# COUNTRY CHAPTER: BURKINA FASO


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# ACRONYMS AND ABBREVIATIONS

## BURKINA FASO

| | |
|---|---|
| ADDAX | Name of supplier based in Geneva |
| AIJ | Activities Implemented Jointly |
| APEES | Association Pour la Promotion de l'Exploitation de l'Énergie Solaire (Association for the Promotion and Use of Solar Energy) |
| BMZ | Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development) |
| CCA | Centres de Communication et d'Activités (Centers of Communication and Activities) |
| CET | Common External Tariff |
| CFAF | CFA Franc |
| CIF | Cost, Insurance and Freight price for import/export of petroleum products |
| CIFAME | Commission Intersectorielle de Facilitation de l'Approche Multisectorielle dans le Domaine de l'Énergie (Interdepartmental Committee for Multisector Approach Facilitation in the Sector of Energy) |
| CILSS | Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel (Interstate Committee for Desertification Control) |
| DDO | Direct De-oxygenation (Fuels for Electricity Generation) |
| DMN | Direction de la Météorologie Nationale (National Direction of Meteorology) |
| ERD | Electrification Rurale Décentralisée (Decentralized Rural Electrification) |
| FDE | Fonds Développement de l'Électrification (Electrification Development Fund) |
| GDP | Gross Domestic Product |
| GTZ | Deutsche Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation Agency) |
| IRSAT | Institut de Recherches en Sciences Appliquées et Technologies (Research Institute of Applied Sciences and Technology) |
| LBN | Libre Blanc National (National White Book Investment Plan) |
| MEPRED | Mainstreaming Energy for Poverty Reduction and Economic Development Project |
| n.a. | not applicable |
| PNGT | Programme Nationale de Gestion des Terroirs (National Community Land Management Program) |
| PRS | Programme Régional Solaire (Regional Solar Energy Program) |
| PV | Photovoltaic |
| RE | Renewable Energies |
| RPTES | Regional Program for the Traditional Energy Sector |
| SIR | Société Ivoirienne de Raffinage (name of Ivorian Refinery Company) |
| SME/SMI | Small and Medium Sized Enterprises/Small and Medium Sized Industries |
| SSD | Sociétés de Services Décentralisées (Societies of Decentralized Services, e.g. CCA of Gomboro, Bognounou & Bokin) |
| TPA | Taxe Patronale et d'Apprentissage (Employers' and Learning Tax) |
| VAT | Value Added Tax |
| WAEMU | West African Economic and Monetary Union |
| XOF | West African CFA Franc (as opposed to XAF = Central African CFA Franc) |

# MEASUREMENTS

| | |
|---|---|
| GWh | gigawatt hour (1 GWh = 1,000,000 kilowatt hours (kWh)) |
| m² | square meter |
| MW | megawatt (1 MW = 1,000 kW) |
| MVA | megavolt-ampere |
| Wp | Watt-peak (1 kWp = 1,000 Wp) |

# SUMMARY

The Country Study of Burkina Faso 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 Burkina Faso. The study is structured as follows:

Chapter one provides **Background Information on Burkina Faso**. 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 Burkina Faso.

Chapter two summarizes facts and figures of **Burkina Faso'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 Burkina Faso. 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 Burkina Faso.

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 Burkina Faso.

MAP OF BURKINA FASO

# 1 COUNTRY INTRODUCTION

## 1.1 GEOGRAPHY AND CLIMATIC CONDITIONS

Burkina Faso is a landlocked country surrounded by Mali in the North, Niger in the East, Benin in the Southeast, Togo and Ghana in the South, and Côte d'Ivoire in the Southwest. The country's territory comprises 274,000 km² with an estimated population of about 13,200,000. The capital of Burkina Faso is Ouagadougou.

Burkina Faso has a primarily tropical climate with two seasons. The dry season lasts from eight months in the North to five or six months in the South, followed by the rainy season with up to 1300 millimeters of rainfall per annum. There are three climatic areas in Burkina Faso: the Sudanian zone with extensive rainfalls during the rainy season, the Sudano-Sahelian zone, located in the centre, and the Sahelian zone with a very short and moderate rainy season. The climatic situation of Burkina Faso includes long dry periods and therefore causes serious problems in view of sufficient water supply.

