

COUNTRY CHAPTER: TOGO

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ACRONYMS AND ABBREVIATIONS

TOGO

ADB	African Development Bank
ARSE	Autorité de Réglementation du Secteur de l'Électricité (Regulation Authority of the Electricity Sector)
AU	African Union
CDM	Clean Development Mechanism
CEB	Communauté Électrique du Bénin (Electric Community of Benin)
CEET	Compagnie Énergie Électrique du Togo (Electric Energy Company of Togo)
DGE	Direction Générale de l'Énergie (General Directory for Energy)
CGD	Customs General Department
ECM	mechanical construction company operating in Togo
ECOWAS/CEDEAO	Economic Community of West African States (Communauté Économique Des États de l'Afrique de l'Ouest)
CFAF	Franc de la Communauté Financière d'Afrique (1 Euro = 655,957 CFAF)
GDP	Gross Domestic Product
HDI	Human Development Index
IMF	International Monetary Fund
OAPI	Organisation Africaine de la Propriété Intellectuelle (African Organization of Intellectual Property)
OHADA	Organisation Pour l'Harmonisation en Afrique du Droit des Affaires (Organization for Harmonization of Business Rights in Africa)
PAIP	Priorities Actions Interim Program
PCHD	Poor Countries Heavily in Debt
PRSP-I	Poverty Reduction Strategy Paper Interim
PV	Photovoltaic
RE	Renewable Energy
STE	storage company operating in Togo
STSL	Société Togolaise de Stockage de Lomé (Togo Storage Company of Lomé)
UN	United Nations
WAEMU/UEMOA	West African Economic and Monetary Union (Union Économique et Monétaire Ouest Africaine)
WTO	World Trade Organization

MEASUREMENTS

€	Euro
GWh	gigawatt hour (1 GWh = 1,000,000 kilowatt hours (kWh))
kg	kilogram
km ²	square kilometer
kVA	kilovolt ampere
kWh	kilowatt hour
m/s	meters per second
m ²	square meter
m ³	cubic meter
mm	millimeter
MT	million tons
MW	megawatt (1 MW = 1,000 kW)
MWh	megawatt hour
°C	degree Celsius
t	ton
toe	tons of oil equivalent
W	Watt
Wp	Watt-peak
yr	year



SUMMARY

The Country Study of Togo is to provide an overview of the country's energy market and to support decision-making for private investments for the Renewable Energy (RE) sector in Togo. The study is structured as follows:

Chapter one provides Background Information on Togo. This includes an overview of geographical and climatic conditions, as well as the most important facts in view of political, economic and socio-economic conditions of Togo.

Chapter two summarizes facts and figures of Togo's Energy Market including stakeholders and market actors involved as well as sector related regulations.

Chapter three presents the currently existing Political Framework for Renewable Energies in Togo. This includes an overview of support mechanisms for photovoltaic (PV) as well as already existing regulations, incentives and legislative framework conditions concerning other RE technologies.

Chapter four provides a brief overview of the Status Quo and Potential for Renewable Energies in Togo.

Chapter five summarizes the existing and potential Market Risks and Barriers in general with focus on RE.

Chapter six presents a compilation of the most relevant Renewable Energy Business Information and Contacts of Togo.

