

COUNTRY CHAPTER: BENIN

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ACRONYMS AND ABBREVIATIONS

BENIN

ABERME	Agence Béninoise d'Electrification Rurale et de la Maîtrise
	(Benin Agency for Rural Electrification and Energy Control)
ACP	Africa, Caribbean, Pacific
AFD	Agence Française de Développement (French Development Agency)
AU	African Union
BIC	Bénéfices Industriels et Commerciaux (tax on industrial and trade benefits)
BOAD	Banque Ouest Africaine de Développement (West African Development Bank)
CBRST	Centre Béninois de la Recherche Scientifique et Technique
	(Beninese Scientific and Technical Research Center)
CCIB	Chambre de Commerce et d'Industrie du Bénin (Beninese Chamber of Trade and Industry)
CEB	Communauté Electrique du Bénin (Beninese Electricity Community)
CENAPI	Centre National de la Propriété Industrielle (National Intellectual Property Center)
CFE	Centre de Formalités des Entreprises (Enterprises Formality Center)
CIA	Central Intelligence Agency
DGE	Direction Générale de l'Energie (General Directorate of Energy)
ECOWAS	Economic Community Of West African States
EDF	Electricité de France (Electricity of France)
EU	European Union
GDP	Gross Domestic Product
HDI	Human Development Index
IDA	International Development Association
IEPF	Institut de l'Énergie et de l'Environnement de la Francophonie
IMF	(French Speaking Countries Environment and Energy Institute)
INSAE	International Monetary Fund Institut National de Statistique et de l'Analyse Economique du Bénin
INSAL	(National Institute of Statistics and Economy Analysis)
IPC	Investments Promotion Center
IPP	Independent Power Producer
IUT	Institut Universitaire de Technologie (University Technology Institute)
LIFAD	Laboratoire d'Ingénierie, de Formation et d'Assistance en Développement Local
LITAL	(Laboratory of Engineering, Training and
Local	Development Association)
LPG	Liquefied Petroleum Gas
NGO	Non-Governmental Organization
MIC	Ministère de l'Industrie et du Commerce (Ministry of Industry and Trade)
MEE	Ministère de l'Energie et L'Eau (Ministry of Energy and Water)
NDF	Nordic Development Fund
OHADA	Organisation pour l'Harmonisation en Afrique du Droit des Affaires
	(Organisation for the Harmonization of Business Law in Africa)
ONAB	Office National du Bois (National Wood Ressources Office)
PFSE	Projet de Fourniture de Services d'Energie (Energy Services Provided Project)
PV	Photovoltaic
RE	Renewable Energy
RPTES	Review of Politics and Traditional Energy Sector
SBEE	Société Béninoise d'Energie Electrique (Beninese Electric Energy Company)
S.I. e.	Système d'Information de l'Energie du Bénin (Energy Information System Benin)
SONACOP	Société Nationale de Commercialisation des Produits Pétroliers (National Oil Company)
SUCOBE	Sucrerie Complant du Bénin
TBE	Table of Board of Energy
UAC	Université d'Abomey-Calavi (Abomey-Calavi University)
UNDP	United Nations Development Programme
USD	United States Dollar
VAT	Value Added Tax
WAEMU	West African Economic and Monetary Union



MEASUREMENTS

GWh gigawatt hour (1 GWh = 1,000,000 kilowatt hours (kWh))

square kilometres km²

MWmegawatt (1 MW = 1,000 kW)

cubic meter m³ mm millimeters

tons of oil equivalent toe

k٧ kilovolt

m/s meters per second

Euro



SUMMARY

The Country Study of Benin 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 Benin. The study is structured as follows:

Chapter one provides Background Information on Benin. 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 Benin.

Chapter two summarizes facts and figures of Benin'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 Benin. This includes an overview of support mechanisms for photovoltaic (PV) as well as 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 Benin.

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 Benin.