## 1.2 POLITICAL, ECONOMIC AND SOCIO-ECONOMIC CONDITIONS

Burkina Faso's constitution of 2 June 1991 established a semi-presidential government with a parliament. The presence of this new political stability allowed the country to set up various institutions that are now fully capable of acting. During the last decade the democratic process was being consolidated significantly. With approximately 13,340,000 inhabitants from of about sixty ethnic groups, Burkina Faso is one of the most populated countries of West Africa. Approximately 82.6 % of the overall population lives in rural areas. Burkina Faso is one of the poorest countries in the world with more than 40 % of the population still living below the poverty line. The annual per capita income is less than 1,000 Euro. Since the 1990s, Burkina Faso has been starting a series of economic reforms with the support of the World Bank and the International Monetary Fund in order to streamline the economy, stimulate economic growth and to reduce poverty.

# 2 ENERGY MARKET IN BURKINA FASO

## 2.1 OVERVIEW OF THE ENERGY SITUATION

Besides the utilization of Hydro Power, the electricity production of Burkina Faso mainly relies on diesel generators. Due to high production costs, fluctuating oil prices and a steadily increasing demand for electricity, Burkina Faso has started to import electricity from its neighbors Ghana and Côte d'Ivoire. Currently, only 10 % of the country are connected and have access to electricity. Due to the lack of fossil fuel resources, the country is completely dependent on fuel imports. In rural areas of Burkina Faso, energy requirements are almost completely met by the utilization of traditional biomass.

## 2.2 ENERGY CAPACITIES, PRODUCTION, CONSUMPTION AND PRICES

### Electricity Sector

The electricity consumption of Burkina Faso is met by local production and imports from Ghana and Côte d'Ivoire. The monopolist SONABEL is fully responsible for the production, import and distribution of electricity in Burkina Faso. Table 1 shows characteristic data of the country's electricity sector.

**TABLE 1**

Characteristic Data of the Electricity Sector (2004–2007)

| YEAR | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|
| Electricity imported (kWh) | 96,183,557 | 125,337,589 | 139,323,910 | 123,910,359 |
| Thermal production (kWh) | 371,789,678 | 415,751,943 | 467,728,921 | 501,295,228 |
| Hydro production (kWh) | 101,458,980 | 100,472,905 | 80,668,451 | 111,416,699 |
| Average cost per kWh (XOF) | 113.19 | 117.89 | 121.21 | 129.62 |
| Average cost per kWh (EURO) | 0.17234632 | 0.17950268 | 0.18455781 | 0.19736311 |
| Number of thermal plants | 30 | 30 | 29 | 28 |
| Number of hydro plants | 4 | 4 | 4 | 4 |
| Thermal power installed (MVA) | 181 | 204 | 223 | 217 |
| Hydro power installed (MW) | 32 | 32 | 32 | 32 |

Source: SONABEL, as of November 2008

As indicated above, the electricity supply of Burkina Faso is still in the process of development. Especially the interconnection of rural areas is an important issue. Within the framework of the Electrification Development Fund (FDE), several villages have now got access to electricity, either via regular connection to the grid of SONABEL or decentralized diesel generators. Regarding this, the challenge is to provide rural areas with reliable and cost effective electricity.

The electricity tariffs in Burkina Faso vary according to the level of consumption and the type of utilization. Table 2 provides an overview of past (up to June 2005) and present electricity prices, tariff structures and consumption levels.

