energy	.....	12
2.2.5 Solar energy	.....	13
2.3 Energy Efficiency	.....	13
2.4 Non-Renewable Energy Resources	.....	15

Chapter III

International Experience on the Legal and Institutional Framework in Regulating Energy Resource	16
3.1 Economic Regulation in Electricity Industry	17
3.1.1 United States	20
3.1.2 India	22
3.1.3 United Kingdom	24
3.2 Legal and Institutional Frameworks in Regulating Renewable Energy Resources	25
3.2.1 Renewable Portfolio Standard Scheme	26
3.2.2 Feed-in Tariff Scheme	27
3.3 Legal and Institutional Frameworks in Regulating Energy Efficiency	30
3.3.1 Energy Efficiency legal framework	31
3.3.2 Regulatory framework of energy efficiency	32
3.3.3 Institutional framework of energy efficiency	34

Chapter IV

The Legal and Institutional Framework for Regulating Renewable Energy Resources in the Ethiopian Context	36
4.1 Hydropower: Policy, Legal, Institutional, and Regulatory Frameworks	36
4.1.1 General	36
4.1.2 Policy framework	39
4.1.3 Legal framework	41
4.1.4 Regulatory framework	44
4.1.5 Institutional framework	49

4.2 Bioenergy, Geothermal, Solar, and Wind Energy Resources:	
Policy, Legal, Regulatory and Institutional Frameworks	58
4.2.1 General	58
4.2.2 Policy framework in bioenergy, geothermal, solar and wind energy resources	61
4.2.3 Legal framework of bioenergy, geothermal, solar and wind energy resources	62
4.2.4 Regulatory framework of bioenergy, geothermal, solar and wind energy resources	63
4.2.5 Institutional framework of bioenergy, geothermal, solar and wind energy resources	65
4.3 Government Role in the Operations and Regulations of the Electricity Industry of the Country	66
4.3.1 General	66
4.3.2 Electricity operations in Ethiopia: past, present, and future trends	67
4.3.3 Government regulations of the electricity industry of the country	68

Chapter V

The Legal, Institutional and Regulatory Frameworks of Energy Efficiency in the Ethiopian Context	80
5.1 Energy Efficiency in Household Appliances & Equipments: Policy, Legal, Institutional, and Regulatory Frameworks	81
5.1.1 General	81
5.1.2 Policy framework	82
5.1.3 Legal framework	83
5.1.4 Institutional framework	83
5.1.5 Regulatory framework	84

5.2 Energy Efficiency in Industries: Policy, Legal, Institutional, and Regulatory Frameworks	85
5.2.1 General	85
5.2.2 Policy framework	86
5.2.3 Legal framework	87
5.2.4 Regulatory framework	88
5.3 Energy Efficiency in Transport: Policy, Legal, Institutional, and Regulatory Frameworks	90
5.3.1 General	90
5.3.2 Policy framework	91
5.3.3 Legal framework	92
5.3.4 Institutional framework	93
5.3.5 Regulatory framework	93
5.4 Supply Side Energy Efficiency: Policy, Legal, Institutional, and Regulatory Frameworks	94
5.4.1 General	94
5.4.2 Policy framework	95
5.4.3 Legal framework	96
5.4.4 Institutional framework	97
5.4.5 Regulatory framework	97

Chapter VI

Conclusions and Recommendations	100
6.1 Summary of Findings and Conclusions	100
6.1.1 Regarding renewable energy resources	100
6.1.2 Regarding energy efficiency	106
6.2 Recommendations	108
Bibliography	112
Annexes	123

List of Acronyms

AAU: Addis Ababa University

bb1: barrel

BMEIA: Basic Metals and Engineering Industry Agency (Ethiopia)

BOO: Build-Own-Operate

BOOT: Build-Own-Operate-Transfer

BOT: Build-Operate-Transfer

BPR: Business Process Reengineering

BSI: British Standard Institute

CAFÉ: Corporate Average Fuel Economy (US)

CC: Civil Code (Ethiopia)

CEGB: Central Electricity Generation Board of (UK)

CERC: Central Electricity Regulatory Commission (India)

CFL: Compact Fluorescent Lamp

CHP: Combined Heat and Power (Cogeneration)

Com C: Commercial Code (Ethiopia)

DBE: Development Bank of Ethiopia

DOE: Department of Energy (US)

EC: Ethiopian Calendar

EEA: Ethiopian Electricity Agency

3Es: Energy security, Economic development, and Environmental protection

EECMY: Ethiopian Evangelical Church Mekane Yesus

EELPA: Ethiopian Electric Light and Power Authority

EEPCO: Ethiopian Electric Power Corporation

EFL: Electricity Feed-in Law

EIA: US Energy Information Administration (US)

EPAct: Energy Policy Act (US)

EPE: Ethiopian Petroleum Enterprise

EPSEMPU: Ethiopian Power Systems Expansion Master Plan Update

EREDPC: Ethiopian Rural Energy Development and Promotion Center

ESMAP: Energy Sector Management Assistance Program (WB)

ETC: Ethiopian Telecommunication Corporation

EU: European Union

FDRE: Federal Democratic Republic of Ethiopia

FERC: US Federal Energy Regulatory Commission

FIT: Feed-in Tariff

GC: Gregorian calendar

GSE: Geological Survey of Ethiopia

GTZ: German Development Cooperation

GW: Gigawatt; one GW is equal to one billion watts

HPP: Hydropower Project

IA: Implementation Agreement (i.e. Sovereign Guarantee)

ICS: Interconnected System

IEA: International Energy Agency

IPP: Independent Power Producer

KPLC: Kenyan Power and Light Corporation

KWh: Kilowatt hour; one kilowatt is equal to one thousand watts

MEPS: Minimum Energy Performance Standard

MOARD: Ministry of Agriculture and Rural Development (Ethiopia)

MOE: Ministry of Education (Ethiopia)

MOH: Ministry of Health (Ethiopia)

MOME: Ministry of Mines and Energy (Ethiopia)

MOTI: Ministry of Trade and Industry (Ethiopia)

MOU: Memorandum of Understanding

MOWR: Ministry of Water Resources (Ethiopia)

MW: Megawatt; one MW is equal to one million watts

NGO: Non-Governmental Organization

NPRDA: National Petroleum Reserve Depots Administration (Ethiopia)

Ofgem: Office of Gas and Electricity Market (UK)

OPEC: Organization of Petroleum Exporting Countries

Plc: Private limited company (Ethiopia)

PPA: Power Purchase Agreement

PUHCA: Public Utility Holding Company Act, 1935 (US)

PURPA: Public Utility Regulatory Policies Act, 1978 (US)

PV: Photovoltaic (solar)

QS: Quota System

QSAE: Quality and Standard Authority of Ethiopia

RD&D: Research, Development & Demonstration

REC: Renewable Energy Certificate

REF: Rural Electrification Fund Administration Secretariat (Ethiopia)

REFAS: Rural Electrification Fund Administration Secretariat (Ethiopia)

RESA: Renewable Energy Source Act (Germany)

RO: Renewable Obligation

ROC: Renewable Obligation Certificate

ROR: Rate of Return

RPS: Renewable Portfolio Standard

SBEWRM: Supervisory Body of the Ethiopian Water Resource Management (Ethiopia)

SCS: Self-contained System

SEBs: State Electricity Boards (India)

SERCs: State Electricity Regulatory Commissions (India)

SHC: Solar Heating and Cooling

SNNP: Southern Nations, Nationalities, and Peoples (Ethiopia)

STVC: Selam Technical and Vocational Center (Ethiopia)

SWERA: Solar and Wind Energy Resource Assessment (UNEP, Ethiopia)

TGC: Tradable Green Certificate

TWh: Terawatt hour which is equal to one trillion watt of a given hour

UNEP: United Nations Environment Programme

US: United States

UK: United Kingdom

WB: World Bank

WEC: World Energy Council

WTO: World Trade Organization

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Abstract

Today energy becomes the most ubiquitous service and the frequent agenda of discussion of both developed and developing countries of the world. Their main concern is that of making use of energy resources that ensure a sustainable economic development, energy security, and environmental protection. Hence, in order to deal with the multifaceted problems of energy different countries throughout the world devised mechanisms that ensure its sustainability. Among the mechanisms being applied is the shift made away from fossil fuel towards renewable energy resources and energy efficiency measures.

Ethiopia is endowed with vast renewable energy resources potential suitable for making a shift from the traditional biomass base energy consumption to modern energy use through electricity. The abundant hydropower, geothermal, solar, and wind energy resources must be developed to realize the shift and ensure the economic and social development of the country. However, participation of the private sector in developing renewable energy resources for the generation of electricity is insignificant. In addition, the application of energy efficiency measures as part of energy resource sustainability remains minimal.

All these limitations call for one to raise issues like: What are the main problems for the absence of private sector participation in the development of renewable energy resources for generating electricity and make use of energy efficiency measures? What are the experiences of other countries in dealing with similar problems? Is there any such “one-size fit all” model developed and applied that suit Ethiopia’s specific conditions? If not, what alternative instruments can be opted as a solution?

This thesis examines renewable energy resources and energy efficiency measures mainly from legal, institutional, and regulatory frameworks perspective emphasizing the Ethiopian context. In the study existing policy, legal, institutional, and regulatory frameworks of the country are examined and international experiences are also explored to fill gaps of the unavailability of pertinent source materials. As part of the study possible solutions are suggested to be used by policy makers and legislature to disentangle the problem. Plus, the thesis may be used as a source document for further study and research since the subject is found untouched especially in the field of law.

Chapter I

Thesis Proposal

1.1 Introduction

Energy is a vital ingredient for growth and sustainable development. The availability of energy resources is of paramount importance to society. In other words, lack of access to energy hampers economic and social development in many regions and is an obstacle to the achievement of social, environmental & economic progress worldwide. Furthermore, access to reliable, safe, and affordable energy resources provide the basis for heat, light, mobility, communications and agricultural and industrial capacity in modern society.¹

As the title clearly indicates, the study focuses on the legal, institutional, and regulatory features of energy resources, of course, emphasizing the Ethiopian context. Accordingly, the *legal* aspect refers to all the laws, i.e. proclamations, regulations, directives, etc. that relate to the energy resources. The *institutional* aspect explains about the organs whether independent or dependent (i.e. as part and parcel of government or non-government organs) in regulating or undertaking the development of energy resources. And the *regulatory* aspect deals on the different instruments through which the government or its agency undertook control “over activities that are valued by a community”².

On the other hand, energy resources comprises of, e.g. coal, crude oil and natural gas, oil shale, natural bitumen and extra-heavy oil, natural gas, nuclear, hydropower, peat, bio-energy, solar energy, geothermal energy, wind energy, tidal energy, ocean thermal energy conversion, etc.³ These energy resources could be either renewable or nonrenewable. Renewable energy resources are those energy resources that “can be replenished

¹ Snead, Bruce; *Energy Efficiency and Conservation in the Public, Residential, Commercial and Industrial Sectors*; Kansas State University, June 15, 2006, p 6, Internet:

<http://www.energyefficiencyandconservation.org> ; last visited September 17, 2008

² Ogus, Anthony; *Regulation: Legal Form and Economic Theory*; Oxford: Clarendon Press, 1994, p 1

³ _____; *2007 Survey of Energy Resources*, Zupanc, N., Clarke, A.W., and others (eds.); World Energy Council, 2007, Regency House 1-4 Wanwick Street, London W1B 5LT United Kingdom, p 42, Internet: <http://www.worldenergycouncil.org>; last visited May 8, 2008, hereinafter Zupanc; Note that all of these enumerated energy resources (that is, both renewable and nonrenewable) are classified as primary energy resources while electricity is classified as a secondary form of energy resource.

naturally”⁴, as solar, wind, hydropower, geothermal, bio-energy, ocean energy, etc, while nonrenewable energy resources are those energy resources “once used cannot be replenished naturally”⁵, such as coal, crude oil and natural gas liquids, oil shale, natural bitumen and extra-heavy oil, natural gas, uranium, etc. Their utility may be for *residential*: heat, light, cooking, washing, cooling, etc; *commercial*: light, heat, cooling, etc. for business establishments apart from residential; *industrial*: heavy and small-scale industry; and finally for *transport*: road, rail, air, marine purposes.

The other dimension of energy resources may be viewed from the point of view of their utilization. That is to say all the energy resources, whether renewable or nonrenewable, should be utilized in an efficient manner and with their conservation. Thus, in addition to the two main categories of energy sources, i.e. renewable and nonrenewable energy sources, currently, based on their contribution and ultimate effects resulting both in saving of energies utilized and maintaining safe environment, “energy efficiency”⁶ is taken as a third category of energy resources.⁷

This study explores two independent but interrelated core components that are found within the wider energy resources umbrella. These are renewable energy resources, and energy efficiency measures whereby the study of these two elements relate to policy, legal, institutional, and regulatory frameworks, of course, emphasizing the Ethiopian context. Thus, the two broad issues to be examined in the study are: What are the main renewable energy resources and their policy, legal, regulatory, and institutional tools most appropriate for making a shift from “traditional mode” of energy utilization to

⁴ Agnes, Michael (Editor in Chief), *Webster's New World College Dictionary: New Millennium* (Fourth Edition), 2002 hereinafter *Webster's New World College Dictionary*

⁵ Id

⁶ Energy efficiency and energy conservation by definition are not purely identical. For example, energy efficiency is “the ability to provide the same (or higher) level of energy services, such as thermal comfort, high-quality lighting, etc. at lower energy consumption and cost”, while energy conservation is “mainly associated with any behavioral change to use less energy, like turning light off when the room is not in use, waiting until washing machine is full to run”. Nevertheless, based on the definition given to each of the terms, there are situations where the two could be used interchangeably. Accordingly, there are many countries that uses one of the terms but apply it for the other, too. For instance, Thailand, China, India, use the term energy conservation while Canada, US, UK, EU, Nigeria, use energy efficiency in their respective legal frameworks. For simplicity purpose I hereinafter use the term energy efficiency which, as may be appropriate, includes energy conservation, too.

⁷ Snead, *supra* note 1, p 2

modern energy usage, especially by means of electricity? What type of policy, legal, institutional, and regulatory instruments are most suitable for implementing energy efficiency measures under the Ethiopian context? Further, in dealing these two broad issues in detail, additional issues will also be raised and discussed in each of the three main chapters (i.e. chapters III, IV, and V) of the study.

The thesis is organized in six chapters. Accordingly, Chapter I explain the *Thesis Proposal* and its main elements. In addition, this chapter deals the main elements of energy resources and their meanings, the statements of the problem, the objective, scope, significance, methodology and approach of the study. Chapter II discusses the general notions of energy resources in which some of the salient features of each of the different elements of energy resources are examined. The purpose of such brief discussion is to raise the awareness of those professionals (including lawyers, legislatures, and those involved in the policy making) who have no or sufficient prior knowledge of the subject.

Chapter III examines the international experience on the legal and institutional framework for regulating energy resources. Here the concept and utility of economic regulation is discussed from the point of view of power sector restructuring/reform applied and found working particularly in the electricity industry of some countries (US, India, and UK). The other important point discussed under this chapter is the experience of different countries in employing mechanism destined to enhance the use of renewable energy resources in lieu of fossil fuels particularly for generating electricity (e.g. FIT and RPS schemes) and as a means of promoting sustainable 3Es.

Chapter IV examines the legal and institutional frameworks for regulating renewable energy resources in the Ethiopian context. This chapter attempts to analyze all the relevant theoretical discussions raised in the previous chapters of the study and their practical significance in the Ethiopian scenario. Thus, due to the fact that hydropower is the most abundant renewable energy resource of the country it is given high emphasis in the discussion, of course from policy, legal, institutional, and regulatory viewpoint. In addition, other renewable energy resources such as geothermal, solar, and wind are examined from the point of view of appropriate policy, legal, institutional, and regulatory

instruments to make use of all for the generation of electricity. The government's role both in the generation and operation of electricity services of the country is the other important area discussed under this chapter.

Chapter V explores policy, legal, institutional, and regulatory frameworks of energy efficiency measures both from the demand-side (i.e. appliances & equipments, industry, and transport), and supply-side (i.e. institutions engaged in the operations and supply of electricity and petroleum products, EEPCO, EPE, NPRDA) perspectives. Finally some important points are raised under Chapter VI as conclusions and recommendations.

1.2 Statements of the Problem

As already noted the two most important elements of energy resources examined under this study are renewable energy resources and energy efficiency. The contributions of these two elements of energy resources are immense in tackling the continuous depletion and the highly volatile prices of fossil fuels especially oil and natural gas. By the same token, these two energy resources can be taken as reliable sources of electrical energy thereby increases access to electricity and reduce shading (complete blackout)⁸ and brownouts (dimming or partial elimination of lights)⁹ which is the frequent problems of many developing countries.

History tells us that the world had faced oil crises in the 1970s which resulted catastrophic economic slowdown. Similar problem may happen in future, of course on different grounds, and may cause severe economic damage and ultimately may end up with a sudden disruption of these vulnerable energy resources. In addition, to be dependent on a single source of electrical energy, e.g. hydropower in the Ethiopian situation is now showing us that when there appears a sudden disruption on the resource, e.g. drought, the country's vulnerability to energy crises will remain inevitable that results on its economic damage, and social and political unrest. To cope with such incident appropriate policy, legal, institutional, and regulatory framework has to be devised based on the international experience and the country's peculiar conditions, too.

⁸ *Webster's New World College Dictionary*

⁹ Id

The study will try to identify the two main problems and their possible solutions, as far as the legal, institutional, and regulatory frameworks are concerned, i.e. to cope, if not averted, in relation with energy resources security of Ethiopia. These are: *first*, to enable Ethiopia to follow the path of internationally accepted line of development in order to develop renewable energy source in place of fossil fuels by answering: What type of policy, legal, institutional, and regulatory frameworks are to be devised and applied to improve the availability and reliability of electricity throughout the country? *Second*, to answer the question: Is there a need to establish an independent regulatory institution mandated to follow-up energy efficiency measures in both at the federal and regional levels?

1.3 Objectives of the Study

The main objectives of the study can be summarized as follows:

- To enhance the awareness of policy makers of the best possible alternatives of the legal and institutional framework in applying both renewable energy resources and energy efficiency in the Ethiopian context;
- To help all professionals:
 - engaged in the sector acquires national, regional and international experiences in specializing on renewable energy research, RD&D priorities,
 - that energy efficiency measure can be applied without sacrificing the national economic development;
- To educate federal and regional state legislatures, administrators, regulatory officials, private business sectors, energy consumers, electricity operators and all concerned stakeholders, to co-operate in adopting and enacting best practice policy, legal, institutional and regulatory frameworks in relation to renewable energy resources and energy efficiency application; and
- To lay the foundation of the appropriate policy, legal, institutional, and regulatory frameworks in making it possible that every concerned person should participate and register result for RD&D and technology transfer, market transformation,

behavioral change, etc in relation to renewable energy resources and energy efficiency measures.

1.4 Significance of the Study

Due to continuous rise of the need for energy resources in all sectors of the economy, its availability and affordability are becoming crucial problems in both developed and developing countries. When it comes to countries like Ethiopia, where the economy is mainly agrarian and transformation is sought to small-scale industries in which intensive energy is needed, become highly vulnerable by the volatile oil prices. In addition, the country's dependability on single source of electrical power generation, i.e. hydropower, and absence of any meaningful electrical energy source diversity/mix, will make the energy security problem double burden both for the national economy and individual citizens especially whose means of living is dependent on the availability of affordable energy resources.

To ease such periodic problems, attitude change has to be brought both from the state and all stakeholders in using renewable energy resources instead of fossil fuels and in a way that satisfy energy efficiency measures. Such types of broad based program and measure needs the support of not only policy framework but also enabling legal, institutional, and regulatory instruments best suitable to the country's peculiar characteristics and needs.

The fact that in the absence of any “one-size fit all” model to be adopted in the area makes it difficult in laying down suitable legal and institutional framework for tackling the problem we are now faced with. As far as Ethiopian experience in the area is concerned, there is no one that could be traced as a base for further analysis and concerting to arrive to best practice solution. Thus, both the skill and experiences of technical professionals in the field of engineering especially electrical engineering, economics, law, accounting, etc associated with renewable energy resources and energy efficiency will be sought in formulating and designing the relevant policy, legal, intuitional and regulatory frameworks. Moreover, the study enables to enhance the capacity of professional in the sector to see some, if not, all possible approaches to

implement renewable energy resources and energy efficiency measures in all sector of the economy including household application. The other utility of the study is that it will have an additional input for further study and research in the aforementioned areas.

1.5 Methodology and Approach of the Study

The study is primarily analytical and based on literature review of international, regional and national research works. The research does not focus on particular social groups such as rural, urban, gender, etc. The study follows both descriptive and prescriptive approaches whereby past and current situations are explored and how the existing policy, legal, institutional, and regulatory instruments are amended or changed or new one made.

In addition, after due consideration of the international experience on a given topic, Ethiopian peculiar situation will be considered both in general terms and in detail. In doing so, wherever there appears gap between the literature review and the factual situation on the ground such data gaps will be filled, as may be appropriate, through minor field surveys and interview with the appropriate government officials, non-government organization representatives, and individuals from the business community or high power consuming firms.

It should be noted that the primary objective of the study is to enhance the theoretical knowledge of Ethiopian professionals particularly legal professionals, in the area of energy resources regulation and/or deregulation at national, regional and international level. Accordingly, the experiences of some important countries, both from the developed and developing countries will be considered. Current reports and research works produced by related international organizations like WEC, IEA, WB, etc are very much utilized to fill the gaps of the unavailability of up-to-date research materials on the field. Accordingly, important *Websites* in the *Internet* will be assessed from time to time to furnish the reader with up-to-date information in connection with the subject under discussion.

Chapter II

General Notion of Energy Resources

2.1. General

In the 18th and 19th century industrial revolution, the contribution of coal had been immense.¹⁰ However, in the 20th century with the advent of automobiles, airplanes, and the spreading of electricity, oil became the dominant fuel.¹¹ However, the shift away from oil had become imminent when the world experienced the oil shocks of 1973 and 1979 during which the price of oil increased from 5 to 45 US dollars per bbl.¹²

Both developed and developing countries showed spectacular advancement in using renewable energy resources especially wind, solar, hydropower, geothermal for the generation of electricity – which is taken as secondary form of energy resource. In addition, energy efficiency measures were implemented in different magnitudes. Such achievements were not a mere success attributable to a single sector or institution, rather a synergy of all the stakeholders that starts from individual citizens, companies, and organizations, including the government and, of course, supported by favorable policy, legal, and regulatory instruments of a given country, state, or jurisdiction.

Volatile oil prices and sometimes oil shock is affecting the world without discriminating between developed and developing countries. For example, following the sharp increase of oil prices between the beginning of 2003 (26 US\$/bbl for the Brent¹³) and July 2008 (147 US \$/bbl) brought severe consequences for economic growth especially for the poorest countries.¹⁴ In addition, the demand for electricity is not being responded in reliable, safe and affordable manner, especially in the poorest countries of the world. In

¹⁰ _____; *World Energy Resources and Consumption*; Internet: <http://www.wikipedia> - Wikipedia the free encyclopedia; last visited, October 1, 2008

¹¹ Id

¹² Id

¹³ Id

¹⁴ _____; *Energy Efficiency Policies Around the World: Review and Evaluation, World Energy Council 2008*, Regency House 1 - 4 Wanwick Street, London W1B 5LT United Kingdom, p 9; Internet: <http://www.worldenergycouncil.org>; last visited September 8, 2008 hereinafter *Energy Efficiency Policies 2008*

other words, power interruption, shading and brownouts are the daily phenomena of these countries which severely affect their path for economic development and also have both social and political adverse implications.

To show the role of these energy resources – renewable and nonrenewable – let's see the share both in their utility as source of energy, i.e. in terms of consumption, and for the production of electricity of the world in general. Accordingly it has been found that 80 per cent of total worldwide energy use of today is based on fossil fuels and in terms of global consumption, crude oil remains the most important primary fuel, accounting for 36.4 per cent of the world's primary energy consumption.¹⁵ On the other hand, of the total electricity production from renewable, 91 per cent came from hydropower, 5.7 per cent from biomass, 1.8 per cent from geothermal, 1.4 per cent from wind and solar electricity constituted 0.06 per cent.¹⁶

As far as Ethiopia is concerned both renewable and nonrenewable energy resources have their own contributions as sources of energy. For example, in the area of road transportation the main source of energy is based on oil, petroleum, while in the area of electricity hydropower accounts about 98 per cent share¹⁷. Accordingly, the main focus of this study is on the legal and institutional framework in regulating renewable energy resources particularly focusing on electricity and that of energy efficiency. Hence, nonrenewable energy resources will be treated only briefly mainly in relation with supply side energy efficiency discussions especially in connection with road transport sector.

2.2. Renewable Energy Resources

As a means of tackling the problem of depletion and soaring of the price of oil both developed and developing countries are moving towards sustainable renewable energy

¹⁵ Zupanc, *supra* note 3, p 42

¹⁶ *Ibid*, p 428

¹⁷ _____; Ethiopian Electric Power Corporation 50th Year Golden Jubilee - Special Issue, May 2007, p 44, hereinafter EEPCO 50th Year - Special Issue

resources options that depend on availability, technical maturity and commercialization.¹⁸ Policy, legal, institutional, and regulatory frameworks are being devised and developed to realize the transformation in the long term.

For example, it has been said that the EU has recently announced policies and plans to obtain 20 per cent of its energy needs through renewable energy resources by 2020.¹⁹ Thus, due to the fact that renewable energy resources are diverse and spread unevenly each country is required to promote and apply technologies and options best suited to its own resources availability and needs.²⁰ Now let's briefly see the main types of renewable energy resources and their use.

2.2.1. Bioenergy

Bioenergy is a type of energy that denotes the use of vegetable matter as a source of energy. It includes wood fuels, biomass, biofuel (bioethanol and biodiesel). Bioenergy could be applied in all the major sectors of consumption - power generation, transportation, industry, households, etc.²¹ Bioenergy represents the largest current source of renewable energy.²² It includes traditional low technology practices in rural economies (three-stone fires or cooking stoves) based on wood fuels. By the use of advanced technologies biofuel such as bioethanol and biodiesel are produced and used as vehicle fuels, which play great role in some developed and developing countries, such as US and Brazil.²³

2.2.2. Hydropower

Hydropower is the most advanced and flexible and represents 87 per cent of the production of the renewable energy sources.²⁴ Five countries (i.e. China, US, Brazil, Canada and Russia) make up more than half of the world's hydropower production.²⁵

¹⁸ _____; *Renewable Energy RD&D Priorities - Insight from IEA Technology Programmes, OECD/IEA, 2006*, International Energy Agency; Internet: <http://www.iea.org>; last visited, September 18, 2008, p16, hereinafter *Renewable Energy RD&D Priorities 2006*

¹⁹ Zupanc, *supra* note 3, p 382

²⁰ Id

²¹ Ibid, p 333

²² *Renewable Energy RD&D Priorities 2006, supra* note 18, p 30

²³ Ibid, p 17

²⁴ Zupanc, *supra* note 3, p 272

²⁵ *Renewable Energy RD&D Priorities 2006, supra* note 18, p 17

Ethiopia stood 14th from the World and 2nd from Africa, i.e. next to DR Congo in its gross ‘theoretical capacity’.²⁶

Hydropower is now taken as one of the cleanest means of electrical power generation in the world.²⁷ One of the most important advantages of hydropower is the flexibility of storage (dam) in ensuring as a security in mixed power system developments.²⁸ Hydropower can be developed in large-scale and “small-scale” levels. Large-scale hydropower development range from 30 MW and more. For example, the three gorges hydropower in China is now generating more than 21,000 MW of electrical energy.²⁹ In addition, Inga II project of DR Congo is designed to generate 39,000 MW of electrical energy at its earliest stage.³⁰

In Ethiopia hydropower, being the most abundant renewable energy resources, has a major share (i.e. about 98 per cent) of the total electricity generation of the country.³¹ Accordingly, hydropower has been given special attention and treatment in the Ethiopian power sector development programmes. Hence, as compared with other renewable energy resources, hydropower will be dealt in detail from the point of view of policy, legal, institutional, and regulatory frameworks.

2.2.3. Geothermal energy

Geothermal energy, in the broadest sense, is the natural heat of the earth.³² Electricity has been generated by geothermal steam commercially since 1913.³³ Currently electricity from geothermal power is produced in some 25 countries, and five of these countries i.e. Philippines, Indonesia, Iceland, Costa Rica, and Kenya, etc. and these countries obtain 15-25 per cent of their national electricity production from geothermal source.³⁴ It has

²⁶Zupanc, *supra* note 3, pp 272-282

²⁷ Ibid, p 274

²⁸ Head, Chris, *Financing of Private Hydropower Projects*, 2000, World Bank Discussion Paper No 420, p 12

²⁹ Ibid, p 2; and see Internet: <http://www.wikipedia> - Wikipedia the free encyclopedia on hydropower development; last visited, December 2008

³⁰ Wikipedia, *Id*

³¹ EEPSCO 50th Year - Special Issue, *supra* note 17

³² Zupanc, *supra* note 3, p 429

³³ Ibid, p 430

³⁴ Ibid, pp 427-477

been found that only a small fraction of the geothermal potential has been developed so far, and there is ample space for an accelerated use of geothermal energy, especially for electricity production.³⁵

Ethiopia has geothermal potential located in the Rift Valley and Afar depression. Its potential of geothermal for electrical energy is said to reach more than 4000 MW, from which the Aluto-Langano geothermal plant became operational in mid1998 with 7.23 MW installed capacity, though due to technical problems it is not operational.³⁶ It is also found that if the financial difficulties are solved, Ethiopia's geothermal potential could certainly assist in providing base load electricity generations.³⁷

2.2.4. Wind energy

The total resource potential of wind energy³⁸ is vast; and as one estimate suggests it reaches around one million GW “for total land coverage”.³⁹ On the other hand, total worldwide wind installed capacity at the end of 2006 was around 72,000 MW. Germany, with over 20,000 MW, has the highest level of wind energy per capita.⁴⁰ Wind power accounts for about 20 per cent of Danish electricity consumption.⁴¹

When we come to the Ethiopian situation it has been found that Ethiopian wind speed suitable for electricity generation vary across the territory. According to a recent survey,⁴² there are several areas with higher than 6 meter per second (m/s) annual average wind speed-the speed generally considered as the minimum necessary for power production.⁴³ The highest wind speeds measured were in the Tigray Region at Ashegoda with 8 (m/s) and Harena 6.84 m/s.⁴⁴ Other high wind speed sites were found at Nazreth and Gondar

³⁵ Ibid, p 428

³⁶ EEPSCO 50th Year - Special Issue, *supra* note 17, p 41

³⁷ Zupanc, *supra* note 3, p 452

³⁸ Winds are said to be generated by complex mechanisms involving the rotation of the earth, heat energy from the sun, the cooling effects of the oceans and polar ice caps, temperature gradients between land and sea and the physical effects of mountains and other obstacles, Ibid, p 479

³⁹ Zupanc, *supra* note 3, p 479

⁴⁰ Ibid, p 482

⁴¹ Id

⁴² _____; *Solar and Wind Energy Utilization and Project Development Scenarios*: Ethio Resource Group with Partners, Final Report Submitted to the EREDPC, October 2007 hereinafter SWERA study, p 2-1

⁴³ EEPSCO 50th Year - Special Issue, *supra* note 17, p 43

⁴⁴ Id

with 6.64 m/s and 6.07 m/s respectively.⁴⁵ The annual distribution shows a minimum in July and August and two peaks in March and October. It has been found that EEPCO had decided to construct two wind parks of approximately 60 MW each for immediate implementation.⁴⁶ The French government signed MOU with EEPCO to finance the Ashegoda and Harena sites with 120 MW installed capacity.

2.2.5. Solar energy

Solar energy for the generation of electricity, heat and fuel may be realized by different methods. These are:

- Solar PV whereby sunlight could be directly converted into electricity with no intervening heat engine. This is why solar energy is used as the power sources for calculators, watches, water pumping, remote buildings, communications, etc;
- Solar Heating and Cooling (SHC) system;
- Concentrated solar power.⁴⁷

When we come to the Ethiopian situation it is found that solar energy availability ranges between 1700 and 2200 KWh /m²/yr.⁴⁸ In Ethiopia, the current utility of solar PV is for telecommunication applications, for rural lighting and for rural social services (water pumping, health and education). Three quarters of the installed PV capacity is used for telecom services in the rural areas of the country.⁴⁹

2.3. Energy Efficiency

It has been repeatedly said that energy is a vital service and good in any economy and at the same time for any day-to-day life, too. It is an important service because it is taken as an input in the production of nearly all other goods and services.⁵⁰ Most of us use energy everyday for transportation, lighting, cooking, manufacturing, heating and cooling rooms,

⁴⁵ Id

⁴⁶ Zupanc, *supra* note 3, pp 499-500

⁴⁷ Ralph Sims, Samantha Olz and Kirchner, Nicolai; *Contribution of Renewables to Energy Security*; International Energy Agency, OECD/IEA, April 2007, - IEA information paper, p 8; Internet: www.iea.org; last visited, November 8, 2008

⁴⁸ Zupanc, *supra* note 3, p 404

⁴⁹ Id

⁵⁰ Steiner, Faye; *Regulating, Industry Structure and Performance in the Electricity Supply Industry*; OECD, Economics Department Working Papers N0 238, April 2000, p 5, collected during a training workshop on the topic "Regulating Electric Utilities and Energy Networks, Feb 19 - March 2, 2001, Washington D.C."

etc. Hence, to make this quality of modern life sustainable requires that we use our energy resources wisely. Such wise utilization of energy resources is known as energy efficiency.⁵¹

Before going to the detail discussion of the subject it will be appropriate to get the answer for the question: What is meant by energy efficiency? Energy efficiency can be defined as “the ability to provide the same (or higher) level of energy services, such as thermal comfort, high-quality lighting, etc. at lower energy consumption and cost”.⁵² Such energy efficiency improvements can be achieved through different aspects and measures that include *inter alia* technological changes, better organization and management, improved economic efficiency, etc.⁵³ In addition, energy efficiency is also associated with individual behavior that could be reflected either through avoiding unnecessary consumption of energy and/or choosing the most appropriate equipment (e.g. automatic switch off of lights in unoccupied hotel rooms, CFL in place of incandescent bulb, etc). Accordingly, energy efficiency is said to be the cheapest, cleanest, least risky and least controversial energy resources.⁵⁴

On the other hand, individual energy savings caused by economic reasons, e.g. due to high energy prices, should not be taken as energy efficiency measures since such measures could easily be reversed.⁵⁵ Policy, legal, institutional and regulatory aspects have also great role to play in achieving the required results of energy efficiency measures. Plus, energy efficiency trends could be viewed from the point of view of different sectors, i.e. appliances, industry, transport, and building. Accordingly, policy, legal, institutional, and regulatory instruments may exhibit certain variations when viewed from the above mentioned four different sectors, of course, based on a country’s

⁵¹ _____; *Efficiency & Conservation*, Secondary Energy Infobook @ 2007, The Need Project, p 72; Internet: <http://www.energyefficiencyandconservation.org> ; last visited May 2008

⁵² Ottinger, Richard L., *Energy Efficiency (Introduction)*; in: *UNEP Handbook for Drafting Laws on Energy Efficiency and Renewable Energy Resources*, p 25; Internet: <http://www.unep.org/delc>; last visited November 17, 2008

⁵³ _____, *Energy Efficiency: Worldwide Review – Indicators, Policies and Evaluations*, World Energy Council (WEC) and French Environment and Energy Management Agency (ADEME), July 2004, p 2; internet: www.worldenergy.org, last visited August 8, 2008 hereinafter *Energy Efficiency: Worldwide Review 2004*

⁵⁴ Snead, *supra* note 1, p 6

⁵⁵ *Energy Efficiency Policies, 2008*, *supra* note 14, p 9

level of economic development, economic structure (i.e. industry or service), technological advancement, environmental base, etc.

Both developed and developing countries devise policy, legal, regulatory and institutional frameworks to promote and implement energy efficiency measures with varying degrees. Independent study and analysis of such policy, legal, regulatory and institutional frameworks application having the degree of “best practice” are found to be feasible and cost-effectively reduce electricity use 20 per cent from project levels in the year 2020, without any sacrificing of their economic growth.⁵⁶

2.4. Nonrenewable Energy Resources

Amongst the main nonrenewable energy sources coal, crude oil, natural gas, and nuclear power are the most utilized in the global energy demand. Currently, more than 80 per cent⁵⁷ of the total energy demand of the world is being provided by nonrenewable energy sources especially fossil fuels from which crude oil alone accounted for 36.4 per cent of the world's primary energy consumption.⁵⁸ As is repeatedly said except coal which is found to be plentiful,⁵⁹ and widely distributed⁶⁰ and uranium which is an important ingredient in nuclear power production, global crude oil reserve, when seen from its utilization, is not as abundant as the other nonrenewable energy sources mentioned above.⁶¹

⁵⁶Ibid, pp 6-7

⁵⁷Zupanc, *supra* note 3, p 2

⁵⁸Ibid, p 42

⁵⁹ Different reports show that about 850 billion tones of coal are found as recoverable reserves worldwide. Of course, the geological resource is said to be far larger and at the current rate of producing is estimated to last for almost another 150 years. Ibid, see pp 1-42

⁶⁰Not less than 68 countries have proved recoverable reserves of coal with different magnitude. Ibid, see pp 9-11

⁶¹ The estimated ultimate recovery or proved recoverable reserve of conventional crude oil is about 387 billion tones at the end of 2005. Ibid, see p 42

Chapter III

International Experience on the Legal and Institutional Frameworks in Regulating Energy Resources

This chapter addresses three broad issues. The *first* issue relates to: Is there such “one-size fit all” model with respect to the legal and institutional framework in regulating energy resources? Under this broad issue we will see related issues like: Why do we need economic regulation? Is it possible to apply economic regulation for any of energy resource components uniformly? If not, what are the criteria that call for different approaches in economic regulation with regard to energy resources? The second broad issue relates: What type of legal and institutional framework is most appropriate for countries with federal structure in regulating energy resources? Under this broad issue the following related issues will be discussed: Can we use single/unified (i.e. only federal or state, or dual, i.e. federal and state) institutional framework in regulating energy resources? The third main issue is: Is there any silver bullet model to be applied on the legal and institutional frameworks in regulating renewable energy resources and that of energy efficiency around the world especially in countries with federal structure? The related issue that needs discussion is: What are the alternative legal and institutional frameworks to be applied in regulating energy resources during and after restructuring of energy resources in general and the electricity industry in particular?

These are some of the important issues to be addressed throughout the discussion of this chapter, which lay the foundation for all our discussions in the other two following chapters of the study. In addition, whenever appropriate and in order to clarify the aforementioned issues, more specific additional issues, as may be appropriate, will be raised in different parts of the discussions. Accordingly, in order to deal on these raised issues, the chapter is divided into three sub-chapters, as may be appropriate. The first sub-chapter discusses on issues of economic regulation in energy resources; the second sub-chapter deals on the legal and institutional framework in regulating renewable energy resources; and the third one explain on the legal and institutional framework in regulating energy efficiency. Now let’s discuss each sub-chapter separately.

3.1 Economic Regulation in the Electricity Industry

Economic regulation in its wider meaning applies mainly to industries that have monopolistic tendencies.⁶² Hence, the main function of economic regulation is to provide a substitute for competition in relation to natural monopolies.⁶³ Regarding the meaning of “natural monopoly” scholars define the term differently, but without substantive differences. For example, Professor Posner, after discussing the meaning of natural monopoly mathematically and figuratively summarized it in the following way:

It is cheaper for the existing firm to supply the additional units, not because the firm is more efficient in the sense that its cost curve lies below those of other firms..., but because one firm can supply the entire output demanded at a lower cost than could more than one firm. This is the condition known as ‘natural monopoly’⁶⁴

By the same token the condition in which natural monopoly could arise was discussed by Gray as “natural monopoly arises when economies of scale are so pervasive that a single firm can offer the product or service cheaper than two and fixed costs are so large that duplicating services is uneconomic”.⁶⁵ Furthermore, in cases of natural monopoly, competition or antitrust laws application will not be feasible⁶⁶ and hence regulation becomes a substitute for competition.

In sum, economic regulation is justified to correct shortcomings in the competitive market. In the absence of such type of regulation, however, monopolies tend towards higher prices and lower quality and quantity of service provision than in a competitive market.⁶⁷ Accordingly, in order to protect customers and the wider economy from any potential abuse of natural monopoly position, economic regulation, in such areas, as for example electricity transmission and distribution activities where natural monopoly is

⁶² Ogus, *supra* note 2, p 5; The “traditional justification” for any kind of economic regulation is said to be “to protect consumers against monopoly abuse”, see Reiche, Kilian; Tenenbaum, Bernard; and Torres de Mastle, Clementia, *infra* note 405, p 14

⁶³ Cameron, Peter; *Competition in Energy Markets: Law and Regulation in the European Union*, Oxford University Press, 2002, p 8

⁶⁴ Posner, Richard A.; *Economic Analysis of Law* (2nd edition), Little Brown and Company, 1977, p 251

⁶⁵ Gray, Jeffrey McInyre; *The Regulatory Environment and Industrial Restructuring: The Case of US Electric Power*, a Dissertation Submitted to the Faculty of the Graduate School of State University of New York at Buffalo in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy, March 4, 2004 p 27; Internet, <http://www.electricityregulation.org>, last visited, July 2008

⁶⁶ Posner, *supra* note 64, p 253

⁶⁷ Joskow, Paul L., *Restructuring, Competition and Regulatory Reform in the US Electricity Sector*, Journal of Economic Perspectives, vol. 11 No. 3 (Summer 1997), pp 119-138

said to be pervasive, is paramount.⁶⁸ However, when competition become possible, and, of course, proved to be working, the role of the economic regulator should be changed to that of ensuring that the market is functioning properly, and that the behavior of the utilities allows competition to take place freely and fairly.⁶⁹

There are three alternative modes of economic regulation to be applied in relation to natural monopoly.⁷⁰ The *first* alternative mode of economic regulation in areas of natural monopoly in energy resources is that of public ownership of the major energy sources as electricity and natural gas. The expectation here is that these “network-bound industries were said to be strategic assets for a national economy”⁷¹ and hence political direction and accountability will be sufficient to meet “public interest” goals which has significant advantages from the point of view of economies of scale.⁷² Furthermore, stability, reliability of supply and “public interest” justifications were the deriving forces of the western societies to make such industries as electricity under public ownership, especially during the so-called period of “the golden ages of nationalization, i.e. 1946-51”.⁷³

The *second* alternative mode that calls for economic regulation in the energy sector is where such firm may remain in or be transferred to private ownership but continues to be subjected to external constraints in the form of price and quality regulation.⁷⁴ Accordingly, price control can take two methods in which the first one is “fair” *rate of return* (ROR) method. Here the regulated firms are allowed to acquire such a sum as will cover annual expenditure plus a reasonable profit on capital investment. Economists formulated the method as:

$$E + (r \times RB)$$

Where: E is the firm’s annual expenditure, and includes operating costs, depreciation, and taxes;

⁶⁸ It should be noted that the generation segment of electricity can not be considered as natural monopoly and can be open for competition based on market principles

⁶⁹ Gray, *supra* note 65, pp 78 ff; Joscow, *supra* note 67, pp 132ff

⁷⁰ Ogus, *supra* note 2, p 5

⁷¹ Cameron, *supra* note 63, p 6

⁷² Ogus, *supra* note 2, p 266

⁷³ Cameron, *supra* note 63, p 6; Ogus, *supra* note 2, p 266

⁷⁴ Ogus, *supra* note 2, p 5

r is a multiplier, representing the “fair” rate of return; and
 RB the rate base, which is the attributed value of capital investment⁷⁵

The other method is *price cap* whereby it only regulates price *increases*, rather than price *per se*.⁷⁶ Thus, the *price cap* method when applied especially on electricity natural monopoly industry take the form of:

$$RPI-X+Y+cf$$

Where: RPI is the retail price index;

X is the regulators assessment of the firm’s cost-efficiency potential;

Y reflects a cost that is outside the control of the firm and which the government considers should be passed directly on to the consumer; and

cf is a correcting factor, where previous forecasts have proved to be erroneous.⁷⁷

When we come to quality-of-service regulation, it can be controlled by setting a certain standard of performance which may differ from sector to sector. Hence, in electricity industry performance standards are usually set by appropriate body (mainly electricity regulatory body) as a basis of such quality-of-service regulation.

The *third* alternative mode of economic regulation in the area of electricity natural monopolies is the need for competition between/among firms with monopoly right. Accordingly, regulation can be implemented either through contract or license.⁷⁸ Regarding contracts, it can be implemented by franchising or concession agreements whereby the state transfers some of its powers and attributes to the private sector regulated by the terms of the contract.⁷⁹ Regulation by license, on the other hand, is implemented through mainly legislation, primary or secondary, which establishes the general rules, rights and obligations to carry out an activity like generation, transmission, distribution or supply of electricity services.⁸⁰

⁷⁵Ibid, pp 307-313

⁷⁶Ibid, p 311

⁷⁷Id

⁷⁸ Dussan, Manuel; *Electric Power Sector Reform In Latin America And The Caribbean*, Inter-American Development Bank, Washington D.C. Working Papers Series IFM-104, June 1996, p 27

⁷⁹ Id; “The contract specify, among other things, duration, conditions to renew it, price setting formula and constraints, obligations to serve the demand in the concession area, investment obligations, minimum level for quality and reliability of service and conditions for termination. This method of regulation is used in Argentina for transmission and distribution activities.”

⁸⁰ Id; This method of regulation has been implemented in UK and Chile

In the area of electricity transmission and distribution industries where natural monopoly is predominant⁸¹ the above three alternative mode of economic regulation are applied mainly based on the ownership and industrial restructuring or mode of organization existed in any given country. Thus, the commercialization and in most cases, privatization of electricity transmission and distribution industries over the last three decades has resulted in a variety of regulatory systems being introduced across different countries. The experience of each highlights the advantages and challenges of economic regulation along with the ongoing need for improvement and flexibility in regulatory structures. Accordingly, it will be worthwhile if we see the experiences of some countries in the area of economic regulation in the electricity industry separately.

3.1.1 United States

In the US economic regulation in the electricity industry have undergone three stages. In all these stages the US electricity industry never experienced the mode of nationalization. Rather in all these stages the electricity industry has continued mainly to be under private, public or mixed, as the case may be, ownership, and, of course, with different legal, institutional and regulatory structures. The *first* stage relates to that of the period prior to the Great Depression of the 1930s whereby the electricity industry functioned without having any distinction between federal and state institutional and regulatory frameworks.⁸² The US electricity industry's dual regulatory system emerged with a series of Supreme Court cases culminating in *Rhode Island Public Utilities Commission vs. Attleboro Steam and Electric Co*, 273 US 83 (1927).⁸³ Accordingly, in the *Attleboro* case the court held that states were constitutionally prohibited from regulating interstate electricity commerce.⁸⁴ This was because the role of federal regulation at that time was unclear and hence, *Attleboro* caused interstate electricity transactions to go unregulated.⁸⁵

⁸¹In the generation/production area of both electricity and natural gas there is no natural monopoly and hence competition is possible

⁸²Gray, *supra* note 65, pp 12-17

⁸³*Ibid*, p 12

⁸⁴*Id*

⁸⁵*Id*

The *second* stage extended from roughly the end of Great Depression through the 1970s⁸⁶ and was characterized by vertically integrated production and internal economies of scale.⁸⁷ Accordingly, here the dual regulatory structures were introduced whereby state regulatory agencies primarily influencing intrastate production and delivery (i.e. transmission, distribution & supply to consumers), while federal regulatory agencies, primarily influencing interstate production and delivery.⁸⁸ Moreover, the two dominant federal government agencies in the US energy sector are the DOE, and FERC. DOE operates the EIA, while FERC oversee the interstate wholesale markets in the energy industry (e.g. oversees the interstate transmission grid, collects data from industry participants).⁸⁹ On the other hand, states have their own energy commissions (Public Utility Commissions under their respective Department of Energy), which *inter alia* oversees intrastate wholesale and retail electricity markets.⁹⁰

The *third* stage started after the 1970s' oil crises that encourages external economies through processes of vertical de-integration and flexible capital accumulation,⁹¹ which was the result of the "public choice theory"⁹² that started from the 1960s Chicago school of law and economics.⁹³ This movement of "public choice theory" based on the

⁸⁶Ibid, pp 13 and 42; The dual regulatory system of electricity, i.e. federal and state, was introduced by enacting the 1935 PUHCA of the federal state which, among other things, attempted to close the jurisdictional gaps that had become known as "*Attleboro gaps*"

⁸⁷Ibid, p 3; In addition, this type of capital accumulation was known as "Fordist mode of capital accumulation" based on vertical integrated production and internal economies of scale, which was typical of the US electricity industry during that period

⁸⁸Ibid, p 13

⁸⁹Ibid, p 19

⁹⁰Kucewicz, William P., *Power Politics: Drawing Lessons from California's Electricity Crisis*, Internet; <http://www.geoInvestor.com>, last visited September 17, 2008, a 28 pages analysis on the area

⁹¹Gray, *supra* note 64, p 3

⁹²Posner, Richard A.; *Theories of Economic Regulation*, the Bell Journal of Economics and Management Science, the University of Chicago, Vol. 5 No. 2 (Autumn 1974), pp 335-358. "Public choice theory" holds that regulation is supplied in response to the demand of the public for the correction of inefficient or inequitable market practices. The second theory is the "capture theory", which holds that regulation is supplied in response to the demands of interest groups struggling among themselves to maximize the incomes of their members. *Id*

⁹³Stigler, George J., *The Theory of Economic Regulation*, The Bell Journal of Economics and Management Science, The University of Chicago, Vol. 2 No. 1 (Spring 1971), pp. 3-21; Peltzman, Sam., *The Economic Theory of Regulation after a Decade of Deregulation*, University of Chicago (1989), Brookings Working Paper, pp 1-59; and Posner, Ibid

“pragmatic”⁹⁴ approach coupled with the 1970s oil crises brought the deregulatory frameworks and on this basis a series of legislative acts.

The important legal frameworks in the US electricity regulation are *inter alia* 1978 PURPA⁹⁵; 1992 Energy Policy Act (EPAct)⁹⁶; FERC Order 888⁹⁷, Energy Policy Act of 2005⁹⁸ etc.⁹⁹ Under this stage the dual regulatory and institutional frameworks of federal and state continued to exist. In addition, due to the fact of the “pragmatic” approach of “public choice theory” both the federal and state regulatory agencies of the energy sector started to deregulate especially their respective electricity industry which ultimately culminated in the 2001 California power crises,¹⁰⁰ Enron bankruptcy,¹⁰¹ and the August 14 2003 northeastern states of the US blackouts.¹⁰² All these are said to be the results of both federal and states, especially California, regulatory failures and market “crisis” caused by untimely deregulation of the electricity transmission, distribution and retail sale markets.

3.1.2 India

Until the 1990s the Indian energy sector in general and electricity in particular was under government control with all the major functions of generation, transmission, distribution, and supply to consumers predominantly done by state owned companies, and boards -

⁹⁴“Pragmatism” is a method or tendency in philosophy, started by C. S. Peirce and William James, which determines the meaning and truth of all concepts by their practical consequences; *Webster’s New World College Dictionary*

⁹⁵Text available at: Global Renewable Energy Policies and Measures Database, *PURPA*, <http://www.iea.org/textbase/pamsdb/detail.aspx?mode=gr&id=1060>; last visited Sept. 18, 2008

⁹⁶ Mainly authorized FERC to open the national natural gas and electricity transmission systems to competitive wholesale suppliers, deregulation of transmission

⁹⁷ Gave wholesale electricity suppliers access to utility transmission lines under “non-discriminatory open access tariffs” reviewed by FERC,

⁹⁸ Public Law 109--58—Aug. 8, 2005;text available at: <http://www.USEnergypolicyact2005.org>; last visited Sept. 18, 2008

⁹⁹Gray, *supra* note 65, pp 42-43

¹⁰⁰See the following articles for detail analyses and descriptions to clearly understand as to where the failure of the California’s electricity industry lies. Yuffee, Michael A., *California’s Electricity Crisis, How Best to Respond to the “Perfect Storm”*, *Energy Law Journal*, vol. 22, No. 1(2001), pp 65-91; Kucewicz, *supra* note 89; and Navarro, Peter and Shames, Michael; *Electricity Deregulation: Lessons Learned from California*; *Energy Law Journal* vol. 24, No. 1, pp 33-64

¹⁰¹For detail discussion see, Cudahy, Richard D. & Henderson, William D., *From Insull to Enron: Corporate (Re)regulation after the Rise and Fall of Two Energy Icons*, *Energy Law Journal*, vol. 26, No. 1(2005) pp 35-110

¹⁰²Gray, *supra* note 65, pp 89-93

SEBs.¹⁰³ That means the government had complete control over the entire energy business. However, the Indian government underwent a radical reform of its energy sector by enacting the Electricity Regulatory Commission Act of 1998 and Electricity Act of 2003.¹⁰⁴ On the other hand, the 2003 Electricity Act of India *inter alia* encourage competition by reforming distribution with multiple licenses in distribution, reduced entry barriers by de-licensing generation, setting up a regulatory commission to fix tariff and assist for the development of the sector.¹⁰⁵

The other important element in India power sector is that electricity was made as one which form a concurrent list of subjects of the India Constitution.¹⁰⁶ Hence, both the central/federal and state governments can formulate policies and laws in relation with the electricity, but the responsibility of implementation rests with the states.¹⁰⁷ Moreover, states are given free rein to choose their modes of reform with some choosing to privatize distribution, some simply unbundle their electricity industry, and others keeping the

¹⁰³Tongia, Rahul, *The Political Economy of Indian Power Sector Reforms*, Dec 2003; Internet: http://www.iisdbstanford.edu/pubs/20/92/india_10--may-04peflastvistedsept.172008, last visited, November 21, 2008

¹⁰⁴The Indian Electricity Act, 1910 was said to be highly technical Act relating to, *inter alia*, the trading and use of electrical energy and regulatory functions were restricted to matters regarding the generation, transmission, supply and use of energy for which electrical inspectors have to carryout periodical inspections and tests and examination of test records. In addition, Indian Electricity Supply Act 1948 mainly governs the constitution of the central electricity authority, state electricity boards, generating companies, consultative councils, and local advisory committees, their statutory powers and functions

¹⁰⁵Mishra, Rajiv K, *Looming Crisis of Indian Power Sector*, IC² Institute University of Texas, Austin 2815;; Internet: http://www.ic2.utexas.edu/images/faces/mishra_2008.indiapowersector.pdf, last visited, September 17, 2008

¹⁰⁶The Constitution of India (As modified up to the 1st December 2007), Government of India Ministry of Law and Justice, Seventh Schedule, List III (Concurrent List), Paragraph 38; See also Mishra, *supra* note 104; and Rahul, *supra* note 102, *et al.* It is to be noted here that the Indian Constitution is extremely detail with 471 pages and 395 Articles and too many schedules and appendixes with more than 94 amendments

¹⁰⁷For example, CERC is mandated to discharge, among others, tariff regulation pertaining to generating and transmission companies owned or controlled by the central government, promote competition, efficiency and economy in the activities of the electricity industry, develop appropriate policies and procedures for environmental regulation of the energy sector, dispute arbitration involving generating or transmission companies, licensing of interstate transmission activities while the SERCs are mandated to deal relevant matters pertaining their respective state electricity tariff, regulate power utilities, promote competition, efficiency and economy of the energy industries. At the same time state governments may mandate state commissions on activities regarding issuance of licenses, issue policies for environmental regulation, performing energy industry, set and enforce safety performance standards of the electricity industry, etc. See BSI – Business Information, November 2002, Regulatory Structures and Supporting Organizations, found in Ethiopian Electricity archives, submitted as part of a consultative document in the reform process of the power sector of Ethiopia, pp 17-18, Art 17(1) of the Indian Electricity Regulatory Commission Act of 1998; Rahul, *supra* note 102, p 69

different segments of the electricity industry intact while adopting organizational reforms aimed at improving economic efficiency.¹⁰⁸

3.1.3 United Kingdom

The UK experience on economic regulation of energy resources covers two periods. The *first* period runs from 1946 to 1980s during which most of public utilities including electricity were nationalized¹⁰⁹ and made under public ownership mainly on ground of “public interest justification”.¹¹⁰ The *second* period started in the 1980s, where under Prime Minister Margaret Thatcher, liberalized the energy market through a series of restructuring steps. Accordingly, Energy Act of 1983 and 1989 opened the market to third parties by privatizing the CEGB which had been established in 1957.¹¹¹

The other important element of the UK energy sector in general and electricity industry in particular introduced during post-liberalization was that regulation was applied on the basis of license issued by the energy regulator, Ofgem.¹¹² In addition on the natural monopoly segments of the electricity industry “price cap” regulation was applied.¹¹³ Moreover, based on the above two legislations and the modes of economic regulations, i.e. license and price cap, it is said that the UK electricity industry exhibit a complete transformation from public ownership to privatization and thereby competition have been successfully undertaken.¹¹⁴

In sum, the experiences of the above mentioned three countries and others like Chile, Germany, France, South Africa, Kenya, etc., show us that the legal and institutional frameworks in regulating energy resources in general and that of electricity in particular differ from country to country based on the structure of the state, i.e. unitary or federal,

¹⁰⁸ Rahul, *supra* note 103, pp 69-70

¹⁰⁹For instance, UK nationalized its electricity industry with the passage of the Electricity Act of 1947 and the formation of the CEGB in 1957

¹¹⁰Danwitz, Thomas Von, *Regulation and Liberalization of the European Electricity Market: A German View*, Energy Law Journal, vol. 27 No. 2, p 431

¹¹¹Ibid; In addition, UK government is praise as the first country to liberalize its energy (i.e. electricity and gas) markets through privatization, competition and open to networks, see Energy Policies of IEA

Countries, the UK 2006 Review, OECD/IEA, 2007

¹¹² Detail information on the activities of Ofgem can be found on the website: <http://www.ofgem.gov.uk>

¹¹³Ogus, *supra* note 2, p 311

¹¹⁴Cameron, *supra* note 63, pp 14-15

the regulatory legacy, industrial restructuring, level of development of the particular country under consideration. In other words there is no “one-size fit all” legal, institutional, and regulatory model to be applied in different countries/states uniformly.

For example, in the US and India energy, especially electricity industry, federalism and regulatory legacy have resulted with dual regulatory environments, i.e. state regulatory agencies primarily influencing intrastate production and delivery while federal regulatory agencies primarily influencing interstate transmission system licensing and pricing.¹¹⁵ While Germany’s experience is similar to the US except that Germany does not have a separate energy regulator and at the same time used franchise/ “exclusive license” to supply to final energy consumers.¹¹⁶ In France and South Africa, on the other hand, electricity generation, transmission, distribution and supply is based on vertically-integrated entirely dominated by government monopoly structure.

Restructuring of the electricity industry in the UK and Chile during the 1980s, however, was completed by privatizing all segments of the energy industries, i.e. generation, transmission, distribution and supply, on a ‘big bang’ approach. Moreover, UK and Chile are known for their successful achievements in bringing prices down and attaining efficiency and reliability of their respective electricity industries.