1 COUNTRY INTRODUCTION

1.1 GEOGRAPHY AND CLIMATIC CONDITIONS

Benin is a West African country surrounded by Togo in the West, Nigeria in the East, Burkina Faso and Niger in the North. The country's territory comprises 112,620 km² with an estimated population of about 8,532,000. The capital of Benin is Porto Novo.



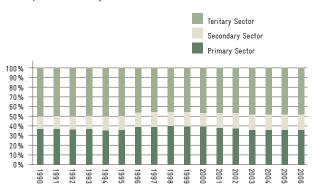
Benin has four main geographical regions. The southern region is a narrow coastal zone fringed in its North by a series of interconnected lagoons and lakes with only two outlets to the sea. In the Northwest of Benin there are forested mountains. The major part of the country is influenced by transitional tropical conditions. The dry season starts in November and lasts until the beginning of April. The rainy season covers the period of April to October. The southern part of the country (the coastal zone), is influenced by a northern transitional equatorial climate, marked by a long dry season from November to the end of March, a first rainy season from April to July, a small dry period in August, and a second rainy season in September and October. The average rainfalls vary between 1,400 mm per annum in the south to 850 mm in the North.

1.2 POLITICAL, ECONOMIC AND SOCIO-ECONOMIC CONDITIONS

Benin gained its independence from France in 1960. After the National Conference and a referendum, several democratic reforms were adopted in February 1990. Free elections were established in 1991, marking the transition to a political multiparty system with a presidential regime. The constitution of Benin guarantees human rights and individual freedom. The total population of Benin (as of 2008) comprises 8,532,000 inhabitants. The population structure includes two distinctive features: a very young population (55.6% are less than 17 years old) and a feminine dominance of about 51.5%. The spatial distribution of population is highly irregular, as about 45.5% of the population are resident in six departments in the South of Benin equaling an area of only 10% of the country's territory. The share of urban population adds up to 38.85%.

The GDP of Benin amounted to 1,077 billion Euros in 1998, while in 2005 it accounted for 1,603 billion Euro, at constant market prices in both years comparable to those in 1985. Between 1998 and 2005, the annual growth was about 5.85%. Figure 2 illustrates the development of the sector-based components of the GDP.

FIGURE 2
Development of GDP by Sectors



Source: INSAE data compiled by the author, as of 2008

According to the 2007/2008 World Human Development Report¹, the country ranks at position 163 out of 177 with a HDI of 0.437 and a GDP per capita of USD 1,141. Table 1 illustrates the levels of poverty on the rural, urban and national level of Benin in 2002 and 2006. The average monetary poverty per inhabitant was analyzed according to the usual indicators of incidence (P0), of depth (P1) and of severity (P2) for the exemplary years of 2002 and 2006.

TABLE 1
Incidence, Depth and Severity of Poverty by Area

	2002			2006		
Areas	P0	P1	P2	P0	P1	P2
Urban (%)	23.60	0.11	0.11	27.02	0.11	0.06
Rural (%)	31.60	0.11	0.06	40.60	0.15	0.08
National (%)	28.50	0.11	0.06	36.80	0.14	0.07

Source: IMF, 2008, p. 26

¹ UNITED NATIONS DEVELOPMENT PROGRAM (UNDP)-HUMAN DEVELOPMENT REPORTS (WWW.HDR.UNDP.ORG)

2 ENERGY MARKET IN BENIN

2.1 OVERVIEW OF THE ENERGY SITUATION

Benin is characterized by a predominance of biomass energy in the overall energy mix.

TABLE 2 Energy Mix of Benin

	BIOMASS	PETROLEUM PRODUCTS	ELECTRICITY
Consumption (toe)	1,338,714	866,540	50,628
Contribution (%)	59.40	38.40	2.20

Source: S.I.e. Benin, as of 2006

The major part of the total energy consumption can be allocated to households, with a total of approximately 63.9 %. The transport sector accounts for 23.2 %, the service sector for 10.6 % and the barely developed industry sector of Benin consumes about 2.3 %. Figure 3 visualizes the energy consumption per sector, while Figure 4 presents the detailed consumption of the industry sector.