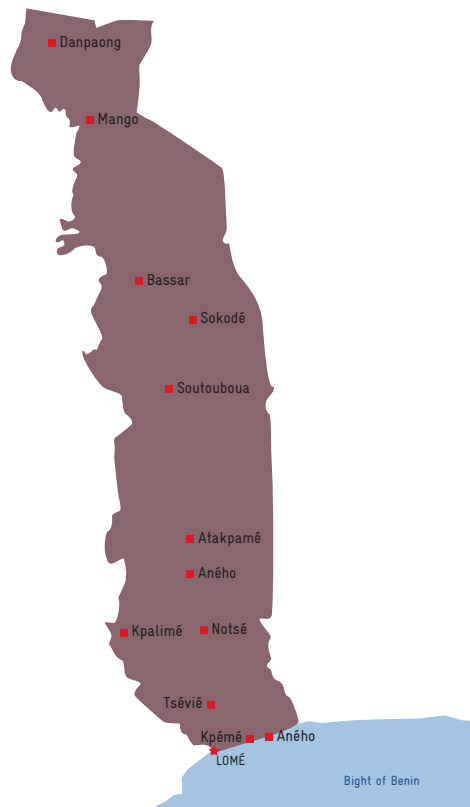
1 COUNTRY INTRODUCTION

1.1 GEOGRAPHY AND CLIMATIC CONDITIONS

Located in the southern part of West Africa, the Republic of Togo covers 56,600 km². Direction-wise it stretches for almost 600 km to the North, 55 km along the seaside on the Guinea Gulf and has a maximum width of 120 km from East to West. With a longitudinal stripe form, Togo is limited by Ghana to the West, by Benin to the East, in the North by Burkina Faso and in the South by the Atlantic Ocean. Togo is located in the northern hemisphere in West Africa between latitudes 6° and 11° North and longitudes 0° 30' and 1° 30' East.

Togo is divided into five economic regions: the Savannah Region, the Kara Region, the Central Region, the Plateau Region and the Seaside Region. These regions are divided into 31 prefectures and four sub-prefectures. Country towns of prefectures are considered as urban commons.

FIGURE 1
Map of Togo



As to the climatic situation, Togo has a tropical climate, characterized by very different climatic zones and seasons. The South has four seasons (two dry seasons and two rainy seasons) with annual rainfalls between 800 and 1,500 mm. The North has one dry and one rainy season and is characterized by annual rainfalls of 1,000–1,500 mm. The medium temperatures in Togo vary from 22°C to 28°C.

1.2 POLITICAL, ECONOMIC AND SOCIO-ECONOMIC CONDITIONS

According to estimations of the general statistic department, the total population of Togo has reached 5,590,000 inhabitants in 2008 at an average population growth rate of about 2.4%. The gross of the population is living in the rural areas of Togo (66%). In Togo, the distribution of population is very unbalanced. A high population concentration exists in the South of the country, mainly in the Plateau Region.

Togo received its independence on 27 April 1960. Since 1992, the political system has been characterized by democratic elections. Togo is a member of many international, regional and sub-regional organizations such as the United Nations (UN), the African Union (AU), the World Trade Organization (WTO), the Organization for Harmonization of Business Rights in Africa, the African Organization of Intellectual Property, the Economic Community of West African States (ECOWAS/Communauté Économique Des États de l'Afrique de l'Ouest – CEDEAO), the West African Economic and Monetary Union (WAEMU/Union Économique et Monétaire Ouest Africaine – UEMOA) and the Electric Community of Benin (CEB).

The economic and social development of Togo is mainly based on the primary sector that represents about 40% of the country's Gross Domestic Product. The economic growth rate reached 2.9% during the period 2000–2004. The inflation rate of Togo corresponds with the average 3% of the WAEMU countries, except in 2005 when the prices of basic products increased to about 6.7%. Other important sectors such as the industry sector, electricity sector, water and gas sector or the building sector represent another 19% of the GDP. The service sector contributes with about 26%, the trade sector with 11.6% to the GDP.

The socio-political crisis (1990–2005) has greatly affected public investment activities, which have decreased from 13.8% of the GDP in 1990 to 3.3% in 2005. It also affected the annual growth average of the GDP which has not exceeded 1.1% since 1991. In 2006, Togo was classified as a less developed country and in 2008 as one of the Poor Countries Heavily in Debt (PCHD). Today, Togo ranks at 147 out of 177 countries in the Human Development Index (HDI).

As for the revenues, the rate of the fiscal pressure remains low at 14% of GDP which is three points under the standard of 17% fixed by the mechanism of multilateral supervision of the WAEMU in 2005. Public debt is split into 72.4% of engagements towards the World Bank, the International Monetary Fund (IMF) and the African Development Bank (ADB) and 27.6% of bilateral debts. The current external debts are estimated at 783 billion CFAF of which near one third are overdue payments (2006–2007). In 2006, the weight of the total debt with regard to the GDP reached 96% as opposed to 70% in 1992.

2 ENERGY MARKET IN TOGO

2.1 OVERVIEW OF THE ENERGY SITUATION

Togo mainly relies on the utilization of energy from biomass. In 2006, up to 75% of the total energy consumption was covered by biomass energy. Due to the fact that Togo has no proven reserves, the total consumption of petrol products is covered by imports. The overall energy consumption per inhabitant was estimated at 0.27 toe in 2006, which is significantly less than the average of West African countries (0.45 toe).