On the other hand, Kenya benefited from restructuring its electricity industry thereby bringing private investment in the generation area on the basis of “single buyer model”. Thus, IPPs sale their bulk power production to the government owned utility, KPLC, based on the PPA entered between the investor and KPLC.¹¹⁷

3.2 Legal and Institutional Frameworks in Regulating Renewable Energy

The OPEC oil embargo of 1973 and the 1979 Iranian revolution and the following fossil fuel-price instability can be thought of as the “wake-up call” for a shift from oil towards other alternative and more diversified sources of energy, most notably renewable energy

¹¹⁵ Gray, *supra* note 65, p 2

¹¹⁶ Danwitz, *supra* note 110, pp 426-429

¹¹⁷ Nyoike, Patrick; *Is the Kenyan electricity regulatory board autonomous?* In Energy Policy, S. Karekezi, M. Mapako, and M. Tefera (Guest eds.), Vol. 30 (2002), p 992

resources.¹¹⁸ Fortunately, there are a number of legal and institutional tools that countries, states and jurisdictions throughout the world have deployed and become successful in overcoming the different barriers and, of course, at the final analysis, encouraging the use of renewable energy resources.

However, it is only a limited number of approaches that are becoming prominent and widely used, of course, with certain modification to fit peculiar country situation like resource availability; favorable policy, legal and institutional frameworks; level of economic, social and cultural development; and above all, political willingness and commitment to apply such schemes. The two most important and widely used approaches are: 1) Renewable Portfolio Standard; and 2) Feed-in Tariff.¹¹⁹ Now let's see these two approaches separately and briefly.

3.2.1 Renewable Portfolio Standard Scheme

RPS is both a legal and institutional instrument set to increase the amount and/or proportion of renewable energy purchased in a particular country, state, or jurisdiction.¹²⁰

RPS scheme may also be referred to as "QS"; "RO", or "ROC"; "TGC", or "REC" or "Credits", etc.¹²¹ This type of scheme requires those bound by the obligation (usually

¹¹⁸In addition to renewable energy sources, western government shifted to coal, nuclear, and, of course, energy efficiency measures

¹¹⁹ The other important approaches used in conjunction with one or both of these approaches include: **Tax and investment incentive:** where certain types of renewable energy sources generating electrical energy are given specified incentives, which can be based on the number of KWh they produce or an up-front payment to help reduce the initial costs of the renewable electricity; **Investment cost recovery:** where qualifying renewable electricity producers are given the investment cost recovery directly or credited on their energy bill rather than given an incentive to avoid taxation; **Net metering:** where usually small electricity customers are allowed to produce and be paid for renewable electricity that they supply to the grid. This can be done by using electricity meters that turn backwards when the particular customers' production is more than their consumption; **Tender schemes:** the Government holds auctions with regard to new renewable energy capacity, specifying parameters such as the amount of capacity that will be awarded support in the auction, the maximum level of support available, and other details. Companies bid by offering a certain amount (and type) of renewable generation or capacity in exchange for a certain level of support. Those who are awarded the tender (typically, those offering to deliver the required renewable at least cost) may build the projects in question and will receive the level of support which they proposed in their bid; **Grants:** refer to lump-sum, upfront financial support to cover capital investment or other start-up costs of renewable energy resources projects. Grant-based schemes are typically funded from tax receipts, which means that their costs are borne by tax payers as a whole; etc

¹²⁰Kennedy, Katherine; *The Importance of Renewable Energy*; in _____; *UNEP Handbook for Drafting Laws on Energy Efficiency and Renewable Energy Resources*, United Nations Environment Programme, 2007; Internet: <http://wasal.unep.org/delc>, last visited, August 8, 2008, p 108

¹²¹ Ibid, pp 118-122

electricity supply companies) to buy renewable energy certificates from renewable electricity generators.¹²²

However, RPS does not place price differences based on both renewable energy source types and technology used.¹²³ For example, UK's proposed target of RO is to deliver renewable energy on an escalating target, increasing to 10 per cent by 2010 and 20 per cent by 2020.¹²⁴ Accordingly, any failure by electricity suppliers entails a financial penalty as a bail-out price for KWh of non compliance.¹²⁵ EU's overall goal on the same period is, however, 20 per cent to be sourced from renewable energy resources.¹²⁶

There are many other countries that use RPS, which include among others; US (that include more than 18 US states on the bases of their own RPS legislations), Japan, Australia, India, Poland, etc.¹²⁷ For instance, California RPS requires 20 per cent of electricity for retail sales be produced from renewable sources by 2010, and increase the requirement to 33 per cent by 2020.¹²⁸ The other US state said to be very successful on proper application of RPS scheme is Texas where it enacted RPS law in 1991 and at the same time established an independent regulatory organ to oversee its implementation.¹²⁹

3.2.2 Feed-in Tariff Scheme

FIT scheme is a type of legal and regulatory instrument that allows all eligible generators to receive a fixed and known price for their renewable electricity sales.¹³⁰ The main purpose of FIT law is to establish legal guarantees for electricity producers from renewable energy technologies.¹³¹ Accordingly, energy companies are legally required to

¹²² _____, *UK Renewable Energy Strategy: Consultation Document*; Department for Business Enterprise & Regulatory Reform (BERR), June 2008, p 90 Internet: <http://www.berr.gov.uk/renewableconsultation>, last visited October 17, 2008, hereinafter *UK Renewable Energy Strategy*

¹²³ Ibid, p 94

¹²⁴ Id

¹²⁵ Ofgem regulates the proper implementation of the RO

¹²⁶ *UK Renewable Energy Strategy*, *supra* note 121, p 28

¹²⁷ Kennedy, *supra* note 120, p 117

¹²⁸ See Internet: <http://www.energy.ca.gov/renewables/indes.html>

¹²⁹ Kennedy, *supra* note 120, p 112

¹³⁰ Ibid, p 116

¹³¹ _____, *Ethiopia Conditions for Pico/Mini Hydro Power Grid Connection: Experiences from Countries with Micro and other renewable energy systems feed-in to existing Grid*, GTZ Dutch-German

purchase renewable energy sources with specific KWh payments for each renewable energy technology based on the real cost of generation.¹³² Plus, the purchase price includes a reasonable profit that may last for a long period say from 10-20 years that assure return on investment.¹³³

The costs of these tariffs are covered by increased electric rates that sometimes take the form of regional or national surcharges (similar to those established for public benefit programs), or sometimes they are simply embedded in rates.¹³⁴ The availability of grid access in sufficient capacity is a precondition for applying FIT law.¹³⁵ Moreover, FIT law does not work for off-grid electricity production where other more appropriate support mechanisms are available, such as direct investment incentives, micro-credit, and tax.¹³⁶

When we come to countries experience it was the German parliament that first introduced the FIT scheme with the passage of the *Stromeinspeisungsgesetz* in 1990, better known as the EFL.¹³⁷ This law ensured grid access for electricity generated from wind power, hydropower, solar, biomass, or biogas.¹³⁸ RESA of March 2000 amended the 1990 first FIT law of Germany, which brought important changes *inter alia* energy based pricing was used,¹³⁹ introduced the concept of digressive pricing,¹⁴⁰ and costs of electricity were equally distributed on all electricity suppliers nation wide.¹⁴¹ The current RESA, which

Partnership Energizing Development AMES-E Office, Addis Ababa, Ethiopia, July 2008, hereinafter GTZ AMES-E, p 5; Important information can be found on the website: <http://www.feed-in-cooperation.org>

¹³²Kennedy, *supra* note 119, p 116; other texts are available at: <http://www.renewable-energy-policy.info/relec/germany/policy/feed-in.html>; http://www.bmu.de/files/eeg_en.pdf; last visited September 18, 2008

¹³³GTZ AMES-E, *supra* note 131, p 6

¹³⁴Kennedy, *supra* note 120, p 116

¹³⁵Id

¹³⁶ GTZ AMES-E, *supra* note 131, p 11

¹³⁷ The EFL guarantees the revenue of wind projects to be 90 per cent of the residential rate charged by the utility; ____, Renewable Energy Policy Project, *Germany's Encouragement of Renewable Energy*; text available at: http://www.repp.org/repp_pubs/articles/issuebr14/03German.htm ; last visited Sept 18, 2008

¹³⁸GTZ AMES-E, *supra* note 130, p 39; Kennedy, *supra* note 120, p 117

¹³⁹ PV appliances built before 2002 receives 0.99 DEN (conversion 1.95583=1 EUR) KWh, for small hydropower 0.15 DEM/KWh, for geothermal power between 0.14 and 0.15 DEM/KWh, and for electricity generated from biomass between 0.17 and 0.20 DEM/KWh, wind power get based on the specific wind speed at the individual site into account and at the average site, wind power receives 0.164 DEM/KWh over a life time of 20 years; GTZ AMES-E, *supra* note 131, pp 41-42

¹⁴⁰The remuneration rates will be lowered annually for new installation by 5 per cent (PV) or 1.5 per cent (all other technologies)

¹⁴¹Id; A major complaint on the 1991 EFL was the lack of an efficient mechanism to distribute the burden regionally equal. This led to a situation where utilities and their customers in northern Germany with the

amended the first RESA of 2000, and becomes effective as of (August 2004) also brought some additional improvements as its predecessor, the general framework remains the same, though.¹⁴²

Due to this FIT law, German wind capacity has increased from 56 MW in 1990 to more than 14,600 MW in 2003¹⁴³ that made it the most wind installed capacity in the world.¹⁴⁴ In addition, Germany has 417 MW of solar PV capacities, second only to Japan.¹⁴⁵ More than 40 countries from Europe, Asia, Latin America, Africa, in one way or another, of course, by making certain adjustments to fit their country specific situations, adopted FIT law for promoting renewable energy in their electricity generation, among others Spain, Denmark¹⁴⁶, France, Italy, Slovenia, California (starting from January 31, 2008), China, Nepal, Brazil, Uganda, Kenya, South Africa, Nigeria.¹⁴⁷

What is more, empirical study shows that due to their small size and scattered siting conditions, renewable energy projects are better built by IPPs rather than by a conventional type of utility owners. The availability of different supporting mechanisms is, however, very critical for renewable energy growth. The support needs to be clearly expressed in a country, state or regional level policy and legal instruments. The support include, among others 1) utility existing in a restructured power sector that allows IPPs to build, own and operate renewable energy facilities; 2) interconnect to the grid; 3) clear

majority of wind power installations under the law had to pay a considerable higher share of the costs than the southern companies and their customers. The REA solved this problem by requiring electricity supplier to have the same share of RET

¹⁴² Bandza, Alex; *Gone With the Wind? Understanding the Problems of Wind Energy Policy in the United States Through the Successes of Denmark and Germany*; Environmental Law Reporter: News & Analysis, vol. 37, No. 3 (2007), pp 10197-10208, also text available at: <http://www.eli.org>; last visited, September 17, 2008

¹⁴³ Kennedy, *supra* note 120, p 117

¹⁴⁴ _____; *Energy Information Administration (EIA), Policies to Promote Non-Hydro Renewable Energy in the United State and Selected Countries*, February 2005; Internet: <http://www.eia.doe.gov/fuelrenewable.html>, p11

¹⁴⁵ Kennedy, *supra* note 120, p117

¹⁴⁶ Starting from 2003 Denmark legally abandoned FIT scheme in favor of RPS based on market driven financial support through tradable green certificate, its remarkable success in wind energy is attributable to FIT scheme followed before that time, though; Bandza, *supra* note 142, p 10202. The other important point to be noted here is that when we compare the two schemes, i.e. RPS & FIT, it can be easily understood that FIT scheme fix the amount to be paid for the electricity, and allow the market to determine the amount of electricity generated, while RPS scheme fix the latter, and allow the market to determine the former; see GTZ AMES-E, *supra* note 131, p 10

¹⁴⁷ GTZ AMES-E, *supra* note 131; Kennedy, *supra* note 120; *et al*

and simplified standard contractual terms in the form of PPA to be entered between the investor on renewable energy and utility company that purchase the electricity generated from renewable energy sources; and 4) scientifically determined prices.

3.3 Legal, Regulatory and Institutional Frameworks of Energy Efficiency

In the past, the issue of energy efficiency was primarily driven by energy price increases. For example, the first wave of energy efficiency improvement in industrialized countries was seen following the oil crises of 1973¹⁴⁸ and 1979.¹⁴⁹ At that time many of the western developed countries, in addition to the energy diversification, have taken energy efficiency as one of the primary policy pillars in addressing energy security and reducing exposure to volatile energy markets.¹⁵⁰ Nowadays, however, energy efficiency measures are not left only for western developed nations but are also becoming the concerns of many of those in transition and developing countries of the world.¹⁵¹ Currently the most important goals of energy efficiency are that of achieving the 3Es (i.e. Energy security, Economic development and Environmental protection) at very low or even no cost.¹⁵² Thus, the overriding fact is that “every KWh of electricity saved by a more efficient appliance is a KWh that is available for other uses, or is a KWh that need not be generated”.¹⁵³ In sum, reducing the energy demand should result as the long term effect of energy efficiency measures of any given nation/state.

Policy, legal, regulatory and institutional frameworks are important instruments to be set in place for achieving any one of the aforementioned primary goals of energy efficiency. Moreover, empirical studies show that many industrialized countries and jurisdictions

¹⁴⁸ Caused by oil export embargo of the major oil producing Arab countries as a response for the western support of Israel during the Yom Kippur war; Internet: Energy Crises, [Wikipedia](#), the free encyclopedia, last visited, December 2008

¹⁴⁹ Caused by Iranian revolution; *Ibid*

¹⁵⁰ _____; *Energy Policies of IEA Countries*, International Energy Agency (IEA), 2006 Review, p 24; Internet: <http://www.iea.org/w/bookshop/pricing.html>; last visited December 23, 2008 hereinafter *Energy Policies of IEA Countries*

¹⁵¹ For example, see the experiences of China, India, Brazil, Hungary, Rumania, Lithuania, etc in Taylor, Robert P., Govindarajalu, Chandrasekar, and others; *Financing Energy Efficiency: Lessons from Brazil, China, India, and Beyond*; 25th Anniversary of ESMAP, The World Bank, 2007

¹⁵² *Energy Policies of IEA Countries*, *supra* note 150, p 25

¹⁵³ _____; *UNEP Handbook for Drafting Laws on Energy Efficiency and Renewable Energy Resources*, United Nations Environment Programme, 2007, p 62; Internet: <http://wasal.unep.org/delc>, last visited, August 8, 2008, hereinafter *UNEP Handbook*

attain great achievement in the area of energy efficiency due to the integrated effort made by all policy makers, legislatures, enforcing institutions and above all by the general public responsible in applying it.

3.3.1 Energy efficiency legal framework

The related specific issues to be discussed here regarding energy efficiency legal frameworks are: *First*, what are the approaches used by other countries and jurisdictions to achieve success in the area of energy efficiency? *Second*, do separate energy efficiency legal instrument necessary to improve national and local efforts on energy efficiency?

The need for legal framework in the area of energy efficiency becomes crucial due to the fact that market failures do not allow economic instruments alone to reach the objectives of energy efficiency which in turn calls for regulation. Legislatures or governments of a country, state, or jurisdiction, as the case may be, have a leading role in devising and to put in place appropriate legal instruments necessary for the effective and successful application of energy efficiency measures. Such legal instruments can be devised either independently, i.e. as a separate component, or in conjunction with other legal instruments, for instance, renewable energy resources. The areas of energy efficiency more susceptible for market failure and needs policy, legal and regulatory frameworks can be classified under four components. These are: 1) appliances & equipments; 2) industry; 3) building; and 4) road transport.¹⁵⁴

Moreover, energy efficiency laws can be framed at a national level, e.g. Thailand Energy Conservation Act of 1992,¹⁵⁵ India Energy Conservation Act of 2001, China Energy Conservation Act of 1997,¹⁵⁶ Canada Energy Efficiency Act (1992),¹⁵⁷ US Energy Policy Act of 2005, UK Energy Efficiency Programmes & Targets,¹⁵⁸ or at the level of a group of countries, e.g. the case of directives in the EU, Eco-Design Framework Directive of

¹⁵⁴Ibid, pp 27-105

¹⁵⁵Text available at: http://www.aseanenergy.org/energy_organisations/eecssn/thailand/eec_ssn_th.html and <http://www.eppo.go.th/doc>

¹⁵⁶Text available at <http://www.unescap.org/esd/energy/publications/compend/ceccpart4chapter4.html>

¹⁵⁷Text available at: <http://laws.justice.gc.ca/en/E-6.4/text.html>

¹⁵⁸See the 2007 Energy White Paper UK; Text available at: <http://www.berr.gov.uk/renewableconsultation.text.html>

2005, Directive 2004/8/EC of the European Parliament¹⁵⁹ or at the level of a sub-national region within a federal structure, e.g., US Department of Energy¹⁶⁰ and California,¹⁶¹ India¹⁶² and Maharashtra.¹⁶³

When we take those countries, states, or jurisdictions, which are known for their successful achievement in the area of energy efficiency, e.g. US, California, Canada, EU, Egypt, Algeria, all developed detail legal instruments in the area of energy efficiency. However, such energy efficiency policy and legal instruments may either be framed independently or together with other related or similar fields like renewable energies. In sum, there is no “one-size fit all” model of energy efficiency policy and legal frameworks and hence countries, states, or jurisdictions can follow the direction they found best suitable based on their political, economic, social, and cultural peculiar conditions.

3.3.2 Regulatory framework of energy efficiency

Regulation of energy efficiency mainly focuses on those areas that are more susceptible for market failure and calls not only for policy and legal frameworks but also regulatory tools to reduce and then avert such market failure. Regulations of energy efficiency cases in the areas of appliances & equipments, industry, building, and road transport are usually effected by means of either performance standards or labels or codes.¹⁶⁴ For example, refrigerator and freezers, lamps, washing machines, air conditioners (depending on climatic conditions) are among the appliances to be either labeled or be given MEPS.¹⁶⁵ Accordingly, the aim of MEPSs is to improve the energy efficiency of new appliances by imposing a minimum energy efficiency rating to remove the least efficient product from the market while labels¹⁶⁶ are designed to provide consumers with information, which

¹⁵⁹Text available at: http://europa.eu.int/comm/energy/demand/legislation/heat_power_en.html

¹⁶⁰ See Energy Efficiency Network at www.eere.energy.gov

¹⁶¹California appliance efficiency standards regulations; Text available at: http://www.energy.ca.gov/reports/2003-09-10_400-03-016.pdf

¹⁶²Text available at: <http://www.bee-india.com/index.php>

¹⁶³Text available at: <http://www.mercindia.com/pdf/16082002.zip>

¹⁶⁴For example, California, mainly due to the mandatory application of energy efficiency legal instruments, i.e. codes & standards, has a steady per capita consumption of electricity for the past 30 years, while the rest of us experienced a 50 per cent growth in electricity consumption (and slower economic growth than in California), *UNEP Handbook*, *supra* note 153, p 64

¹⁶⁵*Energy Efficiency Policies, 2008*, *supra* note 14, p 46

¹⁶⁶The US ENERGY STAR(R) label is usually taken as an excellent example of an endorsement label for the best available energy efficient appliance

enables them to compare the energy efficiency of the different appliances on sale that ultimately stimulates technological innovation.¹⁶⁷ Whichever approach, or a combination of approaches used a country, state, or jurisdiction or its government must decide whether to make them mandatory or voluntary.¹⁶⁸

Regarding buildings codes¹⁶⁹ and standards¹⁷⁰ are the two most important regulatory instruments for energy efficiency. Accordingly, EU introduced a directive on the energy performance of new buildings and made mandatory building certificates for the sale or rent of dwellings, mainly to enable the buyer to access information on the energy consumption of the dwelling.¹⁷¹ On the other hand, as far as developing countries are concerned, mandatory building standards mainly apply to non-residential buildings. However, countries such as China, Egypt, and Algeria also have implemented standards of energy efficiency performance for dwellings.¹⁷²

¹⁶⁷*Energy Efficiency Policies, 2008, supra note 14,* p 44; _____; *North American Energy Efficiency Standards and Labeling*, North American Energy Working Group; Internet: <http://www.energyefficiencystandards&labels.org> ; last visited July 17 2008 p 6; Here two important examples suffice to show how MEPSs or labeling, or their combination play a great role in energy efficiency cases of appliances, equipment, and light; The *first* is that “in 1980 China decided to distribute refrigerators throughout the capital city of Beijing. It did so with resounding success, supplying refrigerators to over 60% of Beijing households by 1990, where only 6 per cent had them in 1980. The reconditioned refrigerators from Japanese factories were thought to be cheap. They were not cheap, however, when the costs of the electric power supply necessary to run these very inefficient machines become apparent. In fact, the purchase and supply of inefficient equipment cost more than three times what would have been the cost of supplying the most efficient refrigerator on the world market”. The *second* example is “the US \$150 million refurbishment of thirteen incandescent bulb factories in Hungary in 1990. The US \$ 150 million [investment] could have been used to finance more than twenty new compact fluorescent factories, which could have avoided the construction of 12, 000 MW power plants resulting in savings of US \$ 20 billion and minimizing air pollution in a country already suffocating in smog”. See Hodas, *infra note 168*, pp 47-48

¹⁶⁸Hodas, David R., *Appliance Energy Efficiency Labels and Standards*, in: *UNEP Handbook*, *supra note 152*, p 53; Standards could be either mandatory or voluntary. By definition mandatory standards are regulations to which all participants have to comply, *albeit*, there are wide variety of approaches that use mere voluntary standards to achieve defined energy efficiency target. Nevertheless, policy makers, legislators, or regulators have to identify specific energy efficiency areas which need voluntary standards from mandatory standards where detail regulation will specify the different criteria to be followed and the penalties for non-compliance

¹⁶⁹ The term “codes” refers to mandatory energy efficiency requirements for new construction in buildings. New construction may refer to an entirely new building being erected, or may refer to the construction of a new energy-using system (such as a lighting system or an air conditioning system) in an existing building. Goldstein, David B., *Energy Efficiency in Building Sector*, in *UNEP Handbook*, *supra note 152* , p 65

¹⁷⁰Standards refer to minimum mandatory requirements for equipment used in buildings, such as air conditioning units, furnaces or boilers, refrigerators, water heaters, clothes washing machines, dishwashing machines, etc, Hodas, *supra note 168*, pp 47-48

¹⁷¹ *Id*

¹⁷²*Energy Efficiency Policies, 2008, supra note 14*, p 42

When we come to industries,¹⁷³ in addition to standards, voluntary agreements¹⁷⁴ and CHP¹⁷⁵ are now taken as important energy efficiency regulatory tools. Fuel economy standard for vehicle manufacturers and fuel consumption labeling are the two widely used energy efficiency regulatory instruments in road transport sector.¹⁷⁶

3.3.3 Institutional frameworks of energy efficiency

The two related specific issues with respect to institutional aspects of energy efficiency that will be addressed under this sub-chapter are: Are public energy efficiency agencies necessary for improving and making sustainable national efforts of energy efficiency? Is there any “one-size fit all” model that could be easily adopted by both developed and developing countries alike in institutionalizing energy efficiency efforts?

Devising policy and legal frameworks *per se* could not solve the multifaceted problems of energy efficiency. Hence, in addition to stronger energy efficiency policy and legal instruments, an effective energy efficiency institution is also becoming a determining factor “to reverse the declining trend of energy efficiency improvement and capture abundant cost effective energy efficiency potentials, instead of relying only on the impact of higher energy prices”.¹⁷⁷

¹⁷³ As developed countries are shifting from energy intensive industries (e.g. steel, paper, cement and chemicals) to non-energy intensive industries (e.g. service, electronics and food) developing countries undertaking these energy intensive industries need to work in energy efficiency not only to make costs of energy down and be competitive in the international market but also for the general sustainable environment. This is because energy intensive industries are said to remain the largest energy consumers for both developed and developing countries; Warren, Ernst, Price, Lynn; Brown, Michael; and Bell Jeff; *Industry and Commerce*, in: *UNEP Handbook*, *supra* note 153, p 27

¹⁷⁴ Voluntary agreements are “essentially a contract between the government and industry, or negotiated targets with commitments and time schedules on the part of all participating parties”. The essential steps for reaching a voluntary agreement are the assessment of the energy-efficiency potential of the participants as well as target setting through a negotiated process. Participation by industries is motivated through the use of “carrots” and “sticks”, which refers to incentives and disincentives, e.g. Denmark, Netherlands, South Korea, UK uses voluntary agreement and included in their respective legal frameworks, *Ibid*, p 37

¹⁷⁵ *Ibid*, p 41; CHP (also known as cogeneration) is the simultaneous generation of two or more useful products from the same combustion process; e.g. US, EU, India, (Maharashtra state introduced in 2002 new regulatory arrangements that provide incentives for owners of sugar mills and other CHP plant operations using biomass fuel) China, uses CHP and included in their respective legal frameworks

¹⁷⁶ Bradbrook, Adrian, *Energy Efficiency in Road Transport*, in: *UNEP Handbook*, *supra* note 153, pp 86-105

¹⁷⁷ *Energy Efficiency Policies, 2008*, *supra* note 14, p 26

Moreover, setting up a special institution, or giving responsibility for implementation and support of energy efficiency cases to an existing institution already established for other similar/related affairs varies from one country, state, or jurisdictions to another. In general, however, in order to ensure that they can work without too much variation it is important to consider when setting up such an institution of its independence from central government budgetary constraints. In Europe, for instance, many countries have a national energy efficiency agency; several countries have created a new agency since 2000, such as Germany and Norway¹⁷⁸ e.g. ENOVA of Norway was officially established by parliament on 22 June 2001.¹⁷⁹

These agencies¹⁸⁰ are usually public institution funded by the state budget and in developing countries are often supported by overseas technical assistance funds.¹⁸¹ The primary objectives of such institutions are to provide technical expertise to governments and consumers something that can not always be found in existing institutions.¹⁸² In addition, these agencies act as promoter of energy efficiency vis-à-vis energy companies, and as a coordinator of all governmental initiatives in the field of energy efficiency so as to avoid scattered and uncoordinated actions by different ministries.¹⁸³ On the other hand, in countries with federal or decentralized structure, such as US, India, Canada, Spain, Germany, etc. energy efficiency agencies have been set up at regional or local administrative level.¹⁸⁴

¹⁷⁸Ibid, p 38

¹⁷⁹*Energy Policies of IEA Countries*, *supra* note 149, p 34

¹⁸⁰An energy efficiency agency can be defined as: “a body with stronger technical skills, dedicated to implementing national energy efficiency policy and legal instruments”; *Energy Efficiency Policies, 2008*, *supra* note 13, p 38

¹⁸¹Ibid, p 39

¹⁸²Ibid, pp 39-40

¹⁸³Id

¹⁸⁴Id

Chapter IV

The Legal and Institutional Frameworks for Regulating Renewable Energy Resources in the Ethiopian Context

This chapter addresses four broad issues. These are: What are the main renewable energy resources most available in Ethiopia that could be used in transforming the society from traditional to modern energy utilization, especially to electricity? Can we conclude that the existing policy, legal, institutional, and regulatory tools as deficient and liable for the absence of any meaningful private sector participation in the generation of electricity? If so, what alternative policy, legal, institutional, and regulatory instruments are sought for correcting the deficiencies and enable to provide reliable, affordable, and safe modern energy to the society at large? What are the effects of government interference both in the operation and regulation of electricity industry of the country?

In order to treat these issues the chapter is divided into three sub-chapters. The first sub-chapter explains the legal, institutional, and regulatory frameworks in relation to hydropower as the main source of electricity; the second sub-chapter deals with the legal, institutional, and regulatory instruments in relation to bioenergy, solar, wind, and geothermal as source of electricity; and the third sub-chapter discusses on the effects of government interference both in the operation and regulation of the electricity industry of the country. Now let's discuss each sub-chapter separately.

4.1 Hydropower: Policy, Legal, Institutional, and Regulatory Frameworks

4.1.1 General

In the Ethiopian situations hydropower is one of the most abundant natural energy resources¹⁸⁵ with more than 45,000 MW potential.¹⁸⁶The classification of hydropower resources for the purpose of generating electricity in the Ethiopian context varies among

¹⁸⁵ Wolde-Giorgis, W., *Renewables and Rural Energy for Development in Ethiopia*; African Energy Policy Research Network (AFREPREN); June, 2002, p 47

¹⁸⁶ EEPKO 50th Year, May 2007, *supra* note 17, p 40

scholars.¹⁸⁷ For the purpose of convenience, however, I took the latest publication as the basis for the present study. Accordingly, hydropower resources for the generation of electricity can be classified into six categories¹⁸⁸. These are those hydropower with capacity limit of: 1) ≤ 10 KW which is called *Pico* hydro; 2) 11 KW – 500 KW *Micro* hydro; 3) 501 KW – 1000 KW *Mini* hydro; 4) 1 MW – 10 MW *Small* hydro; 5) 10 MW – 30 MW *Medium* hydro; and 6) above 30 MW *Large* scale hydro.¹⁸⁹ The main purpose of such classification is useful primarily to know the potential resource availability of the country and then formulate the right legal, institutional and regulatory instruments most suitable based on the classification and their utility as well.

Thus *Pico* hydropower serves few families with small size while *micro* hydropower supplies suit very well for small compact villages.¹⁹⁰ For example, the 5.5 KW unit of *pico* hydropower developed by EECMY in 2002 is supplying 50 households in Sire village;¹⁹¹ 170 KW *micro* hydropower developed by Sidamo Development Corporation in 2002 with the aid of Irish Development Co-operation and Austrian consulting companies is supplying for Yaye town.¹⁹² In addition the 350 KW Yadot, 800 KW Dembi, 5 MW

¹⁸⁷ See for example Wolde-Giorgis, W., *supra* note 184; *Energy Access Project, infra* note 187; Feibel, Hedi, *An Interdisciplinary Approach to the Dissemination of Mini and Micro Hydropower – the Case of Ethiopia*, PHD Dissertation der Technischen Universität Darmstadt, Germany, 2003, p 14

¹⁸⁸ _____; *Energy Access Project: Baseline Survey, Monitoring and Evaluation framework and Hydro Market Development Strategy*; a study conducted by IED in association with entec, and submitted to Ethiopian Electricity Agency, 28 May 2003; hereinafter called *Energy Access Project*, p 8

¹⁸⁹ Ibid; Others classified those hydropower plants into only, e.g. micro (1 KW-100 KW), mini (100 KW-1MW), and small-scale (100W-10KW) see Wolde-Giorgis W., in: *Renewables and Energy for Rural Development in Sub-Sahara Africa*, Mapako, Maxwell, & Mbewe, Abel (eds.), African Energy Policy Research Network (AFREPREN), 2004, p 237; all hydropower with less than 1 MW capacity as small hydro, see _____; *Off-grid Rural Electrification Master Plan Study*, Rural Electrification Executive Secretariat, June 2006, hereinafter *Off-grid Master Plan*, p 136

¹⁹⁰ **N.B.** Ordinary *ingera mitad* has the capacity to absorb 5 KW; *Energy Access Project, supra* note 187; On the other hand, as compared with *micro* hydropower *pico* hydro (< 10 KW) are said to be little concern for rural off-grid electrification due to the fact that potential areas in the country are very much limited; and see _____, *Some Remarks for the Necessity of the Introduction of a Feed-in Law for Electricity in Ethiopia*, p 2, a 32 pages (unpublished) analysis I found at GTZ office during my personal communication with Mr. Bart Jan van Beuzekom, AMES-E Technical Manager, on the feasibility of introducing Feed-in Tariff Law to Ethiopia and the German experience on the area. I am grateful to Mr. Bart Jan van Beuzekom for allowing me to have wide discussion on the issue and for making available all the relevant materials for further use

¹⁹¹ In general “Plants in the range of 5 - 20 kW are mainly designed to produce mechanical energy for mills and similar applications [while] systems with capacities above 20 KW can deliver mechanical energy for agro-processing as well as electrical energy for households, commercial and industrial purposes.” See Feibel, *supra* note 187, p 92

¹⁹² *Energy Access Project, supra* note 188, pp 8-27

Sor, and 11.4 MW Tis Abay I *micro, mini, small, medium* hydropower plants, respectively developed by EEPKO as parts of its SCS, and ICS (i.e. Tis Abay I) are serving wide areas with diverse population sizes based on the energy capacity generated.¹⁹³ However there is no practical experience found on those hydropower with capacity limits falling between 500 KW-10 MW developed by private investors¹⁹⁴, NGOs¹⁹⁵, cooperatives, etc. On the other hand, there are many large scale hydropower plants developed by EEPKO that range between 32 MW (Awash II & III each) to 184 MW (Gilgel Gibe I) with total installed capacity of 669.9 MW.¹⁹⁶ Usually *Pico, micro, & mini*-hydropower plants mainly use run-off river (i.e. no need for dam) and have minimal environment impact and at the same time usually they are suitable for off-grid rural electrification.¹⁹⁷

All these factual situations show us that EEPKO has a complete grip in the development of *mini, small, medium, and large scale* hydropower projects while private participation is very minimal and restricted only to a very few *pico* and *micro* hydropower developments. The main reasons usually propounded are that hydropower developments are: 1) capital intensive, i.e. “USD 800-3000/KW”¹⁹⁸ for *large scale* hydropower projects

¹⁹³ EEPKO 50th Year, *supra* note 17, p 41; *Energy Access Project, supra* note 188, pp 8-27; Other than these mentioned projects, within these capacity limits, there is no other operational hydropower plants developed either by private including NGOs or EEPKO, *albeit* it is repeatedly said that there are around 111-200 sites throughout Ethiopia identified, studied and found suitable for *pico, micro, mini & small* hydropower development; see also *Off-grid Master Plan, supra* note 189

¹⁹⁴ The motivation of investors is mainly profit and, in addition, the association of hydropower projects with different types of risks, e.g. hydrological, regulatory, political, etc. make the price of electricity from such investment expensive and not an attractive alternative unless other support mechanisms are found, e.g. investing in one's place of origin, etc.

¹⁹⁵ Primarily NGOs are not profit driven, e.g. EECMY and Sidama Development Corporation.

¹⁹⁶ Only 618.35 MW is said to be the dependable capacity; Also see EEPKO Facts in Brief, 2007; cursory review of the different documents of EEPKO shows that there are hydropower projects under construction intended to be operational within the next four years that includes Tekeze (300 MW), Beles (460 MW), G. Gibe II & III (420 MW & 1810 MW, respectively) and others, more than 22 hydropower projects, studied and programmed for construction from 2009-2026 with total installed capacity 13710 MW; See for example, _____, Ethiopian Electric Power Corporation: *Highlights on Power Sector Program (Generation and H.V. Transmission System [2009-2018 GC])*, June, 2008, pp 5-9; found at EEPKO Corporate Planning Dept.; EEPKO 50th Year, *supra* note 17, pp 40-44

¹⁹⁷ _____; *Technical and Economic Assessment of Off-Grid, Mini-Grid, and Grid Electrification Technologies*, Energy and Mining Sector Board The World Bank Group, Energy Sector Management Assistance Program (ESMAP), Technical Paper 121/07, December 2007, p 23

¹⁹⁸ Head, *supra* note 28, p 5

and more expensive for small-size due to absence of economies of scale;¹⁹⁹ 2) requirement of high technical and professional skills in the field of power sector development (mainly in the fields of engineering, economics, law, and accounting); 3) long construction period (i.e. 3-6 years); 4) associated with different types of risks, e.g. hydrological risk (e.g. drought, flood, etc.), geological risk (e.g. unforeseen ground conditions), political risk (e.g. change in law), market risk (e.g. if for one reason or another the single-buyer is unable to buy the electricity produced, i.e. termination of the PPA), etc.²⁰⁰ These are some of the general factual situations of hydropower resource of the country and the possible approach for its development. Now let's see policy, legal, regulatory, and institutional frameworks in relation to hydropower resource of the country, i.e. the gaps and its possible revision or amendments.

4.1.2 Policy framework

The National Economic Policy: The first policy framework that deals on energy resources in general and electricity in particular is the 1998 National Economic Policy of Ethiopia.²⁰¹ This policy instrument allowed for the first time for the private participation in the generation of electricity that includes *inter alia* hydropower resources of the country.²⁰² The other two important national policies and strategies that need special mention here are the Rural Development Policies and Strategies,²⁰³ and Industry Development Strategy.²⁰⁴ These two national policy & strategy documents stipulate *inter alia* the importance of producing electrical energy from renewable energy resources,

¹⁹⁹ For example, the project cost of Yadot micro hydropower is USD 1.7 million, i.e. more than USD 4857/KW, and that of Yaye is Eth. Birr 3 million, i.e. USD 2150/KW, see *Energy Access Project, supra* note 187, pp 22-25

²⁰⁰ Head, *supra* note 28, p 72

²⁰¹ _____; *Ethiopia's Economic Reforms for 1998/99-2000/1: (The Policy Framework Paper)*, Prepared by the Government of Ethiopia in Collaboration with the International Monetary Fund and the World Bank, September 28, 1998, hereinafter National Economy Policy Framework, p 32. This policy framework is the amended version of the November 1991 National Economy Policy, which is the first policy instrument since the downfall of *Derg* in 1991 and shifted the role of the Government in the economy from one of centrally planned based on the socialist ideology to market oriented led by mainly private sector. In addition, the 1991 National Economy Policy set the general principles for all sectoral and multi-sectoral policies drafted since that partly we will see hereinafter. However the 1991 National Economy Policy didn't mention about the possibility of private participation in power sector development.

²⁰² Ibid

²⁰³ Rural Development Policies & Strategies, Hidar (November) 2001, the Amharic version hereinafter Rural Development Policies & Strategies

²⁰⁴ Industry Development Strategy, Nehase (August) 2002, the Amharic version hereinafter Industry Development Strategy, 2002

especially from hydro, solar, and wind at both large-scale and “small- scale” levels to make a shift from traditional to modern energy usage and create conducive conditions for further productive development.²⁰⁵

The Energy Policy: The other important policy document that underscore on hydropower is the 1994 Energy Policy.²⁰⁶ This policy framework is favorably skewed towards the development of renewable energy resources of the country especially hydropower resource taking it as the most abundant resource of the country.²⁰⁷ Accordingly the policy gives high priority to hydropower resource development²⁰⁸ and takes it as the backbone of the country’s energy sector development strategy²⁰⁹. Nevertheless, the policy is not supported by detail strategies that could clarify and put important target to accomplish the general policy frameworks. Hence, in order to accommodate important changes made in the country in the last fifteen years the policy needs updating and appropriate revision.

Water Resource Management Policy: The existing Ethiopian Water Resource Management Policy has important parts dealing on hydropower. This policy instrument primarily ensures that hydropower development is an integral part of the multipurpose use of water.²¹⁰ To accomplish its primary aim the policy stipulates that there should be short term, medium term, and long term sequence for the development of hydropower resources.²¹¹ In addition, the policy gives due emphasis on local capacity building in order to enable domestic stakeholders to carryout hydropower projects.²¹²

Environmental Policy: The current Environmental Policy of Ethiopia stresses its concern that the modern energy sector, as one of the least developed in the world, to be responsible for the 90 per cent of the needs of energy to be met through traditional energy

²⁰⁵ Rural Development Policies & Strategies, pp 103 & 231-232; and Industry Development Strategy, pp 157-159

²⁰⁶ Energy Policy of the Transitional Government of Ethiopia, Ministry of Mines and Energy, May 1994, hereinafter Energy Policy

²⁰⁷ Ibid, introductory statements

²⁰⁸ Ibid, Art 5(1) & 4(1)

²⁰⁹ Ibid, Art 6(1.3)

²¹⁰ Ethiopian Water Resources Management Policy, the Federal Democratic Republic of Ethiopia, Ministry of Water resources, hereinafter Water Resources Management Policy, Art 2(3.3.3.1)

²¹¹ Ibid, Art 2(3.3.3.4)

²¹² Ibid, Art 2(2.3.3.3.7, 8, & 9)

resources, i.e. biomass fuels particularly wood, charcoal, and animal dung.²¹³ The policy highlighted that hydropower plays an important role in meeting Ethiopia's energy demand and at the same time highlights that hydropower *per se* causes no harm to the environment.²¹⁴ However, the Policy emphasizes that, in order to eliminate or at least minimize damage on natural resources base and/or environmental well-being, hydropower development should comply rigorous environmental assessment procedures.²¹⁵

These are some of the important policy and strategy instruments that underscore hydropower as one of the most abundant environmental friendly energy resources of the country. Moreover all these policy documents emphasized that hydropower resources of the country should be developed both by government and private sector investments. One important strategy element suggested in the Industry Development Strategy is that such investment in renewable energies especially in solar, wind, and "small" hydropower in rural areas should be based on "cost recovery" principles.²¹⁶ Accordingly in order to implement the strategy different types of approaches have to be sought that are tested and found effective in different parts of the world that is compatible with the country's peculiar conditions. For example, the two main support mechanisms applied in other countries of the world to promote renewable energy resources for the generation of electricity are RPS and FIT law. Of course, tax and investment incentive, investment cost recovery, grants, etc. are the other methods that could also be used, in addition to, or separately from, the above two mechanisms.²¹⁷ This is one of the important areas that the future national energy policy & strategy needs to deal with in detail.

4.1.3 Legal framework

Usually in federally structured countries like Ethiopia energy resources legal framework principles emanate from the constitution itself. This is because that there are elements that need treatment both at the federal and state level. For example, large scale generation

²¹³ The 1997 Environmental Policy of Ethiopia, Preamble, the FDRE Environmental Authority, hereinafter Environmental Policy

²¹⁴ Ibid, Art 3(5g)

²¹⁵ Ibid, Art 3(5e)

²¹⁶ Industry Development Strategy, p 157

²¹⁷ See footnote 119 and accompanying texts

of electricity from hydropower sources constructed by federal budget,²¹⁸ electricity distribution network crossing two or more states, and high power transmission of electricity through the “national grid”,²¹⁹ etc need federal legal and regulatory frameworks while others that can be dealt by a state can easily be handled at state level. This is the main reason that countries with federal structure, such as India²²⁰ and Nigeria²²¹ included electricity as a concurrent legislative list in their respective constitution.

The 1995 FDRE Constitution,²²² however, doesn't mention anything about energy in general and electricity in particular, i.e. energy related matters are neither included in the powers and functions of the federal government²²³, nor that of States²²⁴. Since “powers not given expressly to the federal government alone, or concurrently to the federal government and the states are reserved to the states”²²⁵. Thus, the federal government's different energy related laws (i.e. proclamations, regulations, directives, etc.) can be taken as unconstitutional.²²⁶ In other words, constitutionally, states are the only organs that have complete power on energy related legal and regulatory aspects. In sum, one can easily argue that the existing factual situation whereby enacting the different laws and establishing organs pertaining to energy/electricity matters at federal level does not comply with the 1995 FDRE Constitution.²²⁷

²¹⁸ Definition of Powers and Duties of the Executive Organs of the Federal Democratic Republic of Ethiopia Proclamation No.471/2005, *Federal Negarit Gazeta*, 12th Year No. 1, 17th November 2005, Art 27(6)

²¹⁹ Electricity Proclamation No. 86/1997, *Federal Negarit Gazeta*, 3rd Year No. 50, 7th July 1997, hereinafter Electricity Proclamation; Art 17(1) of the Proclamation provides that “*The Government may, by notification, specify any transmission line having not less than 132 KW as national grid.*”

²²⁰ See footnote 92 and accompanying texts of Chapter III

²²¹ GTZ AMES-E, *supra* note 131, p 253

²²² Constitution of the Federal Democratic Republic of Ethiopia Proclamation No. 1/1995, *Federal Negarit Gazeta*, 1st Year No. 1, 21st August 1995, hereinafter the FDRE Constitution

²²³ *Ibid*, Art 51

²²⁴ *Ibid*, Art 52

²²⁵ *Ibid*, Art 52(1)

²²⁶ For example see Art 51(9) of the FDRE Constitution, which provides “...the development, administration, and regulation of air, rail, waterways and sea transport and major roads linking two or more States, as well as for postal and telecommunication services.” are the responsibility of the federal Government.

²²⁷ For example, Electricity Proclamation established the EEA as a federal organ and laid down the legal framework for regulating the electricity industry of the country; Proclamation No. 269/2002 established the EREDPC as a federal organ for developing and promoting energy related technologies suitable for the rural community; Proclamation No. 317/2003 that established the REF as a federal organ to provide

Thus, in order to maintain the status quo, especially energy legal and regulatory frameworks at the federal level, the Constitution has to be amended and include energy/electricity in the concurrent legislative list (possibly new article) of the Constitution. On the other hand, the federal government has constitutional power and function to determine and administer the utilization of the waters, rivers and lakes linking two or more states or crossing the boundaries of the national territorial jurisdiction.²²⁸

When we come to the different legislations first we get Proclamation No. 471/2005²²⁹, which defines the powers and duties of the executive organs of the federal government whereby MOME is authorized to undertake studies concerning the development and utilization of energy, and cause the expansion of the energy development of the country²³⁰. In addition, Investment Proclamation²³¹ allowed private investors (i.e. both domestic and foreign) to participate in the generation of electricity using all renewable energy resources that includes hydropower.²³²

Electricity Proclamation that established the EEA as an “economic regulator” laid down the different legal frameworks appropriate for regulating the electricity industry of the country. These includes *inter alia*:

- supervise and ensure that the generation, transmission, distribution and sale of electricity are carried out in accordance with the Proclamation as well as regulation and directives issued thereunder;
- determine the quality and standard of electricity services and ensure the implementation thereof;
- issue certificate of professional competence to electrical contractors;

financial support and technical assistance for rural electrification; Ethiopian Electric Power Corporation Establishment Regulation No 18/1997, *Federal Negari Gazeta*, 3rd Year No 51, 7th July 1997 hereinafter EEPCO establishment Regulation, etc.

²²⁸ FDRE Constitution, Art 51(11)

²²⁹ Definition of Powers and Duties of the Executive Organs of the Federal Democratic Republic of Ethiopia Proclamation No.471/2005

²³⁰ Ibid, Art 31(1 & 5)

²³¹ Investment Proclamation No. 280/2002, *Federal Negarit Gazeta*, 8th Year No. 27, 2nd July, 2002

²³² Ibid; It is to be noted that pursuant to Art 5(1a) of the Proclamation only transmission and supply of electrical energy through the Integrated National Grid System is the area of investment reserved for the Government.

- issue, suspend and revoke license for the generation, transmission, distribution and sale of electricity in accordance with the Proclamation as well as regulation and directives issued thereby;
- study and recommend a tariff and upon approval supervise the implementation thereof.²³³

As far as electricity generation from hydropower source is concerned it is the EEA that issue licenses.²³⁴ Accordingly, based on the life of the project, the duration²³⁵ of the license can be for forty years of operation with possibilities of renewals, though²³⁶. Of course, getting water use permit from the MOWR or its designated supervising body is the other mandatory requirement before starting any hydropower construction for the generation of electricity purposes.²³⁷ It should be noted that use of water for hydropower purpose is only to move the turbine and after doing so the water will be released to join its normal course. Thus, the argument propounded here is that use of water for generating electrical energy should be made free from water use charges as had been provided under Art 26 of the Electricity Proclamation. The other important legal framework in the electricity generation at *pico*, *micro*, and *mini* hydropower level, especially in the rural areas, is the REF secretariat,²³⁸ which has powers and duties to, *inter alia*, give loans to concerned off-grid electricity developers and suppliers for rural communities.²³⁹

4.1.4 Regulatory framework

We have said that Ethiopia has abundant hydropower resources most suitable for making a shift from traditional energies to modern energy utilization through electricity. But the

²³³ Electricity Proclamation, Art 6(1, 2, 3, 4 & 5)

²³⁴ Ibid, Art 6(4)

²³⁵ Ibid, Art 18(1a)

²³⁶ Ibid Art 18(3 & 4)

²³⁷ Ethiopian Water Resources Management Proclamation No. 197/2000, *Federal Negari Gazeta*, 6th Year No. 25, 9th March 2000, hereinafter Ethiopian Water Resources Management Proclamation, Art 11(1a); Pursuant to Art 31 of the Regulation, Water Resource Management Regulation No 115/2005, *Federal Negarit Gazeta*, 11th Year No 27, 29th March, 2005 hereinafter Water Resource Management Regulation, charges for use of water shall be determined by the Council of Ministers. However, before these water resources management laws it was the EEA, representing the concerned authority, that was empowered to issue the required water use permit, see Electricity Proclamation, Art 26

²³⁸ Rural Electrification Fund Establishment Proclamation No. 317/2003, *Federal Negarit Gazeta*, 9th Year No. 35, 6th February 2003

²³⁹ Ibid, Art 10

issue that arises here and needs answer is: What type of regulatory framework is most appropriate to make wise use of this abundant natural resource for modern energy utilization for the general public?

In federally structured countries like Ethiopia, establishment of dual regulatory system is a necessary requirement for the proper administration and utilization of hydropower resources, especially for modern energies. Thus, at the federal level we find two government organs legally authorized to regulate hydropower resources of the country, MOWR, and the SBEWRM. By the same token nearly all regional states have water resource bureaus or related organs²⁴⁰ empowered to undertake water resources related regulatory activities in the respective states level. Moreover, in order to use hydropower for the purposes of generating electricity getting water use permit either from the MOWR or the delegated supervising authority²⁴¹, or regional states water bureaus, as may be appropriate, is a mandatory requirement.

The other equally important points to be raised here are the question of the rights of riparian and land use in the generation of electricity from hydropower particularly at “small-scale” level.²⁴² Accordingly as far as water use permit is concerned Art 1244 of the Civil Code²⁴³ provides: “only those undertakings which have been granted a concession by the competent authority may do work on rivers with a view to distributing, or selling hydraulic power.” The issue of identifying competent authority to grant concession or “exclusive license” may vary and sometimes be difficult to solve the problem especially when conflicting interests are involved.

²⁴⁰ See the different organizational structures of states at *infra* note 374 and associated texts

²⁴¹ See Ethiopian Water Resources Management Proclamation, Art 11(1a) and Water Resource Management Regulation, Art 31

²⁴² This is because mainly at this level run-off rivers could be used. On the other hand if dams will be used detail environmental impact assessment must be prepared based on the appropriate laws, e.g. Environmental Impact Assessment Proclamation No 299/2002, *Federal Negarit Gazeta*, 9th Year No 11, 3rd December 2002; Electricity Operations Regulation, Art 3(1c & 3), that may include relocation of the affected residents; see also Expropriation of Landholdings for Public Purposes and Payment of Compensation Proclamation No 455/2005, *Federal Negarit Gazeta*, 11th Year No 43, 15th July, 2005, Art 3

²⁴³ Civil Code of the Empire of Ethiopia Proclamation No 165/1960, *Negarit Gazeta*, 19th Year No 2, 5th May 1960

For example, MOWR and Ethiopian Environment Agency may be taken as competent authorities in providing concession or issuing “exclusive licenses” related to hydropower development on trans-boundary rivers between/among states. By the same token states water and environmental bureaus may be taken as competent authorities to grant concession or “exclusive license” on local or non-trans-boundary rivers. In addition, EEA could also be taken as competent authority in issuing licenses²⁴⁴ for the generation of electricity from hydropower sources from both local and trans-boundary rivers. In such situation identifying the relevant competent authority among these different federal and regional state institutions needs careful analysis of the legal and local interests involved in each individual case and avoids or reduces possible conflict of interests.

Moreover, land and all natural resources are taken as exclusive property of the state and the peoples of Ethiopia.²⁴⁵ As regards land, rural or urban administrators or other appropriate higher regional or federal government organs, upon payment in advance of compensation, are empowered to expropriate rural or urban landholdings for public interest purposes.²⁴⁶ Of course, such investments related with public purposes could be carried out by public entities, private investors, cooperative societies or other relevant organs.²⁴⁷ Since electricity generation, transmission and distribution activities are one of public utility/service activities²⁴⁸ land related issues of the industry are also covered under this proclamation. This same proclamation also contains various provisions in relation to the determination of compensation to the displaced persons.²⁴⁹

On the other hand, Ethiopia is endowed with hydropower resources suitable for *large-scale*, “small-scale” (i.e. *pico*, *micro*, *mini*, *small*), and *medium* sized power generation that are unevenly distributed throughout the different parts of the country.²⁵⁰

²⁴⁴ The power of EEA is to issue license, i.e. do not include granting of concession or “exclusive license”

²⁴⁵ FDRE Constitution, Art 40(3)

²⁴⁶ Expropriation of Landholdings for Public Purposes and Payment of Compensation Proclamation No 455/2005, Art 3(1) hereinafter Compensation for Expropriation of Landholdings Proclamation

²⁴⁷ Ibid

²⁴⁸ See FDRE Constitution Art 40(8) & C. C. Art 1463

²⁴⁹ Compensation for Expropriation of Landholdings Proclamation, Arts 7-11

²⁵⁰ According to one scholar “careful” estimation it is suggested that in addition to large-scale hydropower projects there are more than 5000 potential sites for “small-scale” hydropower projects. See Fekadu Shewarega; *Micro Hydropower – Current Constraints and Future Prospects*; in: Ethiopian Journal of Electrical Engineers, Vol. 1 No 1, June 2000

Nevertheless, in the energy sector we find a single regulatory organ established only at the federal level, i.e. we do not find corresponding electricity regulatory institutions at state level. Moreover, EEA is the only federal organ empowered to regulate the electricity industry of the country at both federal and state levels.

The EEA is established both as economic and technical regulator of the electricity industries of the country. The two most important areas of regulatory activities of the EEA are: 1) licensing; and 2) tariff study and upon approval its implementation. Regarding its licensing authority the EEA has the power to issue, suspend and revoke license for the generation, transmission, distribution and sale of electricity in accordance with the electricity laws (i.e. Electricity Proclamation as well as regulations and directives issued thereunder).²⁵¹ Accordingly, an applicant for license is required to submit to EEA, *inter alia*,

- feasibility study of the project (i.e. social and economic impacts, estimated costs and returns of the project, duration of the project, and construction and installation program and commencement date of the project);²⁵²
- environment impact assessment (i.e. all potential damages to the environment along with mitigation, restoration or reclamation plan including resettlement program for displaced residents, and its estimated costs of implementation of the plans);²⁵³
- documents showing the applicant's financial situation, technical competence and experience,²⁵⁴
- construction and installation design;²⁵⁵

²⁵¹ Electricity Proclamation, Art 6(4); In addition, pursuant to Art 11 of the amended Investment Proclamation, Investment (Amendment) Proclamation No 375/2003, *Federal Negarit Gazeta*, 10th Year No 8, 28th October, 2003, the EEA is mandated to issue, renew, and cancel investment permits in relation with the generation, transmission, distribution and sale of electrical energy.

²⁵² Electricity Operations Council of Ministers Regulation No. 49/1999, *Federal Negarit Gazeta*, 5th Year No. 52, 20th May, 1999, hereinafter Electricity Operation Regulation, Art 3(1b, & 2)

²⁵³ Ibid, Art 3(1c) Nevertheless, currently environment impact assessment is given to Ethiopian Environment Authority or regional environmental agencies, as may be appropriate; See Environmental Impact Assessment Proclamation, Arts 3, 4, & 5

²⁵⁴ Electricity Operations Regulation, Art 3(1d)

²⁵⁵ Ibid, Art 3(1e)

of course, including payment of fees for the publication on two successive issues of newspapers which have wider circulation in the country, and advertisements to be announced on the Radio and TV for three consecutive days²⁵⁶.

All these mandatory licensing requirements need high financial, time, technical & professional resources which may be beyond the ability of the applicant to bear it. For example, a person living in a remote rural area who wants to generate electricity to provide for a small village from a local small run-off river with an installed capacity of 2 KW is required to travel to Addis Ababa to get a license for the generation, and possibly distribution & sale of electricity to be issued by EEA. In addition the applicant is required to submit, together with his application, the above mentioned documents usually prepared by appropriate professionals that need costs, may be, above the investment cost of the project. These criteria *albeit* appropriate for large-scale power generation are not equally important for “small-scale”, particularly at *pico* and *micro* level electricity generation mainly using run-off rivers. In sum, dual regulatory framework should be devised so that states will be able to frame their legal and regulatory frameworks based on their peculiar situations, e.g. resource availability, marketability of the generated electricity, etc. Hence, EEA’s regulatory activities have to be restricted to cases handled only at federal level.

On the other hand, as regards tariff setting, the EEA does not have the power to decide the tariff of electricity on its own. The authority of EEA is restricted only to study and recommend the price of electricity and upon approval to supervise its implementation.²⁵⁷ If this is so, one can safely say that EEA is not a “pure” economic regulator in the strict meaning of the term. However, Part IV of Electricity Operations Regulation provides the general principles and mechanisms of studying and deciding electricity tariffs.²⁵⁸ In addition, EEA is mandated to issue detailed pricing procedure found appropriate to determine electricity tariff.²⁵⁹ From all these provisions one can argue that it will be much better to give full power to EEA not only to study and recommend the tariff of electricity but also to decide electricity tariffs based on the general principles provided under the

²⁵⁶ Ibid, Art 9(1 & 3)

²⁵⁷ Ibid, Art 6(5)

²⁵⁸ Ibid, Arts 26-34

²⁵⁹ Ibid, Art 32(2)

above mentioned electricity legal frameworks. Doing so will give additional confidence to investors on the independence of EEA as economic regulator which has its own positive effect in attracting private investment in the sector.

4.1.5 Institutional framework

The experiences of both developed and developing countries show that the credibility and success of a regulatory framework depends on the strength of concerned institutional instruments.²⁶⁰ In other words the strengths and weaknesses of institutional frameworks have their own determining factors on the success and failure of regulatory frameworks. Hence, in order to make a shift from traditional energy utilization to modern energies, electricity, through hydropower resources the country needs not only dual regulatory framework (i.e. both at federal and state levels) but also the institutional instruments which are strong, credible, and, of course, sustainable.

Institutional frameworks can be seen from two different perspectives. The *first* aspect relates to the different bureaucratic institutions established by governments both at federal and state levels to realize their objectives on the basis of the available policy and legal frameworks including relevant NGOs destined for the development of the resource. The *second* institutional instrument relates to the different organizational forms used for investors' participation in hydropower for the production of electricity, i.e. it may be based on the existing Com C²⁶¹ or Co-operative Societies laws.²⁶² In order to clearly understand the different features of these two institutional frameworks let's see each institutional instrument separately.

Governmental, and NGO institutional instruments: Apart from the different federal and state government institutions mentioned in the above regulatory framework part of the study there are other institutions that play great role in relation with the design, planning,

²⁶⁰ Levy, B and Spiller P.T.; *The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunication Regulation*, Journal of Law Economics and Organization, V 10, No. 2, (1994), p 202

²⁶¹ Commercial Code of the Empire of Ethiopia, Proclamation No. 166/1960, *Negarit Gazeta*, 19th Year, No. 3, 5th May 1960

²⁶² Cooperative Society Proclamation No 147/1998, *Federal Negarit Gazeta*, 5th Year No 27, 29th December 1998 hereinafter Cooperative Society Proclamation hereinafter Cooperative Society Proclamation

financing, and development of hydropower resources for the generation of electricity. Among such institutions we find, states energy bureaus of, EEPCO, federal and states Investment Agencies, REF, EREDPC,²⁶³ Professional & Civil Society Institutions,²⁶⁴ STVC,²⁶⁵ etc.