FIGURE 3
Energy Consumption per Sector (toe)

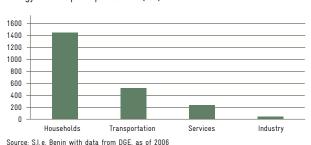
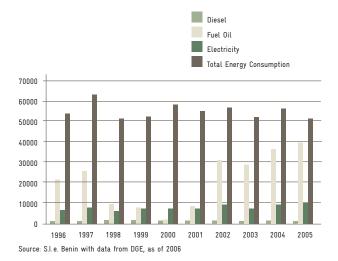


FIGURE 4
Energy Consumption of the Industry Sector



2.2 ENERGY CAPACITIES, PRODUCTION, CONSUMPTION AND PRICES

Electricity Sector

The electricity sector of Benin has a total production capacity of 97,484 MW; only 60 MW, however, are continuously available. The existing shortage in energy production capacity results in an insecurity of power supply (mainly caused by a lack of production capacities) and has forced industrial enterprises to set up stand-by power generators of their own. In 2007, the total power output of the National Power Utility was estimated at 180 GWh. The electricity sector of Benin is state-owned and managed by the Benin National Power Utility (SBEE), the exclusive owner of thermal power stations and the national electricity network. Figure 5 shows the national electricity production between 1996 and 2005; Figure 6 presents the electricity consumption by sector.

FIGURE 5
National Electricity Production (MWh)

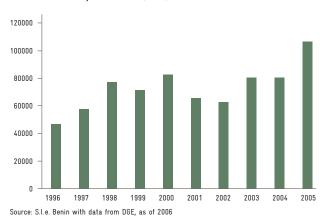
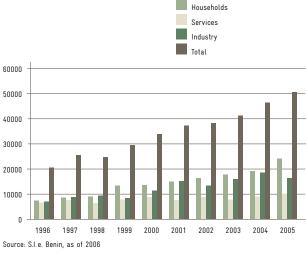


FIGURE 6
Electricity Consumption by Sector (MWh)





Since its foundation in 1973, SBEE has been changing electricity tariffs four times. The tariff structure, however, remained the same. The electricity tariffs are appointed by the Government and are standardized throughout Benin. The detailed electricity prices are summarised in table 3.

Petroleum Sector

Benin has no national oil refinery. Therefore, all petroleum products are imported to Benin via licensed (the national oil company Société Nationale de Commercialisation des Produits Pétroliers – SONACOP) and unlicensed (informal market) importers. As the majority of imports are carried out by unlicensed importers, the respective numbers need to be estimated. The overall amount of imported petroleum products reached 837,000 tons in 2005. Table 4 indicates figures of the national petroleum product consumption of 2005.

TABLE 3
Electricity Tariffs for Different Types of Use

TYPE OF USE	SOCIAL SLICE		SLICE 1		SLICE 2	
	Quantities invoiced	Price/kWh	Quantities invoiced	Price/kWh	Quantities invoiced	Price/kWh
Domestic use (light, air-condition etc.)	0-20 kWh	0,08536 €	21-250 kWh	0,12957 €	>251 kWh	0,14482 €
Professional use (shops, restaurants, hotels etc.)	total consumption	0,134.15 €	total consumption	0,134146 €	total consumption	0,13415 €

Source: SBEE, as of 2008

TABLE 4 National Petroleum Product Consumption in 2005 (tons)

FUEL-OIL	DIESEL	KEROSENE	GASOLINE	BUTANE
40,526	118,190	294,536	376,229	7,609

Source: S.I.e. Benin with data from DGE, as of 2006

TABLE 5
Prices of Petroleum Products

rinces of retroteum rioducts				
PRODUCT				
Gasoline	0.533 Euro/litre			
Kerosene	0.533 Euro/litre			
Diesel	0.572 Euro/litre			
LPG	0.640 Euro/kg			