TABLE 2

Electricity Tariffs Provided by SONABEL

| TARIFF STRUCTURE | CONSUMPTION LEVEL (kWh) | ENERGY CHARGE (XOF) | 1 EURO = 656.759 XOF |
|---|---|---|---|
| | | Sept. 2004 until June 2005 | July 2006 until now |
| Tariff 1 | Domestic | | |
| Tariff A | 0–50 | 73 | 75 |
| | 51–00 | 120 | 128 |
| | Above 100 | 125 | 138 |
| | Min. charge | 1,132 | 1,132 |
| Tariff B | 0–50 | 86 | 96 |
| | 51–200 | 90 | 102 |
| | Above 200 | 95 | 109 |
| | Min. charge | 381–637 (dep. on amperage) | 457–764 (dep. on amperage) |
| Tariff 2 | Domestic and locomotive tasks | | |
| Tariff C | 0–50 | 86 | 96 |
| | 51–200 | 95 | 108 |
| | Above 200 | 100 | 114 |
| | Min. charge | 1,022–1,144 (dep. on amperage) | 1,226–1,373 (dep. on amperage) |
| Tariff 3 | Non-domestic (low voltage) | | |
| Tariff D1 (non-industrial) | Peak Hour | 143 | 165 |
| | Full Hour | 77 | 88 |
| | Min. charge | 7,115 | 8,538 |
| Tariff D2 (Industrial) | Peak Hour | 110 | 140 |
| | Full Hour | 51 | 75 |
| | Min. charge | 5,929 | 7,115 |
| Tariff 4 | Non-domestic (average voltage) | | |
| Tariff E1 (non-industrial) | Peak Hour | 121 | 139 |
| | Full Hour | 56 | 64 |
| | Min. charge | 7,115 | 8,538 |
| Tariff E2 (industrial) | Peak Hour | 110 | 118 |
| | Full Hour | 51 | 54 |
| | Min. charge | 5,929 | 7,115 |
| Tariff 5 | Street lighting | | |
| Tariff F | Unique tariff | 120 | 122 |
| | Min. charge | n.a. | n.a. |
| One phase | 5 A to 15 A | 0 | 381 |
| | Above 20 A | 0 | 637 |
| Three phase | 10 A to 15 A | 0 | 1,022 |
| | Above 20 A | 0 | 1,144 |

Source: SONABEL, as of November 2008

### Petroleum Sector

The state-owned company SONABHY has supply contracts with the Ivorian Refinery Company (SIR) and ADDAX, a supplier based in Geneva. Furthermore, petroleum products are bought at international spot markets and imported through the Port of Lomé. Additional imports come from the Tema refinery in Ghana. SONABHY has two depots in Burkina Faso, one in Bingo (Ouagadougou) and the other in Bobo Dioulasso. The price structure of petroleum products is fully regulated by the Ministry of Trade. Fuels for electricity generation (DDO) as well as for cooking purposes are subsidized. For all other purposes, petroleum products are regularly taxed.

## 2.3 MARKET ACTORS AND REGULATION STRUCTURES

For the planning and regulation of the energy sector, various ministries are involved in Burkina Faso. The legal and regulatory framework of the energy sector is managed by the Ministry of Energy in close cooperation with the ministries in charge of trade, finance and environment. Moreover, the sectors of education, health, agriculture and hydraulics, also being related to the energy sector, are involved through the corresponding ministries in charge.

### Electricity Sector

In November 2007, the Parliament adopted law N° 027/AN[1] in order to regulate the general electric energy supply of Burkina Faso. This law is to enhance the qualitative and quantitative security of energy supply. It also aims at the reduction of the overall electricity costs by liberalizing the production and distribution of electricity within Burkina Faso because currently the electricity sector is dominated by the monopolist SONABEL. In the overall reorganization of the electricity sector, several authorities are involved:

- The Ministry of Energy (responsible for energy policy, general control and planning)
- The Ministry of Trade (responsible for the fixation of the electricity price)
- Independent control authorities for electricity price fixation and consumer protection
- Authorities issuing regulations to support the overall price setting process
- Authorities providing fund management for the development of rural electrification

### Petroleum Sector

The supply of petroleum products is fully organized and controlled by SONABHY, a state-owned company. The Ministry of Trade supervises SONABHY with regard to import and trade issues, while the Ministry of Finance coordinates and controls all financial matters. The Burkina Bureau of Mines and Geology is in charge of the quality control for retailed petroleum products. The overall tasks of SONABHY can be summarized as follows:

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

- Import, storage, conditioning and marketing of petroleum products and gas
- Construction of storage infrastructures to guarantee sufficient distribution
- Support of research activities for alternative energy resources and energy conservation

### Biomass Sector

The biomass sector of Burkina Faso is mainly administrated by the Ministry of Environment that focuses on the sustainable production of firewood and charcoal. The Ministry of Trade regulates the transport of these commodities as well as related tax issues. The Ministry of Energy plans and regulates the firewood and charcoal demand in urban areas of Burkina Faso.