As regards the utilization of hydropower resources of the country for modern energies we can classify the activities of these institutions into three categories. In the *first* category we find those institutions involved with large-scale planning and development that include: MOWR and EEPCO; in the *second* category we find those institutions involved in the planning, design, financing, development and manufacturing of necessary equipments at “small-scale” level, i.e. *pico*, *micro*, *mini*, and *small* that include: states’ water and energy bureaus and investment agencies, REF, EREDPC, Professional & Civil Society Institutions, STVC; and in the *third* category we find institutions involved in both “small-scale” and large-scale aspects of hydropower, i.e. EEA and EEPCO. Institutions like MOME, MOWR, EEA, EEPCO, REF, and EREDPC are established at federal level, while those water and energy bureaus, and investment agencies at state level; and others are NGOs established and working at both federal and state levels. Thus our next discussion bases on this classification.

EEPCO is the only federal government corporatized utility involved in the development of electricity through large-scale hydropower resources. 99 per cent of EEPCO’s current installed capacity in electricity generation (i.e. 767 MW) is based on hydropower resources mainly through large-scale generations.²⁶⁶ From the recently updated power system master plan²⁶⁷ it becomes evident that EEPCO’s main source of electrical energy

²⁶³ Ethiopian Rural Energy Development and Promotion Center Proclamation No. 269/2002, *Federal Negarit Gazeta*, 8th Year No. 16, 31st January, 2002 hereinafter EREDPC Proclamation

²⁶⁴ Regarding Professional Societies (e.g. Electrical, Mechanical, Economics, etc Professional Societies), and Civil Societies (e.g. Consumer, Saving and Credit, Agricultural Cooperatives, etc. Societies) could play great role in the field

²⁶⁵ STVC developed good experience in the manufacturing of turbines, drives and steel penstocks for church related clients and rural communities; see *Energy Access Project*, *supra* note 3, p 23

²⁶⁶ EEPCO Facts in Brief 2007, Addis Ababa, March 2008

²⁶⁷ _____, Ethiopian Electric Power Corporation: *Highlights on Power Sector Program (Generation and H.V. Transmission System [2009-2018 G.C.]*), i.e. Ethiopian Power Systems Expansion Master Plan Update (EPSEMPU), June, 2008

in the future is based on large-scale hydropower resources.²⁶⁸ Accordingly, in the year 2026 GC, EEPKO planned to make the installed capacity of electricity of the country 13958 MW, which is near wholly based on large-scale hydropower sources.²⁶⁹ Feasibility studies of these large-scale hydropower sources are prepared only by the MOWR.²⁷⁰

On the other hand, generation of electricity from “small-scale” hydropower sources both by EEPKO and private sector (including NGOs, Cooperatives, etc.) is insignificant. In other words not more than 6326 KW installed capacity of electricity is developed from which EEPKO developed 6150 KW of electricity. The two NGOs, EECMY and Sidamo Development Corporation, developed the remaining 175.5 KW installed capacity, i.e. 5.5 KW unit of *pico* and 170 KW *micro* hydropower, respectively. In addition, from 137 micro hydropower projects submitted to REF Secretariat for loan only 2 pico hydropower projects are in the process of disbursement from the trust agent, i.e. DBE.²⁷¹ Otherwise, currently there is no registered private investment in the generation of electricity from both large-scale and “small-scale” hydropower sources *albeit* the country has more than 45000 MW hydropower potential. However, the involvement of STVC in manufacturing of turbines, drives and steel penstocks and supplying to EECMY for its development of *pico* hydropower,²⁷² is encouraging and has to be supported by concerned institutions.

Investors’ organizational forms: The definition of organizational forms here should be understood only to the legal aspect of the term as provided in the different laws of the country, e.g. Com C, Co-operatives, etc. Accordingly, there are six forms of business organizations under the Com C, i.e. 1) ordinary partnership; 2) joint venture; 3) general partnership; 4) limited partnership; 5) share company; 6) private limited company.²⁷³ On the other hand, provisions applicable to cooperative societies are provided in other special laws.²⁷⁴ Thus, pursuant to the Com C persons who professionally and for gain

²⁶⁸ Ibid, pp 5-9; see also Annex IV

²⁶⁹ Id

²⁷⁰ Personal communication with Planning Departments of the MOWR and EEPKO, respectively, however, for “small-scale” hydropower projects the authority mainly lies on energy bureaus of regional states.

²⁷¹ _____; Rural Electrification Executive Secretariat, *Status of Rural Electrification Fund Project Activities*, August 2, 2008; and personal communication with Ato Amare Hadgu, Coordinator of the REFAS

²⁷² *Energy Access Project*, *supra* note 188, p 23

²⁷³ Com C , Art 212(1)

²⁷⁴ Ibid, Art 212(2), and see Cooperative Society Proclamation

produces, distributes and supply electricity shall be deemed as traders.²⁷⁵ Commercial organizations engaged in such activities of producing, distributing and supply of electricity are always deemed to be of a commercial nature,²⁷⁶ which needs to be licensed,²⁷⁷ and registered²⁷⁸. In order to choose the right alternative among the different organizational forms of the Com C for the purposes of electricity generation, distribution and supply activities let's see the main features of each one separately and briefly.

Ordinary partnerships: In principle ordinary partnership is taken as a mere partnership with no power to carryout trade activities, otherwise will be taken as general partnership.²⁷⁹ Accordingly ordinary partnership is not a suitable form of business organization for the generation and supply of electricity from hydropower sources for commercial activities as provided in the Com C.

Joint Venture: Pursuant to Art 271 of the Com C joint venture is nothing but a partnership agreement made between partners. The main characteristics of joint venture are *inter alia*: 1) not made known to third parties;²⁸⁰ 2) need not be in writing, nor registered, nor published;²⁸¹ 3) does not have legal personality;²⁸² 4) can not issue negotiable instruments²⁸³. In principle every partner owns his contribution and where no manager is appointed the management of the venture lies to all the partners. These special features of joint venture may not place it in a preferred position in the generation and supply of electricity from hydropower sources, which is capital intensive type of investment, that requires many elements not found in joint venture mode of business organization.

General partnership: The salient features of general partnership are that *inter alia*: 1) partners are personally, jointly, severally and fully liable as between themselves and to the partnership for the undertakings of the partnership,²⁸⁴ 2) in commercial partnership

²⁷⁵ Com C , Art 5(13)

²⁷⁶ Ibid, Art 10(1)

²⁷⁷ Electricity Proclamation, Art 10(1)

²⁷⁸ Com C, Art 100(1)

²⁷⁹ Ibid, Arts 227 & 255

²⁸⁰ Ibid, Art 272(1)

²⁸¹ Ibid, Art 272(2)

²⁸² Ibid, Art 272(3)

²⁸³ Ibid, Art 274(1)

²⁸⁴ Ibid, Art 280(1)

mode each partner shall have the status of a trader,²⁸⁵3) where no manager is appointed, each partner shall be a manager.²⁸⁶This means in general partnership each partner has wider rights and duties in relation with the undertakings of the partnership, which may be suitable for some types of investments like *pico* while for others including *micro*, *mini*, *small*, *medium* and large-scale hydropower development might not be suitable on the same reason as stated in the above joint venture discussion.

Limited partnership: Pursuant to Art 296 of the Com C a limited partnership comprises two types of partners. Accordingly *general partners* are fully liable personally, jointly and severally while *limited partners* are only liable to the extent of their contribution. If a limited partner acts as a manager his liability shall be the same as that of general partner.²⁸⁷ In limited partnership form of business organization general partners in addition to their rights and obligations as partners in general partnership may be appointed as managers.²⁸⁸Limited partners may inspect the books of the firm and may call for the account.²⁸⁹ In addition, unless the manager/s and the majority of limited partners agree shares may not be assigned.²⁹⁰ Of course, one may argue that limited partnership mode of business organization can be used for *pico*, *micro* and *mini* hydropower developments, but, I believe, it is very difficult to use it for megawatt level power generation on the same reason provided in the above two discussions.

Share company: According to Art 304 of the Com C a share company's capital is fixed in advance and divided into shares. It has its own legal personality. Members are liable to the extent of their shareholdings, i.e. liabilities are met only by the assets of the company²⁹¹. Membership and minimum capital of a share company shall not be less than five²⁹² and fifty thousand Eth Birr²⁹³, respectively. A share company may be formed

²⁸⁵ Ibid, Art 280(2)

²⁸⁶ Ibid, Art 287(2)

²⁸⁷ Ibid, Art 301(3)

²⁸⁸ Ibid, Art 300

²⁸⁹ Ibid, Art 301(6)

²⁹⁰ Ibid, Art 302

²⁹¹ "Piercing the corporate veil" doctrine in which directors may be held liable towards third party creditors where the directors have failed to preserve intact the assets of the company is an exception to corporate limited liability; Ibid, Art 366

²⁹² Ibid, Art 307(1)

²⁹³ Ibid, Art 306(1)

either among the founders,²⁹⁴ or by public subscription²⁹⁵ to be made through prospectus²⁹⁶. Shares may either be registered in the name of the shareholder (i.e. where bearer shares are prohibited by law, the memorandum or articles of association), or to bearer (i.e. that can be transferred by delivery without any other requirement).²⁹⁷ The memorandum of association may also provide several classes of shares with different rights²⁹⁸ *inter alia* preference shares²⁹⁹ and dividend shares³⁰⁰ are taken as the main ones.

A share company shall have 3-12 member board of directors who elects the chairman and appoint the general manager and the secretary.³⁰¹ The general meeting shall also elect one or more auditors and assistant auditors,³⁰² whose main functions are *inter alia* to audit the books and securities of the company, to verify the correctness and accuracy of the inventories, balance sheets and profit and loss accounts, and submit same for annual general meetings.³⁰³ In addition, based on the issues involved and the manner of calling, meetings of shareholders may be ordinary, extraordinary, or special.³⁰⁴ The Com C also contains detail provisions on debentures, accounts, amendments to the memorandum and articles of association, and dissolution and winding-up. The above brief discussion show that share company could be one of the ideal and best alternative in the area of electricity generation from hydropower sources for commercial purposes that requires huge capital for which public participation is paramount.

Private limited company: Members of a plc shall not be less than two or more than fifty and are liable to the extent of their shareholdings.³⁰⁵ The capital of a plc shall not be less than fifteen thousand Eth Birr, always commercial in form, but barred from issuing any

²⁹⁴ Ibid, Art 316, also known as closed share company

²⁹⁵ Ibid, Art 317

²⁹⁶ Ibid, Art 318

²⁹⁷ Ibid, Arts 325(1 & 2), and 340(1)

²⁹⁸ Ibid, Art 335(1); "All shares of the same class shall have the same par value and the same rights" *Id*, (2)

²⁹⁹ Ibid, Art 336(1); Such shares enjoy a preference over other shares, such as a preferred right of subscription in the event of future issues, or rights of priority over profits, or assets or both, *Id*

³⁰⁰ Ibid, Art 337(1); Note that these are shares bought using either dividends or reserve funds without however reducing the capital of the company

³⁰¹ Ibid, Arts 347-67

³⁰² Ibid, Arts 368(1)

³⁰³ Ibid, Arts 374 & 375

³⁰⁴ Ibid, Arts 388-428

³⁰⁵ Ibid, Art 510(1 & 2)

form of transferable securities.³⁰⁶ At a minimum the amount of a share shall have ten Eth Birr with equal value and a member may hold more than one share.³⁰⁷ Share transfer between members is not restricted while share transfer outside the company shall be approved by majority members representing three-quarter of the capital.³⁰⁸ The management of a plc is taken by one or more managers who may be members.³⁰⁹ Where there are twenty or more members, decisions shall be taken at meetings of the members and auditors be appointed.³¹⁰

Due to various reasons that may include establishment and management simplicity nowadays ninety per cent of business organizations in Ethiopia take plc form.³¹¹ Plc could be taken as one of the options for those who wish to invest in the generation of electricity from hydropower sources particularly at “small-scale” level. On the other hand, generation of electricity from hydropower sources at large-scale level through plc needs due care and study to avoid possible difficulties inherent in plc mode of business organization.

Co-operative societies: Cooperative societies are established by individuals on voluntary basis with similar needs for creating savings and mutual assistance among themselves by pooling their resources, knowledge and property that are necessary to enable them to participate actively in the free market economy system.³¹² Hence cooperative societies could be established at federal or state levels and engaged in either production or service rendering activities, but at any time with not less than ten members.³¹³ Every cooperative society is required to have its own by-law and legal personality to be effective upon registration by appropriate authority.³¹⁴ In general the liability of cooperative society is limited, i.e. every cooperative society shall not be liable beyond its total assets.³¹⁵ Every

³⁰⁶ Ibid, Arts 512(1) and 511(3)

³⁰⁷ Ibid Art 512(2 & 3)

³⁰⁸ Ibid, Art 523(1)

³⁰⁹ Ibid, Arts 525(1) and 527(1)

³¹⁰ Ibid, Art 525(2)

³¹¹ Booz Allen Hamilton, *Ethiopia Commercial Law & Institutional Reform and Trade Diagnostic*, United States Agency for International Development (USAID), January 2007, p 19

³¹² Preamble of the Cooperative Societies Proclamation

³¹³ Cooperative Societies Proclamation, Arts 7(1) and 6(1 & 3)

³¹⁴ Ibid, Arts 7(2), 11, 10(1) and 9

³¹⁵ Ibid, Art 10(2)

member has only one vote and the right *inter alia* to obtain services and benefits according to his/her participation in the society, to elect and be elected.³¹⁶

As regards the management of cooperative societies it is provided that every cooperative society shall have a general assembly (i.e. as a supreme organ), management and control committees, and, in addition other sub-committees that may be established pursuant to the by-laws of the society.³¹⁷ Cooperative societies are exempted from trade licenses in their business activities.³¹⁸ Shares can only be sold to member and non-members (i.e. only when a society faces shortage of capital) after securing the decision of the general assembly.³¹⁹ This general overview exhibits that cooperative societies could be taken as one alternative in the generation and supply of electricity projects from hydropower sources mainly at *pico*, *micro* and *mini* levels especially in rural areas of the country.

We have seen summarily the different organizational options available under the Ethiopian legal frameworks for the development of our abundant hydropower potentials both at large-scale and “small-scale” levels. Some of the organizational options mentioned seem more suitable for “small-scale” like for instance, cooperative society, limited partnership while others such as share company and plc can be used for both large-scale and “small-scale” hydropower development for the generation of electricity. The main reason for the emphasis given to the organizational/institutional aspect is that energy resource developments especially electricity generation from hydropower sources are not only capital intensive but also associated with different types of risks that requires the involvement of many stakeholders suitable both for spreading of the risks to those better able to manage it and that of financing.³²⁰

Empirical studies of some developing countries, e.g. Nepal, Philippines, Bangladesh, Uganda, etc. show us that cooperative societies played great role particularly in rural

³¹⁶ Ibid, Arts 18(1) and 14(1)

³¹⁷ Ibid, Arts 20-27

³¹⁸ Cooperative Societies (Amendment) Proclamation No 402/2004, *Federal Negarit Gazeta*, 10th Year No 43, 11th May, 2004, Art 9(6) which provides “Any cooperative society which has been legally registered pursuant to Sub-Art 3 of this Article shall engage in any business as of the date of registration without the necessity of securing additional trade license.”

³¹⁹ Ibid, Art 16(1 & 6)

³²⁰ Head, *supra* note 28, pp 46-53;

communities to attract equity finance for generating electricity from *micro* and *mini* hydropower sources that can be used in Ethiopia by taking the above organizational modes of cooperatives. In addition, share companies are also useful in attracting public participation for both “small-scale” and large-scale electricity generations from hydropower sources. Plc, limited and general partnerships forms of business organizations also have their contribution in the area if properly addressed.

In general, as compared with the potential that Ethiopia has in hydropower resources its utilization for generating electrical energy is found at the very lowest stage. Different justifications could be presented to substantiate the reasons behind this lowest level, e.g. economic, cultural, political, etc. Nevertheless, policy, legal, regulatory, and institutional frameworks also play great role to improve or worsen the development of hydropower resources in the generation of electricity. In the policy framework aspect elements that promote and encourage the development of, especially at “small-scale” level, hydropower resources by private (domestic & foreign) investment should be clearly stated. For example, FIT law method can be taken as an option to encourage private investment in the generation of electricity from “small-scale” hydropower source.

In the area of legal framework the existing FDRE Constitution does not mention electricity as part of the concurrent legislative list whereby both the federal and states could devise legal instruments that helps them to properly manage and utilize hydropower resources for generating electricity at their respective mandates. The existing regulatory and institutional instruments of hydropower especially in the area of electricity need revision in a way they comply federal/state structure that the country is following. In addition, both regulatory and institutional frameworks not only need to be strong, sustainable, and credible with clearly stated roles and objectives in place, but also they need strong vertical and horizontal cooperation as well. Organizationally plc, share company, and cooperative society approaches can be taken as favorable alternatives for the development of hydropower resources to generate electricity in the Ethiopian context.

4.2 Bioenergy, Geothermal, Solar and Wind Energy Resources: Policy, Legal, Regulatory and Institutional Frameworks

4.2.1 General

Bioenergy: Bioenergy can be classified into two broad categories, i.e. biomass and biofuels.³²¹ Currently biomass covers more than 90 per cent of the energy demand of the country.³²² The major biomass sources are fuel-wood, agricultural residues, dung, and human waste, which constitute 79, 8, 11 and 2 per cent, respectively.³²³ Mitad baking, other cooking and lighting are the three most important end-uses of biomass.³²⁴ However, due to continuous demand and consumption increase for fuel-wood, charcoal, dung, and agricultural residue the forest cover of the country is alarmingly decreasing.

On the other hand, biofuels are fossil fuel substitutes that can be made from a range of organic materials including oilseeds, wheat and sugar, and are typically blended with conventional petrol and diesel.³²⁵ At present the two main types of biofuel are biodiesel and bioethanol.³²⁶ Biodiesel, a diesel substitute, is generally produced from oily crops (or “feedstocks”) such as rapeseed, sunflower or palm oil, or from recovered cooking oil.³²⁷ Bioethanol, a petrol substitute, is generally produced from starchy feedstock, such as wheat, sugar beet or sugar cane – although it can be produced from any organic substance (such as wood, grass or municipal solid waste).³²⁸ Now the government started implementing ethanol by blending with gasoline (5 per cent ethanol and 95 per cent gasoline) to be used throughout the country³²⁹ while biodiesel is not being implemented

³²¹ Zupanc, *supra* note 3, pp 333-342

³²² Personal communication with W/t Tsigereda Atinafu and Ato Getnet Tesfaye of EREDPC

³²³ Getahun Moges; *Rural Electrification: Technical Options, Financing and Regulatory Issues*; in, Symposium Proceedings (EEA),: Rural Electrification Symposium, March 1-5, 2002, p 10

³²⁴ *Ibid*, p 7

³²⁵ _____; *Biofuels for Transport: An International Perspective (OECD)*, International Energy Agency (IEA), pp 25-26, Internet: <http://www.iea.org>; last visited May, 2008;

³²⁶ *Ibid*, p 26

³²⁷ *Ibid*, p 33

³²⁸ _____; UK Renewable Energy Strategy, Department for Business Enterprise & Regulatory Reform (BERR), White Paper, June 2008, p 161; Internet: www.berr.gov.uk/renewableconsultation; last visited September 2008

³²⁹ Personal communication with Ato Ishac Soboka, Ministry of Mines and Energy, Energy Department

albeit Jastropa³³⁰ (type of plant used to produce biodiesel) is in plantation stage at different parts of the country for the purpose.³³¹ In the future biofuels is presumed to have its own contribution not only for transportation purposes but also for household energy uses (i.e. cooking) particularly in the urban areas of the country that have great role in relieving the pressure on wood-fuel.

Geothermal: Geothermal is the other renewable energy resource that Ethiopia is endowed, along its side of the Rift Valley and in the Afar Depression, with a potential of about 4000 MW of electricity.³³² A pilot geothermal plant at Aluto-Langano with an installed capacity 7.3 MW of electricity was commissioned in mid-1998, but due to technical and plant management skill problems after a year of minimized service it was wholly stopped.³³³ Nevertheless, if financial problems are solved it is said that Ethiopia's geothermal potential could be an additional input in providing base-load electricity generation.³³⁴

Solar Energy: The fact that Ethiopia is located near the equator makes it to have significant potential in solar energy resource.³³⁵ Accordingly the annual average daily solar radiation reaching the ground is said to be 5.2kWh/m²/day, the minimum annual average radiation is estimated to be 4.5kWh/m²/day in July to a maximum of 5.55kWh/m²/day in February and March that give the country with a technical potential of solar energy availability in residential buildings about 1.1 TWh/year.³³⁶ Empirical studies have shown that low power PV generation is viable in the rural areas mainly for lighting, water pumping, entertainment, etc.³³⁷ The main problems associated with PV application are high initial cost of PV units, and a need for battery storage, load

³³⁰ Type of plant used to produce biodiesel; Based on the statistical information found at EIA's Statistics Office it is provided that from March 2006 – November 28, 2008 around 22 investment permits were given at the EIA with an investment capital of Eth Birr more than 3.6 billion mainly by foreign investors and only two projects are at the implementation status in B. Gumz and Oromia Regional states while others are found at pre-implementation status

³³¹ Personal communication with Ato Ishac Soboka, Ministry of Mines and Energy, Energy Department

³³² Energy Policy, p 1

³³³ Id; See also Wolde-Giorgis, W., *Renewables and Renewable Energy for Development in Ethiopia*, June 2002, p 50

³³⁴ Id

³³⁵ SWERA study, *supra* note 42, p 2-1

³³⁶ Ibid, pp 2-1 - 2-5

³³⁷ Wolde-Giorgis, *supra* note 189, p 238

controller, one or more lamps and a power outlet.³³⁸ Statistically there is no registered PV application on commercial basis *albeit* scattered PV, solar home systems (SHS), are said to be in use in rural areas of the country for water pumping, school & health institutions, music shops, etc.³³⁹

Wind Energy: In general, based on the available wind power density (W/m^2) and wind speed @ 50m (m/s) wind energy resources are classified into seven categories, i.e. Poor, Marginal, Moderate, Good, and (3)Excellent.³⁴⁰ Based on this classification only 7 per cent of the total land areas of the country with Moderate-to-Excellent wind sites are said to be suitable for the generation of electricity, of which, if areas designated for other purposes, e.g. forest land, national parks, towns, roads, settlements, monasteries, airports, lakes, etc. are excluded, the practicable potential will be even lesser.³⁴¹ The total wind energy potential of the country (i.e. from Moderate-to-Excellent wind categories) is estimated to be 890 TWh per year, or 100 GW for grid based electricity, which makes Ethiopia's wind energy potential comparatively low.³⁴² EEPSCO has finalized detail feasibility studies³⁴³ on two sites, i.e. at Ashegoda and Mesobo-Harena wind parks, near

³³⁸ Id; and see Getahun, *supra* note 322, p 15; According to the study it is found that “the most basic Solar Home System Kits [PV] has a 10 Wp module and 8 Wp lamp and will provide light for about four hours. A 20 Wp kit consists of a power outlet for radio or other equipment and will provide double the electricity of that of 10 Wp kit. This is sufficient for two lamps, or one lamp and a radio-cassette player for around four hours. A typical medium-range kit has a 50 Wp module, which provides an average of around 180 Wh per day”, Getahun, *Id*

³³⁹ SWERA study, *supra* note 42, pp 2-5 – 2-21; Wolde-Giorgis, *supra* note 185, pp38-39

³⁴⁰ SWERA study, *supra* note 42, p 3-4; For the different classification of wind resources see the next Table

Classification of wind resource and extent of associated land areas

Wind resource category	Wind class	Wind power Density (W/m^2)	Wind speed @50m (m/s)	Total area (km^2)
Poor	1	50-200	3.5 – 5.6	564,606
Marginal	2	200-300	5.6 – 6.4	96,801
Moderate	3	300-400	6.4 – 7.0	42,935
Good	4	400-500	7.0 – 7.5	23,975
Excellent	5	500-600	7.5 – 8.0	6,529
Excellent	6	600-800	8.0 – 8.8	3,814
Excellent	7	Above 800	Above 8.8	1,715
Total area covered by Marginal-to-Excellent wind regions				740,376

Taken from SWERA study, p 3-4

³⁴¹ Ibid, pp 3-5 – 3-6; these wind sites are found on high terrains such as ridges and mountain tops which are mainly located at the edge of the highlands that form the great east African rift valley, *Id*

³⁴² Ibid, pp 3-4 - 3-8

³⁴³ _____; Feasibility Study for Wind Park Development in Ethiopia and Capacity Building: Ashegoda Wind Park Site (Final Report), GTZ /TERNA Wind Energy Programme/, August 2006, 290 pages and 7

Mekele, and started implementing the projects with an installed capacity of 120 MW of electricity and with an investment capital of over EU 200 million.³⁴⁴

4.2.2 Policy framework in bioenergy, geothermal, solar and wind energy resources

Rural Development Policies & Strategies, and Industry Development Strategy briefly dealt that solar and wind are the other available alternative energy resources to be used by investors for the generation of electricity particularly in the rural areas of the country.³⁴⁵ In addition it is also provided that traditional energy utilization should be upgraded both for curbing further deforestation and integrating it with the country wide afforestation programmes that enhance the supply of fuel-wood of the country.³⁴⁶ As regards bioethanol and biodiesel there is no stated policy tool indicating present and future directions to follow, there is a strategic document approved by Council of Ministers to be implemented by MOME, though.³⁴⁷ On the other hand, geothermal energy resource is taken as one means in ensuring and encouraging a gradual shift from traditional energy sources use to modern energy sources.³⁴⁸ The existing forest development policy allows that individuals, associations and organizations can participate in the development of forests intended as a source of fuel-wood purposes.³⁴⁹

The above policy frameworks of the country treated bioenergy, geothermal, solar and wind energy resources either very summarily or in some instances left untouched, which make them to be in a much marginalized position in a national policy frameworks. In addition, there are no detail strategies and programs devised focusing on resource availability, marketability, technological compatibility, etc on spatial bases to be achieved in a given time frame. What is more, in order to make a shift from traditional energy utilization (which is economically, environmentally, socially, and healthily found

annexes; _____; Feasibility Study for Wind Park Development in Ethiopia and Capacity Building: Mesobo-Harena Wind Park Site (Final Report), GTZ /TERNA Wind Energy Programme/, August 2006, 296 pages and 7 annexes; found at EEPCO Planning Department Wind Development Division. I would like to extend my heart felt thanks to Ato Kebede Walelu, Wind Power Study Project Coordinator, for all his support by providing me all the soft copies of the feasibility studies and relevant information of the topic.

³⁴⁴ Personal discussion with Ato Kebede Walelu, *Id*

³⁴⁵ Rural Development Policies & Strategies, p 232; Industry Development Strategy, p 157

³⁴⁶ Rural Development Policies & Strategies, p 232; see also Energy Policy, Section 6.1.1.1

³⁴⁷ Biofuel Development and Utilization Strategy, Ministry of Mines and Energy, August 2007

³⁴⁸ Energy Policy, Section 6.1.2.2

³⁴⁹ Policy & Strategy on forest development, conservation and utilization, 2007, Section 1.1

to be harmful) to modern energy from renewable energy sources through electricity (which are environmentally benign at all parameters) requires detail policy instruments of a *sui generis* type. Once appropriate, clear and detailed policy instruments are there it will be easy for the lawmakers to frame the required law destined to achieve a defined objective.

4.2.3 Legal framework of bioenergy, geothermal, solar and wind energy resources

There is no one integrated legal instrument that administers all renewable energy resources in a single sectorized structure. In other words all the above stated renewable energy resources are treated and administered under different laws and institutions. Hence matters related with biomass particularly fuel-wood are covered by Forest Development, Conservation and Utilization Proclamation³⁵⁰ which among other things provided that there shall be private forest and state forest types³⁵¹ and allowed private individuals, associations, government or non-government organizations to have the right to obtain rural land in areas designated for forest development that may be used for commercial purposes.³⁵² The administration and conservation of forest lands are divided between federal and state governments.³⁵³ The Proclamation does not provide provisions that allow forest development and administration specifically destined for fuel-wood purpose. Nevertheless, under the EREDPC establishment Proclamation biomass is included in the definition of “energy” whereby EREDPC is mandated for identifying, studying, improving and promoting such energy resources as suitable to the rural areas of the country.³⁵⁴

Geothermal is considered as one type of mineral³⁵⁵ the licensing and administration of it is handled only at federal level through the Ministry of Mines and Energy.³⁵⁶ Development of geothermal energy at large scale that includes electricity generation

³⁵⁰ Forest Development, Conservation and Utilization Proclamation No 542/2007, *Federal Negarit Gazeta*, 13th Year No 56, 4th September, 2007 hereinafter Forest Proclamation

³⁵¹ *Ibid*, Art 3

³⁵² *Ibid*, Art 4 & 6

³⁵³ *Ibid*, Arts 17 & 18

³⁵⁴ *Ibid*, Arts 2(1) & 6(1, 3 & 5)

³⁵⁵ Mining Proclamation No 52/1993, *Negarit Gazeta*, 52nd Year No 42, 23rd June 1993, Art 2(14)

³⁵⁶ *Ibid*, Arts 14(1), 20(3); Mining (Amendment) Proclamation No 118/1998, *Federal Negarit Gazeta*, 4th Year No 47, 23rd June, 1998, Art 46(1)

requires environmental impact study based on the existing environmental laws of the country.³⁵⁷

The legal frameworks for solar and wind energy resources fall under the broad categorization of “energy” resources and technologies suitable for rural areas of the country.³⁵⁸ Accordingly the EREDPC is mandated to *inter alia* identify the energy resources suitable for the rural areas and conduct studies for their development; adapt foreign energy technologies in line with the needs of the country and improve indigenous energy technologies; study the production, distribution, utilization and conservation of affordable and efficient energy resources and technologies and promote same via private, public, etc. sectors.³⁵⁹

4.2.4 Regulatory framework of bioenergy, geothermal, solar and wind energy resources

Regulatory frameworks of bioenergy, geothermal, solar and wind energy resources fall either under federal or state jurisdiction based on the enabling legal instruments of each one of the energy resources mentioned herein. Thus biomass, solar and wind energies may be regulated both at federal and state levels³⁶⁰ while geothermal resource for generating electricity can only be regulated at federal level.³⁶¹ When we see each of the energy resources stated herein for making use of as a source of modern energy we can easily observe that all lack proper regulatory instrument both at the federal and state levels. For example, regarding biomass in general and fuel-wood in particular the Forest Proclamation does not clearly spell out the regulatory approaches to be followed for the forest land designated for commercial use at both the federal and states level.³⁶²

³⁵⁷ Ibid, Art 46(2h); Environmental Impact Assessment Proclamation No 299/2002, Arts 2(2, 3, 4, 7 & 8), 3, 4 & 5; Environmental Pollution Control Proclamation No 300/2002, *Federal Negarit Gazeta*, 9th Year No 12, 3rd December, 2002, Arts 2(5, 6, 8, 9, 11 & 12), 3, 4 & 6

³⁵⁸ EREDPC Proclamation, Arts 2(1), 5 and see 1st, 2nd, & 3rd paragraphs of the preamble

³⁵⁹ Ibid, Art 6(1, 3 & 5)

³⁶⁰ These energy resources are more of site specific and usually do not intersect between/among states requiring federal regulation, for coordinating the technical and for uniformity in the standardization purposes federal intervention may sometimes be called, though

³⁶¹ FDRE Constitution, Art 2(a), accordingly the House of Peoples’ Representatives is authorized to enact specific law in relation to natural resources and geothermal is considered as one of natural resources; also see Mining Proclamation

³⁶² Forest Proclamation, Arts 2(5, 6 & 9), 3, 6, 7 & 8; The “regulatory instrument” available in the case of biofuels are: “Strategy for the Development and Utilization of Biofuel” approved by the Council of Ministers on August 2007 the follow-up to be undertaken through Ministry of Mines and Energy

The other federal organ worth mentioning here is the EREDPC where its activities with regard to biomass, i.e. not only fuel-wood but also animal dung and agricultural residue, lies in identifying, studying, promoting and providing consultative services in relation with the production, distribution, utilization and conservation of such resources and technologies suitable for the rural communities.³⁶³ Accordingly different technological options are being promoted by EREDPC suitable to rural communities from the point of view of *inter alia* efficiency and affordability.³⁶⁴

There is no clearly known regulatory tool specifically destined for solar and wind energy resources either at the federal or states levels. However, regulatory instruments provided under the Electricity Proclamation are also relevant for both solar and wind energy resources. Moreover, generation of electricity from both solar and wind energy sources for commercial purposes need license to be issued by EEA,³⁶⁵ and depending on the life of the project the maximum duration of such license is for geothermal power generation is 25 years while for biomass, wind, and solar power generations are 20 years³⁶⁶ subject to renewals based on the fulfillment of certain conditions.³⁶⁷

On the other hand, regional states may regulate geothermal energy resources only up to 15 meters depth of well from which electrical energy generation is said to be impossible.³⁶⁸ At the current EEPCO tariff structure electricity produced from solar, wind and geothermal energy resources may not be competitive to that generated from hydropower particularly at large-scale³⁶⁹. Accordingly, to promote private sector participation in the generation of electricity from geothermal, solar and wind energy resources some type of price adjustment or incentive requires to be made as part of the regulatory framework.

³⁶³ EREDPC Proclamation, Arts 1, 2 & 5; Of course, such activities of the EREDPC may not be called as regulatory from the strict meaning of the term, 'regulation'

³⁶⁴ Personal communication with the relevant EREDPC officials including W/t Tsigereda Atinafu

³⁶⁵ Electricity Proclamation, Arts 10(1) and Electricity Operations Regulation, Arts 3(1, 2 & 3) and 4

³⁶⁶ Directive for Maximum Duration of License for Non-hydropower Generation Plants for Commercial Purposes No 1/2005, Ministry of Infrastructure, 2005 Addis Ababa, Art 5; found in EEA Library

³⁶⁷ Ibid, Art 6

³⁶⁸ Mining Proclamation, Art 14(1)

³⁶⁹ mainly due to economies of scale

4.2.5 Institutional framework of bioenergy, geothermal, solar and wind energy³⁷⁰

The institutions responsible for bioenergy, geothermal, solar and wind energy resources are found both at federal and states levels. At the federal level we find different governmental institutions that include among others: 1) MOME and MOTI, regarding ethanol and biofuel; 2) EREDPC & REFAS regarding biomass, solar and wind; 3) Ethiopian Geological Survey³⁷¹, regarding geothermal; and 4) EEA, regarding investment permits,³⁷² licensing and regulating electricity generated from any one of these renewable energy resources. Of course, MOE, MOH, MOARD, etc are other federal institutions now playing great role in disseminating particularly solar and wind energy equipments in relation with rural education, health, irrigation and drinking water, and for telecommunication purposes. For example, REFAS received 169 and 1 loan applications for generating electrical energy from solar home system, and wind energy sources, respectively.³⁷³ On the other hand, at regional states level we find energy bureaus and offices with varying mandates.³⁷⁴

The other institutional structures worth mentioning here are the different NGOs operating in regional states especially with electricity related developmental objectives of the rural areas, e.g. EECMY, Irish Aid, Sidamo Development Corporation, Ethiopian Rural Self-Help Association, etc could participate not only in “small-scale” hydropower but also through solar, wind, geothermal, and that of biomass energies. In sum the existence of strong and committed legally established institutions both at the federal and regional levels intended for making a shift from traditional energy utilization to modern energies facilitates mainly through afforestation, electricity from solar, wind, and geothermal

³⁷⁰ The different institutional frameworks dealt in hydropower sub-topic of this Chapter *mutatis mutandis* applies herein too

³⁷¹ Geological Survey of Ethiopia Establishment Proclamation No 194/2000, *Federal Negarit Gazeta*, 6th Year No 22, 7th March, 2000 hereinafter GSE Proclamation

³⁷² Investment (Amendment) Proclamation No 375/2003, *Federal Negarit Gazeta*, 10th Year No 8, 28th October, 2003, Arts 23 (2) & 41 in which EEA is delegated to issue investment permits in relation with the generation, transmission and supply of electricity.

³⁷³ _____; Rural Electrification Executive Secretariat, *Status of Rural Electrification Fund Project Activities*, August 2, 2008; Personal communication with Ato Amare Hadgu, Coordinator of the REFS Office

³⁷⁴ The different bureaus, agencies and offices in which energy and related cases handled at different regional states are called: Water, Mines and Energy Bureau in Benshangul Gumz, Tigray, Gambela, and Harari Regional States; Mines and Rural Energy Resource Development Promotion Agency in Amhara, SNNP, and Oromiya; Mines and Energy Resource Development Bureau in Somali; Mines and Energy Resource Development Office in Afar; and Water, Mines and Energy Office in Dire Dawa.

energy resources are paramount. These institutions may assist the development of modern energies particularly through solar, wind, and geothermal where most of them are said to be capital intensive type of investments and associated with different risk profiles beyond the ability of individuals to handle it privately.

4.3 Government Role in the Operations and Regulations of the Electricity Industry of the Country

4.3.1 General

In many developed and developing countries of the world both in the past and at present it is not uncommon to find governments' involvement, of course, at varying degrees in the development and regulation of their respective electricity³⁷⁵ industry. Different reasons are forwarded to justify such involvements *inter alia*:

- the existence of successive development phases (generation, transmission, distribution, and supply) to get the final output, i.e. electricity, and at the same time the elements of *natural monopoly* in transmission and distribution activities which stimulates vertical integration within a single company;
- traditionally electricity services are taken as *essential* for communities and assumed that it is better for the government to provide them at reasonable price;
- electricity was/is taken as *strategic asset* for a national economy and their stability, reliability of supply, and public service are given high priority;
- the fact that electricity industry is *capital-intensive* type of investment with high degree of technical complexity; and
- non-storability of electricity requires technical co-ordination during operation are barriers for easy entry.³⁷⁶

The above reasons give rise to the government or its special purpose company, usually established through special laws with monopoly power, to have a total grip in the operation of electricity in a vertically-integrated structure based on a high degree of

³⁷⁵ Cameron, *supra* note 63, p 7; Electricity is a secondary form of energy that derives from various primary natural energy resources, e.g. hydro, geothermal, solar, wind, gas, oil, coal, uranium

³⁷⁶ *Ibid*, pp 5-6

centralized planning with tight control. In addition, on such a structure the price/tariff of electricity are always determined on the basis of “historical cost”.³⁷⁷ On the other end of the spectrum, however, the major drawback of such a structure is said “...that those who planned, managed, and operated the system did not bear any of the risk, and did not suffer if it failed.”³⁷⁸

4.3.2 Electricity operations in Ethiopia: past, present and future trends

Electricity in Ethiopia started during the reign of Emperor Menelik II in 1898 by lighting the imperial palace.³⁷⁹ Soon-after, by constructing additional diesel and hydro based generating facilities, use of electricity for different economic and light purposes had continued mainly in Addis Ababa and few towns of the country.³⁸⁰ In 1956, however, an independent entity with its own legal personality and organizational structure established by Charter No 213/1956 under the name of EELPA vested with the powers and duties *inter alia* “to engage in the business of production, transmitting, distributing and selling of electric energy to the public of Ethiopia....”³⁸¹ Only with minor structural changes the chartered EELPA continued for nearly 50 years as sole provider of electrical energy throughout the country until corporatized and changed to EEPCO based on the principles of commercialization³⁸².

The current installed electricity generating capacity of Ethiopia is 763 MW, which is nearly one-half of our neighboring Kenya having a population of only one-half of ours. Ninety-nine per cent of electricity of the country is produced from hydropower sources. Diesel generators are mainly used for back-up purposes. Our electricity per capita is found nearly 35 KWh³⁸³ which is much below from the average sub-Saharan countries

³⁷⁷ Ibid, p 7

³⁷⁸ Id; Furthermore, it is argued that customers or sometimes taxpayers are the ones to bear the costs resulting from the incompetence and bad judgment of those responsible for the decisions, *Id*

³⁷⁹ EEPCO 50th Year - Special Issue, pp 1 & 33

³⁸⁰ Id

³⁸¹ Ethiopian Electric Light and Power Authority General Notice No 213/1956, *Negarit Gazeta*, 15th Year No 5, 30th January 1956

³⁸² EEPCO establishment Regulation; Pursuant to Art 5 of this Regulation EEPCO has been established to “...engage in the business of producing, transmitting, distributing and selling electrical energy (in accordance with economic and social development policies and priorities of the Government) and to carry on any other related activities that would enable it to achieve its purpose.”

³⁸³ Of course, planned to make it 128 KWh by the year 2015

per capita.³⁸⁴ Private participation in the generation, transmission, distribution and sale/supply of electricity is nearly non-existent in a century old electricity history of the country. This trend makes EEPSCO to be the only utility not only in the past and at the present but also this trend will continue in future electricity development of the country. This makes both the establishment and the regulatory activities of EEA superfluous. Nevertheless, the great majority of the rural areas of the country are still without electricity. Even those with grid access experience frequent blackouts particularly in summer seasons (i.e. from February - June) when dams face shortage of water.

4.3.3 Government regulations of the electricity industry of the country

Starting from the introduction of electricity to the country the government is controlling the industry on different structures and settings³⁸⁵ based on vertically-integrated structure. In other words, a vertically-integrated government owned utility structure continued for the last fifty years and may even extend in the future, too, unless some correcting mechanism are set in place that encourage private sector participation especially in the generation segment of the industry. This type of structure, however, is not unique to Ethiopia rather it had been applied in different parts of the world and at different times.

For example, in the US varying literatures³⁸⁶ confirm that after the 1929 Great Depression until the 1970s oil crisis (especially until the 1978 enactment of PURPA) the principle of *Fordist* mode of capital accumulation on the basis of vertically-integrated production and internal economies of scale were the overriding structure of the electricity industry of that country.³⁸⁷ While in Europe especially after World War II nationalization of the fragmented energy companies and creating a vertically-integrated structure by establishing special purpose companies responsible for providing the services on cost basis were the dominant approaches until changed by restructuring and privatization that

³⁸⁴ SWERA study, *supra* note 42, p 1.1; Wolde-Giorgis, *supra* note 185, p 38

³⁸⁵ Starting from its introduction in 1898 till the establishment of EELPA in 1956 the generation and supply of electricity had been very much fragmented, i.e. there was not a single entity legally authorized to undertake the electricity services and activities, generation, transmission, distribution and supply, of the country in a vertically integrated structure

³⁸⁶ See Gray, *supra* note 65; Joskow, *supra* note 67; Cameron, *supra* note 63, pp 4 – 23, etc

³⁸⁷ See footnote 87 and associated texts

started in UK in the 1980s.³⁸⁸ These structural approaches, which are also known as “traditional” structure, however, gave way for liberalization of the sector based on market principles that encourage competition whenever possible, particularly in the generation and retail/supply segments, and applying “regulation for competition” in the transmission and distribution or “natural monopoly” segments of the industry.³⁸⁹ These later approaches are now applied by more or less all developed and many developing countries of the world with appropriate legal and institutional adjustments to fit domestic institutional structure, political style, economic, social, cultural, and above all energy resource base of each country.³⁹⁰

The Ethiopian electricity sector went through two stages of development. The first stage relates to the period that starts from the introduction of electricity to Ethiopia (1898) until the time the government undertook power sector reform measures in 1996-7. During this century long period, the Ethiopian electricity sector had been dominated by government ownership without any significant registered private investment. The second period started in June 1996 by allowing domestic private investors to participate in electricity generation and supply activities³⁹¹ and then EEA and EEPCO have been established to undertake the regulatory and operational activities of the electricity industry of the country, respectively.³⁹²

EEA was established mainly as *economic regulator* with powers and duties to regulate tariff/price of electricity services through issuing, renewing, suspending, and revoking licenses for the generation, transmission, distribution & sale, import, and export of electricity. By the same token EEA is empowered to undertake *technical regulation* through inspecting and supervising whether the generation, transmission, distribution and sale of electricity services are efficient, safe, and reliable, of course, by determining (in advance) the quality and standard of electricity services sought. On the other hand,

³⁸⁸ See footnote 109 and associated texts

³⁸⁹ Cameron, *supra* note 63, pp 23-24

³⁹⁰ *Ibid*, p 11

³⁹¹ The first investment proclamation that allow private investment in the electricity sector of the country is - Investment Proclamation No 37/1996, *Federal Negarit Gazeta*, 2nd Year No 25, 18th June 1996, Art 6(1b) which allowed only private domestic investors to participate in the production and supply of electrical energy with installed capacity of up to 25 MW

³⁹² See Electricity Proclamation, and EEPCO establishing Regulation, respectively

EEPCO was changed from Authority, EELPA, to Corporation, EEPCO, i.e. corporatized and mandated to run its activities on the basis of market principles, i.e. commercialized. All these important restructuring measures of the power sector of the country taken at the beginning of the second stage relates only to the “first stage of reform” usually known as “least radical level of reform”.³⁹³

Moreover, as far as the country’s trend is concerned, the aforementioned five main reasons³⁹⁴ may have their own relevance for the government’s continued monopolization of the electricity industry of the country. Enacting enabling laws in the last twelve years³⁹⁵ intended to allow private investment in the sector and establishing regulatory institution (i.e. EEA) to facilitate the purpose³⁹⁶ might be taken as a major step forward. However, these measures, by any standard, are not enough for realizing such high technical skill requiring, capital-intensive, high-risk, etc type of investment, especially mainly using renewable energy resources, such as hydropower, geothermal, solar, and wind. In sum, enacting successive legislations for liberalizing the electricity industry of the country couldn’t achieve to register any significant result in attracting private sector investment thereby changing the status quo.

Of course, in the past particularly at the beginning of liberalization of the electricity industry of the country (i.e. 2001 - 2004) different foreign companies showed their interest to generate electricity mainly from hydropower and sale to EEPCO based on the PPA to be concluded between the investor and EEPCO. In addition, most of the investors demanded the government to give them “Sovereign Guarantee” in the form of IA, usually used as a security if EEPCO fail to honor the PPA.³⁹⁷ Most of these companies not only

³⁹³ Bacon, Robert and Gutierrez, Luis E.; *Global Reform Trend and Institutional Options for Sub-Sahara Africa*; in: *Power Sector Reform and Efficiency Improvements in Sub-Sahara Africa*, Johannesburg, June 1996, Symposium Jointly Organized by The World Bank Africa Region and Energy Sector Management Assistant Programme (ESMAP), December 5-8, 1995, p 103

³⁹⁴ See footnote 376 and associated texts

³⁹⁵ Investment Proclamation No 37/1996; Of course, Investment Proclamation has undergone more than six amendments whereby, pursuant to Art 5(1a) of the existing amended version, i.e. Investment Proclamation No 280/2002, *Federal Negarit Gazeta*, 8th Year No 27, 2nd July 2002, except in the transmission and supply of electrical energy through the Integrated National Grid System, which is an area of investment reserved for the Government or joint investment with the Government, investment in electricity in whatever sources and without any capacity limits are open for both domestic and foreign investors.

³⁹⁶ It should be noted that generation and retail segments of the industry could safely be made competitive

³⁹⁷ All these draft PPAs and IAs submitted by these different companies are found in EEA library

expressed their commitment but also signed MOU³⁹⁸ with EEPSCO and submitted their draft PPA and IA to EEPSCO and EEA, respectively, for further discussion and negotiation. These draft agreements (i.e. PPA & IA) are very detail with so many schedules and annexes, drafted by US & UK highly qualified experts in the field. These PPA & IA draft were used for similar negotiations in other countries.³⁹⁹ The two main elements of contention between these companies on the one hand and EEPSCO & EEA on the other were the price of electricity they demanded to get⁴⁰⁰ and the excessive guarantee they asked the government to provide them. ⁴⁰¹After all such discussions all the companies who signed MOU with EEPSCO retreated and in the final analysis none of these “projects” become operational.

As a result there is no meaningful private investment in the electricity industry particularly in the generation segment where currently the country is highly in need of satisfying the rising demand of electricity throughout the country. Thus, the more specific issues to be dealt with here are: What are the main causes of these failures? Can all these failures be attributable to legal, institutional or regulatory failures? What other causes can be forwarded to supplement such failures? What types of new approaches should be followed to correct such shortcomings and attract private sector investment? To answer these and similar issues the different alternatives available and used internationally have to be searched and careful analysis be made to choose the right method based on the

³⁹⁸ Among the MOU signed between EEPSCO and different companies the following are pertinent:

- MOU b/n EEPSCO and MIDROC for Gojeb 150 MW HPP IPP scheme signed on January 2, 2001;
- MOU b/n EEPSCO and ENERCO for Genale 162 HPP IPP scheme signed on May, 2001; and
- MOU b/n EEPSCO and ENERCO for Awash 40 HPP IPP scheme signed on May, 2001.

³⁹⁹ The same draft PPA & IA submitted by Midroc – Gojeb Hydropower Project were also submitted to the Ugandan Government for the development of Bujagali Hydroelectric Project by AES Nile Power Ltd (AESNP) in a BOOT basis which was negotiated and debated by Ugandan Parliament and finally signed for the generation of 250MW electric power with an investment capital of US \$ 550 million. Nevertheless for different reasons it was not implemented. Different analysis and comments are found in the internet *inter alia* see, _____, *The Bujagali Power Purchase Agreement - an Independent Review*; By Prayas, Energy Group, Pune, India for International Rivers Network, 1847 Berkeley Way, Berkeley, CA 94703, USA, 20 November 2002; Internet: <http://www.irn.org>; last visited October 17, 2008

⁴⁰⁰ For example Midroc – Gojeb Hydropower Project, which was intended to develop Gojeb Hydropower in an installed capacity of 150 MW with an investment capital of US \$ 350 million on build-own-operate (BOO) basis, asked nearly 6 US cent/KWh of energy, which is more than the electricity price Ethiopia agreed, during the primary negotiation, to sell to the Sudan, i.e. 5 US cent/KWh by constructing more than 250 kilometer additional high voltage transmission line (i.e. 132KVA) extending from Gondar to Shehdi (Ethiopia – Sudan border point) and others intended to follow the same trend.

⁴⁰¹ By the same token Midroc – Gojeb Project asked through its draft IA to make all properties of Ethiopia including all civil and military aircrafts as security if EEPSCO fail to honor any of its obligations in the PPA

political style, economic policy, institutional structure, and of course, energy resource base of the country. In other words the reform process both from the regulatory (EEA) and utility (EEPCO) sides has to be reviewed and streamlined for the next stage/levels of power sector reform.

International experiences of the last three decades especially starting from mid-1980s⁴⁰² show us that different nations and states of the world, e.g. UK, Chile, Argentina, Australia, New Zealand, Spain, Netherlands, Mexico, Germany, Finland, Sweden, etc have shifted from a vertically integrated structure mainly dominated by public ownership to market based competitive arrangement on the basis of private ownership principles. This type of radical shift made in the energy sector particularly in the electricity industry is termed by some scholars as a shift from “traditional paradigm” to “market-oriented paradigm”.⁴⁰³ Currently in addition to the above mentioned industrialized countries of the world developing countries are also making such shift to “market-oriented paradigm”. The main features of this shift are *inter alia*:

- disintegrating the vertically-integrated structure (i.e. unbundling);
- encouraging and supporting new entrants in the market;
- remuneration on the basis of market price not costs;
- publication of tariffs for natural monopoly segments (i.e. transmission and distribution);
- establishing an independent regulator, etc.⁴⁰⁴

Of course, the extent of application of these features varies from country to country based on the institutional structure, cultural background, political style, economic policy, and energy resource base of each country. For example, UK and Chile, etc had chosen privatization while others like Nordic countries, Australia, New Zealand, Mexico, Netherlands, Argentina, etc followed other methods including corporatization followed by unbundling.⁴⁰⁵ Nevertheless, the newly market-oriented approach has shown benefits

⁴⁰² In the US such paradigm shift started after PURPA was enacted by US Congress in 1978

⁴⁰³ Cameron, *supra* note 63, pp 6-33

⁴⁰⁴ *Ibid*, p 8

⁴⁰⁵ Reiche, Kilian; Tenenbaum, Bernard; and Torres de Mastle, Clementia; *Electrification and Regulation: Principles and a Model Law*, The World Bank Group, The Energy and Mining Sector Board Discussion

such as bringing prices down, increasing efficiency and reliability of electricity services and improved further private investment in the electricity industry.

Reform is not a one time action rather a continuous process with different stages or levels that must be implemented through successive actions. Accordingly countries starting their reform from the first stage need to move to the second stage and continue until reaching the last stage, i.e. "...most radical options [that] allow the private sector to take full responsibility for operation of existing assets and for investment..."⁴⁰⁶ Nevertheless, for the last twelve years both the regulator (EEA) and the operator (EEPCO) didn't apply any additional stages of reform that ensure the power sector of the country is undergoing continuous reform process.

Investment in the electricity sector particularly in the generation segment is not only capital-intensive with long pay-back period but also requires high technical skills and at the same time associated with different types of risks. Some of these risks could easily be handled by the investor while others either by the utility (EEPCO through PPA), government (sovereign guarantee), the regulator (EEA), insurance companies, etc as the case may be. For example, the investor should employ skilled personnel, and handle some of the risks like construction risks, resource availability risks, e.g. availability of enough water, geothermal at the required heat and pressure, standard wind speed, and for solar sufficient sunshine hours and radiation, etc.

Furthermore, EEPCO may be required to undertake project preparation studies before the investors are called; drafting appropriate contractual agreements including PPA and make them ready for negotiation; obtaining, in advance, the necessary statutory and environmental permits and clearances; handling resettlement, compensation, land and water rights issues at an early stage; etc.⁴⁰⁷ The regulator (EEA), on the other hand, is required to rationalize electricity tariff structure aimed at protecting debt servicing;⁴⁰⁸ implementing special incentive program, e.g. FIT law for investors participating in

Paper No 18, July 2006, important paper having 44 pages; _____; *Best Practices Guide: Electricity Regulation In Latin America*, 101 pages important papers, Both papers found in EEA Library

⁴⁰⁶ Id

⁴⁰⁷ Head, *supra* note 28, p 63

⁴⁰⁸ *Ibid*, p 60

“small-scale” hydropower, geothermal, solar, wind, urban waste, etc. electricity generation investments; creating a fair and equal playfield and transparent regulatory environment whereby both EEPKO and investors easily manage, etc.

The basic power sector reform process undertaken in any country contains, at least, two components. The *first* component relates to the establishment of a strong and independent regulatory institution responsible for supervising the smooth implementation of the reform process as envisaged at the outset without any substantial adverse effect and at the same time facilitating the introduction of new investment in the sector. International experience in energy sector regulatory reform show that the key element in a “best-practice” regulatory system lies on the *independence* of the regulator.⁴⁰⁹ Independence of the regulator here means that the regulator’s decisions are made without the prior approval of any other government organ, and no authority other than a court or a pre-established appellate body can overrule the regulator’s decisions.⁴¹⁰ The three institutional aspects used to measure the decision making independence of any regulator are: 1) organizational independence,⁴¹¹ 2) financial independence,⁴¹² and 3) management independence.⁴¹³

⁴⁰⁹ However, for “best practices” regulatory model, in addition to the *institutional* and *legal* characteristics of the independent regulator model, there also exist the *principles* and *standards* to implement them; Brown, Ashley C., Stern, Jon, and Tenenbaum, Bernard; *Handbook for Evaluating Infrastructure Regulatory System*, The World Bank, 1818 H Street NW, Washington DC 20433, 2006, p 50; According to Stern and Holder, in addition to *independence* the other four important institutional elements used as a parameter to test the credibility and strength of any regulatory institutions are: 1) *participation* (i.e. a comprehensive process of formal consultation – including public hearings and publication of and comment on consultation responses – is followed before decisions are made; 2) *accountability* (i.e. there is full accountability in terms of appeals, including a specific legal right of redress. The accountability of the regulator to Courts or parliament for fulfilling general legal duties is appropriate without being excessive); 3) *transparency* (i.e. all regulatory documents are available to the public, except where specifically classified as confidential and the regulator publishes major decisions as well as the reasoning behind major decisions); and 4) *predictability* (i.e. regulatory powers and duties cannot be changed without changes in primary law; key regulatory instruments or documents cannot be changed without undergoing appropriate processes; and there is a clear policy and coherent approach behind all decisions); see Stern, J., and Holder, S.; *Regulatory Governance: Criteria for Assessing the Performance of Regulatory Systems*, An Application to Infrastructure Industries in Developing Countries of Asia, The World Bank, 1818 H Street NW, Washington DC 20433, 1999, p 45

⁴¹⁰ Brown, Ashley C., Stern, Jon, and Tenenbaum, Bernard, *supra* note 409

⁴¹¹ Id, *organizational independence* is organizationally separate from existing ministries and departments

⁴¹² Id, *financial independence* means an earmarked, secure, and adequate source of funding

⁴¹³ Id, *management independence* means autonomy over internal administration and protection from dismissal without due cause

For example, the power of EEA is only “to study and recommend” electricity tariff/price and it is the government usually the Council of Ministers that approve or determine the tariff/price of electricity. However, the basic regulatory principle to exist in every power sector reform is that the government is required “to refrain itself from interfering with price settings”⁴¹⁴. Independent regulator is the basic prerequisite for attracting private investment in the sector.⁴¹⁵ As part and parcel of independence a regulatory body is required to satisfy other criteria like: “*credibility, legitimacy, and transparency*”⁴¹⁶. In sum, in restructuring the regulatory institution both the international experience on the sector and the country’s institutional structure, political style, cultural, economic, etc. factors must be taken into account.

The main justification for the establishment of economic regulator of any country is both to protect consumers against monopoly abuse (i.e. through price, and quality-of-service regulations) and investors (i.e. private or community-based) interests. Usually Investors’ interests can be protected by making known all their rights and obligations before the investment are made.⁴¹⁷ Moreover, the general principle is for any regulatory organ of the electricity industry is required to provide all the aforementioned and other relevant information in advance and at the same time ensure that whatever commitments are written in the in the law or license will actually be honored.⁴¹⁸ In addition, any regulatory system in the electricity industry can also be viewed from two dimensions: *regulatory governance* (it refers to the institutional and legal design of the regulatory system, i.e. the

⁴¹⁴Ibid, p 111

⁴¹⁵ Cameron, *supra* note 63, p 24

⁴¹⁶Brown, Ashley C., Stern, Jon, and Tenenbaum, Bernard, *supra* note 409 , p 55; In general *Credibility* means that the investors must have confidence that the regulatory system will honor its commitments; *Legitimacy* means that consumers must be convinced that the regulatory system will protect them from the exercise of monopoly power, whether through high prices, poor service, or both; and *Transparency* means that the regulatory system must operate transparently so that investors and consumers “know the terms of the deal” in advance

⁴¹⁷ This is to mean the investor needs to know the prices that it will be allowed to charge - so it can estimate expected revenues - and the service standards that it will be required to meet – so it can estimate expected costs. In addition, investors need to know for how long they have permission (that is, legal authority) to provide a service, whether that right is exclusive or nonexclusive, and whether there will be some compensation if the license is take over by another party (for instance, whether there is any compensation to the operator if the national grid reaches the geographic area served by the minigrid operator). All these rights and obligations of the investor are part and parcel of entry regulation.; see Reiche, Kilian; Tenenbaum, Bernard; and Torres de Mastle, Clementia, *supra* note 405, p 14

⁴¹⁸ Id

how of regulation) and regulatory substance (it refers to the content of regulation, i.e. the what of regulation).⁴¹⁹ All these analysis are equally relevant and applicable in the regulatory system of the electricity of the country.