Source: Ministry of Industry and Trade, as of February 2009

Benin is highly dependent on foreign imports of petroleum products. In 2005, these imports accounted for 2.2% of the country's GDP (about 33.54 million €). Benin has several crude oil reserves that are officially subdivided in 17 blocks. Seven blocks have already been granted to companies who are currently actively exploring existing resources. From 1982 to 1998, Benin has exploited a small offshore oil field. The cumulated production is an estimated 22 million barrels of crude oil. Potential reserves are assessed at more than 5 billion barrels of crude oil and more than 91 billion m³ of natural gas. Therefore, several multinational oil companies are investigating in the availability and sites of local reserves.

Benin's tax policy allows selling electricity and petroleum products at the same price all over the country. Prices are officially fixed by the Government and maintained by cooperating with licensed distributors. The current prices of petroleum products are indicated in table 5.

¹ LAW 027-2002/AN OF 9 OCTOBER 2002, REFERRING TO THE AUTHORIZATION OF BURKINA FASO'S ACCESSION TO THE KYOTOPROTOCOL (JOURNAL OFFICIEL NO.47 DU 21 OCTOBRE 2002)



Biomass Sector

The potential resources of wood energy were surveyed in 1999. The potential of wood energy includes contributions generated through National Reforestation Campaigns as well as allocations of the National Wood Resources Office. The objective of the dedicated firewood project is to increase the supply of wood energy on the market by enlarging plantations in the South of Benin. In this respect, the involvement of the National Wood Resources Office also contributes to the reduction of deforestation in the natural forests. Table 6 presents the current and future potential of traditional wood energy, while related prices (as of 2005) are indicated in table 7.

Besides traditional wood energy, a substantial potential of about 5 million tons is identified for agricultural residues. With regard to potential resources for biofuels, there are currently only few production capacities for ethanol. For example, Benin sugar plant "Sucrerie Complant du Bénin" (SUCOBE) produces ethanol at an output capacity of 40,000 tons of sugar and 4,200 m³ of ethanol per year. Furthermore, the YUEKEN Benin International plant has an output of 3,000 m³ of ethanol per year deriving from cassava. Due to the missing distribution infrastructure however, this amount is currently not used for energy or transport purposes.

Currently, Benin is characterized by the preponderance of traditional biomass energy. Future plans aim at modern biomass energy utilization like biogas, biofuels and various residues. In the following, a more detailed overview is presented.

Biogas

The utilization of biogas is currently only planned for the large-scale level. Pilot production units for biogas from animal residues are planned at former state-owned farms with financing from private investors. Several pilot electricity production units and three bigger production units (mainly using household residues) will be gradually implemented at 5 MW per time in 2011, 2018 and 2024.

Biofuels

Considering the assumed demand for diesel and the potential substitution with biodiesel, this development is expected to generate a market for the future. Various vegetable oils like pourghère oil, castor oil, palm oil, cotton, soy and peanut oil could be used for the production of biodiesel. In order to develop a market for biofuels, a regulatory, institutional and legal framework is needed to support the promotion and development of the sector.

In Benin there are few plants that can process vegetable oil to transport fuels. Two plants with a combined capacity of 210,000 tons are located in Bohicon. Furthermore, there is a palm oil plant in Hinvi. The capacities of these plants are not fully exploited yet (currently just about 30 % are being used).

A utilization of ethanol at an admixture rate of 15 % will create a market of about 33,000,000 liters per annum. Regulatory, institutional and legal provisions need to be implemented in order to support the creation of industrial ethanol plants in Benin. A recent survey identified a substantial potential of 46.5 million liters in 2011, 116 million liters in 2015 and 229 million liters in 2020. If the marketplace of the European Union is taken into account, these figures are even higher.