2.2 ENERGY CAPACITIES, PRODUCTION, CONSUMPTION AND PRICES

Electricity Sector

The overall electricity production of Togo reached 221 GWh in 2006. The national production capacity includes thermal and Hydro Power installations under the management of the CEB, the Electric Energy Company of Togo (CEET) and some independent producers. The electricity production units of CEET include 17 thermal electric plants and one mini Hydro Power plant. The total amount of produced electricity reached 71 GWh in 2007. The second electricity producer CEB operates several gas turbines with an overall production of approximately 53 GWh (as of 2006). Furthermore, three mini Hydro Power plants contributed another 150 GWh to the electricity consumption. The overall contribution of small producers (mostly self-sufficient electricity generation in the industry sector) was estimated at 8 GWh in 2006. Additional imports of electricity origin from Ghana, Côte d'Ivoire and Nigeria. Overall electricity imports are estimated at 505 GWh at a total consumption of 726 GWh in 2005. Table 1 presents the prices of imported electricity while the current electricity tariffs are presented in Table 2.

Petroleum Sector

Togo is not a producer of petroleum products and therefore has to meet the final consumption by imports. In 2006, the overall import was estimated at 276,000 toe equaling 12% of the total energy mix.

All imports are subject to be certified by the Ministry of Commerce and Transport. As far as hydrocarbons are concerned, Togo has total storage capacity of 255.315 m³, shared between the Togo Storage Company (STE) and the Togo Storage Company of Lomé (STSL). The price for petroleum products is presented in Table 3.

TABLE 1
Price of Imported Electric Energy and National Energy Production by Type

ORIGIN	CÔTE D'IVOIRE	GHANA	NIGERIA	TOGO				
				Hydro Power	Thermal	Gas Turbines	CEET Purchase	CEET Purchase and Sale
€/kWh	0.050	0.040	0.034	0.038	0.170	0.210	0.076	0.082 to 0.140

Source:CEB, as of 2008

Biomass Sector

In Togo, biomass energy comprises charcoal, wood and agricultural waste. The total biomass energy production was estimated at 2,031,000 toe in 2006. Traditional biomass is the most prominent source of energy for cooking and heating purposes in Togo. About 75% of all households (mainly in rural areas) utilize wood energy, which causes an annual consumption of 347 kg per capita. Charcoal is the most prominent combustible of urban households with an annual consumption of 59 kg per capita. The annual consumption for household energy needs is estimated at about 1.63 million tons of wood and about 0.27 million tons of charcoal.

TABLE 2
Price of Electric Energy by Type of Use

TYPE OF USE	PRICE (€/kWh)
Professional Use	
slack period	0.08
full period	0.09
peak period	0.11
uni tariff	0.10
Public lighting	0.14
Free zone companies	0.08
Domestic Use	0.10 (<40 kWh) 0.11 (40-300 kWh) 0.14 (>300 kWh)

Source: Conceded electricity service rule to Togo Électricité, as of 2002

TABLE 3
Price of Petroleum Products

TYPE OF ENERGY	CHARCOAL €/KG	WOOD €/KG	KEROSENE €/KG	BUTANE €/L	GASOLINE €/L	DIESEL €/L
Price	0.04	0.13	0.82	0.43	0.66	0.71

Source: Ministry of Commerce, as of 2009

2.3 MARKET ACTORS AND REGULATION STRUCTURES

The energy sector of Togo is very complex due to numerous institutions involved in the sector. The Ministry of Mines, Energy and Water develops and implements policies for the overall energy sector.¹ Moreover, it directs and coordinates relevant initiatives. The Ministry of Environmental and Forestry Resources develops and implements policies and regulations, monitors and controls the exploitation of forests and the production and supply of wood and charcoal. Many other institutions and organizations from private and public sector also participate in the overall management of this sector. This includes the CEB, the CEET and the Regulation Authority of the Electricity Sector (ARSE) as well as the STE and the STSL.

3 POLICY FRAMEWORK FOR RENEWABLE ENERGIES

3.1 POLICIES, STRATEGIES AND PROGRAMS FOR RENEWABLE ENERGY PROMOTION

In Togo, there are currently no dedicated policies for Renewable Energies. According to the Togo Poverty Reduction Strategy Paper Interim (PRSP-I) for 2006–2008, however, the Government pursues several objectives in the energy sector. This includes the implementation of policies for the promotion of RE, the increase of electricity supply of rural areas and the implementation of regulatory institutions.