“Heavy-handed” and “light-handed” regulations are the two approaches of regulation applied in power sector regulation. Of course, “Heavy-handed” or overregulation is nowadays criticized as “clearly hurts economic development”.⁴²⁰ It is especially true for those private or “community based” investors participating in off-grid rural electrification at *pico* and *micro* level. The main reason is that regulation should not be taken as an alternative unless it is found “absolutely necessary” to do so. It has to be noted that any regulation will cost time and money to comply with. Moreover, the electricity/energy regulatory legal framework is required to mandate “the regulator with explicit authority to vary its regulatory rules and procedures (concessions vs. licenses vs. permits) depending on the nature of the entity that is being regulated (small vs. large, grid vs. off-grid, private vs. community based).⁴²¹

The other equally important point to be raised here is to know that regulation does not exist in isolation particularly from policy framework (that is, at national and/or regional/state level). This is to mean “regulatory decisions must be consistent with policy decisions”.⁴²² For example, in the area of grid and off-grid electrification the government may provide in its policy different supports and subsidies that the regulator should take into consideration. That is why the government established REFS particularly for off-grid rural electrification whereby especial supports and regulatory systems are set and required to be followed in electrifying the rural areas of the country.

⁴¹⁹ Ibid, pp 14-15; Regulatory governance is defined by the laws, processes, and procedures that determine the enterprises, actions, and parameters that are regulated, the entities that make the regulatory decisions, and the resources and information that are available to them. Further, it is the framework within which regulatory decisions are made. Regulatory governance involves decisions about among others: 1) the accountability of the regulator; 2) decision-making and organizational autonomy of the regulator; 3) transparency of decision making by the regulator or other entities that are making de facto regulatory decisions; 4) the predictability and speed of regulatory decision making; and 5) judicial and non-judicial mechanisms for appealing regulatory decisions. On the other hand, the most important substantive regulatory functions involve among others: 1) the setting of tariff levels and structures; 2) the setting of quality-of-service standards; and 3) the setting of entry and exit requirements, *Id*

⁴²⁰ Ibid, p 18

⁴²¹ Ibid, p 30

⁴²² Ibid, p 16

The *second* component of reform includes restructuring of the incumbent from vertically-integrated structure “traditional paradigm” that avoids or discourages private participation to a structure that enables private investment in the sector. On the other hand, EEPCO is still operating in a vertically-integrated structure with all the generation, transmission, distribution & sale, import and export activities being implemented by one corporation, which is also known as “traditional” mode of operation. The principal features of traditional mode of operation are *inter alia*: 1) exclusive rights to build and operate networks, granted under concession or license; 2) closure to competition; 3) vertically-integrated operations; 4) a high degree of planning with tight, centralized control; and 5) remuneration on the basis of historical costs; etc⁴²³ all are mainly the characteristics of EEPCO’s current operational structure. In order to promote private investment in the sector this traditional mode of operation has to give way for more liberalized structure by creating a level playing field, i.e. creation of non-discriminatory access rights to information and for networks.⁴²⁴

The *first* solution is creating a level play field suitable for both the incumbent and the new private entrants. This can be easily achieved through disintegrating the different components of the power sector (generation, transmission, distribution, and retail sale/supply), which is known as unbundling. The primary objective of unbundling is to “eliminate incentives or abilities to discriminate against competitors by means of vertically-integrated companies”.⁴²⁵ The three forms of unbundling usually used in such instances are: 1) full structural separation by law - through either fully formal separation, or corporatization of the different segments of the industry; 2) functional separation - same ownership with different management structure; 3) separation for accounting purposes – may be the weakest form of unbundling used mainly to expose cross-subsidies and prevent an entity from discriminate in favor of itself and against competitors.⁴²⁶

Moreover, EEPCO better be unbundled into separate components through phases, e.g. first starting by accounting separation to functional separation and finally full structural

⁴²³ Cameron, *supra* note 63, p 7

⁴²⁴ Ibid, pp 26-27

⁴²⁵ Ibid, p 26

⁴²⁶ Ibid, pp 26-27

separation. EEPSCO can first unbundle the generation segment from the transmission and distribution usually known as “natural monopoly” segments. In addition, EEPSCO can undertake horizontal unbundling of the distribution segment based on carefully selected regional or zonal criteria and further transfer some of these horizontally unbundled distributions to reliable regional or municipal or privately established companies. Based on the experiences and lessons gained, of course, the time frame set that should not be more than five years, apply the unbundling process on the remaining parts of the industry.

The *second* solution is drafting and making available appropriate contractual agreements to be concluded between the investor and the government and its utility. In other words, in order to attract private participation to the sector various approaches needs to be devised including making available unbiased PPA, if needed, supported by sovereign guarantee in the form of IA. In addition, there will be other types of agreements, of course, based on the type of energy resources used and energy capacity generated that the private investor may conclude and the regulator should have proper oversight for their conformity to the industry regulatory function.

In drafting and negotiating these agreements (i.e. PPA and IA) the two most important scheme used by the private sector in financing and to allocate risks to the party best able to manage it (i.e. BOO,⁴²⁷ and BOT⁴²⁸) have to be discussed. These two schemes are the most widely used especially in generating electricity from hydropower, geothermal, wind, etc. This is because investment in these areas are predominantly capital intensive that requires using of different financing arrangements i.e. equity and loan.⁴²⁹ Developing

⁴²⁷ The main feature of BOO scheme is that the developer is entitled to own the facility indefinitely and sell the electricity generated under long-term contract based on PPA and remunerate fixed costs through a capacity charge and variable costs through an energy charge; see Cooper & Lybrand, *Financing Africa's Power Sector: Issues and Options*; in: *Power Sector Reform and Efficiency Improvements in Sub-Sahara Africa*, Johannesburg, June 1996, Symposium Jointly Organized by The World Bank Africa Region and Energy Sector Management Assistant Programme (ESMAP), December 5-8, 1995, p 156

⁴²⁸ Head, *supra* note 28, pp 23-46; the main characteristics of BOT scheme is that the private investor is responsible to finance, construct, own and operate for a limited period of time, i.e. “Cooperation Period”, after which ownership reverts to the government. During the “Cooperation Period”, however, the investor is allowed to recover its costs with profit through payments related to the projects output, *Id*, p 23

⁴²⁹ *Ibid*; according to Mr. Head analysis there are two types of financing of a project. These are 1) equity, and 2) loan. In financing jargon *equity* is nothing but that portion of a company's net worth belonging to its owners or shareholders. On the other hand, recourse and non-recourse types of financing should also be considered in cases of financing a project through loan. Recourse financing refers to a project developed by

countries undergoing power sector reform uses these schemes as a means of attracting private investments in the sector. For example, Turkey,⁴³⁰ Philippines,⁴³¹ Nepal,⁴³² Lao PDR,⁴³³ Uganda,⁴³⁴ Kenya⁴³⁵ etc used either BOT or BOO schemes, of course, by enacting enabling laws to implement these schemes.

These schemes are available only when a power sector undertakes restructuring process from the traditional mode of vertically-integrated to market-oriented (unbundled) structure. Nevertheless, our power sector restructuring not only fails to continue the reform process by streamlining the legal and institutional instruments from both the regulator and utility sides but also the first legal and institutional frameworks intended to lead the reform process couldn't satisfy even the first stage of reform. In sum, the reform that started twelve years earlier neither achieved the intended result nor streamlined through continuous revision and amendment to undertake the next stages of the reform process. This indicate the government, MOME, MOTI, EEA, EEPSCO, all stakeholders in the sector that include the different professional associations (e.g. electrical, mechanical, civil engineering), high power consuming entities, etc should discuss and come with acceptable solutions that lead the restructuring process ahead and further leverage it to improve the electricity industry of the country.

an existing company already owning assets which are operating wherein lenders will have full recourse, while non-recourse financing refers to a new project developed by a totally new company with no other assets and hence the imbursement of the loans totally depends on the financial result, i.e. cash flow, of the project. In electricity generation from hydropower sources which is highly capital intensive both equity and loan financing mechanisms play great role. Thus, in attracting equity and loan finance the right alternative of the above mentioned organizational modes should be considered by taking the legal and financial implications associated with each one mechanism, *Ibid*, pp 46-53

⁴³⁰ Turkey is known as a birth place of BOT scheme especially for hydropower developments and successfully developed different hydropower projects like *Birecik* having 672 MW installed capacity. I had an opportunity to visit *Birecik* HPP in 2003 to get experience in drafting and negotiating PPA & IA

⁴³¹ Philippines used BOT scheme for developing hydropower projects like *Bakun*, *San Roque*, *Casecanan*, etc. after restructuring its power sector in 1987 and opening the generation segment for private investment. In doing so Philippines enacted an enabling law for BOT scheme in 1992, which provide for the private sector to finance, construct, own, and operate such projects for a given period of time, "Cooperation Period" thereafter ownership reverts to the government; see Chris Head, *supra* note 182, pp 30-32

⁴³² Nepal after restructuring its power sector faced with the problem of attracting private investment in the sector (IPP) and used various mechanisms to increase its electricity generating capacity, including providing PPA & IA and thereby become successful in attracting hydropower projects like *Khimti I* with installed capacity of 60 MW, *Upper Bhote Koshi* having installed capacity of 36 MW, *Seti* with installed capacity of 750 MW, etc; see Head, *supra* note 28, pp 33-34

⁴³³ *Ibid*, pp 32-33

⁴³⁴ See footnote 400 and associated texts

⁴³⁵ See footnote 117 and associated texts

Chapter V

The Legal and Institutional Framework for Regulating Energy Efficiency: the Ethiopian Context

In this chapter two main issues will be addressed. The first issue relates to: What are the existing policy, legal, institutional, and regulatory instruments of energy efficiency in the Ethiopian context? The second main issue is: What alternative legal, institutional and regulatory frameworks can be suggested for the proper and effective application of energy efficiency in the Ethiopian context? In order to treat these two main issues the chapter is divided into four sub-chapters. The first three sub-chapters discuss energy efficiency issues on the bases of the three main sectors most pertinent under the Ethiopian scenario, i.e., appliances & equipments, industry, and transport⁴³⁶ while the fourth sub-chapter deals with energy efficiency from the point of view of the supply side. Each sub-chapter discusses on policy, legal, institutional, and regulatory frameworks of energy efficiency. Now let's see each part of the chapter separately.⁴³⁷

⁴³⁶ It is to be noted that energy efficiency in building will not be discussed as a separate sub-chapter. This is because both the climatic conditions and economic development of the country do not call for massive use of air conditioner (AC) in buildings. Some regions like Afar, Gambella and Somali have locations with seasonal hot temperature that require using AC. However, both from the social and economic situations it doesn't call for general discussion as the use of ACs in these regions are not widespread. In addition, the existing policies, (i.e. the Energy Policy and the 2006 Urban Development Policy) and laws, (i.e. Urban Planning Proclamation No 574/2008, *Federal Negarit Gazeta*, 14th Year No 29, 16th May, 2008, and the draft Building Proclamation) do not contain related provisions of energy efficiency in buildings. Plus, relevant officials in the Ministry of Works and Urban Development that I interviewed do not have such information let alone to make it part and parcel of policy and legal frameworks under consideration

⁴³⁷ Currently, there is no an integrated legal and institutional instrument put in place in regulating energy efficiency cases both at the federal and states level *albeit* various legal and institutional instruments might be found in a disintegrated style. However, there are attempts made by different institutions particularly at the federal level to bring energy efficiency cases in its proper place. For example, Ministry of Mines & Energy, EEA, and EREDPC established a reengineering team to study the process of achieving energy efficiency activities as part of their BPR study. I couldn't include the final result of that study as it is not made official until end of February of 2009. Thus, in order to fill the gap created by the unavailability of integrated legal, institutional, and regulatory frameworks and at the same time written material on the subject certain comparative analysis mode of study will be followed, as may be appropriate, throughout the discussion of this chapter.

5.1 Energy Efficiency in Household Appliances & Equipments⁴³⁸: Policy, Legal, Institutional, and Regulatory Frameworks

5.1.1 General

In developed countries electricity plays significant role in powering of appliances, equipment and lighting in residential and commercial buildings.⁴³⁹ However, in Ethiopia only about 20 per cent of the population are said to have access to electricity,⁴⁴⁰ i.e. nearly 80 per cent of the population have no access to electricity that make it to be at the lowest level even from the average African standard⁴⁴¹. In other words, the annual per capita electric consumption of Ethiopia is around 35 KWh⁴⁴² while the average household electricity consumption per capita of Africa is around 140 KWh,⁴⁴³ China around 430 KWh, Europe around 1500 KWh,⁴⁴⁴ and North America 4500 KWh.⁴⁴⁵ This statistical data indicate that in the Ethiopian situation even those with access to electricity use electricity mainly for lighting. Hence, the role of electricity in powering household appliances & equipments remain insignificant.

Moreover, in Ethiopia the main source of energy for household activities is substantially limited to traditional sources of energy, i.e. biomass which covers more than 90 per cent.⁴⁴⁶ As far as traditional energy utilization for household purposes is concerned it consists of three stone/clay stove (in Amharic *gullicha*) used for cooking and *Mitad* (traditional bread baking) the efficiency of it is said to be not more than 10 per cent,⁴⁴⁷ i.e. 90 per cent of the energy is lost in the process. However, in order to reduce and raise

⁴³⁸ Appliances and equipments includes: refrigerators, air conditioners, lighting, washing machines, boilers and water heaters, dryers, dishwashers, cooking equipments, electronic appliances (televisions, computers, digital video recorders), office equipments (copiers, fax machines)

⁴³⁹ Hodas, *supra* note 168, p 47

⁴⁴⁰ EEPCo Facts in Brief 2007, Addis Ababa, March 2008

⁴⁴¹ *Energy Efficiency Policies, 2008, supra* note 14, p 31, see also footnote 442 and associated texts which provides access to electricity of Africa is 40 per cent and that of India 50 per cent

⁴⁴² Bekele Bayissa, *Vision 2020 Ethiopia: Energy and Development in Ethiopia*, (Translated by: Yonas Admassu); Economic Focus (Bulletin of the Ethiopian Economic Association), Vol. 7 No 6 (March 2005), p 31; *NB* in the document the per capita is 28 KW however in different unpublished reports it is made 35 KW and it is to be more “optimistic” if such achievements have been gained

⁴⁴³ *Energy Efficiency Policies, 2008, supra* note 14, p 30

⁴⁴⁴ In EU new members countries from the Baltic region and Central and Eastern Europe, the average is said to be twice lower than the average for Europe, *Ibid*, p 31

⁴⁴⁵ *Ibid*, p 30

⁴⁴⁶ See footnote 322 and associated texts

⁴⁴⁷ Bekele, *supra* note 442, p 28

the efficiency of these three stone/clay stoves, EREDPC and the GTZ made efforts to produce and disseminate improved wooden and charcoal stoves.⁴⁴⁸ EEPCO, on the other hand, in order to reduce power shading caused by the imbalance of supply and demand of electrical energy, is now making efforts to replace the currently used incandescent lamps by CFL.⁴⁴⁹

5.1.2 Policy framework

The 1994 Energy Policy of Ethiopia has important elements that deal on energy efficiency issues. For example, it is provided that the government's policy in energy efficiency in the household sector is to increase through instituting energy saving measures.⁴⁵⁰ As to what constitute such energy saving measures are not clearly stated in the Policy. Empirical study, however, shows that energy efficiency measures vary from sector to sector (i.e. appliances, transport, industry, buildings), from time to time, and based on the economic standards of a given society and types of technologies alternatively opted, etc to implement a given energy efficiency measure.⁴⁵¹ Accordingly, policy makers usually consider different approaches of energy efficiency measures. For example, by offering consumers a choice of *alternative push/pull measures*, i.e. to "push" consumers away from energy intensive practice and to "pull" them towards energy efficient ones, etc.⁴⁵²

On the other hand, the 1994 Energy Policy mentioned the need for gradual building of local manufacturing capability of electrical equipments and appliances.⁴⁵³ Raising the awareness of the public in relation to general energy issues through education is the other important approach taken by the Energy Policy as a means of enhancing energy savings.⁴⁵⁴ When we see all these policy elements from the point of view of raising the efficiency of the traditional household energy, it can be said that there is no policy barrier

⁴⁴⁸ Id

⁴⁴⁹ Personal communication with relevant EEPCO officials including Ato Gashaw Hassen, Energy Efficiency Project Coordinator of EEPCO and currently EEPCO is replacing up to four incandescent bulb with equal number of CFL per customer

⁴⁵⁰ Energy Policy, Art 6.3.1

⁴⁵¹ *Efficiency: A Worldwide Review, 2004, supra note 53, p 78*

⁴⁵² Ibid, pp 78-82

⁴⁵³ Energy Policy, Art 6.4.2

⁴⁵⁴ Ibid, Art 6.4.4

in the area. However, in order to fit with the existing economic development of the country, the policy needs updating (revision) and need to be buttressed by detail strategies and programmes.

5.1.3 Legal framework

The only legal instrument that can be applied in household energy efficiency issue is found under the EREDPC Proclamation which provides that EREDPC shall have the powers and duties to “study the production, distribution, utilization and conservation of affordable and efficient energy resources and technologies with due regard to the ... rural community via private, public and other sectors as the case may be”⁴⁵⁵. Hence, EREDPC can be taken as the only federal government organ empowered to undertake studies for the production and promotion of energy efficient resources and technologies that include household appliances & equipments. However, the focus of EREDPC is mainly on technologies most suitable for rural community which might not be proper for urban communities. Thus, legal instruments that enable for the proper implementation of the policy framework in the area of appliances & equipments needs to be devised that can be applied in all segments of the society.

5.1.4 Institutional framework

Energy efficiency policies and laws require institutions empowered to implement such policies and laws into practice. In federally structured countries such energy efficiency institutions are established mainly both at federal and state levels. However, in Ethiopia there are no governmental institutions specifically established to undertake energy efficiency measures *albeit* organs established for other energy affairs do have powers in such cases too. Accordingly, at the federal level EREDPC is the institution empowered for the promotion and dissemination of energy efficiency resources and technologies mainly suitable for rural communities.⁴⁵⁶ In addition, EEPCO currently established a project office specifically destined for the purpose of distributing CFL for its customers. Hence, any customer can replace up to four incandescent bulbs with CFL free of charge at his/her nearby service providing offices and such replacement is expected to continue

⁴⁵⁵ EREDPC Proclamation, Art 6(5)

⁴⁵⁶ Ibid, Art 6(1)

until the current power shortage or more clearly electricity “crisis” of the country caused by water shortage of most of the hydropower dams is corrected.⁴⁵⁷

It has to be noted that EEPKO is a corporatized public utility established to undertake the business of generation, transmission, distribution and sale of electricity. Though EEPKO showed strong interest in the area of energy efficiency from the demand side mainly to avert the existing shortage of power, which is very much appreciated, such strong interest might not continue sustainably in the long term particularly when there comes no shortage of power or private competitors involved in the electricity market of the country.

At regional states level each regional state has corresponding bureaus and offices that could implement energy efficiency legal instruments.⁴⁵⁸ In addition, currently regional states do not have clear legal mandate to work on energy efficiency issues.⁴⁵⁹

5.1.5 Regulatory framework

Labels⁴⁶⁰ and energy performance standards are the two most globally applied energy efficiency regulatory instruments in the area of household electrical appliances & equipments.⁴⁶¹ Thus, in countries where labels and standards are being mandatorily applied both manufacturers and consumers are required to comply with it the violations of which entail enforcement.⁴⁶² On the other hand, at present there are no specifically provided mandatory regulatory instruments in place in the Ethiopian context in relation to household electrical appliances & equipments. Of course, since Ethiopia is neither a manufacturing nor high utilizing (at least currently) country of household electrical

⁴⁵⁷ Personal communication with Ato Gashaw Hassen, EEPKO's Energy Efficiency Project Coordinator and other relevant staffs of the same project distributing CFL

⁴⁵⁸ See footnote 374 and associated texts

⁴⁵⁹ Personal communication with Ato Fiseha Girmay Water, Mines and Energy Bureau Head of Tigray Regional State, Ato Alemayehu Legesse, Ato Mesele Kadachora, and Ato Fantaye Kassahun, Mines and Rural Energy Resource Development Promotion Agency representatives of Oromiya, and Amhara, Regional States, respectively

⁴⁶⁰ Labels are designed to inform consumer choice at the time of purchase and hence label programs seek to provide consumers with energy efficiency and lifecycle cost information to encourage market choices to purchase energy efficient appliances, while energy efficiency standards set specific, minimum energy performance requirements for products and classes of products; See Hodas, *supra* note 168, pp 52-53

⁴⁶¹ *Energy Efficiency policies 2008, supra* note 14, pp 43-47; Hodas, *supra* note 168, p 48; Appliances and equipments are the main areas labels and standards are being applied in most developed and developing countries.

⁴⁶² *Energy Efficiency Policies, 2008, supra* note 14, p 44

appliances & equipments setting of detail mandatory regulation might not be feasible.⁴⁶³ Nevertheless, in order to protect the market/consumers from mass importation and sale of substandard and inefficient household electrical appliances & equipments some specific mandatory standards and labels could be applied more appropriately through QSAE.⁴⁶⁴ In addition, in the area of voluntary standards QSAE need to issue appropriate Ethiopian standards and publicize it to the public at large in relation to household electrical appliances & equipments.⁴⁶⁵

5.2 Energy Efficiency in Industries: Policy, Legal, Institutional, and Regulatory Frameworks

5.2.1 General

Industrial production has remained the backbone for the economic development of almost every country of the world. Energy is one of the main inputs in any industrial production. The use of energy in the industrial sector can be viewed from two perspectives, i.e. high energy intensive industries (e.g. metal, cement, paper, etc.) and less energy intensive industries (e.g. services, electronics, food, light chemicals, etc.).⁴⁶⁶ The success of energy efficiency measures in any country mainly depends on devising reliable and applied

⁴⁶³ This is because introducing regulations for household electrical appliances & equipments could entail considerable costs both in importation and for ensuring compliance, e.g. the need for greater surveillance of products passing through customs and increased product testing. See ____; *Regulatory Study*, Volume I, Final Report, April 2005, Submitted to EEA, by Economic Consulting Associates (ECA), British Standard Institute (BSI) & Campbell Carr Consultancy (CCC), p 22; full document found in EEA Library

⁴⁶⁴ Quality and Standards Authority of Ethiopia Establishment Proclamation No 102/1998, *Federal Negarit Gazeta*, 4th Year No 26, 3rd March, 1998 hereinafter QSAE Proclamation; Art 5(2) provides the objectives of the Authority “to assist in the improvement of the quality of products and processes through the promotion and application of Ethiopian standards”; and under Art 6(10) QSAE is empowered “to... ban the movement of products, where the products and/or processes do not conform to the relevant compulsory Ethiopian Standards”.

⁴⁶⁵ *Ibid*, Art 6(2) which provides “to formulate, approve, declare and issue Ethiopian standards for a general or specific application as may be necessary”; and under Art 6(4) it is also provided that “to formulate quality promotion and standardization policy and strategy in line with the development programme and objectives of the country and, implement and follow-up the same” as one of the powers and duties of QSAE

⁴⁶⁶ Warren, Ernst; Price, Lynn; Brown, Michael; and Bell Jeff, *supra* note 173, p 27; Nowadays developed and countries in transition like China, India, are not only showing a decreasing trend of the energy intensity of their heavy/high energy consuming industries through continuous increasing of their energy efficiency that include structural changes (i.e. efficiency improvement due to technical and managerial influences), but also showing a tendency of shifting towards less energy intensive activities like services, electronic goods, light chemicals, etc.; See *Energy Efficiency policies 2008*, *supra* note 14, pp 26- 27; *Efficiency: A Worldwide Review*, 2004, *supra* note 53, p 78

policy, legal, institutional, and regulatory frameworks at national and regional/state levels, as may be appropriate.

Moreover regulations, standards, taxations, agreements, targets, reporting benchmarking, audits are some of the policy, legal, institutional, and regulatory instruments devised and applied by different countries of the world for raising the energy efficiency of industries.⁴⁶⁷ Are there sufficient policy, legal, institutional, and regulatory instruments destined to increase the energy efficiency of energy-intensive industries (e.g. metal, cement) in the Ethiopian situation? In the absence of sufficient and reliable frameworks, is there any “one-size fit all” model that could easily be adopted to increase the energy efficiency of heavy industries (metal, cement) in Ethiopia? These and similar issues will be dealt in the next different headings of this sub-chapter.

5.2.2 Policy framework

Improving the efficiency of industrial equipment to conserve and reduce energy consumption is taken as one policy instrument under the existing Energy Policy of Ethiopia.⁴⁶⁸ In addition, ensuring compatibility between industrial energy supplies and that of the industrial development is also clearly provided as the general industry sector policy of the country.⁴⁶⁹ Hence, in order to ensure industrial energy use energy supply is required to be based on economic and efficiency criteria.⁴⁷⁰

All these policy statements show that energy efficiency in the industrial sector is taken as one of the main pillars for industrial development of the country. Nevertheless, the existing industrial development strategy⁴⁷¹ let alone describing the detail energy efficiency strategies, programmes and targets for applying the policy tools of industrial sector, it didn't mention the necessity of energy efficiency to achieve the general policy frameworks as provided in the Energy Policy. In addition, the Energy Policy not only lacks clarity and coherence, but also needs revision to accommodate new technological and economic developments gained in the last fifteen years after its issuance.

⁴⁶⁷ Ibid, p 28

⁴⁶⁸ Energy Policy, Art 6.3.2

⁴⁶⁹ Ibid, Art 6.2.4.1

⁴⁷⁰ Ibid, Art 6.2.4.2

⁴⁷¹ Industry Development Strategy, 2002

Empirical studies show that both developed and developing countries devise detail policy framework for energy efficiency in the industrial sector that enable for the removal of barriers that impede the uptake of energy efficient practices and technologies. Thus, the main point to be noted here is that clear and practicable policy instruments of energy efficiency in the industrial sector is among the main prerequisites for attaining the required energy efficiency results in the industrial sector of the country.

5.2.3 Legal framework

Energy efficiency legal framework in the industrial sector is not clearly provided in any one legal instrument of the country. Even those relevant laws in the sector do not contain provisions that deal on energy efficiency. For example, under Basic Metals and Engineering Industry Agency Proclamation⁴⁷² it is provided *inter alia*:

To assess the production capacities and technological capabilities of enterprises engaged in the sub-sector with a view to:

- a) facilitating production of key products;
- b) making efforts enabling the local production of materials necessary for the implementation of projects in the country;
- c) providing assistance in building local capacities for designing and manufacturing new products⁴⁷³

In addition, BMEIA is required to promote the expansion of modern management, engineering and production techniques to raise the quality of products in the sub-sector.⁴⁷⁴ The other related legal framework that requires mentioning here is the provision that stipulates “to order, subject to prior notice, the closure of factories or business undertakings or the cessation of operations ... where the products and/or processes do not conform to the relevant compulsory Ethiopian Standards”.⁴⁷⁵ All these provisions *albeit* relevant to the metal industry and mandatory standards of the country do not have provision/s that deals specifically on the issue of energy efficiency as part and parcel of the industrial production. This show that lot of works should be done by concerned institutions such as the BMEIA and QSAE to bring energy efficiency activities may be by

⁴⁷² Basic Metals and Engineering Industry Agency Establishment Proclamation No 47/1996, *Federal Negarit Gazeta*, 3rd Year No 3, 31st October 1996

⁴⁷³ *Ibid*, Art 6(5)

⁴⁷⁴ *Ibid*, Art 6(8)

⁴⁷⁵ QSAE Proclamation, Art 6(10)

using standards particularly in energy-intensive industries (e.g. metal and cement) as part and parcel of relevant legal framework.

On the other hand, when viewed globally several countries passed broad and comprehensive legislations that could promote energy efficiency practices in their respective industrial sector.⁴⁷⁶ These empirical studies indicate that energy efficiency legal frameworks are made mainly as a separate instrument without merging with other related areas (like renewable energy resources). Thus, in the future when the country intends to enact legal framework in the area of energy efficiency it will be more suitable that such law be legislated as separate instrument than merging with other areas as renewable energy legal frameworks.

5.2.4 Regulatory framework

The regulatory framework of energy efficiency in the industrial sector in the Ethiopian context is not sufficiently available. The only available such instrument is the provision that says the QSAE has the power “to order, subject to prior notice, the closure of factories or business undertakings or the cessation of operations, or ban the movement of products, where the products and/or processes do not conform to the relevant compulsory Ethiopian Standards”.⁴⁷⁷ Since this provision is a general provision which is not specifically made to apply to regulate energy efficiency measures in the industrial sector, QSAE might not regulate energy efficiency in the industrial sector unless it is related to failure to comply its mandatory standards. Moreover, in order to apply the above mentioned regulatory instrument in industry energy efficiency cases relevant legal instrument that demand complying mandatory Ethiopian standard must exist.

⁴⁷⁶ For example, Thailand has implemented a number of measures to increase energy efficiency in the industrial sector. The measures include demand management programs, specific financial measures, minimum efficiency standards for machinery and the provision of support structures; See generally Thailand Energy Conservation Promotion Act of 1992 at: http://www.aseanenergy.org/energy_organisations/eccssn/thailand/eec_ssn_th.html; and <http://www.eppo.go.th/doc>; See also China Energy Conservation Law of 1997, text available at, <http://www.unescap.org/esd/energy/publications/compend/ceccpart4chapter4.html#Chapter%203>; The 2005 US Energy Act also contained detail energy efficiency provisions of the industrial sector, text available at, Public Law 109-58-Aug. 8, 2005, or browse to the web site at: <http://www.usenergypolicyact2005.gov>

⁴⁷⁷ QSAE Proclamation, Art 6(10)

When we see the experiences of other countries in the subject we find that there are different regulatory instruments destined to improve energy efficiency in the industrial sector. Such energy efficiency regulatory instruments include both voluntary and compulsory standards. The widely applied regulatory instruments include *inter alia*: energy efficiency standards, skilled personnel, industry voluntary/negotiated agreements, energy taxation, and cogeneration.⁴⁷⁸ In general, regulatory instruments are usually found to be effective tools for promoting energy efficiency gains through overcoming market barriers.⁴⁷⁹ Accordingly, standards of motors have been introduced in countries such as US, Brazil, Canada, Malaysia, Poland, etc. and such countries usually use accredited and independent testing laboratories to certify the required standards of motors.⁴⁸⁰ By the same token there are countries that apply dedicated onsite energy manager when a plant's energy use would exceed a certain amount of energy use per year.⁴⁸¹ In sum, voluntary/negotiated agreements are now becoming an effective means in improving the energy efficiency performance of industries.⁴⁸²

Empirical studies show us that some countries had began through voluntary standards and after undertaking the required assessment and the positive results that it brought they changed to mandatory standards which will be used as the basis for a wide scale regulation of energy efficiency in the industrial sector.⁴⁸³ Of course, some countries make differences between small and medium sized industries from large industries and usually exclude large energy-intensive industries from some of the mandatory requirements, for instance from energy taxation,⁴⁸⁴ for international competition purposes.⁴⁸⁵ The general trend is that the modes of regulation (i.e. voluntary or mandatory) and types of regulatory instruments (energy efficiency standards, skilled personnel, industry voluntary/negotiated agreements, energy taxation, etc.) vary from country to country on the basis of each country's stage of development, industrial base (like high or less energy intensive), price

⁴⁷⁸ Warren, Ernst; Price, Lynn; Brown, Michael; and Bell Jeff, *supra* note 173, pp 29-46

⁴⁷⁹ *Ibid*, p 31

⁴⁸⁰ *Id*

⁴⁸¹ *Ibid*, p 35

⁴⁸² *Ibid*, p 39

⁴⁸³ *Id*

⁴⁸⁴ *Energy Efficiency: Worldwide Review 2004*, *supra* note 53, p 19

⁴⁸⁵ Warren, Ernst; Price, Lynn; Brown, Michael; and Bell Jeff, *supra* note 173, p 42

of electricity and its availability, etc. Nevertheless, the current tendency is based on the application of different modes of mandatory standards, or regulation of energy efficiency in the industrial sector from which Ethiopia can adopt that fit its special situations.

In the Ethiopian situation there are some energy-intensive industries that apply different measures to improve their energy efficiency. For example, Akaki Metal Products Factory uses energy management approach by applying energy audit system.⁴⁸⁶ Likewise, Mugar Cement Factory also applies various energy management approaches that improve the energy efficiency of the Factory.⁴⁸⁷ The main input in cement factories is, however, use of coal and pet coke up to 84 per cent which is said to be internationally efficient standard of energy consumption.⁴⁸⁸

5.3 Energy Efficiency in Transport: Policy, Legal, Institutional, and Regulatory Frameworks

5.3.1 General

The trends in energy efficiency have showed great improvement since it began as a response for the 1973 oil shock. Many factors are raised for such improvements *inter alia* government policies, technological improvements, and change in consumers' behavior. Nevertheless, road transport, even at this technologically advanced stage of development, has shown the greatest area of challenge for energy efficiency.⁴⁸⁹ Moreover, the transport sector is the only sector where oil hasn't been effectively substituted.⁴⁹⁰ In sum, energy efficiency in the transport industry can be viewed from four perspectives, i.e. road, rail, air, and marine transport.⁴⁹¹ Literatures in the area confirmed that around fifty per cent of

⁴⁸⁶ Personal communication with Ato Yibeltal Admasu, Head of Electrical Maintenance and Boiler Section of the Factory; Accordingly, in order to increase the energy efficiency and thereby reduce the cost of energy of the Factory is applying certain energy management systems, among others: insulating the steam pipes, adequate inspection of the steam pipes and immediate maintenance which have leakages, switch off idle motors, use of preheated fuel, use of clean treated water, and installing new power factor correction unit

⁴⁸⁷ Personal communication with Ato Daniel Alemayehu, Head of Technical Department of the Factory

⁴⁸⁸ Id

⁴⁸⁹ Bradbrook J. Adrian, *Energy Efficiency in Road Transport*, in: *UNEP Handbook*, *supra* note 176, p 86

⁴⁹⁰ Id

⁴⁹¹ Expert Group on Energy Efficiency, *Realizing the Potential of Energy Efficiency: Targets, Policies, and Measures for G8 Countries*; United Nations Foundation, Washington, DC, 72, 2007, p 45 hereinafter *Realizing the Potential of Energy Efficiency*

the world's oil production is consumed by road vehicles.⁴⁹² In order to tackle the problem both developed and developing countries have devised various types of policy, legal, institutional, and regulatory frameworks specifically addressing the issue of energy efficiency in the transport industry.

When we come to the Ethiopian specific conditions the lion share of imported petroleum products goes to gasoil, and Jet/Kerosene, which is predominantly used as fuel in transport sector.⁴⁹³ The above mentioned statistical data indicates that in the last eight years (i.e. 2000/1 – 2007/8) imported fuels which are mainly used in the transport sector have been more than doubled.⁴⁹⁴ The high increasing consumption trend of oil in the transport sub-sector clearly indicates the necessity of devising and effectively applying the required energy efficiency policy, legal, institutional, and regulatory tools suitable for the special conditions of the country. Based on this general overview of the subject area, let's see the Ethiopian approach to the energy efficiency of the transport sector.

5.3.2 Policy framework

The policy framework of energy efficiency in the transport sector is provided under the 1994 Energy Policy which provides among other things:

- 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, wherever possible, to new non-petroleum fuels.⁴⁹⁵

In addition, the general policy framework emphasis the necessity of adopting energy efficiency measures in *all* sectors⁴⁹⁶, which obviously includes the transport sector. Thus, it is also found necessary to establish appropriate mechanisms to ensure adherence to

⁴⁹² Id, and also see, Mantzos, L. and Capros P., *European Energy and Transport: Scenarios on energy efficiency and renewables*, European Communities, 2006, 17

⁴⁹³ Statistical data obtained from Ethiopian Petroleum Enterprise, which include for the Fiscal Year from 1994/5 – 2007/8

⁴⁹⁴ Id; For example, in the Fiscal Year 2000/1 the imported Jet A1/Kerosene in metric ton 224,556 and 620,186 while in Fiscal Year 2007/8 the same products were imported 482,219 and 1,072,793, respectively

⁴⁹⁵ Energy Policy, Art 6.2.2(2 and 3)

⁴⁹⁶ Ibid, Art; the same policy instrument provided general policy instruments not specifically for transport sub-sector but equally relevant to energy efficiency in the transport industry too, e.g. to develop and utilize the country's energy resources on the basis of Ethiopia's overall development strategy priority along with the introduction of energy conservation and efficiency strategy; and to save scarce foreign exchange resources and to ensure that energy is efficiently utilized, *Id*, Arts 2.1 and 2.3

“standards and codes”⁴⁹⁷, which in one way or another assists to achieve the required energy efficiency results. As compared to others these energy efficiency policy instruments set for the transport sector will be sufficient, of course, with the required revision, i.e. to fit it with the current technological advancement and supported by appropriate strategies and programmes.

5.3.3 Legal framework

Unlike policy framework of energy efficiency in the transport sector of the country which can be relatively said sufficient to be used as guidance to frame other basic instruments, the legal framework of same is not sufficiently made available in any one relevant legal regimes of the sector both at the federal and states level. In order to enhance energy efficiency in the transport industry, however, the available policy frameworks has to be supported by appropriate legal frameworks. The existing Transport Proclamation⁴⁹⁸ enacted at federal level does not contain appropriate provisions destined to govern or regulate energy efficiency in the transport sector of the country.

Two reasons may be forwarded to justify the absence of legal frameworks in the subject area under discussion. *First*, all the relevant law makers (including all actors and institutions involved from analysis to drafting, discussion and enacting) might overlook the existence of the aforementioned policy instruments. The *second* reason may be that the issue of energy efficiency was presumed to be enacted by other implementing subsidiary legal instruments like regulation, directives, etc. In support of this second reason there is a provision that provides as one of the powers and duties of the federal Transport Authority which provides: “follow up the importation, manufacture or assembling of vehicles in Ethiopia and for this purpose issue technical specifications”⁴⁹⁹. Nevertheless, from the interview I made to the appropriate officials⁵⁰⁰ of the Transport Authority there is no such subsidiary legal instrument issued (or at draft level) pursuant to the above provision.

⁴⁹⁷ Ibid, Art 5.3

⁴⁹⁸ Transport Proclamation No 468/2005, *Federal Negarit Gazeta*, 11th Year No 58, 6th August, 2005

⁴⁹⁹ Ibid, Art 7(2c)

⁵⁰⁰ Ato Fisha G. Wahid, Legal Service Head, and Ato Alemayehu Hailu, Vehicle Specification and Assurance Expert

Whichever reason may be put as justification for the non availability of energy efficiency provisions in the legal framework under consideration the factual situation of the country, i.e. complete dependence on imported petroleum products and the increasing feature of the importation and its price, calls for devising appropriate energy efficiency legal instruments. The approach for devising energy efficiency legal framework may be through amending the existing Transport Proclamation and issuance of subsidiary legislations to be used for the proper implementation of the amended proclamation.

5.3.4 Institutional framework

The existing Energy Policy stressed the necessity of establishing an institution specifically entrusted with policy formulation, priority setting and coordination of all energy sector development activities that enable to avoid resource waste and duplication of efforts.⁵⁰¹ Nevertheless, there is no *de jure* or *de facto* institution both at federal and states level legally responsible in doing energy efficiency functions in the transport sector of the country. Currently there are various options that need due assessment before arriving at a conclusion whether or not in establishing such institution/s. Moreover, the structure of the institution, i.e. as a separate or as part and parcel of the other energy efficiency institution or as part of Transport Authority, need to be fairly assessed. Plus, the special characteristics of the transport sector of the country call in establishing an institution well organized and associated with the other related activities of the industry. Hence, the Transport Authority at the federal level and similar bureaus at states level may be reorganized to implement such tasks.

5.3.5 Regulatory framework

Currently there are no established instruments that are specifically destined for regulating energy efficiency in the transport sector of the country. On the other hand, different countries introduced various regulatory frameworks that apply both on vehicle manufacturers, i.e. to manufacture more fuel-efficient vehicles, and the public to purchase such vehicles.⁵⁰² For example, in the US a national standard known as CAFÉ was set in a law enacted in 1975 in which every vehicle manufacturer is required to attain

⁵⁰¹ Energy Policy, Arts 2.8 and 6.5

⁵⁰² *Realizing the Potential of Energy Efficiency*, *supra* note 484, p 45

fuel efficiency of all vehicles produced each year.⁵⁰³ The Japanese approach in vehicles energy (fuel) efficiency, on the other hand, is based on classifying vehicles into three categories.⁵⁰⁴ The other regulatory instrument applied by different countries is the application of differential sales/purchase tax system whereby higher taxes are imposed on the purchase of motor vehicles with a high rate of fuel consumption.⁵⁰⁵ In sum, in setting the regulatory framework of energy (fuel) efficiency in the transport sector especially in road transport, of course, based on the specific conditions of the country, the more suitable ones of the aforementioned approaches may be adopted.

5.4 Supply Side Energy Efficiency: Policy, Legal, Institutional, and Regulatory Frameworks

5.4.1 General

In the previous three sub-chapters we have seen energy efficiency from the point of view of consumers' perspective, i.e. demand side energy efficiency. Energy efficiency activity is, however, equally important in the supply side, too. The two areas of discussion of this sub-chapter are the supply of electricity and that of transport fuel (gas oil). Thus, the business of electricity generation, transmission, distribution and sale in the Ethiopian context is mainly undertaken by the state owned utility, EEPSCO. The capital intensive, requiring high technical skill and high risk characteristics of the business of electricity supply industry are some of the barriers in attracting private investors' participation in the

⁵⁰³ Bradbrook J. Adrian, *Energy Efficiency in Road Transport*, in: *UNEP Handbook*, *supra* note 175, p 87

⁵⁰⁴ *Ibid*, p 89; For example, the "fuel efficiency targets set for FY2000 were as follows:

- Cars weighing less than 827.5kg 19.0 km/liter;
- Cars weighing 827.5kg up to 1,515.5kg 13.0 km/liter;
- Cars weighing 1,515.5kg and over 9.1 km/liter", *Id*

⁵⁰⁵ *Ibid*, pp 94-102; accordingly the introduction of a sliding scale would result in a significant price reduction for the most fuel-efficient vehicles; In addition, feebate system have been used by many developed countries which is applied by charging a fee on inefficient vehicles, which would pay for granting a rebate for the purchase of more efficient models, the older model would be scrapped/recycling of inefficient older vehicles and their replacement with new more efficient vehicles, and the newer model purchased with the rebate. The other approach is *petroleum excise taxes* model in which petroleum excise taxes are levied directly on the consumers of petrol at the point of sale on a cents per liter basis. Such a tax provides an incentive to consumers to reduce the use of petrol and to purchase fuel-efficient cars. *Road pricing* is the other approach used many developed countries by imposing fees for vehicle use of certain key roads. This approach mainly achieved electronically by the use of overhead cameras and special computer cards attached to vehicle windscreens, which record when vehicles pass a certain point. Also see *Realizing the Potential of Energy Efficiency*, *supra* note 485, pp 45-49; *Energy Efficiency policies 2008*, *supra* note 14, pp 66- 75

sector.⁵⁰⁶ Moreover, privately owned and operated electrical energy activities for commercial purposes in the Ethiopian situation are very minimal.⁵⁰⁷ As regards petroleum products used in the transport sector Ethiopia is a net importer *via* EPE⁵⁰⁸. Accordingly, the issue of energy efficiency in the supply of petroleum products is not as critical as that of the electrical energy supply and hence our discussion in this specific area will be very limited. Now let's see the issue of supply side energy efficiency from policy, legal, institutional and regulatory frameworks perspective separately.

5.4.2 Policy framework

The existing policy⁵⁰⁹ and strategy⁵¹⁰ frameworks do not adequately address supply side energy efficiency issues of the electricity industry of the country. The main focus of the 1994 Energy Policy is on the demand side of energy efficiency of electrical energy. On the other hand, regarding energy efficiency in the transport sector, the idea of introducing efficient utilization of energy and reducing energy wastage in *all* sectors are taken as the main pillar to save the scarce foreign exchange resources of the country.⁵¹¹ In addition, reducing petroleum products in the transport sector in favor of substitutable non-petroleum fuels are also stipulated as one of the policy framework of energy supply in the transport sector of the country.⁵¹² In order to implement this last policy framework, i.e. substituting petroleum products used in road transport with non-petroleum fuel, the

⁵⁰⁶ For detail discussion of the special features of the business of electrical energy see footnotes 189-191 and associated texts

⁵⁰⁷ Although the existing legal frameworks allowed private investors to participate in the business of electrical energy (e.g. Art 5(1a) of the Investment Proclamation No 280/2002, Arts 6(4) and 10(1) of Electricity Proclamation No 86/1997 and Arts 3-7 of Electricity Operations Regulation No 49/1999), private investment in the electrical energy supply is not significant. Currently there is no available statistical data that show the extent of involvement of private investors in the electricity supply industry. However, the general understanding is less than 1% of the total electricity supplied in the country.

⁵⁰⁸ Ethiopian Petroleum Enterprise Establishment Regulation No 210/1995, *Negarit Gazeta*, 54th Year No 28, 13th June 1995; the purposes of EPE as stipulated under Art 5 of its establishment Regulation are: 1) to import and arrange for its processing and sell crude oil; 2) to import and sell refined petroleum and other petroleum products; and 3) to engage in any other related activities necessary for the attainment of its purpose.

⁵⁰⁹ Energy Policy

⁵¹⁰ Industry Development Strategy, August 2002

⁵¹¹ Energy Policy, Arts 2.3, 3.5, 4.5 and 6.3

⁵¹² *Ibid*, Art 6.2.2.3

Council of Ministers issued a strategy document for the development and utilization of biofuel to be implemented by MOME.⁵¹³

5.4.3 Legal framework

EEPCO and EPE are the two main federal Government institutions involved in the business of electricity and petroleum related activities, respectively. Both EEPCO and EPE are governed by the Public Enterprise Proclamation⁵¹⁴. The above mentioned legal frameworks do not contain provisions dealing on the energy efficiency of these two federal government owned organs engaged in the business of electricity and fuel supply activities, as the case may be. Nevertheless, the existing Electricity Proclamation has provisions that indicate efficient supply of electricity as one of the regulatory objectives for establishing the EEA.⁵¹⁵ In addition, the Electricity Proclamation and Electricity Operations Regulation contain related provisions that encourage supply side energy efficiency of the electricity industry of the country⁵¹⁶. As regards the supply side energy efficiency of petroleum fuel products the National Petroleum Reserve Depots Administration Proclamation⁵¹⁷ contain some related provisions. Among others it is provided "... devising the necessary methods to keep stored petroleum from change its chemical properties or wastage by evaporation due to long time of storage"⁵¹⁸. In sum, EEPCO on the one hand, and EPE and NPRDA on the other are presumed to devise and implement methods to improve their respective supply side energy efficiency measures in the electricity and petroleum areas, respectively.

⁵¹³ Biofuel Development and Utilization Strategy, August 2007; this strategy document classified biofuel into bioethanol and biodiesel and dealt in detail the strategies of the sources, development and utilization of each of the classified components of biofuel. In addition, Ministry of Mines and Energy drafted and discussed in stakeholders meetings implementing tool of the strategy entitled "Governmental Forum for Biofuel Working Guideline", which is not yet (until end of February 2009) issued, though.

⁵¹⁴ Public Enterprise Proclamation No 25/1992, *Negarit Gazeta*, 51st Year No 21, 27th August, 1992

⁵¹⁵ Electricity Proclamation, Art 5

⁵¹⁶ For example, see Arts 6(1 & 2) of the Electricity Proclamation and Arts 24(1), 26(1), 28(1a & 2a), 32, 37(4), 68-72 of the Electricity Operations Regulation; In addition the supervising authority of EEA, i.e. MOME, issued Electricity Services Quality Standards Directive No 2/2006, Ministry of Mines and Energy, Ref No መክ35/116 Date 29/07/98 EC, hereinafter Performance Standard Directive, which contain various provisions specifying technical efficiency of electricity supply licensees.

⁵¹⁷ National Petroleum Reserve Depots Administration Proclamation No 82/1997, *Federal Negarit Gazeta*, 3rd Year No 45, 1st July, 1997

⁵¹⁸ *Ibid*, Art 6(6)

5.4.4 Institutional framework

EEPCO, EPE and NPRDA are the main federal government institutions that can play great role in the supply side energy efficiency activities. In addition, other licensed private operators engaged in electricity and fuel supply businesses in different parts of the country have their own contribution in the supply side of energy efficiency activities. Supervising and regulatory institutions like MOME, MOTI and EEA have their role in improving the supply side energy efficiency of the aforementioned energy service operators.

5.4.5 Regulatory framework

Price/tariff setting⁵¹⁹ and performance standard⁵²⁰ are the two regulatory instruments destined to improve the supply side of energy efficiency of electricity industry of the country. ROR and price cap are the two internationally prominent methods widely used in setting the price of electricity services.⁵²¹ The Ethiopian electricity price regulation, however, follows the ROR method.⁵²² The three important principles for setting electricity price based on ROR as stipulated under the Electricity Operations Regulation are:

- 1) Electricity pricing shall be based on the principle of efficient allocation of resources where customers and producers receive the true costs associated with consuming and producing one additional unit of energy respectively
- 2) The price that customers get charged for shall be computed in consideration of the cost incurred by the total system, and the energy consumption shall, as much as possible, be made fair taking the production cost into account
- 3) The rate level shall be made sufficient enough to support continuing investments and sustainable services, and shall include a system of pricing that guarantees improved service efficiency.⁵²³

⁵¹⁹ Part four of the Electricity Operations Regulation, i.e. Arts 26-34, stipulates detail provisions to be used in setting the price and tariff of electricity; In addition EEA issued two directives, Pricing Procedure for Interconnected System (ICS) and Large Isolated System No 1/2005, and Pricing Procedure for Small and Very Small Self-Contained System No 2/2005 of March 2005 both contain detail provisions useful for the proper implementation of the price setting principles provided under both the Electricity Proclamation and Electricity Operations Regulation

⁵²⁰ Pursuant to Art 6(2) of the Electricity Proclamation EEA is entrusted to “determine the quality and standard of electricity services and ensure the implementation thereof”; In addition, part five of the Electricity Operations Regulation contained detail provisions in relation with “Standards of Safety, Technical and Quality of Services” of which those provisions mentioned in footnote 518 are most pertinent. Performance Standard Directive is also the other important regulatory instrument worth mentioning here, see footnote 516 and associated texts

⁵²¹ See footnotes 75 and associated texts

⁵²² Electricity Operations Regulation, Art 26 and personal communication with Ato Wubante Adera, Head of Tariff and Planning Department of EEA

⁵²³ Electricity Operations Regulation, Art 26

As regards performance standard both the Electricity Operations Regulation and Performance Standard Directive contain principles and detail implementing procedures that improve the supply side energy efficiency of the electricity industry of the country. The two important performance standards applicable for general safety of electrical supply lines and apparatus that increase the energy efficiency of electricity at the supply side are:

- 1) All electric supply lines and apparatus shall be of sufficient ratings for power, insulation and estimated fault current and of sufficient mechanical strength for the duty which they may be required to perform under the environmental conditions of installation; and
- 2) All electric supply lines and apparatus shall be constructed, installed, protected and maintained in such a manner as to ensure safety of human beings, animals and property.⁵²⁴

In general we have seen that energy efficiency is the ability of getting similar level of energy services at lower energy consumption and cost. Nowadays due to reasons related to the 3Es the issue of energy efficiency is becoming the day to day concern of all countries. The result of such concern brought a paradigm shift towards energy efficiency and various policies, legal, institutional, and regulatory frameworks to achieve the 3Es. In this regard both developed and developing countries benefited from energy efficiency measures they undertook that fit their specific country situations.

When we see the issue of energy efficiency under the Ethiopian scenario we get many disintegrated situations. The following four points may illustrate the disintegration. *Firstly*, the 1994 Energy Policy of the country contained fragmented but important policy instruments in relation to energy efficiency. These policy instruments need revision to comply the existing technological and economic development of the country. *Secondly*, energy efficiency policy instruments found in the Energy Policy are not supported by appropriate strategies and programmes. *Thirdly*, energy efficiency policy instruments of the country are not supported by appropriate legal, institutional, and regulatory frameworks that enables fairly applied as framed in the policy. *Fourthly*, the four components of energy efficiency (i.e. appliances & equipments, industry, transport, and building) are not properly classified and addressed based on their specific characteristics.

⁵²⁴ Ibid, Art 35

Energy efficiency activities at the supply side are equally important not only to increase the energy output but also reduce the high losses usually attributable to old age of electrical supply lines and apparatus and their low maintenance. Both tariff/price setting methods and technical/performance standards play great role to improve supply side energy efficiency particularly in the electricity industry of the country. As Ethiopia is a net importer of all petroleum fuel products the supply side energy efficiency activities in the transport sector mainly focus on devising the necessary methods to keep stored petroleum from change its chemical properties or wastage by evaporation due to long time of storage.

On the other side of the spectrum, however, currently the country is suffering from both shortage of electrical power and the volatile international fuel prices. Thus, in order to manage these problems the existing energy efficiency policy instruments need not only updating and clarification by detail strategies and programmes but also appropriate legal, institutional, and regulatory frameworks must be devised and put in place. What is more, in updating and framing energy efficiency policy, legal, institutional, and regulatory frameworks the following two options should be taken into consideration. The *first* option is to make energy efficiency policy, legal, institutional and regulatory frameworks as separate and independent from other energy components like renewable energy resources (i.e. used as source of electricity). The *second* option may be to merge it with other energy resources like renewable energy and electricity, of course, maintaining separate treatment. The international experience showed both approaches are used based on each country special circumstances. However, as far as choosing the right alternative for Ethiopia is concerned careful study and analysis should be made before arriving at a conclusion for choosing any one of the aforementioned options.

Chapter VI

Conclusions and Recommendations

6.1 Summary of Findings and Conclusions

This study focuses on two distinctive but interrelated central elements of energy resources. The two distinctive central elements are renewable energy resources and energy efficiency. Since both these two elements belong among the three main elements of energy resources we can say that they are interrelated. Hence nowadays both renewable energy resources and energy efficiency are considered as principal instruments in achieving the 3Es. Different countries devised instruments for better utilization of both renewable energy resources and energy efficiency based on each country's special circumstances like political style, economic policy, regulatory legacy, institutional structure, energy resource availability, and cultural development of the society. In order to clearly understand the summary of findings and conclusions let's see each element separately.

6.1.1 Regarding renewable energy resources

Currently the world is suffering from high volatile prices of oil and the continuous environmental degradation (i.e. global warming) caused through the continuous utilization of fossil fuels. Hence energy security for both developed and developing countries and environmental protection for developed and transitional economy countries are the major driving motives for promoting the development of renewable energy resources. The main utility of renewable energy resources is for the generation of electrical energy. Hydropower, solar, wind, and geothermal are classified as the major renewable energy resources.

In spite of the fact that renewable energy resources have nil or very low fuel costs their initial cost of construction is often higher than fossil fuel plants and need long pay back period. In addition, generations of electricity from renewable energy resources especially hydropower and geothermal are site specific, require long construction period, and associated with various risks such as unforeseen geological conditions and drought for hydropower. The multifaceted weaknesses of renewable energy resources in the

generation of electricity demand setting instruments suitable for their development. Moreover, different countries devise policy, legal, institutional, and regulatory frameworks that fit their economic development, political style, and resource availability that promote renewable energy resources developments through private participation.

Nepal, China and India in “small-scale” hydropower; Kenya in geothermal and solar; Philippines in geothermal; Germany, Spain and Denmark in wind energy are some of the countries achieving high success in the aforementioned renewable energy resources. The secret of their success is mainly attributed to designing and sincerely implementing suitable policy, legal, institutional and regulatory frameworks that fit to their respective political style, economic development, and above all resource availability. At this much globalized age of today usually countries are not required to start from the scratch rather what is tried and found working in one country can be easily adopted by others with the necessary adjustment to fit the special features of the adopting country. In sum the valuable experiences and technologies of India in “small-scale” hydropower is now working in Nepal, China, Bangladesh and that of Germany’s success in wind and solar energies are working well in many developed and developing countries of the world.

The other equally important point that needs mention here before going to deal the Ethiopian specific situation in renewable energy resources is the restructuring processes made in the electricity industry in many parts of the world. Hence the shift made from “traditional mode of regulation” (mainly based on vertically-integrated operations and complete absence of competition) to “regulation for competition” was the result of restructuring made in the electricity industry. In the 1980s UK and Chile became the pioneers for making such paradigm shift from government dominance to private ownership on a “big-bang” restructuring approach and praised by many for improving reliability and reducing the price of their respective electricity services. In the 1990s, however, many countries around the world started adopting the experiences of UK and Chile by allowing private participation in the electricity supply industry. These later countries unbundled their vertically-integrated electricity industries and established an independent regulatory organs that facilitate private participation and thereby facilitating the restructuring process of their respective electricity industries.

When we come to the Ethiopian specific situation there is abundant hydropower, solar, wind and geothermal energy resources at different parts of the country suitable for the development of electricity. The hydropower potential of the country places her second from Africa (i.e. next to DR Congo) and fourteenth from World total potential. The location of the country near to the equator; the varying geographic structure such as mountains, valleys, and coastal areas; and the wide coverage of the Rift Valley in the Afar depression contributed for its significant potential in solar, wind and geothermal energy resources, respectively. Be this as it may the electricity per capita of the country is not more than 35 KWh which make her one of the lowest both from the average world (750 KWh) and African (136 KWh) standards. These paradoxical conditions necessitate one to pose the questions: What are the main causes that make the country's electricity per capita to be one of the lowest in the world? What possible means are available to rectify the existing situation? The study tries to address these and similar other questions.

Starting from 1996 the government is undertaking successive liberalization measures in the electricity industry of the country. Investment Proclamation No 37/1996 and its subsequent amendments, Electricity Proclamation, Electricity Operations Regulation, REF Proclamation, EEPCO establishment Regulation, etc are some of the legal frameworks destined to promote private participation in the electricity industry of the country. Currently except transmission of electricity through the Integrated National Grid System which is exclusively reserved for the government all segments of the electricity industry of the country is open for private investment. Moreover, any private investor can participate in the generation of electricity from hydropower, geothermal, solar, wind, etc. energy resources and either directly supply to consumers or sell it wholly to EEPCO based on the PPA to be agreed between the investor and EEPCO. Nevertheless, in the last fourteen years, i.e. since first liberalization measure, private participation in the electricity industry of the country remains in vain that demand to seek additional measures to rectify the problem.

About 90 per cent of the current energy consumption of the country is based on traditional biomass energy sources. The share of modern energy sources particularly through electricity is around 3per cent of the total energy consumption. More than 99 per

cent of the current electricity of the country is generated and supplied by EEPCO. In addition, from the total dependable electricity capacity of EEPCO (i.e. 618.35 MW) about 99 per cent are generated mainly from large-scale hydropower sources. The share of “small-scale” hydropower, solar, wind and geothermal energy resources in the generation of electricity is insignificant. Private investment in the generation and supply of electricity remains negligible and limited at *pico* and *micro* levels developed mainly through the support of NGOs. However, nearly 80 per cent of the population of the country does not have access to electricity. All these factual situations necessitate taking multifaceted measures to correct the status quo.