Wood and Agricultural Residues

In Benin, several wood processing plants produce waste and residues that could be used for energy production. The National Wood Resources Office (ONAB) plant in Bohicon, for example, creates about 14,000 m³ waste and residues per year. Currently, these materials are used by households for cooking. They could, however, also contribute to the production of electricity from biomass. With regard to agricultural residues, it is planned to install power production units (5 MW by 2010, 30 MW by 2020) in cotton production areas of Benin.

The cashew nut industry in Benin is growing fast (average growth of 40–50% per annum during the past 15 years)² and is currently the second largest source of agricultural exports (cotton being the most important). The cashew industry offers many attractive features, especially for the utilization of residues for energy production. Up to now, however, the actual processing is still a marginal activity in Benin, with some 97% of raw cashew being exported. Furthermore, promising by-products such as cashew apple and shells are not being exploited yet. Especially the development of the ethanol production from the apple of cashew nuts in the North Zou and Collines districts is a very promising opportunity for the future.

TABLE 7

Medium Price of Traditional Wood EnergyPrices of Petroleum Products

WOOD CHARCOAL

0.034 Euro/kg 0.533 Euro/litre

Source: LIFAD Survey, as of 2005

TABLE 6
Potential of Traditional Wood Energy

YEAR	1997	2002	2007	2012	2017	2022	2027
(tons/year)	6,719,469	6,554,064	6,392,754	6,235,436	6,082,012	5,932,386	5,786,462

Source: LIFAD Survey, as of 2005

2.3 MARKET ACTORS AND REGULATION STRUCTURES

Electricity Sector

The Ministry of Energy and Water (Ministère de l'Energie et l'Eau - MEE) is responsible for the overall electricity sector and all related policies in this field. Furthermore, it is in charge of managing the Hydro Power potential as well as all matters related to alternative energy sources in Benin. Besides the Ministry of Energy and Water, three main public operators are involved. The Communauté Electrique du Bénin (CEB) is the state-owned international electricity company of Benin and Togo. CEB is fully in charge of the production, distribution and import of electricity in both countries and is therefore jointly owned and managed by Benin and Togo. Furthermore, CEB is responsible for the development of the electricity infrastructure of both partner countries. The Benin National Power Utility (SBEE) is largely involved in the overall electricity distribution within the national territory of Benin. SBEE is also responsible for the development and upgrade of the interconnection of the North Togo/North Benin networks. The Benin Agency for Rural Electrification and Energy Control (ABERME) was founded in 2004 and is responsible for the implementation of policies in the field of rural electrification. ABERME aims to implement a wide spectrum of energy efficiency measurements in Benin.

Petroleum Sector

The MEE controls and supervises the petroleum sector of Benin. It is the major regulatory institution and decides all matters within this sector. Besides the Ministry of Energy and Water, several oil companies are involved in the petroleum sector of Benin. The national oil company SONACOP, together with several licensed companies such as TOTAL BE-NIN, TEXACO BENIN S. A. and ORYX BENIN S. A. is in charge of import and distribution activities in Benin. Furthermore, several unlicensed importers and distributors have created an informal market for petroleum products. Decree N° 95-139 of May 3rd 1995 relating to the means of importing and distributing oil products puts the accent on safety measures for the importing, storage and distribution of oil products and their derivatives. Only the State has authority over this activity. The authorities of Benin have just approved of the installation of private companies. Official distributors need a license issued by the Ministry of Industry and Trade (Ministère de l'Industrie et du Commerce - MIC) to conduct their business

Biomass Sector

The Ministry of Environment and Nature Protection is in charge of the management of forest resources and environment problems. The corresponding regulatory framework is currently being updated and improved in order to promote biofuels for local and national transport as well as renewable bioenergy in Benin. In reality, however, the biomass sector of Benin is basically governed by producers and traders of firewood and charcoals, the National Wood Resources Office (ONAB) and several wood processing and service companies. Furthermore, a number of NGOs are operating in Benin, especially in the field of reforestation and the rational use of the wood energy.