## 3 POLICY FRAMEWORK FOR RENEWABLE ENERGIES

### 3.1 POLICIES, STRATEGIES AND PROGRAMS FOR RENEWABLE ENERGY PROMOTION

Despite the considerable potential of RE resources in Burkina Faso, up to now, there are no policies or strategic directions for the utilization of RE. However, a guiding principle for PV was expressly outlined in a program to supply basic energy services. Adopted in 2007, the Strategy for Rural Electrification strongly supports solar energy for the electrification of rural areas currently lacking connection to the SONABEL grid. The implementation of PV projects supports the promotion of solar energy and could help to achieve a supportive policy framework for RE in Burkina Faso. A list of selected projects and programs can be found in Chapter 8 (Annex). Table 3 provides an overview of already existing support mechanisms for PV.

### 3.2 REGULATIONS, INCENTIVES AND LEGISLATIVE FRAMEWORK CONDITIONS

The new regional policy supporting the access to energy services for rural areas of Burkina Faso, known as the Regional White Paper, was approved of and adopted on 12 January 2006 by the ECOWAS Authority of Heads of States. The regional policy aims at an effective contribution of energy to achieve the Millennium Development Goals (MDG) and to reduce poverty. In order to reach this goal, all members of ECOWAS need to develop appropriate policies for energy services.

Recently, a national multiple stakeholder group, the Interdepartmental Commission of Multisector Approach Facilitation in the Sector of Energy (CIFAME) was formed by the Ministry of Mines and Energy by ministerial decree 06–21/MCE/SG/DGE[2] of 5 May 2006. After several meetings, the commission drafted the National White Paper (LBN) focusing on the provision of modern energy services to the entire population of Burkina Faso by the year 2020. Therefore, renewable energy is considered to be a major contributor to this ambitious goal.

**TABLE 3**

Existing Support Mechanisms for PV Solar Energy

| TYPE | PROJECTS |
|---|---|
| Beneficiary | – ERD Ganzourgou PV component, subsidies 40 % to 45 %<br>– PV FONDEM/Kouritenga Appropriations, subsidizes 35 % to 45 % |
| Management committee | – National Community Land Management Program II (PNGT II)415.751.943<br>– Burkina Faso Plan<br>– Activities Implemented Jointly (AIJ)/Regional Program for the Traditional Energy Sector (RPTES)<br>– Spanish project<br>– Regional Solar Energy Program I (PRS I), subsidizes 100 % of equipment costs |
| Users Association | – Kouritenga Energy services, subsidizes 90 % of equipment costs |
| Group or co-operative society | – COOPEL Electric systems, subsidizes 60 % of equipment costs |
| Private promoter | – Societies of Decentralized Services (SSD) ex. CCA of Gomboro, Bognounou & Bokin, subsidizes 100 % of equipment costs |

Source: Césaire SOME, Modes of Funding Basic Energy Services for Burkina Faso, MEPRED, as of 2008

## 4 STATUS AND POTENTIAL FOR RENEWABLE ENERGIES

### 4.1 BIOMASS/BIOGAS

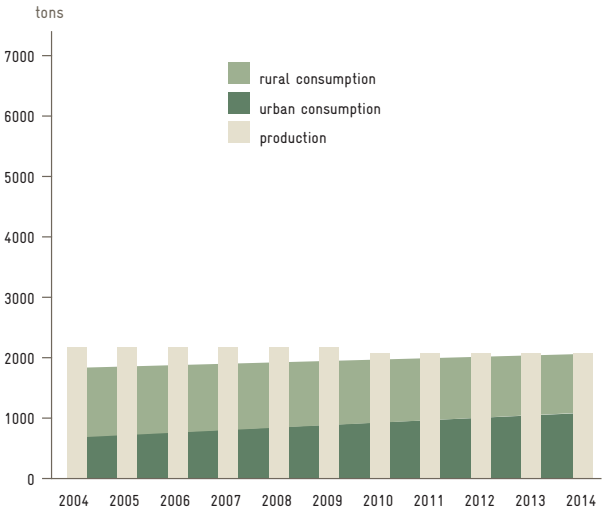
In many provinces of Burkina Faso, especially in the Sudano-Sahelian and Sudanian Zone, sufficient biomass resources are available.[3] Particularly the forest areas of the East, the West and Southwest are offering substantial biomass resources. An analysis of the correlation between rural/Urban consumption and production is shown in Figure 2 and Figure 3.