Policy, legislative, institutional and regulatory tools play great role in transforming a society from traditional energy (biomass) consumption pattern to modern energy (electricity) base. Many countries throughout the world devised suitable policy, legislative, institutional and regulatory instruments that promote renewable energy resources for generating electricity. For example, the EU employed binding policy instruments (i.e. strategies and targets) that 20 per cent of the energy consumption of its members in the year 2020 must come from renewable energy resources. In addition, the EU and members passed legislative, regulatory and institutional tools favorable in realizing the stated policy instruments.

When we come to our country situation the existing Energy Policy contains stipulations favorably skewed to hydropower development for the generation of electricity. Nevertheless, the contribution of “small-scale” hydropower, solar, wind and geothermal energy resources in generating electricity is insignificant. The Energy Policy needs immediate revision both to accommodate the current technological and economic developments and at the same time to fairly balance the share of all renewable energy resources (e.g. by providing premium price above the price of grid based electricity) and at the same time that encourage private sector participation in the sector. In revising the existing Energy Policy adequate room should be given for regional states to issue their own energy policy based on their energy demand, access to grid based electricity, resource availability, etc. In addition, the energy policy makers should develop necessary detail strategies, programmes, and targets that assist the proper implementation of the policy instruments at all levels of the country.

In countries with federal structure such as India and Nigeria electricity was made in their respective constitutions as part of concurrent legislative list whereby federal and state governments have jurisdictions to devise laws that enable them for proper utilization of their electricity industries. The existing FDRE Constitution, however, does not make electricity as part of concurrent legislative list. In other words according to the FDRE Constitution only states are given power to legislate laws and regulate their respective electricity sector while the federal government is not mandated in the same fashion. In reality, however, it is the federal government that enacted various laws destined to administer and regulate the electricity industry of the country. Regional states, on the other hand, do not have similar legal instruments. Hence, in order to allow both the federal and states to legislate laws in relation to electricity the FDRE Constitution needs amendments that make electricity as part of concurrent legislative list.

Nevertheless the federal government enacted laws intended to undertake both operational and regulatory activities. In the area of electricity operations EEPCO establishment Regulation and in the area of energy and renewable energy resources related activities EREDPC and REF establishment proclamations are the major legal instruments. In addition, Electricity Proclamation and Electricity Operations Regulation established EEA laid down appropriate tools for regulating the electricity industry of the country at both the federal and states levels.

In addition to governmental institutions established on the basis of the preceding legal frameworks there are private organizational structures suitable for generating electricity from renewable energy resources. Share companies, plc, general partnerships, joint ventures, limited partnerships, and cooperative societies are among the appropriate business organizational structures that can be established by private investors based on the existing laws of the country. Professional & Civil Society institutions, EECMY, STVC, Sidamo Development Corporation, Irish Aid, etc are among the NGOs that play great role in generating electricity from renewable energy resources.

In regulating the electricity industry many countries with federal structure follow dual regulatory arrangement, i.e. regulating at both federal and states level. The price of

electricity generated from federally owned renewable energy resources such as from rivers crossing two or more than two regional states and transmission and distribution networks, geothermal energy resource are mainly regulated at federal level. On the other hand, generation of electricity from “small-scale” hydropower, wind, and solar energy sources, transmission, distribution and sale of electricity in a state can easily be regulated at state level.

Electricity Proclamation established EEA as an autonomous federal organ and at the same time uses as the basis for the regulatory instrument of the electricity industry of the country. Electricity Operation Regulation, Electricity Services Performance Standards Directive, Electricity Pricing Procedures, Uniform System of Accounts Standard, etc are some of the implementing regulatory tools issued at different stages of the executive organs. However, states do not have similar regulatory instruments and organs responsible to regulate electricity at state level. In sum, licensing, ROR, and performance standards are the important regulatory instruments in regulating the electricity industry of the country at the federal level.

When we come to the role of the government we can easily observe that the government has complete grip both in the operation and regulatory activities of the electricity industry of the country. Thus the above dual functions of the government in the industry may be viewed from positive and negative perspectives. In the positive side the government has the obligation to satisfy public interests whereby the private sector is found unable to provide electricity services at affordable prices at a given place and time. In addition, the government participation in the electricity operation activities may have stimulating effects for the involvement of private sector in the industry. This is especially true due to the fact that investment in electricity operational activities is not only capital-intensive and requires long pay back period but also exposed to risks that the private sector might not be able to manage it easily.

On the negative aspect, however, equal playing field might not be put in place, i.e. usually favoring the government side. In order to reduce and then eliminate the aforementioned negative feature, however, many countries throughout the world

restructured their electricity industries from government dominance based on vertically-integrated structure to unbundling and privatization. Accordingly the role of the government is limited to regulation particularly on those segments susceptible to abuse, i.e. natural monopoly segments of the industry. Reliability and reduced price of electricity are some of the benefits of restructuring gained by many countries such as UK and Chile. In the Ethiopian situation, on the other hand, a decade long restructuring process in the electricity industry produced no substantive results that call to strengthen it by putting additional restructuring process in place.

6.1.2 Regarding energy efficiency

Nowadays the contribution of energy efficiency in achieving the 3Es goals becomes significant. Many countries, states and jurisdictions throughout the world (belonging to both developed and developing category) implemented various types of policy, legislative, institutional, and regulatory instruments in achieving energy efficiency gains. In addition, energy efficiency measures can be viewed from the perspective of appliance & equipment, industry, transport, and building. However, under the Ethiopian specific conditions only the first three of the preceding elements are pertinent. In other words, based on the climatic conditions, economic and technological developments of the country energy efficiency measures in building and its contribution in the overall energy efficiency gains remain minimal.

Energy efficiency is taken as the basis of the existing Energy Policy of the country. The Energy Policy contains important stipulations on energy efficiency measures related to appliance & equipment, industry, and transport sectors. Accordingly, the Energy Policy explicitly provides that the basis of Ethiopia's overall development policy give priority to the introduction of energy efficiency measures. In particular by introducing appropriate incentives the Energy Policy intends to raise the efficiency of the energy sector. Nevertheless, the Energy Policy needs revision to accommodate the current economic and technological development of the country. In addition, the Policy must be supported by appropriate detail strategies and programmes that enable law makers for developing the legal instruments destined to apply the policy into practice.

Unlike the policy tools the legal, institutional and regulatory instruments of energy efficiency are not explicitly provided in any one legal framework of the country. There are various legal, institutional, and regulatory alternative instruments that may be adopted that suits the country's economic, technological, cultural, etc stage of development. For example, as regards the legal framework different countries such as China (Energy Conservation Law of 1997), Thailand (Energy Conservation Promotion Act of 1992), India (Energy Conservation Law of 1997), etc enacted separate laws dealing only on energy efficiency. While others such as US (Energy Policy Act of 2005), UK (Climate Change Agreement and the Climate Levy Act of 2000), etc enacted energy efficiency laws together with other laws like renewable and climate change. Empirical studies indicate that energy efficiency law in the area of appliance & equipment, and industry can be enacted separately while transport energy efficiency law can be merged with the relevant transport laws.

Energy efficiency laws require dedicated institutions destined to implement the various energy efficiency measures provided under its legal framework. These energy efficiency institutions may be established and funded through government budget, or sponsored by NGOs, or established and run privately based on commercial principles. Various types of energy efficiency institutions are established by many countries, regions, and states throughout the world. On the other hand, there are no specific institutions established to undertake energy efficiency measures in the Ethiopian context. However, there are institutions established to accomplish other purposes for instance QSAE, EEA, EREDPC, Transport Authority, etc that may be utilized to undertake energy efficiency activities, as may be appropriate. In establishing energy efficiency institutions the different available alternatives should be taken into consideration. For example, establishing governmental, NGO, or private, or mixed, as may be appropriate, funded energy efficiency institutions both at federal and state levels should be assessed fairly based on the country's specific situations.

In addition, in order to achieve wide ranging results, energy efficiency policy, legal, and institutional instruments needs to be supported by appropriate regulatory tools or, as the case may be, standards. Energy efficiency standards and labels are the most widely used

tools in achieving results of energy efficiency measures in the various sectors such as appliance & equipment, industry, transport, and building. Energy taxation, skilled personnel, industry voluntary agreements, etc are also applied in attaining energy efficiency results particularly in industry. When we come to the Ethiopian specific situation there exist neither regulatory instruments nor standards put in place to accomplish energy efficiency measures in the fields of equipment & appliance, industry, and transport. Thus, in designing energy efficiency regulatory instruments all appropriate means of achieving energy efficiency measures should be taken into consideration.

6.2 Recommendations

This study attempts to unravel the broader issue: how renewable energy resources and energy efficiency measures can be appropriately utilized in improving the multifaceted modern energy (particularly electricity) problems of the country? As part of the solutions and in addition to those suggested at different parts of the study the following recommendations require due consideration:

First and foremost both renewable energy resources and energy efficiency must be put as one of the priority areas in the overall national energy policy framework of the country. In doing so, however, and based on the country's specific situations, all the available renewable energy resources and energy efficiency measures should be taken into account. In order to accommodate the current economic, social and technological developments of the country the existing Energy Policy needs revision, and be supported by appropriate strategies and programmes as well as targets. What is more, in framing the national energy policy instruments of the country, the participation and cooperation of federal and states including all relevant stakeholders should be given paramount importance.

Second, when we see the FDRE Constitution as part and parcel of the legal frameworks of RE and energy efficiency it does not allow enacting laws in relation to electricity at the federal level. Thus, to make electricity as part of concurrent legislative list requires the amendment of the FDRE Constitution. On the other hand, the various legal frameworks in relation to renewable energy resources and energy efficiency may be enacted either by merging the two in a single legal instrument or treating separately, as may be appropriate.

Empirical assessment in the study indicates that making renewable energy and energy efficiency laws in separate legal instrument is the better approach that assists for further clarity and future easy implementation. Hence, in the Ethiopian context renewable energy or better called energy law (“Energy Proclamation”) and energy efficiency law (“Energy Efficiency Proclamation”) better be enacted in two separate legal instruments.

Third, institutional instruments play great role in achieving the required results of renewable energy resources and energy efficiency measures. Government, NGO, or private institutions may be utilized both at federal and states level. In other words, both federal and state governments need to establish and/or strengthen the required institutions destined to promote the development and fair use of renewable energy resources (particularly in the generation of electricity) and energy efficiency measures through the private sector and NGOs. Energy agencies, civil societies, training (including RD&D) institutions, share companies, private limited companies, cooperatives, etc are among governmental, NGO, and private institutions/organizations that have great role in the promotion and development of both renewable energy resource and energy efficiency measures. These institutional tools should be further streamlined for proper utilization of renewable energy resource and energy efficiency measures

Fourth, regulatory tools become important especially in situations where due to market failure economic instruments alone are unable to address the objectives of renewable energy resources and energy efficiency policy and legal frameworks. For example, in the natural monopoly segments of electricity where free competition is found to be perversive the various instruments of economic regulation are applied. Licensing (or franchising), ROR and price cap, and performance standards methods are the widely applied economic regulation instruments in the electricity industry of the world, which, as may be appropriate, Ethiopia may utilize. Minimum efficiency standards and labels should be considered as part of regulatory instruments in framing appliance & equipment, industry, and transport energy efficiency policy and legal instruments of the country.

Fifth, Ethiopia is endowed with vast renewable energy resources suitable for the generation of electricity both at large-scale and “small-scale” level. Private sector

participation in the generation of electricity from these renewable energy resources is, however, insignificant. On the other hand, relying wholly on one electric power utility, EEPCO, to supply nearly the eighty million populations living scattered mainly in the rural areas of the country, may be unrealistic. Thus, different mechanisms have to be utilized that encourage the private sector to generate and supply electricity from renewable energy resources. The empirical assessment made in this study indicates that adopting the FIT law method used by other countries for similar purposes contribute significant advantages in attracting the private sector particularly in the generation and supply of electricity from renewable energy resources particularly at “small-scale” level, which Ethiopia can make use of it.

Sixth, unbundling of the vertically-integrated electricity structure into the generation, transmission, distribution, and supply segments are the widely used method in many countries in restructuring their respective electricity industries. When we come to the Ethiopian scenario the restructuring process of the electricity industry started in 1996 have been halted after mere corporatization of EEPCO and establishing of an “autonomous regulator” of the electricity industry of the country (that is, EEA). In other words, the first move of restructuring brought no significant result particularly in improving private participation in the sector. Thus, the multifaceted restructuring process of the electricity industry must continue by taking the country’s specific conditions including renewable energy resources availability into consideration.

Seventh, electricity regulation entails establishment of an independent regulator. Economic regulation is one of the main functions of electricity regulatory institutions. Independence of the regulator from the day-to-day political intervention especially in setting the price/tariff of electricity services is taken as the major factor for attracting the private sector involvement in the industry. Electricity price/tariff setting under the Ethiopian scenario is left for political decision allowing the regulator EEA only “to study the price of electricity and recommend and upon approval implement thereof” which highly erodes the independence of EEA. Hence, in order to assure the independence of the EEA and improve the private sector participation in the industry, the price/tariff setting mandate requires to be wholly given to EEA.

Eighth, in setting the regulatory system of the electricity/energy industry of the country there are certain internationally accepted principles in the field that should be followed here too equally. Accordingly, the *first* principle is to know that regulation is a means to an end. Moreover, what ultimately matter is the outcomes (i.e. sustainable electrification through appropriate private sector participation, reliability, affordability, safety, customer satisfaction, etc), not regulatory rules. The *second* principle is that the benefits of regulation must exceed the costs of regulation. Since any regulation will cost time and money to comply with, regulation should not be taken as an alternative unless it is found “absolutely necessary” to do so. The *third* principle is that “light-handed” regulation must be opted in lieu of “heavy-handed” regulation (or overregulation) and at the same time regulatory organs must be authorized to follow *flexible* approach of regulation whenever necessary. In other words, the electricity/energy regulatory legal framework is required to mandate the regulator with explicit authority to vary its regulatory rules and procedures (i.e. licenses vs. concessions), and depending on the nature of the entity that is being regulated (i.e. small vs. large, grid vs. off-grid, private vs. community based).

Ninth, the structure of the institution to be established to regulate electricity and energy efficiency activities in the Ethiopian context can be either merged in one regulatory organ or dealt with two different regulatory institutions. International experiences in this respect show that both approaches (single, or two, different organ/s) are applied based on each country’s political style, economic development, cultural situation, renewable energy resources availability, institutional and regulatory legacy, etc. Hence, as far as Ethiopia is concerned there is an established federal government organ to regulate the electricity industry of the country (i.e. EEA) which with appropriate amendments and additional legal frameworks may be reestablished to regulate both electricity and energy efficiency activities of the country on the basis of single regulatory organ structure. Of course, by taking the involvement of diversified professional activities (for instance, electricity, and energy efficiency in appliances & equipments, industry, and transport) into consideration the *commission* management structure should better replace the incumbent agency administrative structure.

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Annexes

Annex I

ENERGY POLICY OF THE TRANSITIONAL GOVERNMENT OF ETHIOPIA

**ENERGY POLICY
OF THE
TRANSITIONAL GOVERNMENT OF ETHIOPIA**

March 1994

Table of Contents

1.	PREAMBLE	1
2.	RATIONALE FOR THE POLICY.....	1
3.	POLICY OBJECTIVES	2
4.	GENERAL POLICY	2
5.	PRIORITY OF THE POLICY	3
6.	MAIN POLICY ISSUES AND STRATEGIES	4
6.1	Energy Resources Development	4
6.2	Energy supply	4
6.3	Energy Conservation and Efficiency	5
6.4	Comprehensive Policy Measures	6
6.5	Energy Institutional Issues	7

ENERGY POLICY OF THE TRANSITIONAL GOVERNMENT OF ETHIOPIA

1. PREAMBLE

Ethiopia's Energy consumption is predominantly based on biomass energy sources. An overwhelming proportion (94%) of the country's energy demand is met by traditional energy sources such as fuelwood, charcoal, branches, dung cakes and agricultural residues. The balance is met by commercial energy sources such as electricity and petroleum. The most important issue in the energy sector is the supply of household fuels, which is associated with massive deforestation and the resultant land degradation. The increasing scarcity of fuelwood is compounded by Ethiopia's high population growth rate.

Ethiopia is committed to shaping its economic future. The government has adopted a strategy for sustainable economic development which places agriculture as its driving force. This strategy is known as ADLI (Agricultural Development Led Industrialization). It envisages the structural transformation of the Ethiopian economy through export-led growth which feeds into an interdependent agricultural and industrial development.

Though Ethiopia is endowed with vast energy resources 30,000 MW hydropower resources, 1387 million TOE biomass resources, 17.5 million TOE agricultural residue, over 100 billion cubic meter of natural gas, 4000MW geothermal energy, 40.3 million tons of coal and oil shale and vast resources of solar and wind energy, it has not been able to develop, transform and utilize these resources for optimal economic development. Therefore, the Transitional Government of Ethiopia believes it is imperative to provide the economy with the necessary energy inputs at the right time and affordable prices. This will speed economic development and help the country attain the objectives of the Economic Reform Program the government has adopted. It is necessary to formulate a comprehensive national energy policy which directs the development of the energy sector in a coordinated manner that, concomitantly, and ensures that energy development is benign to the environment.

Various attempts have been made in the past to formulate a national energy policy. However, this document represents the first energy policy to be formulated which takes into account the concerns of all sectors. This policy is grounded in the Transitional Government's Economic Policy. An energy policy is dynamic by nature. Therefore, this policy will be revised from time to time to take into consideration new developments.

This policy is intended to enhance and foster "Agricultural Development Led Industrialization (ADLI)" strategy and is consistent with other sector policies. In addition to this it provides the necessary support and incentives the participation of the private sector and community, particularly women in the development of energy.

2. RATIONALE FOR THE POLICY

Energy is critical for economic development. Its importance stems from the fact that energy is a basic input in all productive activities, including the household sector. Energy is a necessary input to meet basic survival needs. In order to properly address the energy problem in the country from all aspects, it is necessary to formulate a comprehensive national energy policy which ensure least-cost development consistent with the country's energy resource endowment and socio- economic policies. More specifically the need for energy policy, is based on the following rationale:

- 2.1 To develop and utilize the country's energy resources on the basis of Ethiopia's overall development strategy priority along with the introduction of energy conservation and efficiency strategy.
- 2.2 To support other economic sectors to meet their development objectives by putting in place a clearly defined energy policy;
- 2.3 To save scarce foreign exchange resources and to ensure that energy is efficiently utilized;
- 2.4 To ensure reliable and secure energy supplies to cushion the economy from external and internal disruptions of supply as well as price fluctuations;
- 2.5 To change the current energy production and utilization practices and ensure that energy development is based on sound management practice and is benign to the environment.
- 2.6 To formulate comprehensive energy prices in order to ensure financial and economic profitability;
- 2.7 To ascertain what energy technologies and equipment are appropriate for and compatible with the country's economic development needs; and
- 2.8 To raise the efficiency of the energy sector and develop the necessary institutional and manpower capabilities by introducing appropriate incentive measures, to undertake energy development programs.

3. POLICY OBJECTIVES

The general objectives of the energy policy are:

- 3.1 To ensure a reliable supply of energy at the right time and at affordable prices, particularly to support the country's agricultural and industrial development strategies adopted by the government.
- 3.2 To ensure and encourage a gradual shift from traditional energy sources use to modern energy sources.
- 3.3 To stream-line and remove bottlenecks encountered in the development and utilization of energy resources and to give priority to the development of indigenous energy resources with a goal toward attaining self sufficiency.
- 3.4 To set general guidelines and strategies for the development and supply of energy resources;
- 3.5 To increase energy utilization efficiency and reduce energy wastage; and,
- 3.6 To ensure that the development and utilization of energy is benign to the environment.

4. GENERAL POLICY

The government of Ethiopia's general energy sector policy is:

- 4.1 To enhance and expand the development and utilization of hydrological resources for power generation with emphasis on minihydropower development.
- 4.2 To promote and strengthen the development and exploration for natural gas and oil;
- 4.3 To greatly expand and strengthen agro-forestry programs;
- 4.4 To provide alternative energy sources for the household, industry, agriculture, transport and other sectors;
- 4.5 To introduce energy conservation and energy saving measures in all sectors;
- 4.6 To ensure the compatibility of energy resources development and utilization with ecologically and environmentally sound practices;
- 4.7 To promote self-reliance in the fields of technological and scientific development of energy resources;
- 4.8 To ensure community participation, especially the participation of women, in all aspects of energy resources development and encourage the participation of the private sector in the development of the energy sector.
- 4.9 To stage popularization campaign through mass media using various national languages to create awareness among the general public and decision makers regarding energy issues; and,
- 4.10 To create appropriate institutional and legal frameworks to handle all energy issues.

5. PRIORITY OF THE POLICY

The Government of Ethiopia's energy sector policy priorities are:

- 5.1 To place high priority on hydro-power resource development, as hydrological resources are Ethiopia's most abundant and sustainable energy forms;
- 5.2 To take appropriate policy measures to achieve a gradual transition from traditional energy fuels to modern fuels;
- 5.3 To set, issue and publicize standards and codes which will ensure that energy is used efficiently and properly;
- 5.4 To develop human resources and establish competent energy institutions;
- 5.5 To provide the private sector with necessary support and incentives to participate in the development of the country's energy resources; and
- 5.6 To pay due and close attention to ecological and environmental issues during the development of energy projects;

6. MAIN POLICY ISSUES

6.1 Energy Resources Development

6.1.1 Traditional fuels

1. A country wide afforestation program will be undertaken to enhance the supply of fuelwood to consumers.
2. To reduce the negative effects of agri-residue use for energy on soil fertility measures will be taken to modernize and increase the efficiency of the utilization of agri-residue as energy sources.

6.1.2 Modern Energy Resources Development

1. Hydro power will form the backbone of the country's energy sector development strategy, as it is the country's most abundant and sustainable energy resource;
2. Ethiopia's geothermal and coal resources will be developed on the basis of their economic profitability;
3. Natural gas resources will be developed and utilized to meet as much of the country's energy demand as possible; and
4. Promising areas for oil and natural gas will be explored by providing incentives to oil companies to encourage them to take in exploration activities.

6.1.3 Alternative Energy Resources Development

Policy

1. Solar and geothermal energy will be used, wherever possible, for process heat and power generation;
2. Ethiopia's wind energy resources will be developed to provide shaft power for water pumping and irrigation;
3. Coal will be developed and introduced as an alternative fuel.

6.2 Energy supply

6.2.1 Households Energy

Policy

Government's household energy policy is to achieve a balance between the supply and demand for household fuels. Government will seek to stabilize their prices by increasing the supply of alternative fuels and relieving the pressure on wood resources.

6.2.2 Transport Energy Supply

Policy

The transport energy supply policy is:

1. To formulate policy measures and give emphasis to the introduction of improved and appropriate transport technologies in the rural areas;
2. To adopt conservation measures to reduce the use of petroleum products in the transport sector;
3. To decrease the use of petroleum products in the transport sector by substituting, wherever possible, to new non-petroleum fuels.

6.2.3 Agriculture energy supply

Policy

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

6.2.4 Industrial Energy

Policy

Government's industrial sector energy policy is:

1. To ensure that industrial energy supply will be compatible with the industrial development of the country; and
2. To ensure that industrial energy use and supply will be based on economic and efficiency criteria.

6.3 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.

6.3.1 Households energy

Policy

Government's policy regarding household energy is to increase energy efficiency in the household sector by instituting conservation and energy saving measures.

6.3.2 Industrial Energy

Policy

Government's industrial energy policy is to improve the efficiency of industrial equipment to conserve and reduce energy consumption.

6.3.3 Transport energy

Policy

Government will institute and enforce measures to improve energy efficient use and conservation in the transport sector in order to decrease petroleum product consumption.

6.3.4. Agriculture Energy

Policy

Wherever possible, energy demand in the agriculture sector will be met through locally-produced modern energy resources.

6.3.5 Commercial and Service Sector Energy

Policy

Government will adopt energy efficiency measures to eliminate energy waste in the commercial and service sectors arising from inefficient end-use devices.

6.3.6 Mining and Construction Sector Energy

Policy

Government will adopt energy saving measures in the mining and construction sectors to decrease energy waste.

6.4 Comprehensive Policy Measures

6.4.1 Energy and environment

Government will ensure that the development of energy projects, energy generation, transmission and use is benign to the environment.

6.4.2. Energy Science and Technology

Emphasis will be given to the following issues, in order to create awareness about energy science and technology. This will also serve to build national capabilities in energy science and technology for the optimal development and supply of energy resources.

Traditional Energy Sources

Conduct research on all aspects of energy development and utilization to increase the reliability of energy supply, to arrest deforestation and to control environmental pollution resulting from energy use; and

Undertake research to increase the efficiency of traditional stoves and develop more effective energy use practices.

Electric Energy

Build national capacity in design, development, operation, maintenance and consultancy in the electricity subsector; and

Gradually build local manufacturing capability of electrical equipment and appliances.

6.4.3 Energy Policy, Planning and Management

Create and maintain an energy data base to assist in energy planning, management and informed decision making.

6.4.4 Manpower Development and Energy Education

To effectively undertake energy development programs and least cost energy planning, develop the necessary manpower on all aspect of energy development and utilization; and

To enhance energy saving it is necessary to create awareness about the critical role of energy by educating the public on general energy issues.

6.5 Energy Institutional Issues

It is imperative to create an institution which is entrusted with policy formulation, priority setting and coordination of all energy sector development activities in order to coordinate and ensure consistency in energy resource development, and to avoid resource waste and duplication of efforts.

Annex II

Proclamations

- **Electricity Proclamation No 86/1997**
- **Ethiopian Rural Energy Development and Promotion Center
Establishment Proclamation No 269/2002**
- **Rural Electrification Fund Establishment Proclamation No 317/2003**

- ፩. “ፈቃድ” ማለት ለንግድ ዓላማ ኤሌክትሪክን ለማመንጨት፣ ለማስተላለፍ፣ ለማከፋፈልና ለመሸጥ በዚህ አዋጅ መሠረት የሚሰጥ ፈቃድ ነው።
- ፪. “ባለፈቃድ” ማለት በዚህ አዋጅ መሠረት ፈቃድ የተሰጠው ሰው ነው።
- ፫. “ሚኒስትር” እና “ሚኒስቴር” ማለት እንደ ቅደም ተከተሉ የማዕድንና ኢነርጂ ሚኒስትር እና ሚኒስቴር ነው።
- ፬. “ሰው” ማለት ማናቸውም የተፈጥሮ ሰው ወይም በሕግ የሰውነት መብት የተሰጠው አካል ነው።
- ፭. “ደንብ” ማለት ይህን አዋጅ ለማስፈጸም የሚወጣ ደንብ ነው።
- ፮. “ታሪፍ” ማለት በመንግሥት የጸደቀ የኤሌክትሪክ አገልግሎት ዋጋ ተመን ገርዝር ነው።
- ፯. “ማስተላለፍ” ማለት ከፍተኛ መጠን ያለውን ኤሌክትሪክ የማጓጓዝ ተግባር ነው።

ክፍል ሁለት
ስለኤሌክትሪክ ኤጀንሲ

መቋቋም

፩. የኢትዮጵያ ኤሌክትሪክ ኤጀንሲ (ከዚህ በኋላ “ኤጀንሲ” ተብሎ የሚጠራ) ራሱን የቻለ የፌዴራል መንግሥት መሥሪያ ቤት ሆኖ በዚህ አዋጅ ተቋቋሟል።

፪. ኤጀንሲው ተጠሪነቱ ለሚኒስቴሩ ይሆናል።

ዋናው መሥሪያ ቤት
የኤጀንሲው ዋና መሥሪያ ቤት በአዲስ አበባ ሆኖ እንደአስፈላጊነቱ በማናቸውም ሥፍራ ቅርንጫፍ ሊኖረው ይችላል።

የኤጀንሲው ዓላማ
የኤጀንሲው ዓላማ ብቁ፣ አስተማማኝ፣ ጥራት ያለውና ኤኮኖሚያዊ የሆነ የኤሌክትሪክ አገልግሎት እንዲሰፋፋ ማድረግ ይሆናል።

የኤጀንሲው ሥልጣንና ተግባር

፩. የኤሌክትሪክ ማመንጨት፣ ማስተላለፍ፣ ማከፋፈልና ሽያጭ ሥራዎች በዚህ አዋጅ፣ አዋጁን ለማስፈጸም በወጡ ደንቦችና መመሪያዎች መሠረት መካሄዳቸውን መቆጣጠርና ማረጋገጥ።

፪. የኤሌክትሪክ አገልግሎቶችን ጥራትና ደረጃ መወሰን፣ ተግባራዊነታቸውን ማረጋገጥ።

፫. ለኤሌክትሪክ ሥራ ተቋራጮች የሙያ ብቃት የምስክር ወረቀት መስጠት።

፬. በዚህ አዋጅና አዋጁን ለማስፈጸም በወጡ ደንቦችና መመሪያዎች መሠረት የኤሌክትሪክ ማመንጨት፣ ማስተላለፍ፣ ማከፋፈልና መሸጥ ፈቃድ መስጠት፣ ማገድና መሠረዝ።

፭. ታሪፍን አጥንቶ ለውሳኔ ማቅረብ፣ ሲፈቀድም ተግባራዊነቱን መቆጣጠር።

፮. በደንብ በሚወሰነው መሠረት የፈቃድ ክፍያዎችን መሰብሰብ።

፯. በኤሌክትሪክ ቴክኒካዊ እድገት መስክ ከማሰልጠኛ ተቋማት ጋር መተባበር።

- 6) “license” means a license issued pursuant to this Proclamation to generate, transmit, distribute and sell electricity for commercial purposes;
- 7) “licensee” means a person issued with a license pursuant to this Proclamation;
- 8) “Minister” and “Ministry” means the Minister and the Ministry of Mines and Energy, respectively;
- 9) “person” means any natural or juridical person;
- 10) “regulations” means regulations to be issued for the implementation of this Proclamation;
- 11) “tariff” means the list of fixed charges approved by the Government for electricity services;
- 12) “transmission” means the transportation of bulk electricity.

PART TWO

The Electricity Agency

3. Establishment

1) The Ethiopian Electricity Agency (hereinafter the Agency) is hereby established as an autonomous federal agency having its own legal personality;

2) The Agency shall be accountable to the Ministry.

4. Head Office

The Head Office of the Agency shall be in Addis Ababa and it may have branch offices elsewhere as necessary.

5. Objective

The objective of the Agency shall be to promote the development of efficient, reliable, high quality and economical electricity services.

6. Powers and Duties of the Agency

The Agency shall have the powers and duties to:

- 1) supervise and ensure that the generation, transmission, distribution and sale of electricity are carried out in accordance with this Proclamation as well as regulations and directives issued hereunder;
- 2) determine the quality and standard of electricity services and ensure the implementation thereof;
- 3) issue certificates of professional competence to electrical contractors;
- 4) issue, suspend and revoke license for the generation, transmission, distribution and sale of electricity in accordance with this Proclamation as well as regulations and directives issued hereunder;
- 5) study and recommend a tariff and, upon approval, supervise the implementation thereof;
- 6) collect license fees in accordance with rates to be prescribed by regulations;
- 7) cooperate with training institutions in the field of technical development of electricity.

፮. የኤጀንሲው አመራር

- ፩. ኤጀንሲው በሚኒስትሩ አቅራቢነት በመንግሥት የሚሾም እንደ ዋና ሥራ አስኪያጅና አስፈላጊው ሠራተኞች ይኖራል።
- ፪. ዋናው ሥራ አስኪያጅ የኤጀንሲው ዋና ሥራ አስፈጻሚ በመሆን ከሚኒስትሩ በሚሰጠው አጠቃላይ መመሪያ መሠረት የኤጀንሲውን ሥራዎች ይመራል፤ ያስተዳድራል።
- ፫. በዚህ አንቀጽ ንዑስ አንቀጽ (፪) የተጠቀሰው ጠቅላላ አንጋገር እንደተጠበቀ ሆኖ ዋናው ሥራ አስኪያጅ፡
 - ሀ) በዚህ አዋጅ አንቀጽ ፮ የተመለከተውን የኤጀንሲውን ሥልጣንና ተግባሮች ሥራ ላይ ያውላል፤
 - ለ) የፌዴራል ሲቪል ሰርቪስ ሕግን መሠረታዊ ዓላማዎች ተከትሎ መንግሥት በሚያጸድቀው መመሪያ መሠረት የኤጀንሲውን ሠራተኞች ይቀጥራል፤ ያስተዳድራል፤
 - ሐ) የኤጀንሲውን የሥራ ፕሮግራምና በጀት አዘጋጅቶ ለሚኒስትሩ ያቀርባል፤ ሲፈቀድም በሥራ ላይ ያውላል፤
 - መ) በጸደቀው የኤጀንሲው በጀት መሠረት ገንዘብ ወጪ ያደርጋል፤
 - ሠ) ከሦስተኛ ወገኖች ጋር በማደረግ ግንኙነት ሁሉ ኤጀንሲውን ይወክላል፤
 - ረ) የኤጀንሲውን የሥራ ክንውንና የሂሳብ ሪፖርት አዘጋጅቶ ለሚኒስትሩ ያቀርባል።
- ፬. ዋና ሥራ አስኪያጅ ለኤጀንሲው የሥራ ቅልጥፍና በሚያስፈልግ መጠን ሥልጣንና ተግባርን ለኤጀንሲው የሥራ ኃላፊዎችና ሠራተኞች በውክልና ሊያስተላልፍ ይችላል። ሆኖም እርሱ በማይኖር ጊዜ ተክቶ እንዲሠራ የሚወክል ሰው ከባቸው ለሚበልጥ ጊዜ የሚሠራ ከሆነ ውክልናው አስቀድሞ በሚኒስትሩ መፈቀድ አለበት።

፯. በጀት

- ፩. የኤጀንሲው በጀት ከሚከተሉት ምንጮች የተውጣጣ ይሆናል፡
 - ሀ) በመንግሥት ከሚመደብለት በጀት፤
 - ለ) ከሚሰበሰበው የፈቃድ ክፍያ፤ እና
 - ሐ) ከሌሎች ምንጮች ከሚገኝ ገንዘብ።
- ፪. በዚህ አንቀጽ ንዑስ አንቀጽ (፩) የተመለከተው ገንዘብ በኤጀንሲው ስም በሚከፈት የባንክ ሂሳብ ተቀማጭ ሆኖ የፌዴራሉን መንግሥት የፋይናንስ አስተዳደር አዋጅ መሠረት በማደረግ የኤጀንሲውን ሥራዎች ለማስፈጸም ወጪ ይሆናል።

፱. የሂሳብ መዘግብት

- ፩. ኤጀንሲው የተሟሉና ትክክለኛ ቶሎ የሂሳብ መዘግብትን ይይዛል።
- ፪. የኤጀንሲው የሂሳብ መዘግብትና ገንዘብ ነክ ሰነዶች በዋናው ለዲተር ወይም ዋናው ለዲተር በሚሰይማቸው ለዲተሮች በየዓመቱ ይመረመራሉ።

ከፍል ሦስት
ፈቃድና የፈቃድ አሰጣጥ ሁኔታዎች

፲. የፈቃድ አስፈላጊነት

- ፩. ማንኛውም ሰው ከኤጀንሲው የተሰጠ ፈቃድ ሳይኖረው ለንግድ ዓላማ ኤሌክትሪክ ማመንጨት፣ ማስተላለፍ፣ ማከፋፈል ወይም መሸጥ አይችልም።

7. Management of the Agency

- 1) The Agency shall have a General Manager, to be appointed by the Government upon the recommendation of the Minister, and the necessary staff.
- 2) The General Manager shall be the chief executive of the Agency and shall, subject to general guidance by the Ministry, direct and administer the activities of the Agency.
- 3) Without limiting the generality of sub-Article (2) of this Article, the General Manager shall:
 - (a) exercise the powers and duties of the Agency specified under Article 6 of this Proclamation;
 - (b) employ and administer employees of the Agency in accordance with directives approved by the government in compliance with the basic principles of federal civil service laws;
 - (c) prepare and submit to the Ministry the work programme and budget of the Agency and implement same upon approval;
 - (d) effect expenditure in accordance with the budget approved for the Agency;
 - (e) represent the Agency in all its dealings with third parties;
 - (f) prepare and submit to the Ministry the activity and financial reports of the Agency.
- 4) The General Manager may delegate part of his powers and duties to other officials and employees of the Agency to the extent necessary for the efficient performance of its activities; provided, however, that in the case of delegation to act on behalf of the General Manager for more than thirty (30) days, prior approval by the Minister shall be required.

8. Budget

- 1) The budget of the Agency shall be drawn from the following sources:
 - (a) budget allocated by the Government;
 - (b) license fees; and
 - (c) monies from other sources.
- 2) The fund referred to in sub-Article (1) of this Article shall be deposited in an account opened in the name of the Agency and be expended for the carrying out of its activities, in accordance with federal financial administration laws.

9. Books of Account

- 1) The Agency shall keep complete and accurate books of account.
- 2) The books of account and financial documents of the Agency shall be audited annually by the Auditor General or by auditors designated by him.

PART THREE
Requirement and
Conditions of License

10. Requirement of License

- 1) No person may generate, transmit, distribute or sell electricity for commercial purposes unless he is a holder of a license.

- ፩. ማንኛውም ሰው ለንግድ ላልሆነ ዓላማ ኤሌክትሪክ ለማመን ጨት ፣ ለማስተላለፍ ወይም ለማከፋፈል በቅድሚያ ኤጀንሲውን ማሳወቅና የአካባቢ ጥበቃና የአደጋ መከላከያ ሁኔታዎችን ማሟላቱን በኤጀንሲው ለማረጋገጥ የሚያስችሉ መረጃዎችን ማቅረብ አለበት ።
- ፪. የመጠባበቂያ ኃይል ማመንጫ መሣሪያ ተክሎ ኤሌክትሪክ የሚያመነጭ ማንኛውም ሰው ከሚመለከተው ባለፈቃድ ጋር ስምምነት አድርጎ በአካባቢው በሚገኘው የማከፋፈያ መስመር ሊጠቀም ይችላል ።

፲፩. ፈቃድ ለማግኘት ብቁ ስለመሆን

- ፩. ማንኛውም ሰው በዚህ አዋጅ ፣ አዋጁን ለማስፈጸም በሚወጡ ደንቦችና መመሪያዎች እና በኢንቨስትመንት ሕግ የተገለጹትን ፈቃድ ለማግኘት ብቁ የሚያደርጉ መሥሪያቶችን ያሟላ ከሆነ እንዲሁም በንግድ ሕግ መሠረት የንግድ ሥራ ማካሄድ የሚችልና የፈቃድ ግዴታዎችን ለመወጣት የሚያስችል የገንዘብ ምንጭ ፣ የቴክኒክ ችሎታ ፣ ሙያና ልምድ ያለው መሆኑ በኤጀንሲው ለረጋገጥ ፈቃድ ይሰጠዋል ።
- ፪. ይህ አዋጅ ከመውጣቱ በፊት የኤሌክትሪክ ማመንጨት ፣ ማስተላለፍ ፣ ማከፋፈል እና መሸጥ ሥራዎችን ሲሠራ የቆየ ማንኛውም ሰው አስፈላጊውን ዝርዝር የያዘ ማመልከቻ በማቅረብ ፈቃድ ማውጣት አለበት ።

፲፪. ፈቃድ ስለማስተላለፍ

በዚህ አዋጅ የተሰጠ ፈቃድ በደንብ በሚወሰን መሠረት የኤጀንሲውን ስምምነት አስቀድሞ በማግኘት ለሌላ ሰው ሊተላለፍ ይችላል ።

፲፫. የፈቃድ ግዴታዎች

- ማንኛውም ባለፈቃድ ፡
- ፩. የኤሌክትሪክ ማመንጨት ፣ ማስተላለፍ ፣ ማከፋፈልና መሸጥ ሥራዎችን ፣ ይህን አዋጅና አዋጁን ለማስፈጸም የወጡ ደንቦችንና መመሪያዎችን ፣ እንዲሁም የአካባቢ ጥበቃን በሚመለከት የወጡ ሕጎችን ፣ ድንጋጌዎችንና በኤጀንሲው የተወሰኑትን የጥራት ደረጃዎች አክብሮ ያከናወናል ፡
- ፪. ስለሥራው አግባብ ያላቸውን ሪከርዶች ይይዛል ፣ ማኒስቴሩ በሚያወጣው መመሪያ መሠረት ሪፖርቶችንና መረጃዎችን ለኤጀንሲው ያቀርባል ፣
- ፫. መዛግብቱና ሪከርዶቹ በአግባቡ ሥልጣኑ በተሰጣቸው የኤጀንሲው ኃላፊዎች እንዲመረመሩ ሲጠየቅ ለምርመራ ያቀርባል ።

፲፬. ፈቃድ ስለማገድና ስለመሠረዝ

- ፩. ባለፈቃዱ በዚህ አዋጅ ፣ በአዋጁ መሠረት በወጡ ደንቦች ፣ መመሪያዎችና በፈቃዱ ላይ የተጠቀሱትን ግዴታዎች ሳያከብር ሲቀር ኤጀንሲው ፈቃዱን ሊያግድ ወይም ሊሰርዝ ይችላል ።
- ፪. ኤጀንሲው እንደን ፈቃድ ከመሰረዘ በፊት ባለፈቃዱ ስህተቱን እንዲደርም በቂ ይሆናል ብሎ የሚገምተውን ጊዜ ይሰጠዋል ።
- ፫. የወራሾች መብት እንደተጠበቀ ሆኖ ባለፈቃዱ ሲሞት ወይም የንግድ ድርጅት ከሆኑ ሲፈረስ ወይም አግባብ ባለው ሕግ መሠረት የመክሰር ውሳኔ ሲሰጥበት ፈቃዱ ይሰረዛል ።

፲፭. የኤሌክትሪክ ክፍያዎች

ማንኛውም ባለፈቃድ ለሰጠው የኤሌክትሪክ አገልግሎት ከታሪፍ በላይ ክፍያ ሊጠይቅ አይችልም ።

- 2) Any person desiring to generate, transmit or distribute electricity for non-commercial purposes shall notify the Agency, in advance, and produce documents evidencing that he has fulfilled environmental protection and safety conditions as required by the Agency.
- 3) Any person generating electricity by installing a standby generator may use the existing supply system of the area by entering into agreement with the concerned licensee.

11. Eligibility for License

- 1) Any person may be issued with a license where he satisfies the qualifying conditions specified in this Proclamation, regulations and directives issued hereunder as well as in the investment law and upon confirmation by the Agency that he is qualified to carry on trade under the Commercial code and has the financial resources, technical competence, professional skill and experience required to fulfill license obligations.
- 2) Any person who has been engaged in the generation transmission, distribution and sale of electricity prior to the coming into force of this Proclamation shall be required to submit an application, along with the necessary particulars, and obtain a license.

12. Transfer of License

A license issued pursuant to this Proclamation may be transferred to other person with the prior consent of the Agency, under conditions to be specified by regulations.

13. Obligations of License

- Any licensee shall:
 - 1) carry out the generation, transmission, distribution and sale of electricity in accordance with this proclamation, regulation and directives issued hereunder as well as in compliance with environmental protection laws and quality standards determined by the Agency;
 - 2) keep relevant records of operation, submit reports and supporting documents to the Agency in accordance with directives to be issued by the Minister;
 - 3) make books and records of operation available for inspection by duly authorized officials of the Agency.

14. Suspension and Revocation of license

- 1) The Agency may suspend or revoke a license where the licensee fails to comply with obligations specified in this Proclamation, regulations and directives issued hereunder as well as in the license.
- 2) Prior to revocation of a license, the Agency shall allow the licensee such time as it deems sufficient to rectify failures.
- 3) Without prejudice to the rights of heirs, the license shall be revoked upon death of the licensee or upon liquidation or declaration of bankruptcy under the relevant law, in the case of juridical person.

15. Charges

No licensee may claim charges in excess of the tariff.

- ፲፮. በባለፈቃዱ የኤሌክትሪክ አገልግሎት ስለሚቋረጥበት ሁኔታ
 - ፩. ባለፈቃዱ በሚከተሉት ምክንያቶች ካልሆነ በስተቀር የኤሌክትሪክ አገልግሎት ሊያቋርጥ አይችልም፡
 - ሀ) የኤሌክትሪክ መሣሪያዎችና መስመሮችን ለመፈተሽ፣ ለመጠገን፣ ለማደስ፣ ለማስተካከል ወይም ከኤሌክትሪክ መሣሪያዎችና መስመሮች ጋር የተያያዙ አስፈላጊ ሥራዎችን ለማካሄድ፣
 - ለ) እንደውሃ መጥለቅለቅ፣ የመሬት መናድ፣ ወይም መንቀጥቀጥ ያሉ የተፈጥሮ አደጋዎች ወይም ከባለፈቃዱ አቅም በላይ የሆኑ ሌሎች ሁኔታዎች ሲከሰቱ፣
 - ሐ) ደንበኛው የኤሌክትሪክ ክፍያ ሳይፈጽም ሲቀር፣
 - መ) ደንበኛው ከገባው ስምምነት ውጪ ያልተፈቀደለትን ኤሌክትሪክ ሲጠቀም፡

፪. ባለፈቃዱ በዚህ አንቀጽ ንዑስ አንቀጽ ፩(ሀ) የተመለከቱት ምክንያቶች የኤሌክትሪክ አገልግሎት ከመቋረጡ ከጸፀ ሰዓት በፊት ለተጠቃሚው ገብረ-ተሰብ ማሳወቅ አለበት።

- ፲፱. ብሔራዊ ግሪድ
 - ፩. መንግሥት በማስታወቂያ ማንኛውንም የሾልቴጅ መጠኑ ከ፳፻፴፪ ኪ.ፒ. ያላነሰን የኤሌክትሪክ የማስተላለፊያ መስመር ብሔራዊ ግሪድ ብሎ ሊሰይም ይችላል።
 - ፪. ባለፈቃዶች በብሔራዊ ግሪድ ላይ የሚጠቀሙበት ሁኔታ በደንብ ይወሰናል።

፲፳. ኤሌክትሪክ ወደ ሀገር ውስጥ ስለማስገባት ወይም ወደ ውጪ አገር ስለመላክ

- ፩. ማንኛውም ባለፈቃድ ከውጭ ሀገር ወደ ሀገር ውስጥ ኤሌክትሪክ አስገብቶ ማከፋፈል በፈልግ በቅድሚያ ከኤጀንሲው ፈቃድ ማግኘት ይኖርበታል።
- ፪. ማንኛውም ባለፈቃድ በኢትዮጵያ ውስጥ የሚመነጨውን ኤሌክትሪክ ወደ ውጪ መላክ በፈለግ በቅድሚያ ከኤጀንሲው ፈቃድ ማግኘት ይኖርበታል።
- ፫. ኤሌክትሪክ ወደ ሀገር ውስጥ ማስገባት ወይም ወደ ውጪ ሀገር መላክ የሚቻለበት ሁኔታ በኤጀንሲው በሚቀርበው ጥናት መሠረት በሚሰጡት ይወሰናል።

፲፱. ስለመቆጣጠር
 በኤጀንሲው የተወከለ ኃላፊ ለሀገር ግምት ተገቢ በሆነ በማንኛውም ሰዓት የኤሌክትሪክ ሥራዎችን ሳያጣድ ወይም ሳያደናቅፍ በሥፍራው በመገኘት የኤሌክትሪክ ማመንጨት፣ ማስተላለፍ፣ ማከፋፈልና መሸጥ ሥራዎችን መመርመርና መቆጣጠር ይችላል።

ከፍል አራት

ለኤሌክትሪክ አቅርቦት ሥራዎች በመሬት ስለመጠቀም

- ፳. በመሬት ስለመጠቀም
 - ፩. ማንኛውም ባለፈቃድ በማንኛውም ሰው ይዞታ ስር ወይም የመሬት ወይም ቅጥር ግቢ በመግባት የኤሌክትሪክ መስመር ለመዘርጋት፣ ለመጠገን፣ ለማሻሻል፣ ለመመርመር ወይም መስመሩን ለማንሳት የሚያስፈልጉ ተግባሮችን ማከናወን ይችላል።
 - ፪. ባለፈቃዱ የኤሌክትሪክ ግንባታዎችንና ሥራዎችን ለማካሄድ መሰናክል የሚሆኑ ወይም በኤሌክትሪክ መስመር ላይ አደጋ ሊያስከትሉ የሚችሉ ዛፎችን የመቁረጥና የመመልመል ወይም ስብሎችን፣ አትክልቶችንና ሌሎች ነገሮችን የማስወገድ መብት አለው።

16. Conditions for Interruption of Electricity Services by the Licensee

- 1) The licensee may not interrupt electricity services except for the following reasons:
 - (a) to inspect, repair, maintain, adjust or to undertake other necessary works related to electrical equipment or lines;
 - (b) where natural calamities such as floods, landslides or earthquakes or other events beyond the control of the licensee occur;
 - (c) Where customers fail to pay charges;
 - (d) where customers utilize unauthorized electricity, contrary to the terms and conditions agreed upon.
- 2) The licensee shall notify the general public 24 hours in advance of interrupting electricity services as specified under sub-Article (1)(a) of this Article.

17. National Grid

- 1) The Government may, by notification, specify and transmission line having not less than 132kW as national grid.
- 2) Access to such line by licensees shall be determined by regulations.

18. Import or Export of Electricity

- 1) Any licensee desiring to emport electricity generated within Ethiopia shall have to obtain prior permission from the Agency.
- 2) Any licensee desiring to export electricity generated within Ethiopia shall have to obtain prior permission from the Agency.
- 3) Conditions for the import and export of electricity shall be determined by the Ministry, subject to recommendations made by the Agency.

19. Inspection

An official duly authorized by the Agency may, at all reasonable times, enter premises and inspect and supervise the generation, transmission, distribution and sale of electricity without unreasonably impeding or obstructing activities thereof.

**PART FOUR
 Use of Land for Electricity
 Supply Activities**

20. Use of Land

- 1) A licensee may enter land or premises in the holding of any person and carry out activities required to connect, repair, upgrade, inspect or remove electrical lines.
- 2) The licensee may have the right to cut and lop trees or to remove crops, plants and other things that obstruct the construction or operation of electrical works or may cause danger to electrical lines.

፫. ባለፈቃዱ በዚህ አንቀጽ ንዑስ አንቀጽ (፩) ወይም (፪) የተጠቀሱትን ተግባራት ለማከናወን ሲፈልግ ሥራውን ከመጀመሩ በፊት የመራቱን ባለይዞታ በቅድሚያ የማላወቅ ግዴታ አለበት።

፬. ካሣ ስለመክፈል
ባለፈቃዱ በዚህ አዋጅ አንቀጽ ፳ የተጠቀሱትን ተግባራት ሲያከናውን በባለይዞታው ንብረት ላይ ላይረሰው ጉዳት አግባብ ባለው ሕግ መሠረት ካሣ የመክፈል ግዴታ አለበት።

፭. መራትን ስለመስጠት
ማንኛውም ባለፈቃድ ለሕዝብ ጥቅም ሲባል በግል የተያዘን መራት በሕግ መሠረት ሊሰጠው ይችላል።

፮. ሰለክተማ ነገላን
፩. ማንኛውም የከተማ ነገላን የኤሌክትሪክ አቅርቦት ሲስተሙን በግልጽ መለየትና ማሳየት ይኖርበታል።
፪. ማንኛውም ባለፈቃድ የኤሌክትሪክ መስመር ሲዘረጋ የከተማውን ነገላን ተከትሎ የመዘርጋት ኃላፊነት አለበት።

፯. ስለሌሎች ግንባታዎችና ሥራዎች
ከኤሌክትሪክ ማስተላለፊያ ጣቢያዎች ወይም መስመሮች አቅራቢያ በደንብ ተለይቶ በሚወሰን ርቀት ክልል ውስጥ ግንባታዎች፣ እርሻዎች፣ አትክልቶች ወይም ማናቸውንም ሌላ የቋሚ ነት ጸባይ ያላቸውን ሥራዎች ለማከናወን አይቻልም።

፳. በነባር መገልገያዎች ስለመጠቀም
ባለፈቃዱ በዘረጋው የማስተላለፊያ መስመሮች ሌሎች ባለፈቃዶች የባለፈቃዱን ሥራዎች በማያደናቅፍ ሁኔታና ኤጀንሲው የሚወስነውን ዋጋ በመክፈል እንዲገለገሉበት ሲጠየቅ መፍቀድ አለበት።

፳፮. ኤሌክትሪክ ለማመንጨት በውኃ ስለመጠቀም
፩. ባለፈቃዱ ያለምንም ክፍያ ኤሌክትሪክ ለማመንጨት በውኃ ለመጠቀም ይችላል።
፪. ኤሌክትሪክ ለማመንጨት በውኃ የሚጠቀም ባለፈቃድ በውኃ ሀብት አጠቃቀም አዋጅ ቁጥር ፶፪/፲፱፻፹፮ ድንጋጌ ወች መሠረት የሚያስፈልገውን የውኃ መጠቀሚያ ፈቃድ ኤጀንሲው አግባብ ያለውን ባለሥልጣን ወክሎ ይሰጠዋል።

፳፯. ቅጣት
፩. ማንኛውም ሰው በኤሌክትሪክ ማመንጨት ተቋሞች ወይም በኤሌክትሪክ ማስተላለፊያ ወይም ማከፋፈያ መስመሮች ላይ ጉዳት ያደረሰ እንደሆነ አግባብ ባለው የወንጀለኛ መቅጫ ሕግ ድንጋጌ መሠረት የበለጠ የሚያስቀጣ ካልሆነ በስተቀር ከ፩ ዓመት እስከ ፲፮ ዓመት በሚደርስ ጽኑ እሥራት ይቀጣል።
፪. ማንኛውም ባለፈቃድ ይህን አዋጅ ወይም አዋጁን ለማስፈጸም የወጡ ደንቦችንና መመሪያዎችን የጣሰ እንደሆነ አግባብ ባለው የወንጀለኛ መቅጫ ሕግ ድንጋጌ መሠረት ይቀጣል።

፳፰. ደንብና መመሪያ የማውጣት ሥልጣን
፩. ይህን አዋጅ ለማስፈጸም የሚያስፈልጉ ደንቦችን የሚኒስትሮች ምክር ቤት ሊያወጣ ይችላል።
፪. ይህን አዋጅ ለማስፈጸም የሚያስፈልጉ መመሪያዎችን የሚኒስትሩ ሊያወጣ ይችላል።

3) Where the licensee desires to act under sub-Article (1) or (2) of this Article, he shall notify the holder of such land in advance thereof.

21. *Compensation*
The licensee shall pay compensation, in accordance with relevant law, for damages caused to the property of a land holder while acting under Article 20 herein.

22. *Expropriation of Land*
Where public interest so justifies, a licensee may be made the beneficiary of an expropriation measure, taken in accordance with the law, over private land holdings.

23. *Town Plans*
1) Any master plan of a town shall clearly demarcate and show the electrical supply-system layout thereof.
2) Any licensee shall, while connecting electrical lines, comply with the master plan of the town.

24. *Other Constructions and Works*
No construction, farming, plantation or any other activity of a permanent nature may be carried out within the clearance zone to be set, by regulations, adjacent to electric transmission stations or lines.

25. *Access to Existing Facilities*
The licensee shall allow the use of his transmission line to other licensees where their request is without impediment to his undertakings and they pay the amount to be determined by the Agency.

26. *Use of Water for the Generation of Electricity*
1) The licensee may use water, free of charge, for generation of electricity.
2) The Agency may, representing the concerned authority, issue the required water use permit to the licensee in accordance with the Water Resources Utilization Proclamation No. 92/1994.

27. *Penalty*
1) Any person who causes harm to any electricity generation plant or transmission or distribution line shall be punished with rigorous imprisonment from 5 up to 15 years, unless punishable with more severe penalty in accordance with relevant provisions of the Penal Code.
2) Any licensee who violates the provisions of this Proclamation or of regulations and directives issued hereunder shall be punished in accordance with the relevant provisions of the Penal Code.

28. *Power to Issue Regulations and Directives*
1) The Council of Ministers may issue regulations necessary for the implementation of this Proclamation.
2) The Minister may issue directives necessary for the implementation of this Proclamation.

ጽ/ቤ. አዋጁ የሚጸናበት ጊዜ
ይህ አዋጅ ከሰኔ ፬ ቀን ፲፱፻፹፱ ዓ.ም. ጀምሮ የጸና ይሆናል ።

አዲስ አበባ ፡ ሰኔ ፬ ቀን ፲፱፻፹፱ ዓ.ም.

ዶ/ር ነጋሶ ጊዳዳ
የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ
ሪፐብሊክ ፕሬዚዳንት

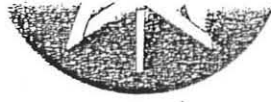
29. *Effective Date*

This Proclamation shall enter into force as of the 7th day of July, 1997.