3 POLICY FRAMEWORK FOR RENEWABLE ENERGIES

3.1 POLICIES, STRATEGIES AND PROGRAMS FOR RE-NEWABLE ENERGY PROMOTION

The existing policies for renewable energy aim to promote and develop the utilization of available RE resources in order to satisfy the demand of energy in remote and rural areas. The objective is to increase the national electricity production and to promote a significant contribution of RE to the overall energy supply of Benin. Therefore, the promotion of locally available RE resources will help to establish an energy supply with broad self-sufficiency. In particular energy from biomass will play a significant role in this process.

The strategy for an improved efficiency of wood energy utilization includes the eased access to cost-effective cooking stoves as well as the substitution of traditional, for example fossil fuel based methods with alternative energy resources. This is to significantly reduce the dependence on wood energy and to create regulated energy markets in the rural areas of Benin. The objective is to diversify the energy mix in order to meet the demand in a more sustainable way. Therefore, it is necessary to establish an adequate institutional, legal and regulatory framework that supports the development and implementation of RE. Although already defined in various policy and strategy documents of Benin, the promising sector RE does not always receive adequate and sufficient attention.

3.2 REGULATIONS, INCENTIVES AND LEGISLATIVE FRAMEWORK CONDITIONS

In order to solve the problem of insufficient energy supply, several national initiatives have been started in Benin. This includes the PV electrification of 38 villages by the Beninese Agency of Rural Electrification with funds from the Islamic Development Bank and the national budget of Benin. Another initiative is the Energy Services Supply Project (PFSE) aiming to increase the access to modern and affordable energy services in urban and rural areas of Benin. Furthermore, the project is to reduce the deforestation, to promote renewable fuels and to diversify the overall energy supply of Benin. The project is financed by the International Development Association (IDA), the West African Development Bank (BOAD), the Nordic Development Fund (NDF), the Benin National Power Company (SBEE), the Benin Electric Community (CEB) and the Government of Benin.

Other initiatives are dealing with the implementation of new gas turbine power stations, the electrification of rural localities, the upgrading of existing Hydro Power plants, the implementation of PV installations and the utilization of modern biomass energy. With regard to increased energy efficiency and the diversification of the energy supply, several dedicated policies and strategies are currently under development. In order to reduce the utilization of small diesel generators, the Government is going to implement a project to interconnect urban and rural areas via the national power grid. This grid expansion includes one power line (161 kV) from Ouake to Bembereke and one (63 kV) from Djougou to Natitingou.

4 STATUS AND POTENTIAL FOR RENEWABLE ENERGIES

4.1 BIOMASS/BIOGAS

The utilization of traditional biomass contributes significantly to the overall energy mix of Benin. On top of that, a significant potential of sustainable biomass resources is available for heat and electricity production. This includes residues from agricultural products as well as waste from agro-industries, food processing and households. These residues are estimated to be sufficient to produce about 1,500 GWh of electricity. In urban areas of Benin, substantial amounts of household refuse could be used for energy production. According to studies of the city of Cotonou, more than 700 tons of refuse would be available every day. The waste and residues from wood processing plants is identified as another potential source for electricity generation. Another significant potential lies in the cashew nut industry. Up to now, however, the actual processing is still a marginal activity in Benin. Especially energy relevant byproducts such as cashew apple and shells are not utilized yet.

4.2 SOLAR ENERGY

The solar energy potential of Benin varies between 3.9 kWh/m² and 6.2 kWh/m², depending on the location. Table 8 presents selected PV installations in Benin.