Within the framework of the "Biogas for Better Life" initiative, a feasibility study was carried out by GTZ in 20074 in order to identify the potential for biogas installations. The study envisages the installation of 15,000 biogas production units at farms and another 20,000 units in semi-urban households.5 The costs of such biogas installations vary between CFAF 450,000 and CFAF 650,000, depending on size and location. Moreover, it is foreseen to implement 2,000 biogas production facilities for agro-business SME/SMIs by 2015. A total of 25,000 units are to be realized by 2015 and more than 100,000 units by 2030. Table 4 presents the number of the projected biogas installations in Burkina Faso.

2 CIFAME, AS OF 2009
3 SEE ALSO COMPETE, 2008
4 GTZ, 2007
5 EXISTING INSTALLATIONS ARE BASED ON MULTIPLE TECHNOLOGIES (FLOATING DRUM, PLUG FLOW, FIXED DOME, BATCH, SEMI-BATCH). SEE ALSO GTZ, 2007, P. 43

FIGURE 2

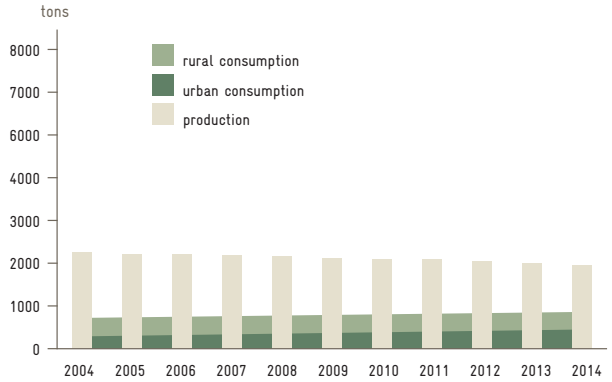
Rural/Urban Consumption and Production: Sudano-Sahelian Zone




Source: The Second Phase of National Plan of Electrification, as of 2006

FIGURE 3

Rural/Urban Consumption and Production: Sudanian Zone




Source: The Second Phase of National Plan of Electrification, as of 2006

TABLE 4

Projected Biogas Producing Units (2008–2030)

| YEAR | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2030 |
|---|---|---|---|---|---|---|---|---|---|
| Phases | Pilot Phase | | Implementation Phase | | | | | | |
| Stages | 0 | I | II | III | IV | V | VI | Midterm | Long term |
| Demonstration | 50 | 50 | | | | | | | |
| Rural households | 0 | 250 | 1000 | 2500 | 3000 | 3500 | 3750 | 14000 | 90267 |
| Peri-urban households | | 100 | 400 | 1000 | 1500 | 3000 | 4000 | 10000 | 20000 |
| Agro-business | | 100 | 120 | 160 | 170 | 200 | 250 | 1000 | 1343 |
| Total | 50 | 500 | 1520 | 3660 | 4670 | 6700 | 8000 | 25000 | 111610 |

Source: GTZ, as of July 2007

TABLE 5

Solar PV Installation Situation in 1998 and in 2002

| YEAR | 1998 | | 2002 | |
|---|---|---|---|---|
| Energy Services | Capacity (Wp) | Part (%) | Capacity (Wp) | Part (%) |
| Water pumping | 209 | 19 | 205.20 | 15 |
| Telecommunication | 220 | 20 | 218.88 | 16 |
| Lighting | 671 | 61 | 0 | 0 |
| Video and television | 0 | 0 | 41.04 | 3 |
| Lighting and refrigeration | 0 | 0 | 902.88 | 66 |
| Total | 1,100 | 100 | 1,368 | 100 |

Source: Energy Services Financing, National White Paper, MEPRED, as of May 2008

### 4.2 SOLAR ENERGY

Burkina Faso has strong potential in the field of solar energy. According to a study of the Research Institute of Applied Sciences and Technology (IRSAT) and the Direction of National Meteorology (DMN), the average potential is estimated at 5,5 kWh/m²/day for 3,000 to 3,500 hours per annum. Currently, PV solar systems are used for refrigeration, water pumping, communication, lighting, video and television. Table 5 provides an overview of capacities installed in 1998 and 2002.