Done at Addis Ababa, this 7th day of July, 1997

NEGASO GIDADA (DR.)
PRESIDENT OF THE FEDERAL DEMOCRATIC
REPUBLIC OF ETHIOPIA

ብርሃንና ሰላም ማተሚያ ድርጅት ታ.ተ.መ
BERHANENA SELAM PRINTING ENTERPRISE



የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ

ፌዴራል ነጋሪት ጋዜጣ FEDERAL NEGARIT GAZETA

OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

ስምንተኛ ዓመት ቁጥር ፲፮
አዲስ አበባ—ጥር ፳፫ ቀን ፲፱፻፺፬

በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
የሕዝብ ተወካዮች ምክር ቤት ጠባቂነት የወጣ

8th Year No. 16
ADDIS ABABA-31st January, 2002

ማዕራፊ
የኢትዮጵያ የገጠር ኢነርጂ ልማትና ማስፋፊያ ማዕከል
ማቋቋሚያ አዋጅ ገጽ ፩፻፺፻፯

CONTENTS
Proclamation No. 269/2002
Ethiopian Rural Energy Development and Promotion
Center Establishment Proclamation Page 1707

አዋጅ ቁጥር ፪፻፷፱/፲፱፻፺፬
የኢትዮጵያ የገጠር ኢነርጂ ልማትና ማስፋፊያ
ማዕከልን ለማቋቋም የወጣ አዋጅ

አገሪቱ የምትከተለው ገጠሩን ማዕከል ያደረገ የኢኮኖሚ ፍጥነት ለማረጋገጥ የኢነርጂ ልማት ስልጣን ለማስፋፊያ ማዕከል ማቋቋም አስፈላጊ ሆኖ በመገኘቱ፤

ለገጠሩ ተስማሚ የሆኑ የኢነርጂ ምንጮችና ቴክኖሎጂዎች ለማስፋፊያ ማዕከል ማቋቋም ስልጣን ለማስፋፊያ ማዕከል ማቋቋም አስፈላጊ ሆኖ በመገኘቱ፤

በአካባቢ ላይ አሉታዊ ተጽዕኖ የሚያሳድረውን ልማዳዊ የኢነርጂ አጠቃቀም በዘመናዊ ዘዴ መተካት አስፈላጊ በመሆኑ፤

እነዚህን ዓላማዎች ተግባራዊ ለማድረግ ተገቢው ሥልጣንና ስልጣን ያለው አንድ ራሱን የቻለ የፌዴራል መንግሥት መሥሪያ ቤት ማቋቋም አስፈላጊ ሆኖ በመገኘቱ፤

በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ ሕገ መንግሥት እንቀጽ ፶፭(፩) መሠረት የሚከተለው ታውጇል።

አጭር ርዕስ
ይህ አዋጅ “የኢትዮጵያ የገጠር ኢነርጂ ልማትና ማስፋፊያ ማዕከል ማቋቋሚያ አዋጅ ቁጥር ፪፻፷፱/፲፱፻፺፬” ተብሎ ሊጠቀስ ይቻላል።

ትርጓሜ
የቃሎት አገላለጽ ሌላ ትርጉም የሚያሰጠው ካልሆነ በስተቀር በዚህ አዋጅ ውስጥ፡

፩. “ኢነርጂ” ማለት ከባዮማስ ፣ ከውኃ ፣ ከጂኦተርማል ፣ ከዕለታዊ ፣ ከነፋስ ፣ እንዲሁም ታዳሽ ካልሆኑ እንደ ነዳጅ ፣ ማዕድናት የመሳሰሉ ምንጮች እና ከሌሎች የተለያዩ ቁሳቁሶች የሚገኝና ለገጠሩ ጎብከተሰብ የሚያገለግል ኃይል ነው።

PROCLAMATION NO. 269/2002
A PROCLAMATION TO PROVIDE FOR
THE ESTABLISHMENT OF THE ETHIOPIAN RURAL
ENERGY DEVELOPMENT AND PROMOTION
CENTER

WHEREAS, the country is following rural-based economic policy; and the development of energy plays a decisive role in ensuring sustainable socio-economic progress of the rural areas;

WHEREAS, it is essential to undertake the study and development of energy resources and technologies suitable for the rural areas in a systematic and coordinated manner;

WHEREAS, it has become necessary to substitute with modern methods the traditional energy utilization system which has caused negative impact on the environment;

WHEREAS, to attain these objectives, it has become necessary to establish an autonomous federal government organ conferred with appropriate powers and duties;

NOW, THEREFORE, in accordance with Article 55(1) of the Constitution of the Federal Democratic Republic of Ethiopia, it is hereby proclaimed as follows:

- Short Title
This Proclamation may be cited as the “Ethiopian Rural Energy Development and Promotion Center Establishment Proclamation No. 269/2002.”
- Definitions
Unless the context requires otherwise, in this Proclamation:
1) “Energy” means power generated from biomass, water, geothermal, sunlight, Wind, non-renewable resources like petroleum or minerals and other various materials used for rural communities.

የንዱ ዋጋ
Unit Price 2.30

ነጋሪት ጋዜጣ ፖ.ሣ.ቁ. ፹፻፩
Negarit G.P.O.Box 80.001

- ፪. “ሚኒስትር” እና “ሚኒስቴር” ማለት እንደ ቅደም ተከተሉ የገጠር ልማት ሚኒስትር እና ሚኒስቴር ነው።
- ፫. መቋቋም
 - ፩. የኢትዮጵያ የገጠር ኢነርጂ ልማትና ማስፋፊያ ማዕከል / ከዚህ በኋላ “ማዕከል” እየተባለ የሚጠራ/ ራሱን የቻለና የሕግ ሰውነት ያለው የፌዴራል መንግሥት መሥሪያ ቤት ሆኖ በዚህ አዋጅ ተቋቋሟል።
 - ፪. ማዕከሉ ተጠሪነቱ ለሚኒስቴሩ ይሆናል።
- ፬. ዋና መሥሪያ ቤት
 - ፩. የማዕከሉ ዋና መሥሪያ ቤት አዲስ አበባ ሆኖ እንደአስፈላጊ ጊነቱ በማናቸውም ሥፍራ ቅርንጫፍ መሥሪያ ቤቶች ሊኖሩት ይችላል።
- ፭. ዓላማ
 - ፩. የማዕከሉ ዓላማ ለገጠሩ የሚያገለግሉ የኢነርጂ ምንጮች እና ቴክኖሎጂዎች የሚለሙበትንና የሚስፋፋትን ሁኔታ ማመቻቸት ይሆናል።
- ፮. የማዕከሉ ሥልጣንና ተግባር
 - ፩. የማዕከሉ የሚከተሉት ሥልጣንና ተግባራት ይኖሩታል፤
 - ፩. ለገጠሩ ተስማሚ የሆኑ የኢነርጂ ምንጮችን መለየት እና ለልማት የሚረዳ ጥናት ማካሄድ፤
 - ፪. ከውጭ ሀገር የሚገኙትን የኢነርጂ ቴክኖሎጂዎች ከአገሪቱ ፍላጎት ጋር በማጣጣም ማላመድ እና አገር በቀል የኢነርጂ ቴክኖሎጂዎችን ማበልፀግ፤
 - ፫. የኢነርጂ ጥናት ሥራዎችን ማስተባባስ፤ ማበረታታት እና መደገፍ፤
 - ፬. የገጠሩን የኢነርጂ ፍላጎት፣ አቅርቦት እና ፍጆታ ማጥናት እና በየጊዜው መረጃ ማጠናቀር፤
 - ፭. የአካባቢ ጥበቃን ከግምት ውስጥ የሚያስገቡ፣ ተመጣ ጣኝ ዋጋና ብቃት ያላቸውን የኢነርጂ ምንጮችና ቴክኖሎጂዎች ልማት፣ ሥርጭት፣ አጠቃቀም ቁጠባ ማጥናት እንደነገሩ አግባብነት በግል ባለሀብቶች፣ በመንግሥት እና በሌሎች ዘርፎች በሱል ለገጠሩ ጎብረተሰብ ማስተዋወቅ፤
 - ፮. የተለያዩ የኢነርጂ ምንጮችና ቴክኖሎጂዎችን መጠቀም የሚያስከትለውን ማሳበራዊ፣ ኢኮኖሚያዊና አካባቢ ቢያዊ ተጽዕኖ መገምገም፤
 - ፯. በኢነርጂ ዘርፍ እንደአስፈላጊነቱ በክፍያ ወይም ያለክፍያ የማማከር አገልግሎት መስጠት፤
 - ፰. የኢነርጂ ጥናትን በሚመለከት መረጃ መሰብሰብ፣ በባለቤትነት መያዝ፣ እንደአስፈላጊነቱ ዋጋ በማስከፈል ወይም ያለክፍያ ለተጠቃሚዎች ማቅረብ፣ እንዲሁም መጽሔቶችን ማዘጋጀትና ማሰራጨት፤
 - ፱. ከሥራው ጋር አግባብ ያለውን መረጃ ሁሉ ከማንኛውም ምንጭ መጠየቅና ማግኘት፤
 - ፲. የኢነርጂ ልማት፣ ሥርጭት፣ አጠቃቀምና ቁጠባን በተመለከተ የገጠሩን ሕብረተሰብ ግንዛቤ ማዳበር፣ ሥልጠና መስጠትና እንዲሁም ከክልሎች ጋር መተባበር፤
 - ፲፩. ከሥራው ጋር አግባብነት ባላቸው የኢነርጂ ጥናት እና ምርምርን በሚመለከቱ ጥናቶች ግንኙነቶች ከሌሎች ጋር በመተባበር መሳተፍ እንዲሁም ዓላማውን ከግብ ለማድረስ ከአገር በቀል፣ ከውጭ አገር እና ከዓለም አቀፍ ድርጅቶች ጋር መተባበር፤
 - ፲፪. የንብረት ባለቤት መሆን፣ ውል መዋዋል፣ መከሰስና መከሰስ፣ እና
 - ፲፫. ዓላማውን ከግብ ለማድረስ የሚያስፈልጉ ሌሎች ሕጋዊ ተግባራትን ማከናወን።
 - ፯. የማዕከሉ ድርጅታዊ አቋም
 - ፩. ማዕከሉ፤
 - ፩. በመንግሥት የሚሾም አንድ ዋና ዲሬክተር፣ እና
 - ፪. አስፈላጊ ሠራተኞች ይኖሩታል።
 - ፱. የዋናው ዲሬክተር ሥልጣንና ተግባር
 - ፩. ዋናው ዲሬክተር የማዕከሉ ዋና ሥራ አስፈጻሚ ሆኖ ከሚኒስትሩ በሚሰጠው አጠቃላይ መመሪያ መሠረት የማዕከሉን ሥራዎች ይመራል፣ ያስተዳድራል።

- 2) “Minister” and “Ministry” means the Minister and Ministry of Rural Development respectively.
- 3. *Establishment*
 - 1) There is hereby established the Ethiopian Rural Energy Development and Promotion Center (hereinafter “the Center”) as an autonomous Federal Government organ having its own juridical personality.
 - 2) The Center shall be accountable to the Ministry.
- 4. *Head Office*
 - The head office of the Center shall be in Addis Ababa and may have branch offices else where as may be necessary.
- 5. *Objectives*
 - The objectives of the Center shall be to make conditions convenient for the development and promotion of rural energy resources and technologies.
- 6. *Powers and Duties of the Center*
 - The Center shall have following Powers and duties:
 - 1) identify the energy resources suitable for the rural areas and conduct studies for their development;
 - 2) adapt foreign energy technologies in line with the needs of the country and improve indigenous energy technologies;
 - 3) coordinate, encourage and assist energy study activities;
 - 4) study the energy demand, supply and consumption patterns of the rural areas and compile data periodically;
 - 5) study the production, distribution, utilization and conservation of affordable and efficient energy resources and technologies with due regard to the protection of the environment and promote same to the rural community via private, public and other sectors as the case may be;
 - 6) evaluate the social, economic and environmental impacts of using various energy sources and technologies;
 - 7) provide consultancy services in the energy sector with or without payment as the case may be;
 - 8) collect and own information related to energy studies, and may make it available to users with or without payment as the case may be and also publish and distribute journals;
 - 9) require and obtain any information, relevant to its activities, from any sources;
 - 10) raise the awareness of the rural community and provide trainings concerning the production, distribution, utilization and conservation energy; and cooperate with regions;
 - 11) In cooperation with others participate in all communications on energy studies and researches related to its activities, and co-operate with local, foreign and international organizations for the attainment of its objectives;
 - 12) own property, enter into contracts, sue and be sued in its own name;
 - 13) perform such other lawful activities as may be necessary for the attainment of its objectives.
- 7. *Organization of the Center*
 - The Center shall have:
 - 1) A Director General to be appointed by the Government; and
 - 2) the necessary staff.
- 8. *Powers and Duties of the Director General*
 - 1) The Director General shall be the chief executive officer of the Center and shall, subject to the general directives of the Minister, direct and administer the activities of the Center.

- ፪. ከዚህ በላይ በንዑስ አንቀጽ /፩/ የተጠቀሰው ጠቅላላ አነጋገር እንደተጠበቀ ሆኖ ዋናው ዲሬክተር፤
 - ሀ) በዚህ አዋጅ አንቀጽ ፮ የተመለከተትን የማዕከሉን ሥልጣንና ተግባሮች ሥራ ላይ ያውላል፤
 - ለ) የፌዴራል ሲቪል ሰርቪስ ሕግ መሠረታዊ መርሆዎች ተከትሎ መንግሥት በሚያጸድቀው መመሪያ መሠረት የማዕከሉን ሠራተኞች ይቀጥራል፤ ያስተዳድራል፤ ያሰናብታል፤
 - ሐ) የማዕከሉን የሥራ ፕሮግራምና በጀት አዘጋጅቶ ያቀርባል፤ ሲፈቀድም በሥራ ላይ ያውላል፤
 - መ) የማዕከሉን የሥራ ክንውንና የሂሳብ ሪፖርት አዘጋጅቶ ለሚኒስትሩ ያቀርባል፤
 - ሠ) ተጠሪነታቸው ለዋናው ዲሬክተር የሆኑትን የማዕከሉ ኃላፊዎች በመምረጥ ለሚኒስትሩ አቅርቦ ያሾማል፤
 - ረ) ከሦስተኛ ወገኖች ጋር በሚደረጉ ግንኙነቶች ሁሉ ማዕከሉን ይወክላል፤
- ፫. ዋናው ዲሬክተር ለማዕከሉ የሥራ ቅልጥፍና በሚያስፈልገው መጠን ሥልጣንና ተግባሩን በከፊል ለማዕከሉ የሥራ ኃላፊዎችና ሠራተኞች በውክልና ሊያስተላልፍ ይችላል።

- ፬. የበጀት ምንጭ
 - የማዕከሉ በጀት ከሚከተሉት ምንጮች የሚገኝ ይሆናል፤
 - ፩. በመንግሥት ከሚመደብለት ዓመታዊ በጀት፤
 - ፪. ማዕከሉ ከሚያስከፍለው የአገልግሎት ዋጋና ሌሎች ክፍያዎች፤
 - ፫. ከሌሎች ምንጮች ከሚገኝ ገንዘብ።
- ፭. የሂሳብ መዛግብት
 - ፩. ማዕከሉ የተሟላና ትክክለኛ የሆኑ የሂሳብ መዛግብት ይይዛል።
 - ፪. የማዕከሉ የሂሳብ መዛግብት እና ሌሎች ገንዘብ ነክ ሰነዶች በዋናው አዲተር ወይም በዋናው አዲተር በሚሰየም አዲተር በየዓመቱ ይመረመራሉ።

፮. ደንብ ስለማውጣት
 የሚኒስትሮች ምክር ቤት ለአዋጁ አፈጻጸም የሚረዳ ደንብ ሊያወጣ ይችላል።

፯. አዋጁ የሚጻፍበት ጊዜ
 ይህ አዋጅ ከጥር ፳፫ ቀን ፲፱፻፺፬ ዓ.ም. ጀምሮ የዐና ይሆናል።
 አዲስ አበባ ጥር ፳፫ ቀን ፲፱፻፺፬ ዓ.ም.

ግርማ ወልደጊዮርጊስ
 የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
 ፕሬዚዳንት

- 2) Without limiting the generality provided in Sub-Article (1) herein above, the Director General shall:
 - (a) exercise the powers and duties of the Center specified under Article 6 of this Proclamation;
 - (b) employ, administer and dismiss personnel in accordance with directives approved by the Government in compliance with the basic principles of the federal civil services laws;
 - (c) prepare the work program and budget of the Center and implement same upon approval;
 - (d) prepare and submit to the Minister operational and financial report on the activities of the Center;
 - (e) select officials of the Center who are accountable to him and recommend them to the Minister for appointment;
 - (f) represent the Center in all its relations with third parties.
- 3) The Director General may delegate part of his powers and duties to other officials and employees of the Center to the extent necessary for the effective management of the Center.

9. Source of Budget
 The budget of the Center shall be drawn from the following sources:

- 1) an annual budget allocated by the Government;
- 2) service charges and other fees to be collected by the Center;
- 3) money obtained from other sources.

10. Books of Accounts
 1) The Center shall keep complete and accurate books of accounts.
 2) The books of accounts and other financial documents of the Center shall be audited annually by the Auditor General or by an auditor designated by him.

11. Power to Issue Regulations
 The Council of Ministers may issue Regulations necessary for the implementation of this Proclamation.

12. Effective Date
 This Proclamation shall come into force as of the 31st day of January, 2002.
 Done Addis Ababa, this 31st day of January, 2002.

GIRMA WOLDE GIORGIS
 PRESIDENT OF THE FEDERAL
 DEMOCRATIC REPUBLIC OF ETHIOPIA

Ork

በርሃንና ሰላም ማተሚያ ድ.ር.ጅ.ት ታተመ
 BERHANENA SELAM PRINTING ENTERPRISE

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- ፫. “ኮርፖሬሽን” ማለት የኢትዮጵያ ኤሌክትሪክ ኃይል ኮርፖሬሽን ነው።
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- ፭. “አስፈጻሚ ሴክሬታሪያት” ማለት የኢትዮጵያ የገጠር ኢነርጂ ልማትና ማስፋፊያ ማዕከል ነው።
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- ፯. “የገጠር አካባቢ” ማለት ከግሪድ ውጭ ያለ አካባቢ ነው።
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- ፱. “ሚኒስቴር” እና “ሚኒስትር” ማለት እንደ ቅደም ተከተላቸው የገጠር ልማት ሚኒስቴር እና ሚኒስትር ነው።
- ፲. “አፕሬትር” ማለት ከግሪድ ውጭ ለንግድ ዓላማ ኤሌክትሪክ የማመንጨት፣ የማከፋፈልና የመሸጥ ሥራ የሚሠራ ሰው ነው።
- ፲፩. “አፕሬትር” ማለት ከግሪድ ውጭ ለንግድ ዓላማ ኤሌክትሪክ የማመንጨት፣ የማከፋፈልና የመሸጥ ሥራ ነው።
- ፲፪. “የገንዘብ በለክደራ ተቋም” ማለት ከፈንዳ ልዩ ልዩ ምንጮች የሚሰበሰቡ ገንዘብ የሚያስቀምጥና በቦርዱ ትዕዛዝ ብድር የሚሰጥ ብድሩንም ተቀብሎ በፈንዱ የባንክ ሂሳብ የሚያስቀምጥ ማንኛውም የፋይናንስ ተቋም ነው።
- ፲፫. “ክልል” ማለት በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ ሕገ መንግሥት አንቀጽ ፵፯/፩ የተገለጸ ክልል ሲሆን፣ ለዚህ አዋጅ ዓላማ አፈጻጸም አዲስ አበባና ድሬዳዋን ይጨምራል።
- ፲፬. “ታዳሽ የኃይል ምንጭ” ማለት ከተፈጥሮ የሚገኝ በራሱ ወይም በሰው አማካይነት በማያቋርጥ ዑደት ሂደቱን ጠብቆና እንደአስፈላጊነቱ ተተኪም በመሆን ለሰዎች አገልግሎት ጥቅም ላይ የሚውል እንደ የፀሐይ፣ የነፋስ፣ የውሃ፣ የባዮማስና የመሳሰሉት የኃይል ምንጭ ነው።
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- ፲፮. “የገጠር ኤሌክትሪፊኬሽን መርሐ-ግብር” ማለት በገጠር አካባቢ ለፈንዱ ከተቀመጡት ዓላማዎች አንፃር በፈንዱ እየታገዘ የኤሌክትሪክ አቅርቦትን ለማስፋፋት በቦርዱ የሚጸድቅ የእንቅስቃሴ አቅጣጫ ነው።
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- ፲፱. “የአሠራር ወጥነት መመሪያ” ማለት በፈንዱ ልዩ ልዩ አካላትና ፈንዱን በሚያስፈጽሙ የክልል አስፈጻሚ ጽሕፈት ቤቶች የሚከናወኑ የገጠር ኤሌክትሪፊኬሽን ተግባራት ወጥነትና ቅንጅት ባለው አኳኝ እንዲሠሩ የሚመራ መመሪያ ነው።

- 2) “Center” means the Ethiopian Energy Development and Promotion Center established by Proclamation No. 269/2002;
- 3) “Corporation” means the Ethiopian Electric Power Corporation;
- 4) “Director” means the Director General of the Ethiopian Development and Promotion Center;
- 5) “Executive Secretariat” means the Ethiopian Rural Energy Development and Promotion Center;
- 6) “Off-grid” means any electric supply not covered by the Ethiopian Electric Power Corporation Electric Supply System;
- 7) “Rural Area” means any off-grid area;
- 8) “Government” means the Government of the Federal Democratic Republic of Ethiopia;
- 9) “Ministry” and “Minister” means the Ministry and Minister of Rural Development respectively;
- 10) “Operator” means a person who generates, distributes, and sells electricity in off-grid areas for commercial purpose;
- 11) “Operation” means the activity of generating, distributing and selling in off-grid areas for commercial purposes;
- 12) “Trust Agent” means any financial institution that keeps the money collected from various sources of the fund as well as renders and collects loan upon the order of the Board;
- 13) “Region” means a region designated by Article 47 (1) of the Constitution of the Federal Democratic Republic of Ethiopia and, for the purpose of this Proclamation, includes the Addis Ababa and Dire Dawa Administrations;
- 14) “Renewable Energy Source” means an energy source of nature such as solar, wind, hydro, biomass and the like, which naturally recycles or recycled by man-induced processes useful to man.
- 15) “Rural Electrification” means all activities of generation, transmission, distribution and other related activities of electricity in off-grid areas;
- 16) “Rural Electrification Program” means an activity direction approved by the Board that promotes electricity supply in rural areas with the support by the Fund and in respect to the objectives of the Fund;
- 17) “Rural Electrification Project” means a single activity of designing, constructing, generating, transmitting, and performing other related activities to achieve the distribution of electricity in rural off-grid areas;
- 18) “Person” means a natural or juridical person;
- 19) “Uniformity Directive” means a directive issued to maintain coherence and co-ordination in the activities of various units of the Fund and regional implementing offices.

3. Establishment

The Rural Electrification Fund (hereinafter ‘the Fund’) is hereby established by this Proclamation as a permanent financial source to be deposited under Special Bank Account to be opened by the Ministry of Finance and Economic Development.

መቋቋም

የገጠር ኤሌክትሪፊኬሽን ፈንድ (ከዚህ በኋላ “ፈንድ” እየተባለ የሚጠራው) ቋሚ የፋይናንስ ምንጭ ሆኖ የገንዘብና የኢኮኖሚ ልማት ሚኒስቴር በሚከናወኑ ልዩ የባንክ ሂሳብ ውስጥ ተቀማጭ እንዲሆን በዚህ አዋጅ ተቋቋሟል።



የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ

ፌዴራል ነጋሪት ጋዜጣ FEDERAL NEGARIT GAZETA

OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

ዘመነኛ ዓመት ቁጥር ፴፭
አዲስ አበባ-ጥር ፳፱ ቀን ፲፱፻፺፮

በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
የአገብ ተወካዮች ምክር ቤት ጠባቂነት የወጣ

9th Year No. 35
ADDIS ABABA-6th February, 2003

ማውጫ

CONTENTS

አዋጅ ቁጥር ፫፻፲፯/፲፱፻፺፮ ዓ.ም
የገጠር ኤሌክትሪፊኬሽን ፈንድ ማቋቋሚያ
አዋጅ ገጽ ፪፲፮

Proclamation No. 317/2003
Rural Electrification Fund Establishment
Proclamation Page 2098

አዋጅ ቁጥር ፫፻፲፯/፲፱፻፺፮

PROCLAMATION NO. 317/2003

የገጠር ኤሌክትሪፊኬሽን ፈንድ ለማቋቋም የወጣ አዋጅ

A PROCLAMATION PROVIDED FOR THE ESTABLISHMENT OF THE RURAL ELECTRIFICATION FUND

የገጠሩን አካባቢ ማጎበራዊና ኢኮኖሚያዊ ዕድገት ለማሻሻል
ኤሌክትሪክ አገልግሎት ማቅረብ አስፈላጊ በመሆኑ፤

WHEREAS, it is necessary to provide electricity service
to improve economic and social development of rural areas;

በብድር ላይ የተመሠረተ የቴክኒክ አገልግሎትና የፋይናንስ
ጋፋ በመስጠት በገጠር ኤሌክትሪፊኬሽን ተግባር የሚሠማሩ
ግል ባለሀብቶችን እና የኅብረት ሥራ ማህበራትን ማበረታታት
አስፈላጊ በመሆኑ፤

WHEREAS, it is necessary to promote private and
cooperative engagement in rural electrification activities
through loan based finance and technical services;

ለዚህ ተግባራዊነት የፋይናንስ ምንጭ ሆኖ የሚያገለግል
ፈንድ ማቋቋም አስፈላጊ በመሆኑ፤

WHEREAS, to achieve this it is important to establish a
fund to serve as a source of finance;

በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ ሕገ
መንግሥት አንቀጽ ፶፮(፩) መሠረት የሚከተለው ታውጇል፡፡

NOW, THEREFORE, in accordance with Article 55 (1)
of the Constitution of the Federal Republic of Ethiopia, it is
hereby proclaimed as follows:

ክፍል አንድ ጠቅላላ

PART ONE General

አጭር ርዕስ

ይህ አዋጅ “የገጠር ኤሌክትሪፊኬሽን ፈንድ ማቋቋሚያ
አዋጅ ቁጥር ፫፻፲፯/፲፱፻፺፮” ተብሎ ሊጠቀስ ይችላል።

1. Short Title

This Proclamation may be cited as the “Rural
Electrification Fund Establishment Proclamation
No. 317/2003.”

ትርጓሜ

የቃሉ አገባብ ሌላ ትርጉም የሚያሰጥ ካልሆነ በስተቀር በዚህ
አዋጅ ውስጥ፤

2. Definitions

Unless the context otherwise requires, in this
Proclamation:

፩. “ኤጀንሲ” ማለት የኢትዮጵያ ኤሌክትሪክ ኤጀንሲ ነው።

1) “Agency” means the Ethiopian Electricity Agency;

፩. የፈንዱ ዓላማዎች

- ፩. የፈንዱ የሚከተሉት ዓላማዎች ይኖሩታል፡
 - ፩. በግል ፣ በህብረት ሥራ ማህበራትና በአካባቢ ኅብረተሰብ ለሚካሄዱና በተለይም በዋነኝነት ታዳሽ የኃይል ምንጮችን ለሚጠቀሙ የገጠር ኤሌክትሪክ ስልጠና ፕሮጀክቶች የብድርና የቴክኒክ አገልግሎት መስጠት፤
 - ፪. በገጠሩ አካባቢ የኤሌክትሪክ አገልግሎት ለምርትና ለማህበራዊ አገልግሎት እንዲውል ማበረታታት።

፪. የፈንዱ ምንጮች

- ፩. የፈንዱ ምንጮች የሚከተሉት ይሆናሉ፡
 - ፩. ከመንግሥት የሚመደብ በጀት፤
 - ፪. ከሌሎች መንግሥታት የሚገኝ ብድርና ዕርዳታ፤
 - ፫. ከዓለም አቀፍ የገንዘብ ድርጅቶች የሚገኝ ብድርና ዕርዳታ፤
 - ፬. መንግሥታዊ ካልሆኑ ድርጅቶች ከሚገኝ ዕርዳታ፤
 - ፭. ከሌሎች ልዩ ልዩ ምንጮች የሚገኝ ገቢ።

ክፍል ሁለት
የፌዴራል የፈንዱ አካላት

፩. የፈንዱ አካላት

- ፩. ፈንዱ በፌዴራል ደረጃ፤
 - ሀ) በገጠር ኤሌክትሪክ ስልጠና ቦርድ (ከዚህ በኋላ “ቦርድ” እየተባለ የሚጠራ)፤
 - ለ) አስፈጻሚ ሴክራታሪያት፤ ይኖረዋል
- ፪. ቦርዱ ተጠሪነቱ ለሚኒስትሩ ይሆናል፤
- ፫. ክልሎች የራሳቸውን የገጠር ኤሌክትሪክ ስልጠና አስፈጻሚ ሴክራታሪያት ሊያቋቁሙ ይችላሉ፤
- ፬. የክልል የገጠር ኤሌክትሪክ ስልጠና ሴክራታሪያት ጽሕፈት ቤቶች፣ የክልሎቻቸው የገጠር ኤሌክትሪክ ስልጠና ፕሮጀክቶች በዚህ ሕግና ቦርዱ በሚያወጣቸው ልዩ ልዩ መርሐ-ግብሮችና መመሪያዎች መሠረት መከናወናቸውን ይከታተላሉ።

፪. የቦርዱ አባላት

- ፩. ቦርዱ በመንግሥት የሚሰየሙ አባላት ይኖሩታል።
- ፪. የቦርዱ አባላት የሥራ ዘመን አምስት ዓመት ይሆናል። ሆኖም ማንኛውም አባል ለተጨማሪ የሥራ ዘመናት እንደገና ሊመደብ ይችላል።
- ፫. አንድን የቦርድ አባል መንግሥት በማናቸውም ጊዜ እና ምክንያት ሊያነሳው እና በሌላ ሊተካው ይችላል።
- ፬. የቦርዱ አባላት ቁጥር በሞት፣ ሥራን በፈቃድ በመልቀቅ ወይም በማናቸውም ሌላ ምክንያት ቢቀንስ፣ ክፍት ቦታው በሦስት ወር ጊዜ ውስጥ ይሞላል።
- ፭. ማንኛውም የቦርድ አባል በቦርዱ ውስጥ ካለው ሥራ ጋር በተጠቃሚ ሆኖ በተዘዋዋሪ መንገድ በጥቅም የሚጋጭ ማንኛውንም ተግባር ማከናወን የለበትም። በቦርዱ ውስጥ ካለ ሥራ ጋር በተጠቃሚ ሆኖ በተዘዋዋሪ መንገድ የጥቅም ግጭት ሲያጋጥመው ይህንኑ ለቦርዱ በማሳወቅ ጉዳዩ ከሚታይባቸው የቦርዱ ስብሰባዎች እራሱን ማግለል አለበት።

፫. የቦርዱ ሥልጣንና ተግባር

- ፩. የፈንዱ የሚከተሉት ተግባራት ይኖሩታል፡
 - ፩. ሚኒስቴሩን በፖሊሲ ጉዳዮች ላይ የማክራል፤
 - ፪. የገጠር ኤሌክትሪክ ስልጠና መርሐ-ግብርን ሥራ ላይ ለማዋል የሚያገለግሉ የአሠራር ሥርዓቶችን፣ መመሪያዎችን ፣ ደረጃዎችንና የፕሮጀክት አፈጻጸም መመሪያዎችን ያፀድቃል። እነዚህን በየጊዜው እየሚረመረ ተገቢውን ማስተካከያ ያደርጋል።

4. Objectives of the Fund

The Fund has the following objectives:

- 1) To provide loan and technical services for Rural Electrification Projects carried out by private operators, cooperatives and local communities and more specifically for those projects operating on renewable energy sources;
- 2) To encourage the utilization of electricity for production and social welfare purposes in rural areas.

5. Sources of Fund

The sources of the Fund shall be:

- 1) Budget allocated by the Government;
- 2) Loans and grants from other Governments;
- 3) Loans and grants from International Financial Institutions;
- 4) Grants from non-Governmental Organizations;
- 5) Income from other different sources.

PART TWO
Federal Organs of the Fund

6. Organs of the Fund

- 1) At the Federal level, the Fund shall have:
 - (a) Rural Electrification Board (hereinafter “the Board”)
 - (b) an Executive Secretariat.
- 2) The Board shall be accountable to the Minister.
- 3) Regional Governments may establish their own Rural Electrification implementing Secretariats.
- 4) Regional Rural Electrification implementing Secretariats shall follow up and confirm whether the projects in their respective Regions are implemented in conformity with this Proclamation, and programmes and the directives issued by the Board.

7. Members of the Board

- 1) The Board shall have members to be designated by the Government.
- 2) The term of office of any member of the Board shall be five years, provided, however, that he may be re-assigned for additional terms of office by the organ, which nominates him.
- 3) The organ, which has assigned a member of the Board, may at any time and for any reason recall and replace him by another.
- 4) In case of reduction in the number of Board members due to death or resignation of a member or due to any other reason, the vacant post shall be filled within three months.
- 5) Any member of the Board shall not engage in any activity that may be directly or indirectly conflicting with his capacity as a Board member. When the member encounters a conflict of interest, he shall disclose such conflict to the Board and withdraw from all meetings of the Board at which such matters are discussed.

8. Powers and Duties of the Board

The Board shall have the following powers and duties:

- 1) Advise policy issues to the Ministry;
- 2) Approve directives, working procedures, standards and project implementation guidelines that serve to implement rural electrification programs;

- ፫. ብድር ለመስጠት የሚያስችሉ ግልፅ መመሪያዎች፣ መስፈርቶችና አግባብ ያላቸውን የአሠራር ሥርዓቶች ያወድቃል፤
 - ፬. በዚህ አዋጅ አንቀጽ ፲፮ ገደብ አንቀጽ (፱) መሠረት አፕራፕሽንና ባለቤቱን ለማስፈራራት ለላቀቁ አፕራፕሽን ተቋማት ካሳ የሚከፈልበትን መስፈርት አውጥቶ በሚኒስቴሩ ያስወድቃል፤
 - ፭. ሪፖርቶችን ይቀበላል፣ ይመረምራል፣ እንደ አስፈላጊነታቸው ያወድቃል፤
 - ፮. ፈንዳን ያስተዳድራል፤
 - ፯. ከልዩ ልዩ የፈንዳ ምንጮች ገቢ የሚያረገውን ገንዘብ በኃላፊነት የሚያስቀምጥ የገንዘብ ባለአደራ ተቋም በሴክሬታሪያቱ ሲቀርብለት ያጸድቃል፤
 - ፰. ስለ ገንዘብ ባለአደራ ተቋም ዝርዝር አሠራር መመሪያ ያወጣል፤
 - ፱. አስፈላጊ ሆኖ ሲያገኘው ሥልጣንና ተግባሩን ለክልል የገጠር ኤሌክትሪፊኬሽን ሴክሬታሪያት ጽሕፈት ቤቶች በውክልና ሊሠጥ ይችላል፤
 - ፲. የገጠር ኤሌክትሪፊኬሽንን የሚያጠናክሩ ሌሎች ሥራዎች ያከናውናል፤
 - ፲፩. የቦርዱ ውሳኔዎች፣ መርሐግብሮች እና አመራሮች ለሕዝብ ግልፅ እንዲሆኑ ያደርጋል፤
 - ፲፪. በዚህ አዋጅ አንቀጽ ፭ ከተጠቀሱት የፈንዳ ምንጮች የሚገኘው ገቢ በሚመለከተው አካል በጊዜው መሰብሰቡን ያረጋግጣል።
- ፱. የቦርዱ ስብሰባዎች
- ፩. ቦርዱ በየሦስት ወሩ ይሰብሰባል። ሊቀመንበሩ ሲጠራ በማናቸውም ጊዜ ሌሎች አስቸኳይ ስብሰባዎችን ያደርጋል።
 - ፪. ከቦርዱ አባላት ከግማሽ በላይ በስብሰባው ላይ ከተገኙ ምልዐተ ገብኤ ይሆናል።
 - ፫. የቦርዱ ውሳኔ ሆኖ የሚያውቀው በስብሰባው ከተገኙት ከግማሽ በላይ ደምፅ የሰጡበት ውሳኔ ነው። እኩልነት ደምፅ ሲገኝ ሊቀመንበሩ ደምፁን የሰጠበት ወገን አብላጫ ደምፅ ይሆናል።
 - ፬. ቦርዱ የራሱን የስብሰባ ሥነ ሥርዓት ደንብ ሊያወጣ ይችላል።
- ፲. የአስፈጻሚ ሴክሬታሪያቱ ሥልጣንና ተግባር
- አስፈጻሚ ሴክሬታሪያቱ የሚከተሉት ሥልጣንና ተግባር ይኖሩታል፡
- ፩. ዓመታዊና አስፈላጊ በሆነ ጊዜ ሪፖርትን በማዘጋጀት በቦርዱ ያስወድቃል፤
 - ፪. የገጠር ኤሌክትሪፊኬሽን ፕሮጀክት አፕራፕሽን ማመልከቻ ይመረምራል፤ ቦርዱ ባወደቃቸው መስፈርቶች መሠረት ይወስናል፤
 - ፫. መስፈርቶችን አውጥቶ በውድድር ላይ በተመሠረተ አሠራር ባለአደራ የፋይናንስ ተቋምን ይመርጣል፤ ይህንኑ እንዲያወድቀው ለቦርዱ ያቀርባል፤
 - ፬. ብድር የሚሰጥባቸውን ግልፅ መመሪያዎችና አግባብ ያለውን የገጠር ኤሌክትሪፊኬሽን ፕሮጀክት ለመምረጥ የሚያስችሉ የምርጫ መስፈርቶችና ሥርዓቶችን አዘጋጅቶ ለቦርዱ በማቅረብ ያስወድቃል፤
 - ፭. የገጠር ኤሌክትሪፊኬሽን መርሐግብር ከሌሎች የገጠር ልማት ተግባራት ጋር እንዲቀናጅ የበኩሉን አስተዋጽኦ ያደርጋል፤
 - ፮. በገጠር ውስጥ የኤሌክትሪክ አገልግሎት እንዲስፋፋ፣ ለምርትና ማህበራዊ ጥቅም እንዲውል ያደርጋል፤
 - ፯. የገጠር ኤሌክትሪፊኬሽን ጣቢያዎችን ለመትከል፣ ለማንቀሳቀስና ለማስተዳደር በሚያስችሉ የአቅም ግንባታ ተግባሮች ላይ ከሚመለከታቸው ጋር ይተባበራል፤

- 3) Approve transparent directives, criteria and appropriate working procedures that enable the issuance of loans;
 - 4) *Set-out compensation criteria* to be approved by the Ministry, for those operators whose operations are taken over by the Corporation as specified in Article 16 (4) of this Proclamation;
 - 5) Receive, and examine reports and approve same when appropriate;
 - 6) Administer the Fund;
 - 7) Approve the nomination of a Trust Agent that shall be entrusted with the Fund to be secured from different sources, as presented to it by the Executive Secretariat;
 - 8) Issue detailed directives for the Trust Agent;
 - 9) Delegate, when it deems appropriate, its powers and duties to Regional Rural Electrification Secretariat Office;
 - 10) Engage in other activities that enhance rural electrification;
 - 11) Maintain transparency to the public regarding its decisions, program and leadership;
 - 12) Ensure timely collection of the fund, by the relevant body, from the different sources specified in Article 5 of this Proclamation.
9. *Meetings of the Board*
- 1) The Board shall have meetings every three months. Extraordinary meetings may be held at any time when called by the chairperson.
 - 2) There shall be a quorum where more than half of the members of the Board are present at a meeting.
 - 3) Decisions of the Board shall be made valid if more than half of those present voted in favor. In the event of a tie, the chairperson shall have a casting vote.
 - 4) The Board may adopt its own rule of procedures with regard to its meetings.
10. *Powers and Duties of the Executive Secretariat*
- The Executive Secretariat shall have the following powers and duties:
- 1) prepare annual, and whenever required, report and submit it for the approval of the Board;
 - 2) review applications from rural electrification project sponsors and based on the criteria approved by the Board decide on the applications;
 - 3) set out criteria for the competitive selection of a Trust Agent and submits same to the Board for approval;
 - 4) prepare and submit to the Board, for approval, transparent directives and selection criteria and procedures to be used in the issuance of loans and identification of appropriate rural electrification project;
 - 5) facilitate and submit the co-ordination of the rural electrification program activities with other rural development activities;
 - 6) promote and support access to and productive use of electricity in the Rural area;
 - 7) cooperate with relevant bodies for capacity building regarding Rural electrification project installation, operation and Management;

- ፩. ተቀባይነት ያላቸውንና የገጠር ኤሌክትሪፊኬሽን የደህንነት ደረጃና ኢኮኖሚያዊ አቅም ያገናዘቡ ቁሳቁሶችን፣ መሣሪያዎችንና ቴክኖሎጂን ዝርዝር ያዘጋጃል፤ ይይዛል። እንዲሁም በመረጃነት እንዲሠራጩ ያደርጋል።
 - ፪. ለፈንዱ ተጨማሪ የገቢ ምንጭ ሊሆኑ የሚችሉ ሁኔታዎችን ያጠናል።
 - ፫. የቦርዱን የሥራ መዛግብት፣ ዘገባዎችና የሰብሰባ ቃለጉባኤዎች ይይዛል፤ እንዲሁም የቦርዱ ውሳኔዎችና መመሪያዎች በትክክል መፈጸማቸውን ተከታትሎ ያረጋግጣል።
 - ፬. በዚህ አዋጅ ከተጠቀሱት የፈንዱ ምንጮች የሚገኘው ገንዘብ በጊዜው መሰብሰቡንና በፈንዱ ሂሳብ ገቢ መደረጉን ያረጋግጣል።
 - ፭. ሌሎች ከተግባርና ኃላፊነቱ ጋር የሚገናኙ ሥራዎችን ይሠራል።
 - ፮. ፈንዱ በየጊዜው ለሚወጠው የገጠር ኤሌክትሪፊኬሽን ፕሮግራም የበለጠ ውጤታማ በሆነ መንገድ ሥራ ላይ የሚውልበትን እያጠና ለቦርዱ የውሳኔ ሃሳብ ያቀርባል።
- ፲፩. የዲሬክተሩ ሥልጣንና ተግባር
- ዲሬክተሩ ፈንዱን በሚመለከቱ ጉዳዮች ተጠሪነቱ ለቦርዱ ሆኖ በዚህ አዋጅ አንቀጽ ፲ የተመለከቱትን የአስፈጻሚ ስክራታሪያቱን ሥልጣንና ተግባሮች በሥራ ላይ ያውላል።

ክፍል ሦስት
ልዩ ልዩ ድንጋጌዎች

- ፲፪. የአሠራር ወጥነት
 - ፩. የአሠራር ወጥነት እንዲኖር ሁሉም የፈንዱ አሠራሮችና ተግባሮች በአሠራር መመሪያ ይመራሉ።
 - ፪. ቦርዱ የአሠራር መመሪያ ያወጣል።
- ፲፫. የገንዘብ ባለአደራው ተቋም ኃላፊነት
 - ፩. የገንዘብ ባለአደራው ተቋም በዚህ አዋጅ አንቀጽ ፭ ከተጠቀሱት የፈንዱ ምንጮች የሚገኘውን ገንዘብ በኃላፊነት ይይዛል።
 - ፪. በቦርዱ ትዕዛዝ ለገጠር ኤሌክትሪፊኬሽን ፕሮጀክቶች የሚሰጠውን ብድር ይሰጣል፤ በብድር የተሰጠ ገንዘብ ሲመለስ ይቀበላል።
 - ፫. ተቋራጭዎች የወሰዱት ገንዘብ በጊዜው መመለሱን ይከታተላል።
 - ፬. የፈንዱን ገቢና ወጪ የሚያሳይ የሂሳብ መዝገብ ያዘጋጃል። ይህንኑ ቦርዱ በመመሪያ በሚወስነው ጊዜ ለቦርዱ ያቀርባል።
 - ፭. ሌሎች ከኃላፊነቱ ጋር አግባብ ያላቸውን ሥራዎች ይሠራል።
- ፲፬. ለገጠር ኤሌክትሪፊኬሽን ፕሮጀክቶች ፈቃድ ስለመስጠት ኤጀንሲው አግባብ ባለው ሕግ መሠረት ለገጠር ኤሌክትሪፊኬሽን ፕሮጀክቶች ፈቃድ ይሰጣል፤ ያድሳል፤ ያቋርጣል፤ ይሰርዛል።
- ፲፭. ለብድር ብቁ ስለመሆን
 - ፩. ከፈንዱ ለመሰደር የሚፈልግ ሰው በገጠር ኤሌክትሪክሽን ሥራ ለመሠማራት ብቁ መሆንና ብድር ለማግኘት የሚያስችሉ መስፈርቶችን ማሟላት አለበት።
- ፲፮. የገጠር ኤሌክትሪፊኬሽን አልሚዎች ዋስትና
 - ፩. የኮርፖሬሽን የኤሌክትሪክ አቅርቦት በየ፲ ዓመት ምን ያህል የአገሪቱን ክፍል እንደሚሸፍን የሚያሳይ ጠቋሚ የገጠር ኤሌክትሪፊኬሽን ማስተር ፕላን ማውጣት አለበት።

- 8) prepare, maintain, issue and disseminate equipment, devices and appliances that meet acceptable safety standards and economy for rural electrification;
 - 9) study additional ways and sources of finance to be used for the Fund;
 - 10) compile and keep the working papers, reports and minutes of the Board, further it follows up and confirm the appropriate implementation of the directives of the Board and its decisions;
 - 11) follow up and ensure the timely collection and deposit of the money from the sources specified in this Proclamation in the account of the Fund;
 - 12) perform such other activities related to its powers and duties;
 - 13) make recommendations to the Board regarding the most effective use of the Fund for the rural electrification program as set out from time to time.
11. *Powers and Duties of the Director*
- The Director shall put into practice all the powers and duties of the Executive Secretariat as stated under Article 10 of this Proclamation, and shall be accountable to the Board with regard to the Fund.

PART THREE
Miscellaneous Provisions

- 12. *Uniformity of Practice*
 - 1) With a view to ensuring uniformity of practice, the Operational Directive shall govern all operations and activities of the Fund.
 - 2) The Board shall issue Operational Directive.
- 13. *Responsibility of the Trust Agent*
 - 1) The Trust Agent shall be responsible for the administration of income accrued from various sources of Fund provided in Article 5 of this Proclamation.
 - 2) It shall disburse loans for rural electrification projects upon the order of the Board; and shall collect reimbursement of loans.
 - 3) It shall follow up periodic reimbursement of loans by borrowers.
 - 4) It shall prepare financial document revealing the revenues and expenditure of the Fund; and shall, upon directives to be issued by the Board, submit to the same.
 - 5) It shall carry out other activities pertaining to its responsibility.
- 14. *Licensing of Rural Electrification Projects*
- The Agency shall apply relevant law to issue, renew terminate and revoke licenses for rural electrification project.
- 15. *Eligibility for Loan*
- A person who is interested to engage in rural electrification activities, shall be eligible for loan financing, provided, however, that he is a legal person and fulfils the criteria required for such financing.
- 16. *Protection to Rural Electrification Operators*
 - 1) The Corporation shall issue or cause to be issued every 10 years and indicative national rural electrification master plan showing the expansion of the national grid covering the whole country.

- ፩. በዚህ አንቀጽ ንዑስ አንቀጽ (፩) የተጠቀሰው የገጠር ኤሌክትሪፊኬሽን ማስተር ፕላን ለሕዝብ ግልፅና የገጠር ኤሌክትሪፊኬሽንን ፕሮግራም በማስፈጸም ረገድ ተገቢ ትኩረት የሚሰጠው መሆን አለበት።
- ፪. ኮርፖሬሽኑና ሴክራታሪያቱ በየዓመቱ እየተገናኙ ለሚኒስቴሩና ለኤጀንሲው ከሚያቀርቡት ዓመታዊ የገጠር ኤሌክትሪፊኬሽን ጠቋሚ ዕቅድ አኳያ ዕቅዳቸውን ያቀናጃሉ።
- ፫. የኮርፖሬሽኑ ኤሌክትሪክ አቅርቦት ሂደት በገጠር ኤሌክትሪፊኬሽን ተግባር የተሰማራውን ባለሀብት፣ የጎብኚት ሥራ ማህበር ወይም የአካባቢ ጎብኚት ስለቀቀ እንደሆነ ለአልሚው ፈጣንና ትክክለኛ ካሳ ይከፈላል።

፲፯ የገጠር ኤሌክትሪፊኬሽን ደንቦች መብት

- ፩. አፕሬተሩ ኤጀንሲው በሕግ በተሰጠው ሥልጣን አማካይ ይነት ከሚወሰነው ኤሌክትሪክ ታሪፍ በላይ አያስከፍልም።
- ፪. የኤሌክትሪክ አገልግሎቱን ከማቋረጡ በፊት አፕሬተሩ አግባብ ባለው መንገድ ለደንበኛው ማሳወቅ አለበት።
- ፫. አፕሬተሩ የኤሌክትሪክ አገልግሎቱን ከማቆሙ ከ፫ ወር በፊት ለኤጀንሲው ማሳወቅ አለበት።
- ፬. አግባብ ባለው ሕግ ስለ ኤሌክትሪክ ደንቦች መብት የተደነገጉት ድንጋጌዎች፣ ለገጠር ኤሌክትሪፊኬሽን ደንቦችም ተፈጻሚ ይሆናል።

፲፰ ከብሔራዊ ግሪድ ጋር መያያዝ

አስፈጻሚ ሴክራታሪያቱ የገጠር ኤሌክትሪፊኬሽን ፕሮጀክቶች ወደፊት ከብሔራዊ ግሪድ ጋር በሚገናኙበት አቅጣጫ እንዲንቀሳቀሱ ፕላን ያወጣል፤ ይህንን ይመክራል።

፲፱ የዕድቁ ፕሮጀክቶች ቁጥጥርና ክትትል

የአስፈጻሚ ሴክራታሪያቱ እንደአስፈላጊነቱ የገጠር ኤሌክትሪፊኬሽን ፕሮጀክቶች ለፕሮጀክቶቹ ክንዋኔ በፀደቀው መርሐ ግብር መሠረት መከናወናቸውን ይቆጣጠራል፤ ያረጋግጣል፤ ለፕሮጀክቱ በተገባው ውል መሠረትም አስፈላጊውን ሕጋዊ እርምጃ ይወስዳል።

፳ የመንገድና የመሬት አጠቃቀም

የኤሌክትሪክ አዋጅ ቁጥር ፹፮/፲፱፻፹፱ ስለ መንገድና መሬት አጠቃቀም የሚደነግገው ለገጠር ኤሌክትሪፊኬሽን ፕሮጀክቶችም ተፈጻሚ ይሆናል።

፳፩ የአካባቢ ጥበቃ

የገጠር ኤሌክትሪፊኬሽን ፕሮጀክቶች ዕቅድ፣ ግንባታ፣ ሥራና ጥገና የአካባቢ ጥበቃ ሕጎችን ያከበሩ መሆን አለባቸው።

፳፪ ደህንነት

- ፩. አፕሬተሮች ሠራተኞቻቸውን፣ ሕዝቡንና ንብረቱን ከአደጋ ለመጠበቅ ተገቢ የሆነውን ቅድመ ደህንነት እርምጃ ይወስዳሉ።
- ፪. የኤሌክትሪክ አዋጅ ቁጥር ፹፮/፲፱፻፹፱፣ ደንብ ቁጥር ፵፱/፲፱፻፺፩ እና የደህንነት መመሪያዎች በገጠር ኤሌክትሪፊኬሽን ላይ ተፈጻሚ ይሆናሉ።

የሂሳብ መዛግብት

አስፈጻሚ ሴክራታሪያቱ የፈንዳን ትክክለኛና የተሟሉ የሂሳብ መዛግብትና አስረጅ ሰነዶችን ይይዛል።

- 2) The rural electrification master plan specified in Sub-Article (1) of this Article shall be made open to the public and due attention shall be given to it in implementing rural electrification project.
- 3) The Corporation and the Secretariat shall meet each year to delineate their plan in light of the annual indicative national rural electrification plans they shall submit to the Minister and the Agency.
- 4) In the event that power supply activity of a rural electrification operation is taken over by expansion of the Corporation's activity, the owner of the rural electrification operation shall be provided with prompt, fair and adequate compensation as set out in the criteria.

17. Protection of Rural Electrification Customers

- 1) The Operator shall not charge in excess of the electricity tariff pursuant to the law that causes the Agency to set out tariffs.
- 2) The Operator shall issue prior notice to the customer by an appropriate means where there shall be service interruption.
- 3) The Operator shall issue prior notice of three months to the Agency where there shall be electricity service termination.
- 4) Relevant provisions of laws pertaining to the rights of electricity customers shall be applicable for customers of rural electrification.

18. Integration to National Grid

The Executive Secretariat shall plan and advise that rural electrification be designed in view of future interconnection to the national grid.

19. Monitoring and Enforcement of Approved Projects

The Executive Secretariat, may supervise the implementation of approved rural electrification projects and ensure that the projects are executed in accordance with the approved project proposal and take appropriate legal measure pursuant to the project contract.

20. Right of Way and Land Use

Relevant provisions of the Electricity Proclamation No. 86/1997 dealing with Land Use and Right of Way shall apply to rural electrification projects.

21. Environmental Protection

Rural Electrification Project plans, construction, operation and maintenance shall respect environmental protection laws.

22. Safety

- 1) Operators shall take the necessary precautions to ensure the safety of persons working in the plant, the public and avoid damage to property.
- 2) Relevant provisions of safety standards and conditions in Electricity Proclamation No. 86/1997 and Electricity Operation Regulations No. 49/1999 shall be applicable for rural electrification standards.

23. Books of Account

The Executive Secretariat shall keep accurate and complete books of account with supporting documents.

፳፱. አዲት

- ፩. ለዋናው አዲተር በሕግ የተሰጠው ሥልጣን እንደተጠበቀ ሆኖ፣ የፈንዳ ሂሳብ ቦርዱ በሚሰይመው የውጭ አዲተር በየዓመቱ ይመረመራል።
- ፪. ሂሳብ የሚመረመረው በዓለም አቀፍ ደረጃ ተቀባይነት ባለው የሂሳብ ምርመራ መርሆዎችና ሥርዓት መሠረት ሆኖ የአዲት ሪፖርቱ ቦርዱና የገንዘብና የኢኮኖሚ ልማት ሚኒስቴር አስተያየት እንዲሰጡበት ይቀርብላቸዋል።
- ፫. የቴክኒክ ምርመራ ፣ በተመረጡት ተግባራት ላይ በየዓመቱ ይከናወናል።

፳፯. የመተባበር ግዴታ

ማንኛውም ሰው ለዚህ አዋጅ አፈጻጸም የመተባበር ግዴታ አለበት።

፳፮. ደንብና መመሪያ የማውጣት ሥልጣን

- ፩. ይህን አዋጅ ለማስፈጸም የሚያስፈልጉ ደንቦችን የሚኒስትሮች ምክር ቤት ሊያወጣ ይችላል።
- ፪. ይህን አዋጅ ለማስፈጸም የሚያስፈልጉ መመሪያዎችን በደንብ በሚወሰነው መሠረት ሚኒስቴሩ ወይም ቦርዱ ሊያወጡ ይችላሉ።

፳፯. ተፈጻሚ የማይሆኑ ሕጎች

ከዚህ አዋጅ ጋር የሚቃረን ማንኛውም ሕግ በዚህ አዋጅ በተደነገጉት ጉዳዮች ላይ ተፈጻሚነት አይኖረውም።

፳፰. አዋጁ የሚያስፈልገው ጊዜ

ይህ አዋጅ ከጥር ፳፱ ቀን ፲፱፻፺፮ ዓ.ም ጀምሮ የፀና ይሆናል።

አዲስ አበባ ጥር ፳፱ ቀን ፲፱፻፺፮ ዓ.ም

ግርማ ወልደ ጊዮርጊስ
የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
ፕሬዚዳንት

24. Audit

- 1) Without prejudice to the powers given by law to the Auditor General, the Books of Account of the Fund shall be audited annually by an external auditor to be appointed by the Board.
- 2) The Books of Account shall be audited in accordance with internationally acceptable principles and procedures, and the Audit report shall be submitted to the Board and the Ministry of Finance for comments.
- 3) Technical inspection shall annually be done on selected activities

25. Duty to Co-operate

Any individual, Government organs and private organizations shall have the duty to cooperate in the execution of this Proclamation.

26. Power to Issue Regulations and Directives

- 1) The Council of Ministers may issue regulations necessary for the implementation of this Proclamation.
- 2) The Ministry or the Board, as may be determined by Regulations, may issue directives necessary for the implementation of this Proclamation

27. Inapplicable Laws

No law shall, in so far as it is inconsistent with this Proclamation, have effect in respect of matters provided for by this Proclamation.

28. Effective Date

This Proclamation shall enter into force as of the 6th day of February, 2003.

Done at Addis Ababa, this 6th day of February, 2003.

GIRMA WOLDE GIORGIS
PRESIDENT OF THE FEDERAL
DEMOCRATIC REPUBLIC OF ETHIOPIA

ብርሃንና ሰላም ማተሚያ ድርጅት ታ.ተ.መ
BERHANENA SELAM PRINTING ENTERPRISE

- ፩. “ማርጅናል የማመንጫ አቅም ዋጋ” ማለት በኪሎዎት የሚተመን አንድ ተጨማሪ ኃይል ለማመንጨት የሚያስፈልግ ወጪ ነው።
- ፪. “ማርጅናል የኢነርጂ ዋጋ” ማለት በኪሎዎት ሰዓት የሚተመን አንድ ተጨማሪ ኢነርጂ ለማምረት የሚያስፈልግ ወጪ ነው።
- ፫. “የሲስተም ማመንጫ ዋጋ” ማለት በኃይል አቅርቦት ተቋም ውስጥ የተለያዩ የማመንጫ ዋጋ ሊኖራቸው በሚችል የኤሌክትሪክ ማመንጫ ተክኖሎጂዎች የሚመነጨውን ኢነርጂ የሚወክል አንድ የኢነርጂ ዋጋ ነው።
- ፬. “የሲስተም ማርጅናል ማስተላለፊያ አቅም ዋጋ” ማለት በኪሎዎት የሚለካ አንድ ተጨማሪ የኤሌክትሪክ ኃይል ለማስተላለፍና ትራንስሚሽን ለማድረግ የሚያስፈልግ ወጪ ነው።
- ፭. “የሲስተም ማርጅናል የማከፋፈያ አቅም ዋጋ” ማለት በኪሎዎት የሚለካ አንድ ተጨማሪ የኤሌክትሪክ ኃይል ለማከፋፈልና ትራንስሚሽን ለማድረግ የሚያስፈልግ ወጪ ነው።
- ፮. “ከፍተኛ ሆልቲጅ” ማለት ከ፳፬ ሆልት በላይ የሆነ የሆልቲጅ መጠን ነው።
- ፯. “መካከለኛ ሆልቲጅ” ማለት ከ፳፬ በላይ እስከ ፳፬ ሆልት የሆነ የሆልቲጅ መጠን ነው።
- ፰. “ባታተኛ ሆልቲጅ” ማለት እስከ ፳፬ ሆልት የሆነ የሆልቲጅ መጠን ነው።
- ፱. “ሰው” ማለት የተፈጥሮ ሰው ወይም በሕግ የሰውነት መብት የተሰጠው አካል ነው።

ከፍል ሁለት
ስለኤሌክትሪክ ሥራ ፈቃዶች
ምዕራፍ አንድ
ስለፈቃድ ማመልከቻዎች

- ፩. ጠቅላላ
 - ፩. የኤሌክትሪክ ኃይል ለማመንጨት፣ ለማስተላለፍ፣ ለማከፋፈልና ለመሸጥ፣ እንዲሁም ወይ ሀገር ውስጥ ለማስገባት ወይም ወይ ውጭ ለመላክ የሚያስችል ፈቃድ ለማግኘት ለኢጅንሰው የሚቀርብ ማመልከቻ የሚከተሉትን መያዝ አለበት፡
 - ሀ) የአመልካቹን ማንነትና አድራሻ፣
 - ለ) የፕሮጀክቱን የፈታኪቢሲቲ ጥናት፣
 - ሐ) የአካባቢ ተፅዕኖ ጥናት፣
 - መ) የአመልካቹን የፋይናንስ ሁኔታ፣ የቴክኒክ ብቃትና ልምድ የሚያሳዩ ሰነዶች፣
 - ሠ) የግንባታና አንስታሎሽን ዲዛይን፣ እና
 - ረ) ኢጅንሰው ያስፈልጋል ብሎ በመመሪያ የሚወስኖቸው ሌሎች መረጃዎች።
 - ፪. በዚህ አንቀጽ ንዑስ አንቀጽ ፩(ለ) የተመለከተው የፈታኪ ቢሲቲ ጥናት የሚከተሉትን መረጃዎች መያዝ አለበት፡
 - ሀ) የማህበራዊና ኢኮኖሚ ተፅዕኖ ጥናት፣
 - ለ) የፕሮጀክቱን ወጪና ገቢ ግምት፣
 - ሐ) ፕሮጀክቱ የሚቆይበትን ጊዜ፣
 - መ) የግንባታና የአንስታሎሽን ፕሮግራምና አገልግሎት መስጠት የሚጀምርበትን ቀን።
 - ፫. በዚህ አንቀጽ ንዑስ አንቀጽ ፩(ሐ) የተመለከተው የአካባቢ ተፅዕኖ ጥናት የሚከተሉትን መረጃዎች መያዝ አለበት፡

- 6) “marginal generation capacity cost” means the cost associated with producing one additional unit of power expressed in kilo watt;
- 7) “marginal energy cost” means the cost associated with producing one additional unit of energy expressed in kilo watt hour;
- 8) “system generation price” means a single price of power or energy prevailing in the supply system which in effect consists of different generation technologies bearing different unit cost of generation;
- 9) “system marginal transmission capacity cost” means the cost associated with transporting and transforming one additional unit of power expressed in kilo watt;
- 10) “system marginal distribution capacity cost” means the cost associated with distributing and transforming one additional unit of power expressed in kilo watt;
- 11) “high voltage” means a voltage level above 60,000 volt;
- 12) “medium voltage” means a voltage level above 1000 but less than 60,000 volt;
- 13) “low voltage” means a voltage level up to 1000 volt;
- 14) “person” means a natural or a juridical person.