TABLE 8
PV Installations in Benin

TYPE OF INSTALLATION/FUNDING SCHEME	NUMBER OF INSTALLATIONS	CAPACITY
PV units at villages, funded by Government	14	56 kW
PV units at villages, funded by Govern- ment&Islamic Development Bank	24	182 kW
PV unit at public health centres	n.a.	50 kW
Domestic use	n.a.	10 kW
Solar system for telecommunication	50	150 kW

Source: DGE and ABERME, as of 2002

4.3 WIND POWER

According to the available data of the National Meteorological Office, the wind speed varies between 3 and 6 m/s. More detailed information is not available; therefore it is not possible to give a complete overview of the existing potential.

4.4 HYDRO POWER

Benin has a significant potential of Hydro Power that can be used for electricity production. A recent survey shows that the potential of the Oueme River is sufficient to install twenty sites with a total capacity of 760 MW and an annual output of more than 280 GWh. Moreover, approximately 80 other sites are equipped with small-scale hydro power installations for rural electrification.

5 MARKET RISKS AND BARRIERS

In spite of already implemented mechanisms that support the investment in the energy sector, there are still some major obstacles to be found in this sector. It is, for example, difficult to register for a purchase agreement as potential investors have to discuss their application with two state monopolists (CEB for the production and the SBEE for the distribution of energy).

There are also some risks in legal aspects. These are, however, not a major constraint for investment in this field. Outdated technology, the lack of technical knowledge and inadequate finance are major barriers in the implementation of RE in Benin. Also, no incentive measures like exemption from taxes or other benefits are available for potential investors.

The high costs of RE equipment on the one hand and the low level prices for conventional energy on the other hand are not encouraging potential investors at all. Benin has several local experts in the field of RE mostly in technical departments, universities and research centers. There is, however, a need for technical cooperation in the energy sector.

The Government of Benin set up an Investment Facilitation Department in order to support cooperation and investment of the private sector and foreign investors. The Investment Promotion Center was established in order to assist investors in the setting-up of business, the identification of local partners and the correspondence with institutions. The Formalities Center of the Enterprises (CFE) supports investors during the foundation of an enterprise. Furthermore, several other departments are engaged to support the promotion of investment in the energy sector. Benin is implementing structural and economical reforms in order to promote private investment. Table 9 presents the results of the World Bank Ease of Doing Business Survey 2008 for Benin.

TABLE 9
"Ease of Doing Business"-Benin 2008 Ranking

	-
TOPIC	
Ease of doing business	157
Starting a business	142
Dealing with construction permits	123
Employing workers	117
Registering property	120
Getting credits	141
Protecting investors	148
Paying taxes	162
Trading across borders	130
Enabling contracts	174
Closing a business	109

Source: "Ease of Doing Business", World Bank, as of 2008



6 RENEWABLE ENERGY BUSINESS INFORMATION AND CONTACTS

TABLE 10 List of Selected Business Partners

List of Selected Dustriess Partitiers					
INSTITUTION	CITY	FIELD OF ACTIVITY	CONTACT		
Electric Community of Benin (CEB)	Lome, Togo	Production, distribution and import of electricity	BP 1368, Lome, Togo Phone: +228 2215795		
La Société Béninoise d'Energie Electrique (SBEE)	Cotonou	Import and distribution of electricity	01 BP 123, Cotonou Phone: +229 21312145		
Société Nationale de Commercialisation des Produits Pétroliers (SONACOP)	Cotonou	Import, storage and distribution of petroleum products	01.BP 245, Cotonou Avenue Jean-Paul II Phone: +229 21311347		
Society Oryx Benin	Cotonou	Import, storage and distribution of petroleum products	Cotonou Phone: +229 21306547		
Society TOTAL	Cotonou	Import and distribution of petroleum products	08 BP 701, Cotonou Avenue Jean-Paul II		
ENERDAS	Cotonou	Distribution and installation of solar systems and solar equipment	02 BP 8155, Cotonou Phone: +229 21301490		
MIERT	Cotonou	Distribution and installation of solar systems and solar equipment	07 BP 1244, Cotonou Phone: +229 21325010		
SOLARISS	Cotonou	Distribution and installation of solar systems and solar equipment	05-BP 24522, Cotonou Lot 4053 J Sodjeatinmè		
Sucrerie Complant du Bénin (SUCOBE)- Benin sugar plant	Cotonou	Sugar and ethanol producer	BP 6, Cotonou Phone: +229 21305537		
Yueken International Benin	Cotonou	Producer of ethanol from cassava roots	071 BP 75, Cotonou Lot 1436 Phone: +229 21384606		
Investments Promotion Center (IPC)	Cotonou	Promotion and development of foreign investments in Benin	01 BP 2022, Cotonou Phone: +229 21303062 www.cpibenin.com		
Formalities Center of the Enterprises Chambre de Commerce et d'Industrie du Benin	Cotonou	Business creation and modification	01 BP 31, Cotonou Phone: +229 21314386 www.ccibenin.org		