### 4.3 WIND POWER

Due to the western location of Burkina Faso, the potential for wind power is very limited. The average wind speed ranges between 1 and 3 meters per second, while the maximum only to be obtained in the North of the country. Therefore, a large-scale utilization of wind energy is not advisable. However, small-scale generators at suitable sites and for selective purposes (e. g. water pumping, desalination systems etc.) might be reasonable.

### 4.4 HYDRO POWER

A survey of hydroelectric sites was done within the EDF-SONABEL – Centre National d'Equipement Hydraulique (National Centre of Hydraulic Equipment) study. The study covers large-scale hydroelectric sites as well as small-scale installations. The capacity ranges between 65 and 550 kW with 5 to 15 GWh/year and 550 to 1,700 kW with at least 5 GWh/year. The study shows that the Hydro Power potential of rural areas is sufficient for a decentralized electricity production. The study identifies some sites where the estimated production cost ranges between CFAF 100 and 175 per kWh, several other sites with estimated costs of at least CFAF 200 per kWh. The current hydroelectricity utilization covers about 20 % of the national electric consumption (incl. imports from Ghana and Côte d'Ivoire).

**TABLE 6**

Distribution of the Mini/Micro Hydro Sites in Burkina Faso

| LOCATION | CAPACITY (MW) |
|---|---|
| Center, South | 2.5 |
| Boucle du Mouhoun | 2.5 |
| Southwest | 5 |
| Center, East | 1.2 |
| Center, West | 6.25 |
| East | 7.5 |
| Cascades | 5 |
| Sahel | 3.125 |
| Hauts Bassins | 3.125 |

Source: Inventory of Burkina Faso Hydroelectric Sites, EDF-SONABEL-CNEH, as of March 1999

## 5 MARKET RISKS AND BARRIERS

Regarding market risks and barriers, there are several issues to be considered in Burkina Faso. Besides corruption, the lack of local expertise and outdated technical equipment, high costs for research and development as well as mostly capital intensive technologies[6] are substantial barriers for the broad implementation of RE. Due to the lack of financial resources, many companies in Burkina Faso need to operate with supplier credits or documentary credits. National financial institutes hardly contribute to the financing of projects aiming at the provision of energy services for rural areas. As to the access of rural population to basic energy services, only people banks – "Caisses Populaires" – offer very limited credits to facilitate the acquisition of PV kits. As other financial institutions charge high interest rates, such credits are not suitable to finance PV equipment. Even though there are microfinance institutions in Burkina Faso – which in general provide more adequate financial support services to low income groups and also SMEs – their credits are only granted for short term periods limited to a maximum of three years.

According to the World Bank's Ease of Doing Business report of 2008, Burkina Faso moved from position 164 in June 2007 to 148 in 2008. The country is one of the ten world leaders in regulatory reforms aiming to facilitate business activities. Burkina Faso, for example, reduced the corporate tax rate from 35 to 30 percent and the dividend tax from 15 to 12.5 percent. Table 7 provides an overview of the country specific rating.

In terms of tax incentives, the import of energy equipment is subject to the WAEMU common external tariff (CET). The country's value added tax (VAT) rate is currently 18 % while the employers and training tax (TPA) is 4 % (8 % for foreigners).