3.2 REGULATIONS, INCENTIVES AND LEGISLATIVE FRAMEWORK CONDITIONS

Based on a feasibility study on rural electrification, the implementation of a rural electrification master plan was recently initiated. In the framework of the Priorities Actions Interim Program (PAIP) and the PRSP-I, several priorities were formulated.

The first priority concerns institutional reforms and the regulation of the energy sector and schedules three actions: (i) strategic review and elaboration of reviewed energy policies, (ii) regulation and reduction of state electricity consumption by introducing energy-saving/-efficient measures in public buildings in accordance with Clean Development Mechanism (CDM) and (iii) capacity building by the general department of energy.

The second priority focuses on the rapid improvement of production capacities in order to end the energy crisis in a short time. Furthermore, capacity building in the electric energy production sector aims to promote the implementation of gas turbines and Hydro Power installations in different regions of the country.

The third priority proposes a framework for rural electrification and prepares an investment program likely to alleviate the high energy dependency of Togo. The restricted

access to modern energy services forces the elaboration of the master plan of rural electrification that will fix realistic objectives for 2010 and 2015. It is planned to develop and implement goal-directed strategies with focus on institutional, technological and financial issues.

The fourth priority aims at activities in the field of RE and the hydrocarbon sector. This includes the implementation of legislative, institutional and regulation framework conditions, allowing the substitution of traditional energy sources. This should be done with tax exemptions for RE equipment, the definition of standards for rural electrification and the reduction of relevant costs.

In order to help the population through the energy crisis and to promote RE on a large scale, the Ministers' Council authorized the Customs General Department (CGD) on 8 April 1998 to issue a memorandum on import tax and VAT exemptions for generators and other energy equipment. This measure is in force till now.

4 STATUS AND POTENTIAL FOR RENEWABLE ENERGIES

4.1 BIOMASS/BIOGAS

The biomass potential of Togo is estimated at 2.6 million toe and mainly consists of wood, charcoal, and vegetable waste. Table 4 provides an overview of the biomass consumption by region.

With regard to the production and utilization of biogas, there are significant resources available, mainly from agricultural waste (cotton, maize stem etc.) and livestock. Due to the lack of technology and knowledge, there are no existing biogas production sites in Togo up to now.

4.2 SOLAR ENERGY

The available solar radiation is between 4.4 and 4.5 kWh/m²/day.² Up to now, there are already some experiences with thermal solar energy and photovoltaic (PV) energy available. This includes solar water heating, solar cooking and PV systems for telecommunication services, water pumping, railway stations and some other small scale applications. In order to improve the access to modern energy services in rural areas of Togo, there is still a significant need to promote the utilization of solar energy.

4.4 HYDRO POWER

Togo has more than 50 rivers and waterfalls that offer abundant potential for mini- and micro-scale production of electricity. About 40 sites, located at the rivers of Mono and Oti, offer a potential overall production capacity of 224 MW. Up to now, however, there are only very few Hydro Power installations available for electricity generation. Table 5 presents an overview of the available Hydro Power potential of Togo.

¹ SEE ALSO INSTITUTIONS MENTIONED IN CHAPTER 2.2

² AS MEASURED BY LOMÉ UNIVERSITY AND THE NATIONAL METEOROLOGY DEPARTMENT

TABLE 4

Biomass Consumption by Region

REGION	TYPE	WOOD		CHARCOAL		VEGETABLE WASTE	
		Number of Households	%	Number of Households	%	Number of Households	%
Seaside	Whole	409	38.47	840	79,20	125	1.75
	Urban	65	10.20	586	91,70	21	3.30
	Rural	344	81.00	254	59,80	104	24.50
Plateau	Whole	578	77.79	379	51,00	83	11.17
	Urban	64	47.70	113	84,07	05	3.60
	Rural	514	84.40	266	43,06	78	12.80
Central	Whole	192	82.40	146	62,66	12	5.15
	Urban	42	57.40	59	81,90	n/a	n/a
	Rural	150	93.40	87	53,70	12	7.40
Kara	Whole	214	83.59	169	66,01	84	32.81
	Urban	66	62.20	103	96,70	15	14.40
	Rural	148	99.20	66	44,40	69	46.00
Savanna	Whole	253	94.75	164	61,42	95	35.58
	Urban	42	81.40	47	93,00	13	25.60
	Rural	211	97.80	117	54,40	82	84.10
Total	Whole	1,646	64.24	1,698	66,27	399	15.57
	Urban	279	27.81	908	90,52	54	5.38
	Rural	1,367	87.68	790	50,67	345	22.12