PART TWO
Electricity Operation Licenses

CHAPATER ONE
Applications for License

- 3. *General Requirements*
 - 1) Any application for a license of generation, transmission, distribution and sale, as well as application for importation or exportation of electricity shall be addressed to the Agency and shall contain:
 - (a) identity and address of the applicant;
 - (b) feasibility study of the project;
 - (c) environmental impact assessment;
 - (d) documents showing the applicant’s financial situation, technical competence and experience;
 - (e) construction and installation designs, and
 - (f) such other information the Agency may determine by directives.
 - 2) The feasibility study referred to in sub-article 1 (b) of this Article shall consist of the following components:
 - (a) social and economic impacts;
 - (b) estimated costs and returns of the project;
 - (c) duration of the project;
 - (d) construction and installation program and commencement date of operation.
 - 3) The environmental impact assessment referred to in Sub-Article 1 (c) of this Article shall consist of the following components:

Annex III

Council of Ministers Regulations

- **Electricity Operations Council of Ministers Regulations No 49/1999**
- **Ethiopia Electric Power Corporation Establishment Regulation No 18/1997**



የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ

ፌዴራል ነጋሪት ጋዜጣ FEDERAL NEGARIT GAZETA

OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

አምስተኛ ዓመት ቁጥር ፶፪
አዲስ አበባ ግንቦት ፲፱ ቀን ፲፱፻፺፩

በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
የሕዝብ ተወካዮች ምክር ቤት ጠባቂነት የወጣ

5th Year No. 52.
ADDIS ABABA - 20th May, 1999

ማውጫ

የሚኒስትሮች ምክር ቤት ደንብ ቁጥር ፵፱/፲፱፻፺፩ ዓ.ም.
የኤሌክትሪክ ሥራዎች የሚኒስትሮች ምክር ቤት
ደንብ ገጽ ፩ሺጸኛ

CONTENTS

Council of Ministers Regulations No. 49/1999
Electricity Operations Council of Ministers
Regulations Page 1027

የሚኒስትሮች ምክር ቤት ደንብ ቁጥር ፵፱/፲፱፻፺፩

በኤሌክትሪክ ሥራዎች የወጣ የሚኒስትሮች ምክር ቤት ደንብ

የሚኒስትሮች ምክር ቤት የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ አስፈጻሚ አካላትን ሥልጣንና ተግባር ለመወሰን በወጣው አዋጅ ቁጥር ፱/፲፱፻፹፯ አንቀጽ ፭ እና በኤሌክትሪክ አዋጅ ቁጥር ፹፯/፲፱፻፹፱ አንቀጽ ፳፰ (፩) መሠረት ይህን ደንብ አውጥቷል።

ክፍል አንድ ጠቅላላ

- ፩. አጭር ርዕስ
ይህ ደንብ “የኤሌክትሪክ ሥራዎች የሚኒስትሮች ምክር ቤት ደንብ ቁጥር ፵፱/፲፱፻፺፩” ተብሎ ሊጠቀስ ይችላል።
- ፪. ትርጓሜ
የቃሉ አገላለጽ ሌላ ትርጉም ካለበት ሁኔታ ይህ ደንብ ውስጥ፡
 - ፩. “አዋጅ” ማለት የኤሌክትሪክ አዋጅ ቁጥር ፹፯/፲፱፻፹፱ ሲሆን በአዋጁ ለተዘረዘሩት ቃላት የተሰጡት ትርጓሜዎች ለዚህ ደንብም ተፈጻሚ ይሆናሉ።
 - ፪. “ኤጀንሲ” ማለት የኢትዮጵያ ኤሌክትሪክ ኤጀንሲ ነው።
 - ፫. “የማመንጫ ተቋም” ማለት ኤሌክትሪክ ለማመንጫት የሚያገለግል የቴክኖሎጂ ስብስብ ነው።
 - ፬. “ከፍተኛ የጋራ ጥያቄ” ማለት በኤሌክትሪክ ተጠቃሚዎች በተወሰነ የጊዜ ክልል ውስጥ የሚከሰት ከፍተኛው የፍጆታ መጠን ነው።
 - ፭. “ቋሚ የሲስተም ጭነት” ማለት በጋራ አቅርቦት ተቋም ላይ በተከታታይነት የሚታይ የፍጆታ መጠን ነው።

COUNCIL OF MINISTERS REGULATIONS NO. 49/1999 COUNCIL OF MINISTERS REGULATIONS TO PROVIDE FOR THE REGULATIONS OF ELECTRICITY OPERATIONS

These Regulations are issued by the Council of Ministers pursuant to Article 5 of the Definition of Powers and Duties of the Executive Organs of the Federal Democratic Republic of Ethiopia Proclamation No. 4/1995 and Article 28 (1) of the Electricity Proclamation No. 86/1997.

PART ONE General

1. Short Title
These Regulations may be cited as the “Electricity Operations Council of Ministers Regulations No. 49/1999.”
2. Definitions
In these Regulations, unless the context requires otherwise:
 - 1) “Proclamation” means the Electricity Proclamation No. 86/1997, and definitions provided therein shall also apply to these Regulations;
 - 2) “Agency” means the Ethiopian Electricity Agency;
 - 3) “Generation facility” means a set of technology used to produce electricity;
 - 4) “Peak demand” means the highest level demand for electricity achieved by electricity users within a defined period of time;
 - 5) “System based load” means a defined amount of demand for electricity continuously available in the supply system;

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ማመልከቻን ስለመመዘገብ

እያንዳንዱ ማመልከቻ በዚህ ደንብ ምዕራፍ አንድ መሠረት በትክክልኛው ፎርም ተሟልቶ ሲቀርብ ኤጀንሲው ለዚህ ተግባር ባዘጋጀው መዘገብ ላይ እንደአቀራረቡ ቅደም ተከተል ወዲያውኑ ይመዘገባል። እያንዳንዱ አመልካችም የምዘገባውን ቀንና ቁጥሩን የሚገልጽ ደረሰኝ ይሰጠዋል።

ማመልከቻን ስለማስታወቅ

፩. ፈቃድ ለማግኘት የቀረበው ማመልከቻ ማስታወቂያ በሀገሪቱ ውስጥ ሰፊ ስርዓት ባላቸው ጋዜጦች በሁለት ተከታታይ እትሞች እንዲወጣ ኤጀንሲው ማመልከቻው በተመዘገበ በሦስት የሥራ ቀናት ውስጥ ማስታወቂያውን ለማመልከተው አሳታሚ ይልካል።

፪. ማስታወቂያው የፈቃዱን ዓይነት፣ ዓላማና የፈቃዱን ሥፍራ የሚገልጽና የክርታ ቅጅዎች የሚታዩበትን ወይም የሚገዙበትን አድራሻና ጉዳዩ ይመለከተኛል የሚል ማናቸውም ሰው ያለውን ተቃዋሚ ወይም አስተያየት የሚያቀርቡበትን የኤጀንሲውን አድራሻ የሚገልጽ መሆን አለበት።

፫. የዚህ አንቀጽ ንዑስ አንቀጽ (፩) እና (፪) ደንጋጌዎች እንደተጠበቁ ሆነው ማስታወቂያው ለሦስት ተከታታይ ቀናት በሬዲዮና በቴሌቪዥን መነገር አለበት።

፬. አመልካቹ ለማስታወቂያው የሚያስፈልጉትን ወጭዎች በሙሉ ይሸፍናል።

የክርታዎችን ቅጅዎች በይፋ እንዲታዩ ስለማድረግ
አመልካቹ የፈቃዱን ሥፍራ የሚያሳዩት የክርታ ቅጅዎች በይፋ እንዲታዩ በኤጀንሲው በፎቶ ፈቃዱ በተጠየቀበት አካባቢ ባለ የከተማ መስተዳድር ጽ/ቤት ማስቀመጥ አለበት።

መቃወሚያዎችን ስለማቅረብ

፩. ማንኛውም ጉዳዩ ይመለከተኛል የሚል ሰው ማስታወቂያው በጋዜጣ ለመጨረሻ ጊዜ ከወጣበት ቀን ጀምሮ ባሉት ቋ ቀናት ውስጥ በተጠየቀው ፈቃድ ላይ ያለውን ተቃዋሚ ወይም አስተያየት ከነምክንያቶቹ በጽሁፍ ለኤጀንሲው ሊያቀርብ ይችላል።

፪. በዚህ አንቀጽ ንዑስ አንቀጽ (፩) መሠረት የቀረበ መቃወሚያ ውድቅ ከተደረገ፣ ኤጀንሲው ውሳኔውን ከነምክንያቱ በጽሁፍ ገልጾ ለተቃዋሚው እንዲደርሰው ያደርጋል።

ማመልከቻን ስለማሻሻል

ማመልከቻውን ለማሻሻል የሚፈልግ ማናቸውም አመልካች ማሻሻያውን ለኤጀንሲው በጽሁፍ ማቅረብ አለበት። የዚህ ምዕራፍ ደንጋጌዎች በቀረበው ማሻሻያ ላይም ተፈጻሚ ይሆናሉ።

ምዕራፍ ሦስት

ፈቃድ ስለመስጠትና ስለመከልከል

ፈቃድ ስለመስጠት

፩. በዚህ ደንብ አንቀጽ ፲፩ በተጠቀሰው የቋ ቀናት ጊዜ ውስጥ በማመልከቻው ላይ ምንም ዓይነት መቃወሚያ ካልቀረበና ኤጀንሲው በአመልካቹ የተጠየቀው ፈቃድ የሚያስከትላቸውን ግዴታዎች ለመጣት የሚያስችል የፋይናንስ ምንጭ፣ የቴክኒክ ችሎታና ልምድ አመልካቹ ያለው መሆኑን ሲያምንበት የተወሰነውን ክፍያ በማስከፈል በግብር ቀናት ውስጥ ፈቃዱን ይሰጠዋል።

CHAPTER TWO

Registration And Advertisement of Application

8. Registration of Application

Each application for license, if complete and in the proper form as provided in Chapter One of these Regulations, shall immediately be registered in the register maintained in the office of the Agency for such purpose in the order received, and each applicant shall upon such registration be given a receipt indicating the date and number thereof.

9. Advertisement of Application

1) The Agency shall, within three working days after the registration of an application of license, send notice of the application to the concerned publishers for publication on two successive issues of news papers which have wider circulation in the country.

2) The advertisement shall describe the type, purpose and area of license and shall give the address of the offices where copies of maps may be inspected or purchased, and shall specify the address of the Agency to which an objection or comment may be forwarded by any interested person.

3) Without prejudice to the provisions of Sub-Articles (1) and (2) of this Article, the advertisement shall be announced on the Radio and TV for three consecutive days.

4) The applicant shall bear costs necessary for such an advertisement.

10. Deposition of Copies of Maps for Public Inspection

The applicant shall deposit copies of the maps of the proposed area of license for public inspection at the office of the Agency and the municipality of proposed area of license.

11. Lodging of Objections

1) Within 60 days from the last publication of the advertisement on the newspaper any interested person may file at the office of the Agency a written objection against the proposed license or may forward any comment stating the reasons thereof.

2) If an objection filed by any person pursuant to Sub-Article (1) of this Article is rejected, the Agency shall so notify the person in writing setting the reasons for decision.

12. Amendment of Application

If an applicant desires to make any amendment to his application, he shall submit a written application to the Agency. Such application shall also be subject to the provisions of this Chapter.

CHAPTER THREE

Issuance and Refusal of License

13. Grant of License

1) If, upon the expiry of the 60 days period specified under Article 11 of these Regulations no objection to the application has been filed at its office, the Agency shall, upon payment by the applicant of the prescribed fees, grant the requested license within 30 days; provided, however, that no license shall be granted unless the Agency is satisfied that the applicant has the necessary financial resource, technical competence and experience to meet the obligations relating to the license requested.

(a) social and economic impacts
(b) estimated costs and returns of the project
(c) duration of the project
(d) construction and installation program and com-

፪. በዚህ ደንብ አንቀጽ ፲፩ መሠረት በማመልከቻው ላይ ተቃውሞ ከቀረበ ፈቃድ የመስጠቱ ሂደት ማመልከቻው በኤጀንሲው ከተመዘገበ ከ፩፻፳ ቀናት ባልበለጠ ጊዜ ውስጥ በተቃውሞው ላይ ውሳኔ እስከሚሰጥበት ድረስ ይዘገያል ። የተሰጠው ውሳኔ ተቃውሞውን ውድቅ የሚያደርግ ከሆነ በዚህ አንቀጽ ንዑስ አንቀጽ(፩) የተደነገገው እንደተጠበቀ ሆኖ አመልካቹ ወዲያውኑ ፈቃድ ይሰጠዋል ።

፫. አመልካቹ አግባብ ባለው የኢንቨስትመንት ሕግ መሠረት እንደሆነ ለማድረግ የሚፈቀድለት ካልሆነ በስተቀር በዚህ ደንብ መሠረት ፈቃድ አይሰጠውም ።

፲፬. ፈቃድን ስለመከሰል

፩. ኤጀንሲው የቀረበው ማመልከቻ ወይም ተያይዞ የቀረበው መረጃ ወይም የአመልካቹ የፋይናንስ አቅም፣ የቴክኒክ ችሎታና ልምድ፣ በቁ አይደለም ብሎ ከወሰነ ይህንኑ ከነምክንያቱ ለአመልካቹ በጽሁፍ ማሳወቅ አለበት ።

፪. አመልካቹ የሚደግፉትን መረጃዎች ለማቅረብ እንዲችል ኤጀንሲውን የማሳወቅ ዕድልና የቀረበበትን ተቃውሞ ለመቋቋም ከፀነ ቀናት ያላነሰ ጊዜ ይሰጠዋል ። እንዲሁም ማመልከቻውን የማረም ወይም የማሟላት መብት ይኖረዋል።

፫. አመልካቹ የኤጀንሲውን ምክር ካገኘና የተሰጠው ጊዜ ካለፈም በኋላ ኤጀንሲው ማመልከቻው ወይም የቀረበው መረጃ ወይም የአመልካቹ ችሎታ የጠየቀውን ፈቃድ ለመስጠት የማይቻል መሆኑን ሲያምንበት ይህንኑ ለአመልካቹ በጽሁፍ ያሳውቀዋል ።

፲፭. የፈቃድ ቅጅ ስለመስጠትና ስለመተካት

፩. ባለፈቃዱ የተወሰነውን ክፍያ በመክፈል አንድ ወይም ተጨማሪ የፈቃዱን ቅጂዎች እንዲሰጠው ሊጠይቅ ይችላል ። ኤጀንሲውም ጥያቄው እንደደረሰው የፈቃዱን የተረጋገጠ ቅጂ አዘጋጅቶ መስጠት አለበት ።

፪. ባለፈቃዱ የተወሰነውን ክፍያ ከፍሎ የጠፋበትን ወይም የተበላሸበትን ፈቃድ ምትክ እንዲሰጠው ኤጀንሲውን ሊጠይቅ ይችላል ። ኤጀንሲውም ጥያቄው እንደደረሰው የጠፋውን ወይም የተበላሸውን ፈቃድ ምትክ አዘጋጅቶ መስጠት አለበት ።

፲፮. ፈቃድ ስለማስተላለፍ

ማንኛውም ባለፈቃድ በአዋጁ አንቀጽ ፲፪ ድንጋጌዎች መሠረት ፈቃዱን ሊያስተላልፍ ይችላል ። ሆኖም ፈቃዱ የሚተላለፍለት ሰው በፈቃዱ የተመለከቱትን ግዴታዎች ለመወጣት የሚያስችል ብቃት ያለው መሆን አለበት ።

፲፯. ፈቃድ ስለማሻሻል

ማንኛውም ባለፈቃድ ፈቃዱን ለማሻሻል ከፈለገ ለኤጀንሲው በጽሁፍ ያመለክታል ። በማመልከቻው ላይም የዚህ ክፍል ምዕራፍ ሁለት ድንጋጌዎች ተፈጻሚ ይሆናሉ ።

፲፰. ስለፈቃድ ዘመንና እድሳት

በአዋጁና በዚህ ደንብ መሠረት የሚሰጥ ፈቃድ ጸንቶ የሚቆይበት ዘመን በፕሮጀክቱ ዕድሜ ላይ የተመሠረተ ሆኖ ጣሪያው እንደሚከተለው ይሆናል ፤

- ሀ) ለኃይድሮ ኤሌክትሪክ ኃይል ማመንጫ ፈቃድ ፵ ዓመት
- ለ) ለኤሌክትሪክ ኃይል ማስተላለፊያ ፈቃድ ፶ ዓመት
- ሐ) ለኤሌክትሪክ ኃይል ማከፋፈልና መሸጥ ፈቃድ ፶ ዓመት

2) Where an objection to the application has been filed pursuant to Article 11 of these Regulations, the granting of license shall be deferred pending a decision by the Agency within 120 days from the registration. If the decision of the Agency is against the submitted objection, then, a license shall be issued to the the applicant subject to sub-article (1) of this Article.

3) No license shall be issued under these regulations unless the applicant is eligible to invest in the sector pursuant to the provisions of the relevant investment law.

14. Refusal of License

1) If the Agency determines that the application or the information supplied or the qualifications, experience or financial capacity of the applicant in connection with the proposed license is materially inadequate, it shall so notify the applicant in writing setting the reasons of the decision.

2) The applicant shall be permitted to consult with the Agency in order to provide all evidence in support of his position, shall be afforded a time not less than 30 days to overcome the objection of the Agency, and shall also be entitled to amend or complete his application.

3) If, following such consultation and expiry of such time, the Agency still believes that the application or the information supplied or the qualifications of the applicant are materially inadequate to justify the grant of a license, it shall notify same to the applicant in writing.

15. Replacement and Issuance of Copies of Licenses

1) The licensee may, upon the payment of the prescribed fees, request the Agency to issue one or more copies of his license. Upon receiving such request, the Agency shall issue such certified copies to the licensee.

2) The licensee may, upon the payment of the prescribed fees, apply to the Agency for the replacement of his license which has been lost or destroyed. Upon receiving such application the Agency shall issue replacement of such license to the licensee.

16. Transfer of License

Any licensee may transfer his license pursuant to Article 12 of the Proclamation; provided, however, that the transferee has the required competence to fulfill the obligations of the license.

17. Amendment of License

If a licensee desires any amendment to be made to his license, he shall submit a written application to the Agency. Such application shall also be subject to the provisions of Chapter Two of this Part.

18. Duration and Renewal of License

1) The duration of a license issued pursuant to the provisions of the Proclamation and these Regulations shall be based on the life of the project; provided, however, that the maximum duration shall not exceed the following:

- (a) for hydro power generation license 40 years
- (b) for transmission license 50 years
- (c) for distribution and sale license 50 years

መ) ለኤሌክትሪክ አስመልክት ወይም ላኪነት ፈቃድ ፲ ዓመት

ይ. ከኃይድሮ ወጭ ለሌሎች ኃይል ማመንጫዎች የፈቃድ ዘመን ጣሪያ በሚገለጹት በሚወጣው መመሪያ ይወሰናል።

ይ. ማናቸውም ባለፈቃድ፡

ሀ) የፈቃዱ ዘመን ከማለቁ ሁለት ዓመት በፊት ፈቃዱ እንዲታደስለት ከጠየቀ፡

ለ) የአዋጁን፣ የዚህን ደንብና በእነዚህ መሠረት የሚወጡ መመሪያዎችን በመተላለፍ ፈቃዱን ለመሰረዝ የሚያበቃ ጥፋት ካልፈጸመ፣ እና

ሐ) የሥራውን ደረጃ የኤሌክትሪክ ኢንዱስትሪ በወቅቱ በደረሰበት ዘመናዊ ቴክኖሎጂና አጠቃላይ ተቀባይነት ባለው የአሠራር ልምድ ለማሳደግ ከተስማማ፡

ፈቃዱ በተከታታይ ሊታደስለት ይችላል፤ ሆኖም እያንዳንዱ የእድሳት ዘመን ከፈቃዱ የመጀመሪያ ዘመን ግማሽ በላይ ሊሆን አይችልም።

ሁ. የዚህ ክፍል ምዕራፍ ሁለት ድንጋጌዎች በፈቃድ እድሳት ላይም ተፈጻሚ ይሆናሉ።

፲፱. ፈቃድን ስለመሰረዝ

የአዋጁ አንቀጽ ፲፱(ደ) ድንጋጌ እንደተጠበቀ ሆኖ፣ ባለፈቃዱ ከሚከተሉት ጥፋቶች አንዱን ከፈጸመ ፈቃዱ ሊሰረዝበት ይችላል፡

፩. የቴክኒክ ደረጃዎችን ካልጠበቀ፣ የደገንንት መመሪያዎችንና የአካባቢ ጥበቃ ሕጎችን ካላከበረ፤

፪. የታሪፍ ደንቦችን ካላከበረ፤

፫. ከአቅም በላይ የሆነ ምክንያት በሌለበት ሁኔታ የኤሌክትሪክ አቅርቦትን በተደጋጋሚ ካደረገ፣ ከቀነሰ ወይም ካቆመ።

፳. ስለፈቃድ መቋረጥ

፩. ፈቃድ በሚከተሉት ሁኔታዎች ይቋረጣል፡

ሀ) በዚህ ደንብ አንቀጽ ፲፰ መሠረት ሳይታደስ ከቀረ፤

ለ) በዚህ ደንብ አንቀጽ ፲፱ ድንጋጌዎች መሠረት በኤጀንሲው ከተሰረዘ፤

ሐ) የወራሾች መብት እንደተጠበቀ ሆኖ ባለፈቃዱ ከሞተ ወይም ባለፈቃዱ የንግድ ድርጅት ሲሆን ከፈረሰ ወይም የመክሰር ውሳኔ ከተሰጠበት።

ይ. ፈቃዱ ሲቋረጥ የኤሌክትሪክ ኃይል አቅርቦቱ ሳይቋረጥ እንዲቀጥል ለማድረግ የግድ አስፈላጊ የሆኑ ባለፈቃዱን የኤሌክትሪክ ተቋሞች መንግሥት ከመጽሐፍ ወይም ከመተኪያ ዋጋቸው እነስተኛ በሆነው ስሌት ላይ የተመሠረተ የካሳ ክፍያ በማሰብ ሊወስድ ይችላል።

ይ. ተቋሞቹ ከእገልግሎት ወጭ በመሆናቸው መንግሥት ሊወስዳቸው ካልፈለገ ባለፈቃዱ በራሱ ወጭ ተቋሞቹን ማስወገድ አለበት።

፳፩. ስለፈቃድ ክፍያዎች

፩. የኤሌክትሪክ ሥራ ፈቃድ ለማውጣት የሚጠይቅ ማንኛውም አመልካች የፈቃድ ማመልከቻው ሲመዘገብ በዚህ አንቀጽ መሠረት የሚጠየቀውን የፈቃድ ክፍያ ፳ ፕሮሰንት በቅድሚያ ይከፍላል፤ ሆኖም አመልካቹ በዚህ ደንብ አንቀጽ ፲፱ መሠረት ፈቃድ የሚከለክል ከሆነ ክፍያው አይመለስለትም።

(d) for importation or exportation license 10 years

2) The maximum duration of license for non-hydro power generation plants shall be determined by directives of the Ministry.

3) A license may be renewed for successive periods if the licensee:

(a) has made an application to that effect two years prior to the expiry of the license;

(b) is not in breach of any provisions of the Proclamation, these Regulations and directives issued hereunder which constitutes grounds for revocation of his license; and

(c) has agreed to upgrade his operations in accordance with latest technology generally accepted in the power industry; provided, however, that the duration of each renewal shall not exceed half of the initial period of the license.

4) Renewal shall be subject to the provisions of Chapter Two of this Part.

19. Revocation of License

Without prejudice to the provisions of Article 14(2) of the Proclamation, a license may be revoked when a licensee commits any one of the following infractions:

1) failure to comply with technical standards, safety requirements and environmental laws;

2) failure to comply with tariff regulations;

3) repeated interruption, reduction or termination of electricity supply in the absence of force majeure.

20. Termination of License

1) A license shall terminate if:

(a) it expires without being renewed pursuant to the provisions of Article 18 of these Regulations;

(b) it is revoked by the Agency pursuant to the provisions of Article 19 of these Regulations;

(c) without prejudice to the right of heirs, the licensee dies or where the licensee is not a natural person, it is liquidated or declared bankrupt.

2) Upon termination of a license, the government may take over, in consideration of compensation on the basis of book value or replacement cost whichever is the lower, the facilities of the licensee which are absolutely necessary to continue, without interruption, the supply of electric power.

3) If the government does not desire to take over the facilities due to their being unoperational, the licensee shall remove such facilities at its own cost.

21. License Fees

1) Any applicant for electricity operation license shall, upon the registration of his application, pay in advance 20% of the license fees to be paid under this Article; provided, however, that such payment shall not be refundable upon refusal of license under Article 14 of these Regulations.

- ፱. ለኤሌክትሪክ ማመንጨት ፈቃድ የሚጠየቀው ክፍያ በእያንዳንዱ ኪሎ ዋት ብር ፩ ይሆናል። ሆኖም ዝቅተኛው ክፍያ ብር ፩ ሺ ይሆናል።
- ፲. ለኤሌክትሪክ ማስተላለፍ ፈቃድ የሚጠየቀው ክፍያ በእያንዳንዱ ሰርኪዩት ኪሎ ሜትር ብር ፳ ይሆናል። ሆኖም ዝቅተኛው ክፍያ ብር ፪ ሺ ይሆናል።
- ፱. ለኤሌክትሪክ ማከፋፈልና መሸጥ ፈቃድ የሚጠየቀው ክፍያ በእያንዳንዱ ኪሎ ቬልት አምፐር የትራንስፎርመር አቅም ብር ፪ ይሆናል። ሆኖም ዝቅተኛው ክፍያ ብር ፩ ሺ ይሆናል።
- ፳. ለኤሌክትሪክ አስመዳኝነት ወይም ላኪነት ፈቃድ የሚጠየቅ ክፍያ በሚጋዋት ሰዓት ብር ፩ ይሆናል። ሆኖም ዝቅተኛው ክፍያ ብር ፪ ሺ ይሆናል።
- ፳፩. ፈቃድን ለማሻሻል ወይም ለማሳደስ የሚጠየቀው ክፍያ ለፈቃዱ ማውጫ የሚጠየቀው ክፍያ ፱ ፐርሰንት ይሆናል።
- ፳፪. ፈቃድ ለማስተላለፍ የሚጠየቀው ክፍያ ለፈቃዱ ማውጫ የሚጠየቀው ክፍያ ፳ ፐርሰንት ይሆናል።
- ፳፫. የፈቃድ ቅጅ ወይም ምትክ ለመስጠት የሚጠየቀው ክፍያ ብር ፩፻፶ ይሆናል።

ክፍል ሦስት

የባለፈቃዶች እና የደንበኞች ግዴታዎች

- ፳፬. የባለፈቃዶች መብት
 - ባለፈቃዶች የሚከተሉት መብቶች ይኖሯቸዋል፤
 - ፩. የኤሌክትሪክ ሥራዎችን ለማካሄድ በፈቃዱ ወደተሸ ፈነው ክልል የመግባት፤
 - ፪. የዚህን ደንብ ደንጋጌዎችና በዚህ ደንብ መሠረት የወጡ መመሪያዎችን ለሚጥሱ ደንበኞች ማስጠንቀቂያ በመስጠት የኤሌክትሪክ አቅርቦትን የማቋረጥ፤
 - ፫. የደንበኞችን የኤሌክትሪክ ኢንስታሌሽን የመመርመር።
- ፳፭. የባለፈቃዶች ግዴታ
 - ባለፈቃዶች የሚከተሉት ግዴታዎች ይኖሯቸዋል፤
 - ፩. በአዋጁ፣ በዚህ ደንብና በነዚህ መሠረት በሚወጡ መመሪያዎች እና በፈቃዱ በተመለከተ ግዴታዎች መሠረት የኤሌክትሪክ ሥራዎችን ማካሄድ፤
 - ፪. የሰውን ሕይወት፣ የንብረትና የአካባቢን ደንጋጋት ለመጠበቅ የሚያስፈልጉ የጥንቃቄ እርምጃዎችን የመውሰድ፤
 - ፫. ለደንበኞች የሚያቋርጥ የኤሌክትሪክ አገልግሎት የመስጠት፤
 - ፬. በፈቃዱ ክልል የሚገኙ አዲስ ደንበኞች የሚያቀርቡትን የአገልግሎት መስመር የማስቀጠል ጥያቄ በፍጥነት የማስተናገድ፤
 - ፭. ኤሌክትሪክ ከመቋረጡ በፊት ለደንበኞች የቅድሚያ ማስጠንቀቂያ የመስጠት፤
 - ፮. በአዋጁ አንቀጽ ፲፮ የተመለከተ ኤሌክትሪክ ለማቋረጥ የሚያስችሉ ምክንያቶች እንደተወገዱ የኤሌክትሪክ አገልግሎቱን ወዲያውኑ የመጀመር፤
 - ፯. ስለ ኤሌክትሪክ አጠቃቀም ለደንበኞች አስፈላጊውን መመሪያ የመስጠት፤
 - ፰. ደንበኞች ለሚያቀርቡት አቤቱታ ወዲያውኑ ምላሽ የመስጠት፤

- 2) Fees to be paid for generation license shall be Birr 1.00 per kilowatt; provided, however, that minimum fees shall be Birr 1000.
- 3) Fees to be paid for transmission license shall be Birr 20 per circuit kilo meter; provided, however, that minimum fees shall be Birr 2000.
- 4) Fees to be paid for distribution and sale license shall be Birr 2 per kilo volt ampere of transformer capacity; provided, however, that minimum fees shall be Birr 1000.
- 5) Fees to be paid for import or export of electricity license shall be Birr 1.00 per megawatt hour; provided, however, that minimum fees shall be Birr 2000.
- 6) The fee to be paid for the amendment or renewal of a license shall be 50% of the fee required for the issuance of such license.
- 7) The fee to be paid for the transfer of a license shall be 20% of the fee required for the issuance of such license.
- 8) Fees to be paid for issuance of copies or replacement of license shall be Birr 150.

PART THREE

Rights and Obligations of Licensees and Customers

- 22. Rights of Licensees
 - Licensees shall have the following rights:
 - 1) to enter the land covered by the license to undertake electricity operations;
 - 2) to issue warnings and disconnect electricity of customers who violate any provision of these Regulations and directives issued hereunder;
 - 3) to inspect the electricity installations of customers.
- 23. Obligations of Licensees
 - Licensees shall have the following obligations:
 - 1) to carry out electricity operations in accordance with the provisions of the Proclamation, these Regulations and directives issued thereunder and the terms and conditions of the license;
 - 2) to take proper measures in order to protect human life, property and the environment;
 - 3) to supply electricity to customers on regular basis;
 - 4) to respond promptly to connection demand of new customers within its license area;
 - 5) to give advance notice to customers before each interruption of electric power;
 - 6) to resume electricity service as soon as the reasons for the interruption stated under Article 16 of the Proclamation ceases to exist;
 - 7) to provide customers with the necessary guidance on the use of electricity;
 - 8) to respond promptly to customers' complaints;

- ፱. የቅጥር ፡ የገንዘብ ፡ የንግድና ሌሎች የሂሳብ መዘግብትና ስለኤሌክትሪክ ሥራዎች ሪከርዶች የመያዝና በመመሪያ በሚወሰነው መሠረት በየወቅቱ ሪፖርት የማቅረብ ፡
- ፲. ማንኛውንም መዘግብትና ሪከርዶችን ለኤጀንሲው ምርመራ የማቅረብ ፡
- ፲፩. ለኤሌክትሪክ ሥራ አስፈላጊ የሆነውን ሥልጠናና ትምህርት ለሠራተኞቻቸው የመስጠት ፡
- ፲፪. በዋጋቸው ተወዳዳሪና በጥራታቸው ተመጣጣኝ ደረጃ ላላቸው ፡ በሚፈለገውም መጠን ለሚገኙ የሀገር ውስጥ ዕቃዎችና አገልግሎቶች ቅድሚያ የመስጠት።

፳፱. የደንበኞች መብት
 ደንበኞች የሚከተሉት መብቶች ይኖሯቸዋል ፡

- ፩. ከባለፈቃዶች ያልተቋቋመ ፡ ከአደጋ የተጠበቀና ጥራት ያለው የኤሌክትሪክ አቅርቦት የማግኘት ፡
- ፪. የኤሌክትሪክ አገልግሎትን የሚመለከቱ አቤቱታዎችን እንደ ነገሩ አግባብነት ለባለፈቃዱ ወይም ለኤጀንሲው የማቅረብ ።

፳፺. የደንበኞች ግዴታ
 ደንበኞች የሚከተሉት ግዴታዎች ይኖሯቸዋል ፡

- ፩. ስለኤሌክትሪክ አጠቃቀም የሚሰጡ ማስታወቂያዎችንና መመሪያዎችን የማክበር ፡
- ፪. የኤሌክትሪክ ኢንስታሌሽን ፡ ጥገና ፡ ምርመራና የቆጣሪ ንብብ ሥራዎች ሲካሄዱ አስፈላጊውን ትብብር የማድረግ ፡
- ፫. ማናቸውም የኤሌክትሪክ ብልሽት ሲያጋጥም ወዲያውኑ ለባለፈቃዱ የማሳወቅ ።

ክፍል አራት ፡

ስለ ኤሌክትሪክ ዋጋና ታሪፍ

፳፮. አጠቃላይ መርህ

- ፩. የኤሌክትሪክ ዋጋ አተማመን ሀብትን በብቃት በመጠቀም መርህ ላይ ተመስርቶ ተጠቃሚዎችና አምራቾች ተጨማሪ የኢነርጂ ምርትና ፍጆታ የሚያስከትለውን ትክክለኛውን የፍጆታና የማምረቻ ዋጋ በሚያገኙበት መልክ ይከናወናል ።
- ፪. በደንበኞች ላይ የሚጣለው የአቅርቦት ዋጋ በሲስተሙ ላይ ከሚያስከትለው የወጪ ተጽዕኖ አንፃር ተመጣጣኝ በሆነ መልኩ ሆኖ የኢነርጂ አጠቃቀሙን በተቻለ መጠን ምርቱን ለማስገኘት ከሚወጣው ወጪ አንፃር ሚዛናዊ ለማድረግ በሚያስችል መልኩ ይሆናል።
- ፫. የዋጋ ተመኑ በቂና ቀጣይነት ያለው የመዋዕል ንዋይ ምንጭ ለማስገኘትና አስተማማኝ አገልግሎት ለማቅረብ የሚያስችል ሆኖ ፡ የአገልግሎት ብቃትን ለማሻሻል የሚያስችል የዋጋ አተማመን ሥርዓት መያዝ አለበት ።
- ፱. ዝርዝር የታሪፍ መደቦች አወጣጥ የአፈጻጸም ችግሮችን ለማስወገድ ወይም ለመቀነስ እንዲያስችል በተቻለ መጠን ያልተወሳሰበ እንዲሆን ይደረጋል ።

፳፯. የዋጋ አተማመን አጠቃላይ ስልቶች

- ፩. ለጅምላም ሆነ ለቸርቻሮ ተጠቃሚዎች የኢነርጂና የኃይል አቅርቦት ዋጋ የሚተመኑው ፡
 - ሀ) በሲስተሙ ላይ የተወሰነ ተጨማሪ ኃይል ወይም ኢነርጂ ለማመንጨት በሚደረገው ወጪ ፡ እና

- 9) to keep all employment, financial, commercial and other books and records as well as records of electricity operations, and submit reports periodically as determined by directives;
- 10) to make available to the Agency all books and records for inspection;
- 11) to give employees the training and education necessary for electricity operations;
- 12) to give preference to domestic goods and services, where they are readily available at competitive price and are of comparable quality.

24. Rights of Customers
 Customers shall have the following rights:

- 1) to require the provision of regular, safe and quality electricity services from licensees;
- 2) to submit to the licensee or the Agency, as may be appropriate, any complaints related to electricity services.

25. Obligations of Customers
 Customers shall have the following obligations:

- 1) to comply with notices and instructions on the use of electricity;
- 2) to facilitate the installation, repair, inspection and meter reading of electricity;
- 3) to promptly notify the licensee of any irregularities of electricity.

PART FOUR

Electricity Price and Tariff

26. General Principles

- 1) Electricity pricing shall be based on the principle of efficient allocation of resources where customers and producers receive the true costs associated with consuming and producing one additional unit of energy respectively.
- 2) The price that customers get charged for shall be computed in consideration of the cost incurred by the total system, and the energy consumption shall, as much as possible, be made fair taking the production cost into account.
- 3) The rate level shall be made sufficient enough to support continuing investments and sustainable services, and shall include a system of pricing that guarantees an improved service efficiency.
- 4) Tariff structures shall be kept simple enough to avoid or minimize implementation difficulties.

27. General Pricing Approach

- 1) Price for supplying energy and power to retail or bulk customers shall, subject to adjustments to meet financial requirements to be defined as necessary, be determined on the basis of:
 - (a) the system marginal cost; and

ለ) በሲስተሙ የከፍተኛ ውጤታማነት ዕቅድ ፡
ላይ የተመሠረተ ሆኖ አስፈላጊ ነው ተብሎ
በሚወሰነው ገደብ የፋይናንስ ፍላጎትን ሊያሟላ
በሚችል መልኩ ሊስተካከል ይችላል ።

፪. ከብሔራዊ ግሪድ ውጭ ለሚደረግ የዋጋ አተማመን
በዚህ አንቀጽ ንዑስ አንቀጽ (፩) የተመለከተው ስልት
በቴክኒካዊ ምክንያት ተግባራዊ ሊሆን የማይችል ሲሆን
የአቅርቦት ዋጋ አተማመን ፡

- ሀ) በአማካይ የአቅርቦት ዋጋ ፡ እና
- ለ) ተቀባይነት ባለው የትርፍ መጠን ፡
ላይ ይመሠረታል ።

የማመንጫ ዋጋ አተማመን

፩. በብሔራዊ ግሪድ ሲስተም ውስጥ የኃይል ማመንጫ
ዋጋ አተማመንን በሚመለከት ፡

ሀ) ማርጅናል የኃይል ማመንጫ ዋጋ የሚተመነው
የሲስተሙን ከፍተኛ የኃይል ፍላጎት ለመሸፈን
ይችላል ተብሎ በሚገመት ከፍተኛ ብቃት ባለው
የማመንጫ ተቋም ዋጋ ላይ ተመስርቶ ይሆናል ፡

ለ) የኢነርጂ ዋጋ የሚተመነው ቋሚ የሲስተም
ጭነትን ለመሸፈን ይችላል ተብሎ በሚገመተው
ከፍተኛ ብቃት ባለው የማመንጫ ተቋም ዋጋ
ላይ ተመስርቶ ይሆናል ፡

ሐ) ለውጋ ኃይል ማመንጫ ማርጅናል የኢነርጂ ዋጋ
የሚተመነው ከአጠቃላይ ወጪው ላይ የኃይል
አቅርቦት ዋጋ ተቀንሶ በሚቀረው ዋጋ ላይ
በመመስረት ይሆናል ።

መ) በነዳጅ የሚንቀሳቀስ የኃይል ማመንጫ ወጪ
እንዲሁም በጅምላ ግዥ የሚገኝ የኃይልና
የኢነርጂ ዋጋ በማመንጫት ዕቅድ ላይ በመመ
ስረት ተተምኖ በሲስተሙ የማመንጫት ዋጋ
ላይ ይከፋፈላል ።

፪. ከብሔራዊ ግሪድ ሲስተም ውጭ የማመንጫ ዋጋ
አተማመንን በሚመለከት ፡

ሀ) ማርጅናል የማመንጫ አቅም ዋጋ የሚተመነው
የገበያውን ፍላጎት ሊሸፍን በሚችል ከፍተኛ
ብቃት ባለው የማመንጫ ተቋም ዋጋ ላይ
ተመስርቶ ይሆናል ።

ለ) ለአያንዳንዱ የማመንጫ ተቋም ማርጅናል
የኢነርጂ ዋጋ ይተመናል ፡

ሐ) ለአንስተኛ የውጋ ኃይል ማመንጫ ተቋማት
እንደ አግባብነቱ በብሔራዊ ግሪድ ሲስተም
ውስጥ ላሉት ለከፍተኛ የውጋ ኃይል ማመንጫ
ተቋማት የሚሠራበት የዋጋ አተማመን ሊወሰድ
ይችላል ፡

መ) ለየማመንጫው የተተመነው ዋጋ በአቅርቦት
ክልል ውስጥ ለማመንጫት በታቀደው
የኢነርጂ መጠን አኳኖ በአቅርቦቱ አጠቃላይ
ዋጋ ላይ እንዲበተን ይደረጋል ፡ ይህ ዋጋ
እንደአስፈላጊነቱ በየጊዜው በኢጀንሰው ይገ
መገማል ፡

(b) optimum system planning.

2) Where the approach stated under Sub-Article
(1) of this Article becomes inapplicable to
pricing outside the national grid system due to
technical reasons, such pricing shall be based
on:

- (a) average cost of supply; and
- (b) an acceptable rate of return on invest-
ment.

28. Generation Pricing

1) With regard to generation pricing within the
national grid system:

(a) the most efficient generation facility
identified to meet the system's peak
demand shall constitute the base for
marginal generation capacity cost;

(b) the most efficient generation facility
identified to meet the system's base load
shall provide the base for computation
of energy price;

(c) marginal energy cost shall, in the case of
hydro power plants, be computed on the
basis of the cost which is not attributed to
capacity;

(d) generation cost of thermal plants and
wholesale purchase price of power and
energy shall be computed on the basis of
planned generation and shall be dis-
tributed on the system generation price.

2) With regard to generation pricing outside the
national grid system:

(a) the most efficient generation facility
used to meet the system demand shall
constitute the base for determining the
marginal generation capacity cost;

(b) marginal energy cost shall be computed
for each generation facility;

(c) for cases of small hydro power plants
similar approach may be used as in the
case of large hydro power plants in the
national grid system;

(d) generators' specific prices shall be
spread over the system generation price
on the basis of planned generation
within the system; and, where ap-
propriate, frequent review of such price
by the Agency shall be maintained.

ሠ) በነዳጅ ኃይል የሚሠሩ የኃይል ማመንጫዎች በበቂ ደረጃ የሚገኙበትን ሁኔታ ለማመቻቸት የሚያስችል ተገቢ የማበረታቻና የመቅጫ ስልቶች በዋጋ አተማመኑ እንዲካተቱ ይደረጋል።

ቸ. ከግል አምራቾች በጅምላ የሚገዛ ኃይልና ኢነርጂ ዋጋ ኤጀንሲው በሚያጸድቀው የግዢ ውል መሠረት የሚተመን ሆኖ ወደ ተጠቃሚ ደንበኞች በቀጥታ የሚተላለፍ ይሆናል።

፳፱. የኃይል ማስተላለፊያ ዋጋ አተማመን

፩. በብሔራዊ ግሪድ ሲስተም ውስጥ የኃይል ማስተላለፊያ ዋጋ አተማመንን በሚመለከት፡ የሲስተም ማርጅናል ማስተላለፊያ አቅም ዋጋ ለማስተላለፊያ ዋጋ አተማመን መሠረት ይሆናል።

፪. ከብሔራዊ ግሪድ ሲስተም ውጭ የኃይል ማስተላለፊያ ዋጋ አተማመንን በሚመለከት፡ የሲስተም የኃይል ማስተላለፊያ ዋጋ የሚተመነው በሂሳብ አያያዝ በተደረሰበት ግምታዊ ወይም የተረጋገጠ ወጪ እና ተቀባይ ይነት ባለው የትርፍ መጠን ላይ ተመስርቶ ይሆናል።

፴. የኃይል ማከፋፈያ ዋጋ አተማመን

፩. በብሔራዊ ግሪድ ሲስተም ውስጥ የኃይል ማከፋፈያ ዋጋ አተማመንን በሚመለከት፡ የሲስተም ማርጅናል የማከፋፈል አቅም ዋጋ ለማከፋፈያ ዋጋ አተማመን መሠረት ይሆናል።

፪. ከብሔራዊ ግሪድ ሲስተም ውጭ የኃይል ማከፋፈያ ዋጋ አተማመንን በሚመለከት፡ የሲስተም የኃይል ማከፋፈያ ዋጋ የሚተመነው በሂሳብ አያያዝ በተደረሰበት ግምታዊ ወይም የተረጋገጠ ወጪ እና ተቀባይነት ባለው የኢንቨስትመንት ምላሽ መጠን ላይ ተመስርቶ ይሆናል።

፫. በደንበኞች ላይ ተፈጻሚ የሚሆነው ታሪፍ የሚወሰነው በሚጠቀሙበት ሆልቱጅ ደረጃ ተሰልቶ በሚገኘው የማከፋፈያ ወጪ ላይ የማመንጫና የማስተላለፊያ ወጪዎች ተደምረውበት ይሆናል።

፴፩. ሌሎች ክፍያዎች

፩. የኃይልና ኢነርጂ ቆጣሪ ወጪዎችና የኤሌክትሪክ ፍጆታ ክፍያን ለማስፈጸም የሚያስፈልጉ ወጪዎች ለደንበኞች አገልግሎት ዋጋ አተማመን መሠረት ይሆናሉ።

፪. የማስተላለፊያ ክፍያ አዲስ የኃይል ጥያቄን ለደንበኛ ለማቅረብ በሚያስፈልገው ተጨማሪ ወጪ ላይ የሚመሠረት ይሆናል።

፫. የሪአክቲቭ ፍጆታ ክፍያ ፍጆታው በሚፈጸምበት ሆልቱጅ ደረጃ የእያንዳንዱ የሪአክቲቭ ፍጆታ ከሚፈጠረው የተጨማሪ አቅም ዋጋ ጋር እንዲገናዘብ ይደረጋል።

፬. ሌሎች እንደአስፈላጊነቱ የሚፈጸሙ ክፍያዎች በባለፈ ቃዶችና በደንበኞች መካከል የሚደረጉ ስምምነቶችን መሠረት በማድረግ ይፈጸማሉ።

፴፪. ስለ አሠራር ብቃት መለኪያዎችና ስለዋጋ ትመና ሥርዓት

፩. የኤሌክትሪክ አቅርቦትን የማሻሻል ዕድሎችን ለመጠቀም የሚያገለግሉና በአቅርቦት ዋጋዎች ላይ ተጽዕኖ ሊያሰከትሉ የሚችሉ የማመንጫ፣ የማስተላለፊያና የማከፋፈያ የአሠራር ብቃት መለኪያዎችን ኤጀንሲው ከባለሥራዊቶች ጋር በመመካከር ይወስናል።

(e) appropriate incentive and penalty mechanisms shall be incorporated in the pricing process for securing a higher level for availability of thermal generation facilities.

3) Price of bulk energy and power from private producers shall be determined in accordance with power purchase agreements as approved by the Agency, and shall be directly transferred to customers.

29. Power Transmission Pricing

1) The system marginal transmission capacity cost shall form the base for transmission pricing within the national grid system.

2) The system's transmission capacity cost outside the national grid system shall be determined on the basis of estimated or actual accounting costs and an acceptable rate of return on investment.

30. Power Distribution Pricing

1) With regard to power distribution pricing within the national grid system, system marginal distribution capacity cost shall form the base for distribution pricing.

2) With regard to power distribution pricing outside the national grid system, the system's distribution capacity cost shall be determined on the basis of estimated or actual accounting costs and an acceptable rate of return on investment.

3) Generation and transmission costs at the appropriate voltage level shall be added on top of the distribution cost to form the tariff applicable to customers.

31. Other Charges

1) Energy and power metering costs and billing costs shall form the base for determining marginal customer related costs.

2) Payment of connection charges shall be related to additional costs resulting from supplying new demand.

3) Charges on reactive power consumption shall be related to the capacity cost that each reactive power consumption entails at the voltage level at which the consumption is effected.

4) Other appropriate charges may be effected in accordance with contractual agreements between licensees and customers.

32. Efficiency Indexes and Pricing Procedures

1) The Agency shall, in consultation with licensees, determine generation, transmission and distribution efficiency indexes indicating potentials for improving electricity services which would have ultimate bearing on prices.

- ፪. አግባብነት ያላቸውን የዋጋ መተመኛ መስፈርቶች ሁሉ አቀናጅቶ በመጠቀም የዚህን ክፍል ደንብ ስራ ላይ ለማዋል የሚያስችል ዝርዝር የዋጋ ትመና ሥርዓት በኢጀንሲው ይወሰናል።
- ፫. ስለዋጋ ወቅታዊ ማስተካከያዎችና ስለታሪፍ ክለሳ ጥናቶች
 - ፩. የማመንጫ፣ የማስተላለፊያና የማከፋፈያ ዋጋ ወቅታዊ ማስተካከያዎች ከሚመለከታቸው የምርት ግብአቶች ዋጋ ለውጥና ከአሠራር ብቃት መለኪያዎች አኳያ ይደረጋሉ።
 - ፪. የዋጋ ወቅታዊ ማስተካከያ የሚያረጋግጡት የጊዜ ገደብ በኢጀንሲው ይወሰናል።
 - ፫. አጠቃላይ የታሪፍ ክለሳ ጥናት በየአራት ዓመቱ ይካሄዳል።
- ፬. ስለሂሳብ መዝገብ አያያዝ
 - ፩. ተቀባይነት ካላቸው የሂሳብ አያያዝ ሥርዓት አጠቃላይ መርሆች ጋር የተጣጣመና የዋጋ ቁጥጥር ሥርዓቱን ለመደገፍ የሚችል ሆኖ በባለፈቃዶች ሥራ ላይ የሚውል አንድ ወጥ የሆነ የሂሳብ አያያዝ ሥርዓት በኢጀንሲው ይወሰናል።
 - ፪. ማንኛውም ባለፈቃድ የመንግሥት የበጀት ዓመት ባለቀ በስድስት ወራት ውስጥ በአዲተር የተመረመረ የሂሳብ ሪፖርት ለኢጀንሲው ያቀርባል።

ክፍል አምስት

የደንብነት፣ የቴክኒክና የአገልግሎት ጥራት ደረጃዎች

ምዕራፍ አንድ

አጠቃላይ የደንብነት መመሪያዎች

- ፩. ስለ ኤሌክትሪክ አቅርቦት መስመሮችና መሣሪያዎች ደንብነት

የኤሌክትሪክ አቅርቦት መስመሮችና መሣሪያዎች፣

 - ፩. በተዘረዘሩት የአካባቢ ሁኔታዎች የሚጠበቅባቸውን አገልግሎት መስጠት እንዲችሉ በቂ ኃይል የመሸከምና የአንሱሎሽን ብቃት፣ እንዲሁም በብልሽት ወቅት ሊከሰት የሚችለውን የኤሌክትሪክ መጠን የመቋቋም ችሎታና በቂ የሚካኒካል ጥንካሬ ደረጃ ሊኖራቸው፣ እና
 - ፪. በሰው፣ በእንስሳትና በንብረት ላይ ጉዳት በማያስከትል ሁኔታ ሊገነቡ፣ ሊገባጠሙ፣ ሊጠበቁና ሊጠገኑ ይገባል።
- ፪. ከተጠቃሚዎች ጋር ስለሚገናኙ የአገልግሎት መስመሮችና መሣሪያዎች
 - ፩. ማንኛውም ባለፈቃድ በደንበኛ ግቢ ውስጥ የሚገኙና የራሱን ብረት የሆኑ ወይም በእርሱ ኃላፊነት ሥር የሆኑ የኤሌክትሪክ አቅርቦት መስመሮች፣ ተገጣጣሚዎችና መሣሪያዎች አደጋ በማያስከትል ሁኔታ ለአገልግሎት ብቁ ሆነው መገኘታቸውን ማረጋገጥ አለበት።
 - ፪. ማንኛውም ደንበኛ በግቢው ውስጥ የሚገኙ የባለፈቃዱን መሣሪያዎች በተቻለው መጠን አደጋ በማያስከትል ሁኔታ በጥንቃቄ መጠበቅ አለበት።
- ፫. ታወሮችንና ምሰራዎችን ግራውንድ ስለማድረግ
 - ፩. የኤሌክትሪክ መስመር ተሸካሚ ባለብረት ታወሮችና ምሰራዎች ሁሉ ከአግሮቻቸው በአንዱ ላይ ግራውንድ የማድረግ ሥራ ጽሑፍ ስፋት ባለው የብረት ዘንግ መካከል አለበት።

- 2) Detailed pricing procedures for applying the provisions of this Part incorporating all appropriate pricing factors shall be determined by the Agency.
- 33. *Interim Price Adjustments and Studies for Tariff Revisions*
 - 1) Interim adjustments to generation, transmission and distribution prices shall be made on the basis of changes in relevant input prices and efficiency indexes.
 - 2) The frequency of interim adjustments shall be determined by the Agency.
 - 3) Studies on total tariff revisions shall be conducted every four years.
- 34. *System of Accounts*
 - 1) Uniform system of accounts commensurate with generally accepted accounting principles and designed to support the price regulation efforts, shall be determined by the Agency to be applied by all licensees.
 - 2) Any licensee shall submit audited reports of its accounts to the Agency within six months from the end of the Government's fiscal year.

PART FIVE

Standards of

Safety, Technical and Quality of Service

Chapter One

General Safety Requirements

- 35. *Safety of Electrical Supply Lines and Apparatus*

All electric supply lines and apparatus shall:

 - 1) be of sufficient ratings for powers, insulation and estimated fault current and of sufficient mechanical strength for the duty which they may be required to perform under the environmental conditions of installation; and
 - 2) be constructed, installed, protected and maintained in such a manner as to ensure safety of human beings, animals and property.
- 36. *Service Lines and Apparatus in Customers' Premises*
 - 1) Any licensee shall ensure that all electrical lines, fittings and apparatus belonging to him or under his control which are in customers' premises are in safe conditions and in all respects fit for supplying power.
 - 2) The customer shall, as far as circumstances permit, take precautions for the safe custody of the equipment in his premises belonging to the licensee.
- 37. *Towers and Poles Grounding*
 - 1) All metal towers and poles shall have the basic grounding installed on one leg using ground rods with 20mm diameter steel rods.

፪. የታወሩት ማቆሚያ የሬዚስታንስ መጠንን ወደ ፲ እምስ ገብቶ ማድረግ ካስፈለገ በእግሮቻቸው ላይ ተጨማሪ ግራውንድ የማድረግ ሥራ መከናወን አለበት።

፫. ከፍተኛ ሬዚስታንስ ባላቸው ልዩ በሆኑ ድንጋያማ አካባቢዎች የታወሩት ማቆሚያ ሬዚስታንስ እስከ ፳ እምስ ሊደርስ ይችላል።

፬. ከመሬት በላይ የሚዘረጉ የኤሌክትሪክ መስመሮችን የሚሸከሙ የብረት ምሰሶዎች ወይም ብብረት ዘንግ የተጠናከሩ የሲሚንቶ አርማታ ምሰሶዎች እንዲሁም ከመስመሩ ጋር ግንኙነት ያላቸው የብረታ ብረት ተግጣጣሚዎች፣ የትራንስፎርመር ኒውትራል እና የደንበኞች መቆጣጠሪያ ፓነሎች በሚያስተማምን ሁኔታ ግራውንድ መደረግ አለባቸው።

፴፰. የስዊቾችና የማቋረጫ መሣሪያዎች አቀማመጥ ከመሬት ከተገናኘ ወይም ኒውትራል ሽቦና ኤሌክትሪክ የሚተላለፍባቸውን ሽቦዎች በአንድ ላይ ለማገናኘት ወይም ለማቋረጥ ተብሎ ከተዘጋጀ የማገናኛ ስዊቾች በስተቀር፣ ማንኛውም ሰርኪዩት ብሬክር፣ ማገናኛ ወይም ስዊቾች ለትራንስፎርመርና ጀኔሬተር ሙከራ ተግባር ለማገናኘት ወይም ጀኔሬተር ወይም ትራንስፎርመርን ለመቆጣጠር ለሚደረግ ጥናት ካልሆነ በስተቀር በማናቸውም ዓይነት ሁኔታ ከባለሀላት ሽቦ መስመሮች ወይም ከባለበርካታ ሽቦ መስመሮች ኒውትራል ወይም ከመሬት ጋር ከተገናኘ ሽቦ ጋር መገጠም የለበትም።

፴፱. ስለ መከላከያ ሽቦዎች

፩. ማንኛውም የመከላከያ ሽቦ፡

- ሀ) የመጠስ ጥንካሬ ከ፲፻፴፭ ኪሎ ግራም ማነስ የለበትም፤
- ለ) ኤሌክትሪክ መተላለፍ በሚቋረጥባቸው ቦታዎች ላይ ከመሬት ጋር መያያዝ አለበት፤
- ሐ) ብረት ወይም ስቲል ከሆነ ጋልቫናይዥድ መሆን አለበት።

፪. ማናቸውም የመከላከያ ሽቦ ወይም ተጠላልፈው የተሠሩ የመከላከያ ሽቦዎች በአደጋ ወቅት ከሽቦዎች ጋር የተገናኘው የኤሌክትሪክ መሥመር እስኪወገድ ድረስ እንዳይቀልጡ በቂ ኤሌክትሪክ የመሸከም ችሎታ ሊኖራቸው ይገባል።

፵. የቀለም ምልክቶች

ባለፈቃዱ እጅንሰው በሚያወጣው መመሪያ መሠረት በማክፋፈያ ጣቢያዎች፣ በኔት ስቲቭኖችና በደንበኛው የማሠራጫ ባዝ ባሮች ላይ ከመሬት የተገናኙ ኒውትራል ሽቦዎችን ወይም ኃይል ከሚተላለፍባቸው መስመሮች ጋር የተያያዙ ሌሎች መስመሮችን መለየት በሚያስችል ሁኔታ ቋሚ የቀለም ምልክቶች ማድረግ ይኖርበታል።

፶፩. ስለአደጋ መከላከያ መሣሪያዎችና መገልገያዎች

፩. በማንኛውም የመንገድ አካል ወይም ሕዝብ በብዛት ሊገኝ በሚችልበት ሌላ ሥፍራ፣ በፋብሪካ፣ በማዕደን ሥፍራ ወይም በማናቸውም ደንበኛ ግቢ ውስጥ ከምድር በላይ የሚዘረጋ የኤሌክትሪክ መስመር እጅንሰው ተቀባይነት ይኖራቸዋል ብሎ ያጸደቃቸው የአደጋ መከላከያ መሣሪያዎች ሊገጠሙለት ይገባል።

2) Additional basic grounding shall be installed on other legs where it is required to reduce the tower footing resistance to a maximum of 10 ohms.