**TABLE 7**

Burkina Faso – Ease of Doing Business 2008 Rankings

| SELECTED INDICATOR | RANKING |
|---|---|
| Ease of doing business | 148 |
| Starting a business | 113 |
| Dealing with construction permits | 106 |
| Employing workers | 57 |
| Registering property | 148 |
| Getting credit | 145 |
| Protecting investors | 142 |
| Paying taxes | 132 |
| Trading across borders | 173 |
| Enforcing contracts | 110 |
| Closing a business | 110 |

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

6 SMALLER AND SMALLEST APPLICATIONS ARE LESS COST-INTENSIVE IN SOME RESPECTS. OFTEN INITIAL INVESTMENTS, HOWEVER, ARE STILL HIGH FOR THE CORRESPONDING USER GROUPS SUCH AS LOW-INCOME PRIVATE CLIENTS OR SMES.

# 6 RENEWABLE ENERGY BUSINESS INFORMATION AND CONTACTS

**TABLE 8**

RE Companies and Stakeholders in Burkina Faso

| ORGANIZATION | FIELD OF ACTIVITY | LOCATION/CONTACT |
|---|---|---|
| CB Energie | Supply, installation and maintenance of solar systems | Dédougou<br>Phone: +226 20 52 10<br>cbenergie@yahoo.fr<br>www.cb-energie.com |
| MICROSOW | Supply & maintenance of solar systems, solar cookers, charging units for cell phones | Somgandé<br>Phone: +226 5035 63 22<br>info@microsow.com<br>www.microsow.com |
| SOLTECH | Supply and installation of solar energy and electricity equipment, energetic audit and training | Ouagadougou<br>Phone:+226 50 34 23 02<br>Email: nasol@fasonet.bf |
| OMA-SENISOT SA | Solar energy installation, installation of electricity | Ouagadougou<br>Phone: +226 50 31 42 69<br>oma.senisot@fasonet.bf |
| Sahel Énergie Solaire | Solar pumps and community systems within the Regional Solar Energy Program, electrification of 150 departmental administration centers | Ouagadougou<br>Phone: +226 50 30 69 73<br>energie.solaire@fasonet.bf |
| K&K International | Solar lighting, solar pumps and refrigerators | Ouagadougou<br>Phone: +226 50 31 17 68<br>joachim@voila.fr |
| INTELFAC | Solar water heating systems, PV systems in health facilities and households | Ouagadougou<br>Phone: +226 50 36 37 88<br>progi@fasonet.bf |
| ATESTA | Installation of solar systems at social housings | Ouagadougou<br>Phone: +226 50 36 35 79<br>atesta@fasonet.bf |
| TLE NAFA | Supply and installation of solar cookers | Bobo-Dioulasso<br>Phone: +226 20 98 11 69<br>sanoukaridia2002@yahoo.fr |
| Association for the Promotion and Use of Solar Energy (APEES) | Oil and solar energy cookers, installation of solar energy collectors and solar water heating systems | Bobo-Dioulasso<br>apees.bobo@fasonet.bf |
| Institute of Applied Research in Sciences and Technologies (IRSAT) | Production, installation and control of photovoltaic systems | Phone: +226 50 35 70 31<br>wereme@yahoo.fr |

Source: data compiled by the author

Currently, there are several ongoing investment initiatives and projects in the field of RE such as the Regional Solar Energy Program Phase II (funded by the European Union), the Regional Biomass Energy Program (funded by a Dutch cooperation through WAEMU) and the National White Paper Investment Plan. Concerning transregional banking institutions, the ECOWAS Community Investment and Development Bank (BIDC) raises funds dedicated to the development of RE in ECOWAS member states. Table 9 provides an overview of ongoing RE investments in Burkina Faso.

**TABLE 9**

Donor Aid Investments in Renewable Energies by Stakeholders

| STAKEHOLDER | SOURCE OF TARGETED RENEWABLE ENERGY |
|---|---|
| World Bank | Photovoltaic and solar thermal energy (dryers, water heaters), biofuels, sustainable wood energy, fuel efficient stoves |
| Dutch cooperation | Biogas, modern valorization of traditional biomass |
| NGOs, Associations | Photovoltaic and solar thermal energy (dryers, cookers), Jatropha Curcas |
| Private promoter | Photovoltaic and solar thermal energy (dryers, cookers), Jatropha Curcas |
| BMZ via GTZ | Fuel efficient stoves |
| Danish cooperation | Sustainable forestry, sustainable wood energy |
| Luxembourg cooperation | Sustainable forestry, sustainable wood energy |
| Japanese cooperation | Sustainable forestry, sustainable wood energy |
| European Union | Institutional cooperation in the field of sustainable forestry |
| Canadian Development Agency | Training program in the field of solar energy, cooperation with the University of Ouagadougou |