Source: DEF, as of 2008

4 MARKET RISKS AND BARRIERS

The major obstacle within the RE market development is the lack of appropriate policies. Furthermore, there is a significant lack of regulatory instruments for private investments to the sector. Up to now, there are no mechanisms or incentives that are suitable to attract investors from the private sector. The regulation institution ARSE has no master plan in the field of RE. On top of that, Togo has no independent agency that is in charge of the RE sector including the rural electrification.

Since 2000, Togo has been applying uniformed acts of the African Harmonization Affairs Law Organization (OHADA). This is part of the overall liberalization process intended to implement codes, principles and comminatory rules of ECOWAS/WAMEU. The regional harmonization process was implemented by ECOWAS/WAMEU in September 2005 and has been in force since January 2006. The national legislation regulating competition has been replaced in 2003 by a comminatory legislation that includes the objectives of ECOWAS/WAMEU. The national commission for competition and consumption has been in operation since 2006.

Law 99-011 regulates the overall competition in Togo and aims at establishing successful and self-regulatory markets. Within this, the establishment of appropriate prices, properties and services should help to prevent market distortions and discriminatory practices. According to the PRST-I, the Government intends to elaborate national policies against corruption and towards equitable and transparent markets.

TABLE 5

Available Hydro Power Potential

SITE NAME	RIVER	POWER (MW)
Djédrame	Danyi	3.000
Daye Konda	Gban Hou1	5.000
Daye Konda	Gban Hou2	10.000
Amou Oblo	Amou	3.000
Tététou	Mono	60.000
Nangbéto en aval du site	Mono	20.000
Sérégbané (Kougnohou)	Koroon	9.000
Bassar	Cascade Sika	1.000
Kpessi	Ogou	8.000
Dotékopé	Mono	9.000
Gboamoa	Amou	2.000
Gougou	Ogou	7.000
Ezímé (Cascade)	Koulassou	2.500
Langabou	Assou Koko	5.000
Tomégbé	Domé	8.000
Tomégbé	Sin sin	1.600
Soukourou	Souroukou	5.000
Sagada/Kpététa	Mono	8.000
Fazao	Kpaza	2.500
Bongoulou	Bassar	1.250
Bangan (Bassar)	Mô	6.000
Koueda	Kpaza	9.000
Landa-pozanda	Collège milit. Kara	17.000
Landa-pozanda	Kara	0.200
Tihaléa	Kara	9.000
Namon	Kara	n. a.
Titira	Kéran	12.000
Mongo-Kantè (Atigbé)	Kéran	5.000
Alokoegbé	Sio	0.125
Wonougba	Sio	0.165
Légouazeladè	Mô	0.100
Aklowa	Cascade	800.000
Landa-pozanda	Kara (Kpizindè)	0-110.000