3 In exceptional location of rocky soil with very high resistivity the maximum tower footing resistance may reach 20 ohms.

4) All metal supports and reinforced and pre-stressed cement concrete supports of overhead lines, metallic fittings attached thereto, neutral of transformers and control panel of customers shall be permanently and efficiently earthed.

38. Position of Switches and Cut-out

No cut-out, link or switch other than a linked switch arranged to operate simultaneously on the earthed or earthed neutral conductor and line conductor shall be inserted or remain inserted, in any earthed or earthed neutral conductor of a two wire system, or in any earthed neutral conductor of a multi-wire system of any conductor connected thereto except in the case of link for testing purpose or a search for use in controlling a generator or transformer.

39. Guarding

- 1) Every guard-wire shall:
 - (a) have an actual breaking strength of not less than 635 kg.
 - (b) be connected with earth at each point at which its electrical continuity is broken;
 - (c) be galvanized if made of iron or steel.
- 2) Every guard-wire or cross connected system of guard-wires shall have sufficient current carrying capacity to ensure the rendering dead, without risk of the fusing of the guard-wire or wires till the contact of any line wire has been removed.

40. Color Coding

Color coding of a permanent nature shall be provided by the licensee on substations, net stations and customers distribution bus bars determined by directives of the Agency to distinguish earthed neutral conductor or the conductor which is to be connected thereto from any live conductor.

41 Productive Devices and Equipment

1) Every overhead line erected over any part of a street, or any other public place or in any factory or mine, or in any customer's premises shall be protected with a device approved by the Agency.

፪. በደረቅና በንጹህ አሸዋ የተሞሉ የእሳት ማጥፊያ ባለቃዎች፣ የእሳት ማጥፊያ መሣሪያዎችና የመጀመሪያ ዕርዳታ መስጫ ማሳኞች ወይም መደርደሪያዎች በግልጽ ተጽፎባቸው በኤሌክትሪክ ማመንጫ ጣቢያዎች ውስጥ መቀመጥ አለባቸው።

፫. አምስትና ከዚያ በላይ ሜጋዋት የማመንጫ ችሎታ ባላቸው የኤሌክትሪክ ማመንጫ ጣቢያዎች እንዲሁም አምስትና ከዚያ በላይ ሜጋፕሬት አምፐር አቅም ያላቸው ትራንስፎርመሮች ባሉባቸው የቤት ውስጥ ማከፋፈያ ጣቢያዎች ውስጥ እሳት ወይም ጢስ በሚያስከትል አደጋ ወቅት መጠቀም እንዲቻል በቂ ብዛት ያላቸው ጭንብሎች ግልጽ በሆነና በቀላሉ ሊደረስበት በሚችል ቦታ መቀመጥ አለባቸው።

፬. ስለመብረቅ መከላከያ ለመብረቅ የተጋለጡ ከምድር በላይ የተዘረጉ የኤሌክትሪክ መስመሮች፣ የማከፋፈያ ጣቢያዎች ወይም የማመንጫ ጣቢያዎች ያሉት ማንኛውም ባለፈቃድ የመብረቅ ኤሌክትሪክን ፍሰት አቅጣጫ ወደ መሬት የሚመሩ ብቃት ያላቸው አስተማማኝ ዘዴዎችን በጥቅም ላይ ማዋል አለበት።

፭. ስለአደጋ ማስጠንቀቂያ የከፍተኛ ሾልቴጅ ኢንስታሌሽን ያለው ባለፈቃድ በአማርኛ በእንግሊዝኛና በአካባቢው ቋንቋ የተጻፈበትና የሰው የራስ ቅልና አጥንቶች አጽም ቅርጽ ያለበት የአደጋ ምልክት በጀኔራሎች በትራንስፎርመሮች፣ በቀላሉ መወጣጣት በሚቻልባቸው ከምድር በላይ የተዘረጉ ምሰሶዎች እና በኢጀንሰው መመሪያ በሚወሰኑ ሌሎች ኢንስታሌሽኖች ላይ በግልጽ በሚታይና በዘላቂነት ሊቆይ በሚችልበት ሁኔታ መለጠፍ አለበት።

፮. ስለኤሌክትሪክ ጉዳት ማስወገጃ መመሪያ ፩. ባለፈቃድ በኤሌክትሪክ ንገረት ለሚጎዱ ሰዎች አስቸኳይ ዕርዳታ ለመስጠት የሚረዳ በአማርኛ፣ በእንግሊዝኛና በአካባቢው ቋንቋ የተጻፈ መመሪያ በኤሌክትሪክ ማመንጫ ጣቢያዎች፣ በቤት ውስጥ የማከፋፈያና የመቆጣጠሪያ ጣቢያዎች እና በፋብሪካዎች ውስጥ ግልጽ በሆነ ቦታ ማስቀመጥ አለበት።

፪. ባለፈቃድ በዚህ አንቀጽ ንዑስ አንቀጽ (፩) የተመለከተው መመሪያ ቅጂ እንዲሰጠው ለሚጠይቅ ማንኛውም ሰው በኢጀንሰው መመሪያ የተወሰነውን ክፍያ አስከፍሎ ይሰጠዋል።

፫. በሰዎች በሚጠበቁ ባለከፍተኛ ሾልቴጅ ማመንጫ ጣቢያዎች፣ በማከፋፈያ ጣቢያዎችና በመቆጣጠሪያ ጣቢያዎች ውስጥ በጥሩ ሁኔታ የሚሠሩ የሰው ሠራሽ የመተንፈሻ መሣሪያዎች ሊኖሩ ይገባል።

፬. ስለአደጋ ሪፖርት ከኤሌክትሪክ ማመንጫ፣ ማስተላለፍ፣ ማከፋፈል ወይም መጠቀም ጋር በተያያዘ ምክንያት በተከሰተ አደጋ በሰውና በእንስሳት ላይ የደረሰን ጉዳት ወይም የሕይወት መጥፋት ወይም የንብረት ጥፋት ባለፈቃድ ካወቀበት ጊዜ ጀምሮ ፳፬ ሰዓት ባልሞላ ጊዜ ውስጥ ለኢጀንሰው ሪፖርት ማድረግ አለበት።

፭. አገልግሎት ስላቋረጠ የኤሌክትሪክ መስመሮች የኤሌክትሪክ መስመሮች አገልግሎት መስጠታቸውን ካቋረጠ በኋላ ባለፈቃድ አደጋ በሚያስከትል ሁኔታ ተጠብቀው እንዲቆዩ ወይም እንዲወገዱ ማድረግ አለበት።

2) Fire buckets filled with clean dry sand, fire extinguishers and first-aid boxes or cupboards shall be conspicuously marked and kept in all generation stations, enclosed substations and switch stations.

3) Adequate number of gas masks shall be kept conspicuously at accessible places in every generation station with capacity of 5 mega watt and above and enclosed substation with transformation capacity of 5 megavolt amper and above for use in the event of fire or smoke.

42 *Protection Against Lightning*
Any licensee owning overhead line, substation or generation station, which is so exposed as to be liable to injury from lightning shall adapt efficient means for diverting to earth any electrical surges due to lightning.

43 *Danger Notice*
Any licensee owning high voltage installation shall affix permanently in a conspicuous position a danger notice in English, Amharic and the local language of the area with the sign of skull and bones on generators, transformers, supports of overhead lines which can be easily climbed and other electrical installations as may be required by directives of the Agency.

44 *Instructions for Restoration from Electric Shock*
1) Instructions in English, Amharic and the local language of the area for the restoration of persons suffering from electric shock shall be affixed by the licensee on a conspicuous place in every generation station, enclosed substation, enclosed switch station and in every factory.
2) Copies of the instructions referred to in sub-article (1) of this Article shall be supplied on demand by any person at a price to be fixed by directives of the Agency.
3) In every manned high voltage generation station, substation or switch station, an artificial respirator shall be provided and kept in good working condition.

45 *Accident Report*
If any accident occurs in connection with generation, transmission, distribution or use of electrical energy resulting in injury or loss of human or animal life or damage to property, the licensee shall send to the agency a report on the accident within 24 hours of knowledge of its occurrence.

46 *Unused Overhead Lines*
Where an overhead line ceases to be used as an electrical supply line, the licensee shall maintain it in a safe mechanical condition or remove it.

ዕገ፯. ከልክላዎች

- ፩. አምፖሎችን፣ ፋኖችን፣ ፊውዞችን፣ ማብሪያ ማጥፊያዎችን፣ የዝቅተኛ ሾልት የቢት ውስጥ የኤሌክትሪክ ቁሳቁሶችንና ተገጣጣሚዎችን ከመለወጥ በስተቀር በማገልገል ላይ ባለ የኤሌክትሪክ ኢንስታሌሽን ላይ በመጨመር፣ በመቀየር፣ በመጠን ወይም በማስተካከል የኃይል ብቃቱን ወይም ባህሪውን የሚቀይሩ ሥራዎችን ከባለፈቃዱ ውጭ ወይም በባለፈቃዱ ስምምነትና በኤሌክትሪክ ሥራ ተቋራጭ ከሚሠራው ውጭ በደንበኞቹ ግቢ ውስጥ ማከናወን የተከለከለ ነው።
- ፪. ከመሬት በላይ በተዘረጋ የኃይል መስመር ሥር ወይም መጠበቅ በሚገባው የጎን ርቀት ክልል ውስጥ ግንባታ ማከናወን ወይም ዛፎችን ማላዳግ የተከለከለ ነው።

ዕገ፰. የኤሌክትሪክ ኢንስታሌሽኖችን ስለመመርመርና

ስለመፈተሽ

ኢጅንሲው አስፈላጊ ሆኖ ሲያገኘው የኤሌክትሪክ ማመንጫ ጣቢያዎችን፣ የማከፋፈያ ጣቢያዎችን፣ የማስተላለፊያ መስመሮችን፣ የመቆጣጠሪያ ጣቢያዎችንና ሌሎች የኤሌክትሪክ ኢንስታሌሽኖችን በማናቸውም ጊዜ ሊመረምርና ሊፈትሽ ይችላል።

ምዕራፍ ሁለት

ስለማስተላለፊያ መስመሮችና ማከፋፈያ ጣቢያዎች

ዕገ፱. የኤሌክትሪክ መስመር አቋርጦ ስለሚያልፍባቸው

ሥፍራዎች

የኤሌክትሪክ ኃይል ማስተላለፊያ መስመር አቋርጦ የሚያልፍባቸው ሥፍራዎች በሚመረጡበት ወቅት የሚተላለፈው የኤሌክትሪክ ጭነት መጠንና ባህርይ፣ የኃይል ምንጩ እስተማማኝነት፣ የማከፋፈያ ጣቢያዎች አቀማመጥ፣ የአቅርቦቱ የወደፊት መስፋፋት ዕድል ፣ የደንበኞችና የአካባቢ ተጽዕኖዎች እንዲሁም የግንባታና የሥራ ማስኬጃ ወጪዎች ከግምት ውስጥ መግባት አለባቸው።

ዕገ. ስለማስተላለፊያና የመከላከያ ሽቦዎች

- ፩. የኤሌክትሪክ ኃይል ማስተላለፊያ ሽቦዎች የሚጠበቅባቸውን የኤሌክትሪካል ፣ መካኒካልና ፣ ኢኮኖሚያዊ፣ መስፈርቶች ማሟላት አለባቸው።
- ፪. የሽቦዎቹ መጠን የሚመረጠው በብሔራዊ ደረጃዎች ወይም ብሔራዊ ደረጃዎች ከሌሉ በኢንተርናሽናል ኤሌክትሮ ቴክኒካል ኮሚሽን ደረጃዎች ተስማሚነት ካላቸውና በደረጃዎቹ መስፈርቶች ከሚታቀፉት መካከል ይሆናል።
- ፫. የዚህን አንቀጽ ንዑስ አንቀጽ (፩) እና (፪) በመከተል የሚደረገው ምርጫ የኢጅንሲውን አጠቃላይ መመሪያ መሠረት አድርጎ መፈጸምና የተመረጡትን ሽቦዎች ኤሌክትሪክ የመሸከም ችሎታ፣ የኮርናንና የሬዲዮ ጫጫታ የማስወገድ ብቃት፣ ሾልቴጅ የመቀነስ ሁኔታና ሌሎች ቴክኒካዊ ጠባዮች በመፈተሽ መታገዝ አለበት።

47 Prohibitions

- 1) No electrical installation work including additions, alterations, repairs and adjustments to existing installation, except such replacements of lamps, fans, fuses, switches, low voltage domestic appliances and fittings as in no way alter its capacity or character, shall be carried out in the premises of the customer except by the licensee or an electrical contractor with the consent of the former.
- 2) Undertaking any type of construction work or growing trees shall not be allowed under electric power lines or within the distance of horizontal clearance thereof.

48 Inspection and Testing of Electrical Installation

The Agency may, where it deems it necessary and at any time, inspect and test generation stations, substations, transmission lines, switch stations and other electrical installations.

CHAPTER TWO

Transmission Lines and Substations

49. Line Route

In the process of line route selection, size and character of load, reliability of power sources, positions of substations, future expansion possibilities, safety and environmental impacts as well as construction and operational costs shall be taken into consideration.

50. Conductors and Earth Wires

- 1) Conductors shall satisfy all electrical, mechanical and economical requirements.
- 2) The cross section of conductors shall normally be selected from the suitable national standard ranges or where such standard is not available from that of the International Electro-Technical Commission standards.
- 3) The selection under Sub-Article (1) and (2) of this Article shall be carried out in accordance with guidelines of the Agency and shall be followed by checks for current carrying capacity, corona and radio noise elimination, mechanical strength, voltage drop and other factors.

ሃ፩. ስለኢንሱሎተሮች

፩. ለተለያዩ መሣሪያዎች፣ ዕቃዎች፣ ስትራክቸሮች የሚያስፈልገው የኢንሱሎሽን ደረጃ የሚመረጠውና ሥራ ላይ የሚውለው የኢንሱሎተሮች ብልሽትና የአገልግሎት መቋረጥ ብዛት በኢኮኖሚያዊ መመዘኛ የተቀባ ይኑትን ደረጃ ማሟላት እንዲችል ለማድረግ የአስር ሹልቱጅ መጠንና መስመሩን ከአደጋ ለመከላከል የተገጠሙትን ልዩ ልዩ መሣሪያዎች ጠባያት ከግምት ውስጥ በማስገባት ይሆናል።

፪. በዚህ አንቀጽ ንዑስ አንቀጽ (፩) መሠረት የሚደረገው ምርጫ በብሔራዊ ደረጃዎች ወይም ብሔራዊ ደረጃዎች ከሌሉ በኢንተርናሽናል ኤሌክትሮ ቴክኒካል ኮሚሽን ደረጃዎች መሠረት ይፈጸማል።

ሃ፪. ስለተገባጣሚዎች

ቦል አይና ሶኬት ካፕሊንግ፣ የኮሻክልስ፣ ከላምፕስ፣ አርኪንግ ሆርን፣ ሳይብራሽን ዳምፕርና አርመር ሮድን የሚያካትቱ የቅጥልጥል ስኒዎች ተገባጣሚዎች እንደ ሹልቱጅ መጠናቸው የብሔራዊ ደረጃዎችን ወይም ብሔራዊ ደረጃዎች ከሌሉ የኢንተርናሽናል ኤሌክትሮ ቴክኒካል ኮሚሽን ደረጃዎችን በጠበቀ ሁኔታ መመረጥ አለባቸው።

ሃ፫. የፌዥ ሽቦዎችን ቦታ ስለመቀያየር

የኤሌክትሪክ ኃይል ማስተላለፊያ የፌዥ ሽቦዎችን ቦታ የመቀያየር ተግባር ለአሜሪካ ሮገሽት መስመሮች ከሆነ በየመካከሉ በሚገኙ የማከፋፈያ ጣቢያዎች፣ ለባለ ፩፻፴፪ ኪሎ ሹልትና ከዚያ በላይ ለሆኑ ረጃጅም መስመሮች ከሆነ እንደ ፌዥ አቀማመጥ አመቺ በሆነ ቦታ ላይ መከናወን ይኖርበታል።

ሃ፬. ስለታወሮች ዲቫይን

፩. የከፍተኛ ሹልቱጅ ማስተላለፊያ ታወሮች የኤሌክትሪክ መስመሩ ይኖረዋል ተብሎ በሚገመተው ዕድሜ ወቅት ሊከሰቱ የሚችሉትን የሚከተሉትን ሽክሞች መቋቋም በሚችሉበት ሁኔታ ዲቫይን መደረግ አለባቸው፡

- ሀ) የነፋስን ግፊት፣ የማስተላለፊያና የመከላከያ ሽቦዎችንና የቅጥልጥል ስኒዎችን ክብደትና የሽቦዎችን ውጥረት፤
- ለ) በማስተላለፊያና መከላከያ ሽቦዎች መበጠስ ላቢያ የሚከሰቱ የመዘመምና የመጠምዘዝ እንቅስቃሴዎች የሚያስከትሉትን ጭነት፤
- ሐ) በግንባታና በጥገና ሥራ ወቅት ሊከሰቱ የሚችሉ ጭነቶችን።

፪. የሽቦዎች ጥንካሬ የሚሰላው በማንኛውም ጊዜ ሊከሰት የሚችለውን የአየር ሙቀትና ቅዝቃዜ መጠንና የነፋስ ፍጥነት ከግምት ውስጥ በማስገባት ይሆናል።

፫. የታወረ መጠን በሚተመንበት ጊዜ በፌዥ መካከል፣ በፌዥና በሌሎች አካሎች መካከልና ከመሬት የሚኖረው የኤሌክትሪክ መስመር ርቀት፣ የቅጥልጥል ስኒዎች ርዝመት እና የርግበትና የሺልድ መከላከያ ሽቦ እንግል ከግምት ውስጥ መግባት አለባቸው።

51. Insulators

- 1) The insulation levels of different devices, equipment or structures shall be selected and applied taking into account the over voltage magnitudes in the network as well as the properties of different protective means so that the number of insulation failures and operational outages are limited on an acceptable economical level.
- 2) The selection under Sub-Article (1) of this Article shall comply to the national standard or where such standard is not available to the International Electro-Technical Commission standards.

52. Fittings

String insulator fittings of ball eye and socket couplings, yokeshackels, clamps, arcing horns, vibration dampers and armor rods shall be selected according to their voltage in conformity with the national standard or where such standard is not available with the International Electro-Technical Commission standards.

53. Line Transposition

The transposition of short lines shall be at intermediate substations and that of long lines shall be at suitable points along the line for voltage 132 kv and above depending on circuit arrangements.

54. Designs of Towers

- 1) Towers shall be designed to withstand the following loads which are assumed to occur during the estimated life time of the line:
 - (a) wind loads, weights of conductors, earth-wires and insulator strings and conductor tensions;
 - (b) the overturning and torsional movements resulting from the breakdown of any one of the conductors and earth-wires;
 - (c) loads to be caused by erection and maintenance works.
- 2) The conductor forces shall be calculated in all assumed temperatures and wind velocities.
- 3) In determining the dimensions of a tower, phase to phase, phase to body and ground clearances, length of insulator strings and maximum sag and shielding angle shall be considered.

የታወቀ መሠረት ዲዛይኖች በመደበኛ አገልግሎት ወቅት ከሚኖረው ጭነትና ከሽቦዎች መበጠስ ሁኔታ፣ በእያንዳንዱ እግር የሚከሰተውን የአገልግሎትና ኮምፕረሽን ኃይል ከመቋቋም አግባብነት አላቸው የደንበኞች መሰሪያዎች እንደ መታየት ይኖርባቸዋል።

የታወቀ ዲዛይን እንደ አግባብ የወደፊት ኃይል የማስተላለፍ ፍላጎት ዕድገትን በማገናዘብ መሠረት አለበት። ል በሚተላለፍባቸውና በማይተላለፍባቸው አካላት ስለ መጠበቅ ስለሚገባው ርቀት

ሌክትሪክ ኃይል በሚተላለፍባቸውና ከመሬት ጋር ገናኙ ኃይል በማይተላለፍባቸው አካላት መካከል መኖር ገባው ገብቶቻቸው ርቀት በኢጅንሲው መመሪያ መሠረት ይወሰናል።

ጠቅላይ መካከል መጠበቅ ስለሚገባው ርቀት

ሌክትሪክ ኃይል ማስተላለፊያ ወይም በመከላከያ ዎች መካከል መጠበቅ የሚገባው ርቀት የሚወሰነው ፍተሻ ሙቀት ወቅት ሽቦዎች የሚኖራቸውን የርግብት ጠን የቅጥልጥል ሲኒዎችን ርገመት ከግምት ውስጥ ለማስገባትና ኢጅንሲው የወሰነውን ስታንዳርድ በመከተል ይኖራል።

ደረጃ፡ ከመንገዶችና ለመጓጓዣዎች ከሚያገለግሉ የውኃ ላት መጠበቅ ስለሚገባው ርቀት

የኤሌክትሪክ ኃይል ማስተላለፊያ ሽቦዎች፣ ኃይል በሚተላለፍባቸውና በማይተላለፍባቸው አካላት መካከል ሊኖር ከሚገባው ገብቶቻቸው በተጨማሪ፣ በከፍተኛ የአየር ሙቀት ወቅት ከምድር ወይም ከውኃ ወለል በላይ በደንበኛ የጅ ሜትር ከፍታ ሊኖራቸው ይገባል።

የኤሌክትሪክ ኃይል ማስተላለፊያ ሽቦዎች ከመንገድ ወለል በላይ ሊኖራቸው የሚገባው ከፍታ፡

- ሀ) በከፍተኛ የአየር ሙቀት ወቅት ከጅ ሜትር፣ እና
- ለ) በአጎራባች ታወሮች ላይ የተወጠሩ ሽቦዎች በሚበጠሱበት አጋጣሚ መጠበቅ የሚገባው ርቀት ከጅ ሜትር ማነስ የለበትም።

በከፍተኛና በሌሎች ለመጓጓዣዎች ከሚያገለግሉ የውሃ አካላት በላይ የሚዘረጉ የኤሌክትሪክ ኃይል ማስተላለፊያ ሽቦዎች ኃይል በሚተላለፍባቸውና በማይተላለፍባቸው አካላት መካከል ሊኖር ከሚገባው ገብቶቻቸው በተጨማሪ፣ በከፍተኛ የአየር ሙቀት ወቅት በከፍተኛው የውኃው አካል ላይ ከሚንቀሳቀሰው ማንጓጓዣ ከፍተኛ ምሰሶ ጫፍ በላይ በደንበኛ የጅ ጅ ሜትር ከፍታ ሊኖራቸው ይገባል።

ንጸዎችና ግንባታዎች መጠበቅ ስለሚገባው ርቀት

የኤሌክትሪክ ኃይል ማስተላለፊያ ሽቦዎች በከፍተኛ ንፋስ ወቅት ከማንኛውም የሕንጻ ወይም የግንባታ አካል በደንበኛ ሁኔታ ሜትር የገጠን ርቀት ሊኖራቸው ይገባል።

በዚህ አንቀጽ ንዑስ አንቀጽ (ጅ) የተደነገገውን ሁኔታ ማሟላት የማይቻል በሚሆንበት ጊዜ የኃይል ማስተላለፊያ ሽቦዎች ከሕንጻው ወይም ከግንባታው ጫፍ በላይ የሚኖራቸው ከፍታ በከፍተኛ የአየር ሙቀት ወቅት እንዲሁም በአጎራባች ታወሮች ላይ የተወጠሩ ሽቦዎች በሚበጠሱበት አጋጣሚ መጠበቅ የሚገባው ርቀት በደንበኛ ጅ ጅ ሜትር መሆን አለበት።

- 4) The designs of foundations shall be checked for uplift and compression forces in each tower footing arising from normal working, loading, and broken wire conditions with the appropriate factor for safety.
- 5) The designs of towers shall, as may be appropriate, consider future growth in the demand for power transmission.

55. *Clearance between Line and unenergized Parts*
The minimum distance between the unenergized, earthed, and live parts of the line shall be determined in accordance with directives of the Agency.

56. *Clearance between Phases*
The minimum spacing between the conductors or earth wires shall be determined by taking into consideration sag of the conductor at maximum temperature, length of the suspension insulator string, and the standard set by the Agency.

- 57. *Clearance from Terrain, Roads and Water Ways*
 - 1) The height of conductors, at maximum temperature, above ground or water surface shall be at least 5 meters plus the minimum distance between live and unenergized parts.
 - 2) The height of conductors from the road surface shall be at least:
 - (a) 8 meters at maximum temperature; and
 - (b) 7 meters with conductor broken in the neighboring span.
 - 3) In canals and other navigable water ways, the height of conductors from the highest mast shall, at the highest water level and at maximum temperature, be at least 1.5 meters plus the minimum distance between live and unenergized parts.

58. *Clearance from Buildings and Structures*

- 1) The horizontal distance from conductors to any point of a building or structure shall, with maximum wind, be at least 4.5 meters.
- 2) If the requirement stated under Sub-Article (1) of this Article cannot be fulfilled, the height of the conductor from the building or structure shall, at maximum temperature and with conductor broken in the neighboring span, be at least 5.5 meters.

፱፻፲፱ ከዛሬኛ መጠበቅ ስለሚገባው ርቀት

- ፩. የኤሌክትሪክ ኃይል ማስተላለፊያ ሽቦዎች ፣ ኃይል በሚተላለፍባቸውና በማይተላለፍባቸው አካላት መካከል ሊኖር ከሚገባው ዝቅተኛ ርቀት በተጨማሪ ፣ በከፍተኛ የአየር ሙቀትና በከፍተኛ ንፋስ ወቅት ከዛሬኛ ሊኖራቸው የሚገባው የከፍታና የጎን ርቀት በ.ያንስ ፩.፭ ሜትር መሆን አለበት ።
- ፪. የፍራፍሬ ዛሬኛ ሲሆኑ ፣ ኃይል በሚተላለፍባቸውና በማይተላለፍባቸው አካላት መካከል ሊኖር ከሚገባው ዝቅተኛ ርቀት በተጨማሪ ፣ በዚህ አንቀጽ ንዑስ አንቀጽ (፩) በተደነገገው መሠረት መኖር ያለበት ርቀት ፱ ሜትር ይሆናል ።
- ፫. በዚህ አንቀጽ ንዑስ አንቀጽ (፩) እና (፪) የተመለከቱት ርቀቶች የሚወሰኑት ዛሬኛ ይፍራቸዋል ተብሎ የሚገመተውን የእድገት መጠን ግንዛቤ ውስጥ በማስገባት ይሆናል ።

፳፻ ከሌሎች መስመሮች መጠበቅ ስለሚገባው ርቀት

- ፩. ጎን ለጎን የተዘረጉ መስመሮችን በሚመለከት በኤሌክትሪክ ኃይል ማስተላለፊያ ሽቦዎችና በሌሎች የማስተላለፊያ መስመሮች ወይም የፎካል ስልጠና መስመሮች መካከል በከፍተኛ ንፋስ ወቅት ሊኖር የሚገባው ርቀት፣ ኃይል በሚተላለፍባቸውና በማይተላለፍባቸው አካላት መካከል ሊኖር ከሚገባው ዝቅተኛ ርቀት በተጨማሪ በ.ያንስ ፪.፭ ሜትር መሆን አለበት ።
- ፪. መስመሮቹ አንዱ ሌላውን በማቋረጥ የተዘረጉ ሲሆን ፣ ኃይል በሚተላለፍባቸውና በማይተላለፍባቸው አካላት መካከል ሊኖር ከሚገባው ዝቅተኛ ርቀት በተጨማሪ ፣ በከፍተኛ የአየር ሙቀት ወቅትና በአንጎራባች ታወሮች ላይ የተወጠሩ ሽቦዎች በሚበጠሱበት አጋጣሚ መጠበቅ የሚገባው የከፍታ ርቀት በ.ያንስ ፩.፭ ሜትር መሆን አለበት ።
- ፫. በዚህ አንቀጽ ንዑስ አንቀጽ (፪) የተጠቀሱት መስመሮች የተለያዩ ሾልቱጅ የሚኖራቸው ሲሆን ርቀቱ የሚወሰነው ከፍተኛውን ሾልቱጅ መሠረት በማድረግ ይሆናል ።

፳፻፲ ስለማከፋፈያ ጣቢያዎች

- ፩. የማንኛውም የማከፋፈያ ጣቢያ ዲዛይን የአቅርቦት አስተማማኝነትን ፣ የመስፋፋትና የመታደስ ብቃትንና ከአደጋ ሁኔታዎች መጠበቅን እንዲሁም ኢኮኖሚያዊ አሠራርን ለማረጋገጥ በሚያስችል አኳኝን መከናወን አለበት ።
- ፪. የዚህ አንቀጽ ንዑስ አንቀጽ (፩) አጠቃላይ አነጋገር እንደተጠበቀ ሆኖ ማንኛውም የማከፋፈያ ጣቢያ በ.ያንስ አንድ የዝቅተኛ ሾልቱጅ መጋቢ መስመር እንዲኖረውና የወደፊት የኤሌክትሪክ ጭነት ፅድገት ምጣኔ መሠረት ያደረገና በ.ያንስ የአምስት ዓመት የአቅርቦት ጥስትና የሚሰጥ ሆኖ ዲዛይን መደረግ አለበት ።
- ፫. የመግሪያዎች መረጣ በብሔራዊ ደረጃዎች ወይም ብሔራዊ ደረጃዎች ከሌሉ በአንተርናሽናል ኤሌክትሮቴክኒካል ኮሚሽን ደረጃዎች ላይ መመሥረትና ወቅታዊና የወደፊት ፍላጎቶችን እንዲሁም ኤጀንሲው በሥራ ላይ እንዲውል ያጸደቀውን የመግሪያዎች አቀማመጥ ትንጅት ያገናዘበ መሆን አለበት ።

59. Clearance from Trees

- 1) The vertical and horizontal distance of conductors from trees shall, at maximum temperature and with maximum wind, be at least 1.5 meters plus the minimum distance between live and unenergized parts.
- 2) In the case of fruit trees the distance referred to in Sub-Article (1) of this Article shall be 4 meters plus the minimum distance between live and unenergized parts.
- 3) The distances stated under Sub-Article (1) and (2) of this Article shall be maintained in accordance with the expected growth of trees.

60. Clearance from Other Lines

- 1) In the case of parallel lines the horizontal distance from the transmission line to the conductors of another transmission or telecommunication line shall, with maximum wind, be at least 2.5 meters plus the minimum distance between live and unenergized parts.
- 2) In the case of crossing lines the vertical distance between conductors shall, at maximum temperature and with conductors broken in the neighboring span, be 1.5 meters plus minimum distance between live and unenergized parts.
- 3) If the lines referred to in Sub-Article (2) of this Article have different voltage, the distance shall be determined according to the higher voltage.

61. Substations

- 1) Any substation design shall be carried out in such a way as to ensure supply security, extendability, maintainability capability of being extended, and safety as well as economical operations.
- 2) Without limiting the generality of Sub-Article (1) of this Article, any substation shall be designed with at least one low voltage feeder and a five year supply guarantee at the anticipated load growth rate.
- 3) The selection of equipment shall be based on the national standard or where such standard is not available on the International Electro-Technical Commission standards and shall consider both current and future system requirements and equipment layout standardization adopted by the Agency.

- ሀ. የማከፋፈያ ጣቢያ የኤሌክትሪክ ዕቃዎች የማምረት ሥራ ሊጀመር የሚችለው የጣቢያው ንድፍ በኤጀንሲው ከጸደቀ በኋላ ብቻ ይሆናል። እንዲሁም በኤጀንሲው ያልጸደቀ ማንኛውንም ለውጥ በንድፍ ላይ ማድረግ አይቻልም።
- ለ. የማከፋፈያ ጣቢያ የሚገነባበትን ቦታ በመምረጥ ረገድ የውጭ ቅንሳና እንደ መንገድ መኖር ፣ የመስፋፋት ችሎታ ፣ ለድምፅ ማወቅላት ቅርፅ ፣ ከብክለት ነጻ መሆንና የሠራተኞች ማገበራዊና ባህላዊ ፍላጎቶችን ማሟላት የመሳሰሉ የጣቢያውን ሥራ ለማካሄድ የሚያስፈልጉ ሁኔታዎች በቂ ትኩረት ሊሰጣቸው ይገባል።

ምዕራፍ ሦስት
ኤሌክትሪክ ስለማከፋፈል

፳፪. ስለማከፋፈያ መስመር ዲዛይን አጠቃላይ መስፈርቶች

- ሀ. የማከፋፈያ ኔትወርክ ዲዛይን ፡
 - ሀ) የወደፊትን የመስፋፋት ዕቅድ ያገናዘበ ፣ እና
 - ለ) በማከፋፈሉ ረቃድ ዘመን ውስጥ ሊያጋጥሙ የሚችሉትን የአካባቢው የኤሌክትሪክ ጭነት ጠባይትን ከግምት ውስጥ ያስገባ ፡
 - መሆን አለበት።
- ለ. የማከፋፈያ ኔትወርክ ዲዛይን የኤሌክትሪክ ብክነትን ፣ መቋረጥንና የሥራ ማስኬጃና የጥገና ወጪዎችን በመቀነስ አካላዊ ጥቅም ሊያስገኝ በሚችል ሁኔታ መሠረት አለበት።
- ሀ. የማከፋፈያ ኔትወርክ አዘራጋግ ዲዛይን በአካባቢው ማስተር ፕላን ወይም ማስተር ፕላን ከሌለ በኤጀንሲው በጸደቀ ፕላን ላይ የተመሠረተ መሆን አለበት።
- ለ. የማከፋፈያ ኔትወርክ ዕቃዎች መጠንና የግንባታ ዓይነት የብሔራዊ ደረጃዎችን ወይም ብሔራዊ ደረጃዎች ከሌሉ የኢንተርናሽናል ኤሌክትሪክ ቴክኒካል ኮሚሽን ደረጃዎችን መስፈርቶች የተከተለ መሆን አለበት።

፳፫. ስለትራንስፎርመሮች

ለማከፋፈያ ኔትወርክ አገልግሎት የሚውሉ ትራንስፎርመሮች የአገልግሎትና የብቃት ደረጃ እንዲሁም የግንባታ ዓይነት በኤጀንሲው መመሪያ መሠረት ይወሰናል።

፳፬. ስለምሰራዎች አተካክል

- ሀ. የኤሌክትሪክ ምሰራዎች አተካክል ማስተር ፕላንን ወይም ማስተር ፕላን ከሌለ በኤጀንሲው የጸደቀ ፕላንን የተከተለ መሆን አለበት።
- ለ. የኤሌክትሪክ ምሰራዎች ርዝመትና በመካከላቸው የሚኖረው ርቀት የሚወሰነው በኤጀንሲው መመሪያ መሠረት ይሆናል።

፳፭. የአገልግሎት መስመር

ማንኛውንም ወደ ደንበኞች የሚዘረጋ የኤሌክትሪክ መስመር ከምሰራዎች ላይ ካልሆነ በስተቀር በመጥለፍ ማገናኘት አይቻልም።

፳፮. የኤሌክትሪክ ኃይል ማከፋፈያና የመከላከያ ሽቦዎች

- ሀ. የኤሌክትሪክ ኃይል ማከፋፈያና የመከላከያ ሽቦዎች በቴክኒካዊና አካላዊ መስፈርቶች ተቀባይነት ያላቸው መሆን አለባቸው።
- ለ. የሽቦዎቹ መጠን የሚመረጠው በብሔራዊ ደረጃዎች ወይም ብሔራዊ ደረጃዎች ከሌሉ በኢንተርናሽናል ኤሌክትሪክ ቴክኒካል ኮሚሽን ደረጃዎች መሠረት ይሆናል።

- 4) Production of electrical components shall be commenced only after the drawings have been approved by the Agency, and any subsequent change on the drawings shall not be made without the approval of the Agency.
- 5) Substation sites shall be selected with due regard to minimizing costs and satisfying functional requirements such as accessibility, expandability, proximity to load centers, avoidance of pollution and the social and cultural need of operators.

CHAPTER THREE
Distribution

62. General Provisions for Distribution Line Design

- 1) Distribution network design shall:
 - (a) consider provision for future expansion; and
 - (b) take into account the predicted load characteristics of the area for the duration of the distribution license.
- 2) Distribution network shall be designed to offer economic benefits by reducing electrical losses, black out and operational and maintenance costs.
- 3) The layout design of a distribution network shall be based on the master plan or where a master plan is not available on the plan approved by the Agency.
- 4) The size of the distribution network components and type of their structure shall be in conformity with the requirements of the national standard, or where such standard is not available, with that of the International Electro-Technical Commission standards.

63. Transformers

The functional and technical standards of transformers to be used in a distribution network and type of their structure shall be determined in accordance with directives of the Agency.

64. Erection of Poles

- 1) Erection of poles shall conform with master plans or where such master plans are not available with plans approved by the Agency.
- 2) The height and the span of electric poles shall be determined in accordance with directives of the Agency.

65. Service Lines

No service line or tapping shall be taken off an overhead line except at a point of support.

66. Distribution System Conductors and Earth Wires

- 1) Distribution system conductors and earth wires shall be technically and economically feasible.
- 2) The cross section of conductors and earth wires shall be selected in compliance with the national standard, or where such standard is not available, with the International Electro-Technical Commission standards.

፪. የፌደራል ስምምነት ስለመጣጠን
፩. የኤሌክትሪክ ጭነቶች በባለፈቃዱ የሥርዓት ሥርዓት ውስጥ በየፌደራል መከፋፈል ይገባቸዋል።
፪. የአንድ ፌደራል ጭነት ከሌላ ፌደራል ጭነት ሲነጻጸር ከ፲ ፕርሰንት በላይ መብለጥ አይኖርበትም።

፫. ስለዋጋ ማስከፈያ ኢንቨስትመንት
፩. ባለፈቃዱ በፍጆታ ንባብ መሠረት ትክክለኛና ግልጽ የሆኑ የኤሌክትሪክ ፍጆታ ዋጋ ማስከፈያ ኢንቨስትመንት ማቅረብ አለበት።
፪. በኢንቨስትመንት ላይ የሚከተሉት መረጃዎች ለደንበኞች መገለጽ አለባቸው፡
ሀ) የመክፈያ ቦታ፤
ለ) ደንበኞች የሚሰጥላቸው ቦታና ጊዜ፤
ሐ) የአገልግሎት እውነት ቅሬታና የአይጋ ወይም የማንኛውም ሌላ ብልሽት ሪፖርት መቀበያ የሰልክ ቁጥሮች።

፬. የአቅርቦት አገልግሎትን ስለመቀጠል
ባለፈቃዱ በክፍያ መስተንጎል ምክንያት አቋርጦት የነበረን የኤሌክትሪክ አቅርቦት አገልግሎት ደንበኛው የፍጆታንና የሚፈለግበትን ተጨማሪ ክፍያ በፈጸመ በጽፎ ሰዓት ጊዜ ውስጥ መልሶ መቀጠል አለበት።

፭. ስለደንበኞች ቅሬታ መዝገብ
፩. ባለፈቃዱ በሚሰጠው አገልግሎት አለመሟላት ወይም ከአገልግሎቱ ጋር በተያያዘ ማናቸውም ምክንያት በደንበኞች የሚቀርብለትን እያንዳንዱን ቅሬታ በመቀበል የቅሬታ አቅራቢውን የውል ቁጥርና ስም፣ ቅሬታው የቀረበበትን ቀንና ሰዓት ከነምክንያቱ መመዝገብ አለበት።
፪. ባለፈቃዱ በዚህ አንቀጽ ንዑስ አንቀጽ(፩) መሠረት ለሚደረግ የቅሬታ ምዝገባ የሚያገለግል የደንበኞች ቅሬታ መዝገብ በየንግድ አገልግሎት ጣቢያዎቹ ማኖር አለበት።

ከፍል ስድስት
ልዩ ልዩ ድንጋጌዎች

፮. ስለሙያ ብቃት ማረጋገጫ የምስክር ወረቀት
፩. የኤሌክትሪክ ሥራ ተቋራጭነት የሙያ ብቃት ማረጋገጫ የምስክር ወረቀት ለማግኘት ለኤጀንሲው የሚቀርብ ማመልከቻ የሚከተሉትን መያዝ አለበት፤
ሀ) የአመልካቹን ማንነትና አድራሻ፤
ለ) አመልካቹ ያገኘው ዲግሪ፣ ዲፕሎማ ወይም የምስክር ወረቀት ካለው ይህንኑ፤
ሐ) አመልካቹ የሥራ ልምድ ካለው ይህንኑ፤
መ) ኤጀንሲው ያስፈልጋሉ ብሎ በመመሪያ የሚወሰድ ስናቸውን ሌሎች መረጃዎች።
፪. ኤጀንሲው በዚህ አንቀጽ ንዑስ አንቀጽ(፩) መሠረት የቀረቡለትን መረጃዎች ካጣራ በኋላ የአመልካቹን የሙያ ብቃትና ልምድ ለመገምገምና የምስክር ወረቀቱን ደረጃ ለመወሰን እንዳስፈለገነቱ የጽሑፍና የተግባር ፈተና ሊሰጥ ይችላል።
፫. ኤጀንሲው አመልካቹ የተወሰነውን ክፍያ ከከፈለ በኋላ በ፱ ቀን ውስጥ የሙያ ብቃት ማረጋገጫ የምስክር ወረቀት ይሰጠዋል።
፬. ለሙያ ብቃት ማረጋገጫ የምስክር ወረቀት የሚጠየቀው ክፍያ እንደሚከተለው ይሆናል።

72. *Balance between Phases*
1) In facilities of the licensee the load must be distributed among the phases.
2) The ratio of the load in one phase shall not exceed by more than 10% of the load in any other phase.

73. *Invoicing*
1) The licensee shall issue clear and correct invoices for electricity consumption based on actual readings.
2) The following information shall be provided to customers on the invoice;
(a) the collection place;
(b) places and schedule of attention to customers;
(c) phone numbers to receive lack of service complaints and reports of accidents or any other irregularities.

74. *Supply Reinstatement*
In the case of disconnection on the ground of default in payment, the licensee shall reinstate the supply of electricity within 24 hours after the customer had effected payment for owed invoices plus the corresponding overcharges.

75. *Customer's Complaint Book*
1) Every customer's complaint for any deficiency in the service rendered or in any of its features shall be received and recorded by the licensee, taking note of the correlative number and customer's name, date and hour at which the complaint is received and its reason.
2) For the purpose of recording complaints under Sub-Article (1) of this Article, the licensee shall keep customers' complaints book at each of its commercial attention center.

PART SIX

MISCELLANEOUS PROVISIONS

76. *Certificate of Professional Competence*
1) Any application for the grant of certificate of professional competence for electrical contractors shall be addressed to the Agency and shall contain the following:
(a) identity and address of the applicant;
(b) degree, diploma or certificate acquired, if any;
(c) work experience, if any;
(d) any other information the Agency may determine by directives.
2) The Agency may, following verification of all information submitted in connection with the application under Sub-Article(1) of this Article, give a written and performance test, as may be appropriate, to evaluate the professional competence of the applicant and to determine the grade of the certificate.
3) The Agency shall, upon payment by the applicant of the prescribed fees, issue certificate of professional competence within 30 days.
4) Fees to be paid for the issuance of certificate of professional competence shall be as follows:



የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ

ፌዴራል ነጋሪት ጋዜጣ FEDERAL NEGARIT GAZETA

OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

ሦስተኛ ዓመት ቁጥር ፱፩
አዲስ አበባ ሰኔ ፳ ቀን ፲፱፻፹፱

በኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
የሕዝብ ተወካዮች ምክር ቤት ጠባቂነት የወጣ

3rd Year - No. 51
ADDIS ABABA, 7th July, 1997

ማዕራጭ	CONTENTS
<p>የሚኒስትሮች ምክር ቤት ደንብ ቁጥር ፲፰/፲፱፻፹፱ ዓ.ም. የኢትዮጵያ ኤሌክትሪክ ኃይል ኮርፖሬሽን ማቋቋሚያ የሚኒስ ትሮች ምክር ቤት ደንብ ገጽ ፮፻፲፩</p>	<p>Council of Ministers Regulation No. 18/1997 Ethiopian Electric Power Corporation Establish- ment Regulations Page 611</p>
<p>የሚኒስትሮች ምክር ቤት ደንብ ቁጥር ፲፰/፲፱፻፹፱ ዓ.ም. <u>የኢትዮጵያ ኤሌክትሪክ ኃይል ኮርፖሬሽን</u> <u>ለማቋቋም የወጣ ደንብ</u> የሚኒስትሮች ምክር ቤት የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ አስፈጻሚ አካላትን ሥልጣንና ተግባር ለመወሰን በወጣው አዋጅ ቁጥር ፱/፲፱፻፹፯ አንቀጽ ፮ እና በመንግሥት የልማት ድርጅቶች አዋጅ ቁጥር ፳፮/፲፱፻፹፬ በአንቀጽ ፵፯/፮/ሀ መሠረት ይህን ደንብ አውጥቷል።</p> <p>፩. አዎጥሮ ርዕስ ይህ ደንብ “የኢትዮጵያ ኤሌክትሪክ ኃይል ኮርፖሬሽን ማቋቋሚያ የሚኒስትሮች ምክር ቤት ደንብ ቁጥር ፲፰/፲፱፻፹፱” ተብሎ ሊጠቀስ ይችላል።</p> <p>፪. መቋቋም ፩. የኢትዮጵያ ኤሌክትሪክ ኃይል ኮርፖሬሽን (ከዚህ በኋላ “ኮርፖሬሽን” እየተባለ የሚጠራ) የመንግሥት የልማት ድርጅት ሆኖ በዚህ ደንብ ተቋቋሟል። ፪. ኮርፖሬሽኑ በመንግሥት የልማት ድርጅቶች አዋጅ ቁጥር ፳፮/፲፱፻፹፬ መሠረት ይተዳደራል።</p> <p>፫. ተቆጣጣሪ ባለሥልጣን በመንግሥት የሚሰየም አካል የኮርፖሬሽኑ ተቆጣጣሪ ባለሥልጣን ይሆናል።</p>	<p>Council of Ministers Regulations No. 18/1997 REGULATIONS TO PROVIDE FOR THE ESTABLISHMENT OF THE ETHIOPIAN ELECTRIC POWER CORPORATION</p> <p>These regulations are issued by the Council of Ministers pursuant to Article 5 of the Definition of Powers and Duties of the Executive Organs of the Federal Democratic Republic of Ethiopia Proclamation No. 4/1995 and Article 47(1) (a) of the public Enterprises Proclamation No. 25/1992.</p> <ol style="list-style-type: none"> 1. <i>Short Title</i> These Regulations may be cited as the “Ethiopian Electric Power Corporation Establishment Regulations No. 18/1997” 2. <i>Establishment</i> <ol style="list-style-type: none"> 1. There is hereby established the Ethiopian Electric Power Corporation (hereinafter the “Corporation”) as a public enterprise. 2. The Corporation shall be governed by the Public Enterprises Proclamation No. 25/1992. 3. <i>Supervising Authority</i> A body to be designated by the Government shall be the Supervising Authority of the Corporation.

የንድፍ ዋጋ
Unit Price 2.30

ነጋሪት ጋዜጣ ፖ.ሣ.ቁ. ፱፻፩
Negarit G.P.O.Box 80,001

- ሀ) ለደረጃ አንድ ብር ፭፻
- ለ) ለደረጃ ሁለት ብር ፬፻
- ሐ) ለደረጃ ሦስት ብር ፹፻
- መ) እስከ ደረጃ አራት ለማሆኑ ገብተኛ ደረጃዎች ብር ፩፻

፮. በዚህ አንቀጽ ንዑስ አንቀጽ (፪) መሠረት ስለሚሰጥ ፈተናና ስለሙያ ብቃት የምስክር ወረቀት ደረጃዎች ማረጋገጫ ገርገር መመሪያ ሊያወጣ ይችላል።

፫. መመሪያ የማውጣት ሥልጣን

አግባብ ባላቸው የዚህ ደንብ ደንጋጌዎች ለኤጀንሲው የተሰጠው ሥልጣን እንደተጠበቀ ሆኖ ለዚህ ደንብ አፈጻጸም የሚያስፈልጉ መመሪያዎችን ማረጋገጥ ሊያወጣ ይችላል።

፬. የመሸጋገሪያ ደንጋጌ

፩. ይህ ደንብ ከመጽናቱ በፊት የኤሌክትሪክ ኃይል በማመንጨት፣ በማስተላለፍ ወይም በማከፋፈል ሥራ ላይ የተሰማራ ማንኛውም ሰው ኤጀንሲው በሚወሰነው የጊዜ ገደብ ውስጥ በዚህ ደንብ መሠረት ፈቃድ ማውጣት አለበት።

፪. ይህ ደንብ ከመጽናቱ በፊት የኤሌክትሪክ ኃይል ለንግድ ላልሆነ አላማ በማመንጨት፣ በማስተላለፍ ወይም በማከፋፈል ተግባር ላይ የተሰማራ ማንኛውም ሰው ኤጀንሲው በሚወሰነው የጊዜ ገደብ ውስጥ የአዋጁን አንቀጽ ፲ (፪) ደንጋጌ ማሟላት አለበት።

፫. ከአዋጁ መውጣት በፊት በቀድሞው የኢትዮጵያ ኤሌክትሪክ መብራትና ኃይል ባለሥልጣን ተሰጥቶ የነበረ ማንኛውም የኤሌክትሪክ ተጽራኬች የሙያ ብቃት ምስክር ወረቀት ኤጀንሲው በሚወሰነው የጊዜ ገደብ ውስጥ በዚህ ደንብ መሠረት በሚሰጥ የሙያ ብቃት ማረጋገጫ የምስክር ወረቀት እስከሚተካ ድረስ ጸንቶ ይቆያል።

፭. ደንቡ የሚጸናበት ጊዜ

ይህ ደንብ በፌዴራል ነጋሪት ጋዜጣ ታትሞ ከወጣበት ቀን ጀምሮ የጸና ይሆናል።

አዲስ አበባ ግንቦት ፲፪ ቀን ፲፱፻፺፩ ዓ.ም

መለስ ዜናዊ
የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ሪፐብሊክ
ጠቅላይ ሚኒስትር

- (a) for grade one Birr 500
- (b) for grade two Birr 400
- (c) for grade three Birr 300
- (d) for lower grades upto grade four Birr 100

5) The Ministry may issue detailed directives regarding examinations and grading of certificates of competence referred to under Sub-Article (2) of this Article.

77. Power to Issue Directives

Without prejudice to the powers given to the Agency under the appropriate provisions of these Regulations, the Ministry shall have the power to issue directives necessary for the proper implementation of these Regulations.

78. Transitory Provisions

1) Any person engaged in the operations of electric power generation, transmission or distribution business Prior to the coming into force of these regulations shall, within the period to be specified by the Agency, obtain a license to be issued in accordance with these Regulations.

2) Any person engaged in the operations of electric power generation, transmission or distribution activity for non commercial purposes prior to the coming into force of these Regulations shall, within the period to be specified by the Agency, fulfill the requirements of Article 10(2) of the Proclamation.

3) Any electrical contractor's certificate of professional competence issued by the former Ethiopian Electric Light and Power Authority prior to the coming into force of the Proclamation shall remain valid until replaced by a certificate of professional competence issued pursuant to these Regulations within a period to be specified by the Agency.

79. Effective Date

These Regulations shall enter into force on the date of their publication in the Federal Negarit Gazeta.

Done at Addis Ababa this 20th day of May, 1999.

MELES ZENAWI
PRIME MINISTER
OF THE FEDERAL DEMOCRATIC REPUBLIC OF
ETHIOPIA

Annex IV

EEPCO

Generation Resources-Committed and Candidates

Table-I. Generation Resources-Committed and Candidate

No.	Project	CAP MW	Energy GWH(Average)	Energy GWH(Firm)	Unit cost of energy(Firm)	Unit cost of energy(average)
Projects under construction(1 to 5)						
1	TEKEZE I	300	1043	960	4.60	4.16
2	GIG II	420	1903	1504	3.40	2.69
3	BELES	460	2142	1855	3.33	2.85
4	GIBE III	1870	6400	5468	4.04	3.16
5	FAN	100	223	220	6.57	6.57
Short listed projects (6 to 17)						
6	Halele- Werabessa	422	2245	1800	3.60	2.43
7	Chemoga-yeda	281	1415	1391	3.72	3.06
8	Geba I&II	366	1788			3.11
9	Genale III	258	1200			3.40
10	WIND	120	450			5.8
11	BaroI+II+Gengi	900	2245			2.50
12	Mendaya	2000	12100			3.30
13	GIBE IV	1470	5917			3.77
14	Karadobi	1600	8600			3.59
15	Boarder	1200	6000			3.83
16	GIBE V	662	1937			4.37
Other projects						
17	Genale IV	256	1000			4.93
18	Gojeb	150	520			7.44
19	TEKEZE II	450	1730			3.31
20	Aleltu west	265	1050			7.56
21	Aleltu East	186	800			7.74
22	Aluto**	>30				
23	Tendaho**	>5				

*The unit energy cost refers to the cost at generation point calculated at 10% discount rate.

** The actual capacity will be determined after the feasibility study.

- ሀ. ዋና መሥሪያ ቤት
የኮርፖሬሽኑ ዋና መሥሪያ ቤት አዲስ አበባ ሆኖ ቅርንጫፍ መሥሪያ ቤቶች እንደአስፈላጊነቱ በማናቸውም ሥፍራ ሊኖሩ ይችላሉ።
- ለ. ዓላማ
የኮርፖሬሽኑ ዓላማ (በመንግሥት ኢኮኖሚያዊና ማኅበራዊ የልማት ፖሊሲዎችና እቅዶች ላይ በመመርኮገ) የኤሌክትሪክ ኃይል ማምረት፣ ማስተላለፍ፣ ማከፋፈል እና መሸጥ፣ በተጨማሪም ዓላማውን ከግብ ለማድረስ የሚረዱ ሌሎች ተዛማጅ ሥራዎችን መሥራት ነው።
- ሐ. ካፒታል
ለኮርፖሬሽኑ የተፈቀደለት ካፒታል ብር ፮ ቢሊዮን ፩፻ ሚሊዮን (ስድስት ቢሊዮን አንድ መቶ ሚሊዮን ብር) ሲሆን ከዚህ ውስጥ ብር ፮ ቢሊዮን ፮፻፸ ሚሊዮን (ሁለት ቢሊዮን ስድስት መቶ ሰባ ሚሊዮን ብር) በጥሬ ገንዘብና በዓይነት ተከፍሏል።
- ተ. ኃላፊነት
ኮርፖሬሽኑ ካለው ጠቅላላ ንብረት በላይ በዕዳ ተጠያቂ አይሆንም።
- ቀ. ኮርፖሬሽኑ የሚቆይበት ጊዜ
ኮርፖሬሽኑ ላልተወሰነ ጊዜ ይቆያል።
- ሀ. የመብትና ግዴታ መተላለፍ
በመንግሥት ማስታወቂያ ቁጥር ፪፻፲፫/፲፱፻፵፰ መሠረት ይተዳደር የነበረው የቀድሞው የኢትዮጵያ ኤሌክትሪክ መብራትና ኃይል ባለሥልጣን መብትና ግዴታዎች በዚህ ደንብ ለኮርፖሬሽኑ ተላልፏል።
- ሀ. ደንቡ የሚጻፍበት ጊዜ
ይህ ደንብ በፌዴራል ነጋሪት ጋዜጣ ታትሞ ከወጣበት ቀን ጀምሮ የጻፍ ይሆናል።

አዲስ አበባ ሰኔ ፳፭ ቀን ፲፱፻፹፱ ዓ.ም.

መለስ ዜናዊ

የኢትዮጵያ ፌዴራላዊ ዲሞክራሲያዊ ፍትህ ጠቅላይ ሚኒስትር

4. *Head Office*

The Corporation shall have its Head Office in Addis Ababa and may have branch offices elsewhere, as may be necessary.

5. *Purpose*

The purpose of the Corporation is to engage in the business of producing, transmitting, distributing and selling electrical energy (in accordance with economic and social development policies and priorities of the Government) and to carry on any other related activities that would enable it achieve its purpose.

6. *Capital*

The authorized capital of the Corporation is 6.1 Billion Birr of which 2.67 Billion Birr is paid up in cash and kind.

7. *Liability*

The Corporation shall not be liable beyond its total assets.

8. *Duration*

The Corporation is established for an indefinite duration.

9. *Transfer of Rights and Obligations*

The rights and obligations of the Ethiopian Electric Light and Power Authority established under General Notice No. 213/1956 are hereby transferred to the Corporation.

10. *Effective Date*

Done at Addis Ababa, this 7th day of July 1997.

MELES ZENAWI

PRIME MINISTER OF THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

Table 4. Revised Generation Expansion Plan

Load Forecast Scenario – Target with export demand to Sudan, Kenya and Djibouti

Year On-Line	Plant Addition	Unit No. x MW Capacity	System Dependable Capacity (MW)	Capital Cost	
				Generation MUSD	Transmission MUSD
MID-TERM PLAN					
2008	Existing +Tekeze (One Unit)	1 x 75	808		
2009	Gilgel Gibe II +Tekeze(Three Unit) +	4 x105 3 X 75	1798	451.3	51
	Beles	4 x115		468.7	117.0**
2010	Neshe	2 X 47.5	1973	168.2	
2011	GibeIII (Phase I)	5 x180	2909	1704.2	143.6
	Wind	36		250.0	
2012	GibeIII(Phase II)	5 x180	4119	403.0	8.45
	Chemoga Yeda I	2 x 59			
	ChemogaYeda II	2 x 81			
	***Aluto Langan	30			
2013	Halele+	2 x 48	4760	507.0	24.5
	Werabesa +	4 x 81.5			
	Geba I + **Tendaho	3 X 71.5			
2014	Genale Dawa III	3 X 86	5266	304.0	60.9
	Geba II	2 X 78.5		157.8	
2015	Gibe IV	8 X 184	6736	2214.0	48.8*
2018	Mendaya	8 X 250	8736	2640.0	182.2
Total (2009-2018)			8736	8979.3	
LONG TERM INDICATIVE PLAN					
2019	Gibe V	12 X 55	9398	879	
2022	Karadobi	8 X 200	10998	2040	180.0
2023	Genale Dawa VI(GD6) + Gojeb	256	11404	383	16.8
		3 X 50		287	
2024	Baro I - BaroII	2 X 100	12104	505	
		3 X 170			
2025	Border	8 X 150	13304	1626	17.8
2026	Genji + Aleltu East stageI + Aleltu West-Tekezeli	2 X 105	13958	561	
		3 X 63			
		3 X 85		438	
2030					

- Reinforcement Cost is not included ** Investment Cost will be included when the feasibility Studies are completed.