TABLE 11 List of Selected Ministries of Benin

MINISTRY	ADDRESS	CONTACT PERSON
Ministry of Energy and Water	Av. Jean Paul VI 01 BP363 Cotonou Phone: +229 312429	Assogba Daniel
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8 ANNEX

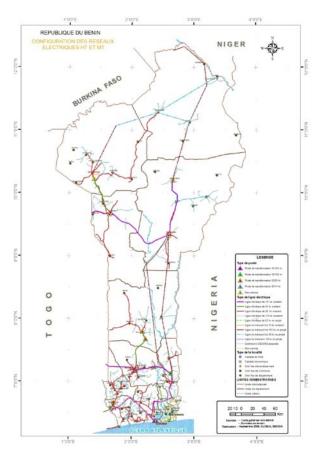
TABLE 12

Quantity of Residues and Potential Electricity Production

CROPS	AVAILABLE RESIDUES (TONS)	POTENTIAL (GWH/YEAR)
Local maize	2,453,952	1,962.6
Improved maize	742,233	593.6
Sorghum	518,429	407.1
Small millet	92,044	72,3
Rice	80,872	68.2
Cotton	1,378,619	1,577.7

Source: S.I.e. Benin with data from DGE, as of 2006

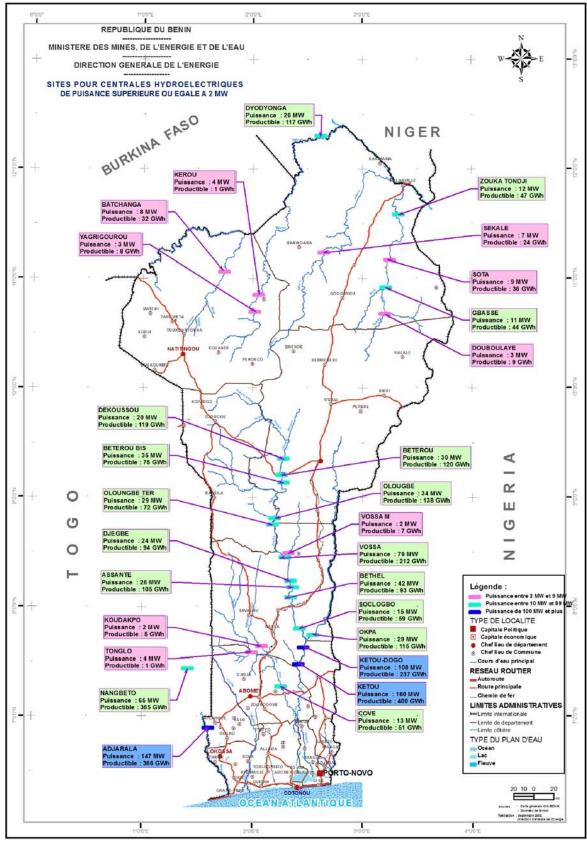
FIGURE 7 High and Medium Voltage Electricity Grid in Benin



Source: Data compiled by the author, as of 2008



FIGURE 8
Potential Hydro Power Sites in Benin



Source: DGE, as of 2008