Source: DGE, as of 2006



5 RENEWABLE ENERGY BUSINESS INFORMATION AND CONTACTS

TABLE 6

Local Partners

INSTITUTION	ADDRESS	PROFIL
Solaire Ingenierie	Phone: +228 320 63 82 Fax: +228 221 35 18 solaire.ingenierie@yahoo.fr	PV technology
Mechanic Construction Company (ECM)	P.O Box. 31277, Lomé Phone: +228 925 21 04 ecmpompes@yahoo.fr	Solar equipment and service provider
ESTN	Phone: +228 923 33 08	Solar equipment
Direction Générale de l'Energie (GE)	P.O Box 335, Lomé Phone: +228 223 14 39 Fax: +228 220 86 46	Stately institution
Action Communautaire pour le Développement Intégral et Solaire (ACDI SOLAR)	07 BP 128606, Lomé Phone: +228 966 25 67 Email: www.acdisolar06.blog.co.uk (www.riaed.net/IMG/pdf/ONG_ACDI_Solar_au_Togo_0507.pdf)	NGO for the promotion of solar energy
UL/ ENSI	P.O. Box. 1515, Lomé Phone: +228 902 86 07	Electric equipment
Lomé University Solar Energy Laboratory	P.O Box 1515, Lomé Phone: +228 901 25 18 www.ub.tg	Solar energy research
CFIT	Phone: + 228 999 88 65	Solar equipment and training
JVE Volunteers Youth for Environment	P.O Box 88236, Lomé Phone: +228 913 48 21	NGO
ENERGIA SOLAIRE	Phone: + 228 939 35 13	Solar equipment
Ministry of Mines, Energy and Water (Ministère des Mines et de l'Énergie)	P.O Box 4227, Lomé Phone: +228 220 07 62 Fax: +228 220 08 05 energie@laposte.tg	Regulatory institution
Ministry of Economy and Finance, (Ministère de l'Économie et des Finances)	P.O Box 387, Lomé Phone: +228 221 09 05	Regulatory institution
Ministry of Environment and Forestry Resources (Ministère de l'Environnement et des Ressources forestière)	P.O Box 48235, Lomé Phone: +228 221 30 78 www.merf.tg	Regulatory institution

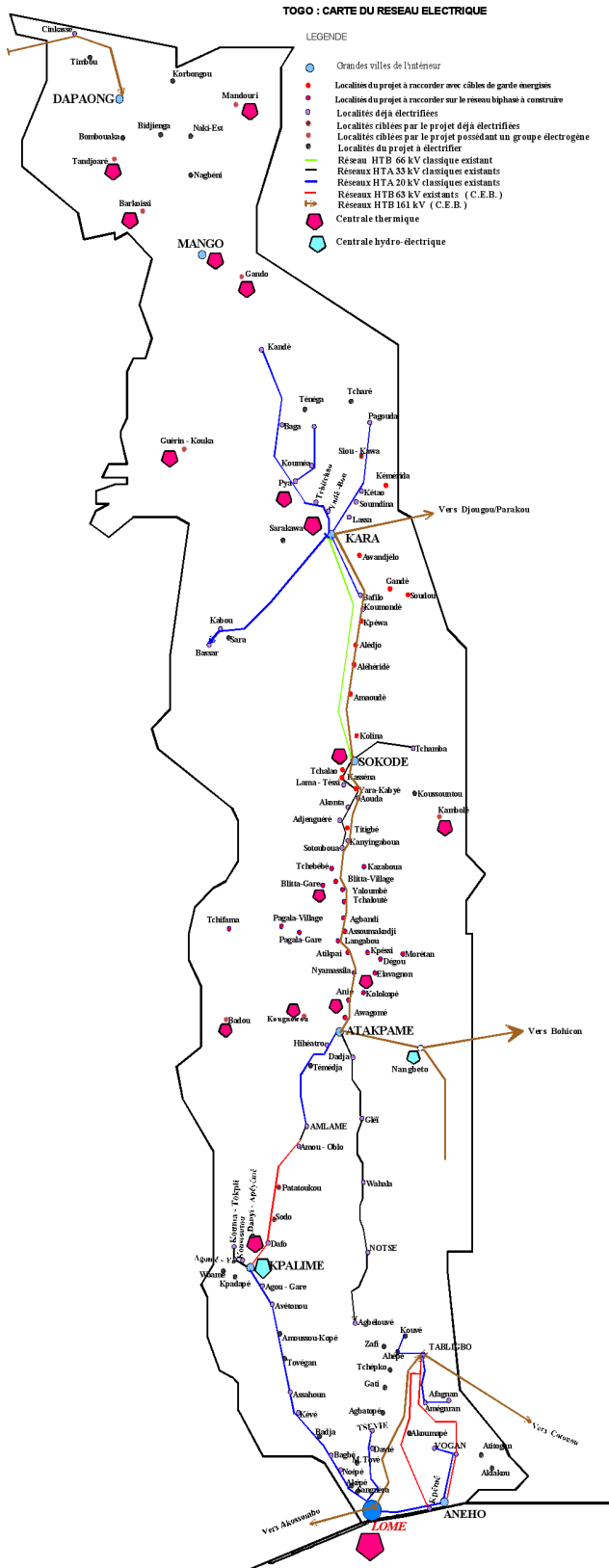


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7 ANNEX

FIGURE 6
Electricity Network Map of Togo



Source: CEET, as of 2008