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

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# 8 ANNEX

## LIST OF SELECTED PROJECTS AND PROGRAMS (ALREADY IMPLEMENTED)

**1. The Regional Solar Energy Program (PRS)** is a region-wide project implemented by the Standing Interstate Committee on Desertification Control (CILSS) in the years 1990–1998. The program aimed to set up:

- Photovoltaic equipment for water pumping (800 Wp to 3.6 kWp)
- Photovoltaic equipment for electricity generation (120 Wp) at schools and community centers
- Photovoltaic standard lamps for street lighting
- Electrical equipment (refrigerators, color TVs, radio cassette players, etc.)

Project Costs:
- Installed systems: 3,412,000,000 XOF
- Supportive actions: 28,180,000 XOF
- Total cost of PRS I: 3,440,180,000 XOF

Funding Scheme:
- European Union funding the total costs
- Governmental fund raising with taxes, serving to finance maintenance costs

**2. The „Spanish" Project** is a project supporting PV installations. It was implemented in the years 1998–2000. The project is laid out to provide:

- Photovoltaic equipment for electricity generation (120 Wp) at schools and community centers
- Photovoltaic powered street lighting

Project Costs and Funding:
- 5,950,000,000 XOF subsidized by the government of Spain

**3. A Joint Project within the Regional Program for Traditional Energy Sector** supplied photovoltaic equipment for 6 villages and was implemented in the years 1998–2004. The installed equipment included:

- Photovoltaic equipment for electricity generation at schools and community centers
- Photovoltaic lamps for street lighting
- Total installation of 9.45 kWp

Project Costs and Funding:
- 500,000,000 XOF, funded by Norway under the administration of the World Bank

**4. The National Community Land Management Program (PNGT)** running from 2002–2005 focused on the implementation of PV equipment in schools, literacy centers, hospitals etc. The overall achievements included 262 PV installations:

- 27 installations at schools (lighting purposes)
- 76 installations at literacy (lighting purposes)
- 125 installations at hospitals and health care centers (lighting purposes)
- 3 installations at hospitals and health care centers (refrigeration purposes)
- 4 water pumping installations
- 27 individual installations of PV kits

Project Costs and Funding:
- There is no reliable information available.

**5. The Burkina Faso PV Plan** was implemented in the years 1999–2007 and funded about 130 individual PV installations for schools, community centers, hospitals and healthcare centers, offices etc.

Project Costs and Funding:
- There is no reliable information available.

**6. The Ganzourgou Decentralized Rural Electrification (ERD) project** was realized between 2000 and 2001. Within the project, two different types of PV kits were tested.

Project Costs and Funding:
- Total costs of 300,000,000 XOF financed by the French Development Agency and the people banks (Caisses Populaires) of Burkina Faso

**7. The National White Book Investment Plan (LBN)** corresponds to the objectives of the Regional White Book and will be implemented in the years 2008–2015. It mainly aims to provide modern energy services to semi-urban and rural areas of Burkina Faso.

Project Costs and Funding:
- About 65 to 90 billion XOF invested by The World Bank,
- the Government of Burkina Faso, SONABEL and international cooperation initiatives

**4. The National Community Land Management Program (PNGT)** running from 2002–2005 focused on the implementation of PV equipment in schools, literacy centers, hospitals etc. The overall achievements included 262 PV installations:

- 27 installations at schools (lighting purposes)
- 76 installations at literacy (lighting purposes)
- 125 installations at hospitals and health care centers (lighting purposes)
- 3 installations at hospitals and health care centers (refrigeration purposes)
- 4 water pumping installations
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- the Government of Burkina Faso, SONABEL and intern
- tional cooperation initiatives

**TABLE 10**

Sectoral Contribution to GDP Growth (in %) to (2003–2007)

| YEAR | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|---|---|---|---|---|
| Primary sector | 2.94 | –0.87 | 3.50 | 0.26 | –0.13 |
| Food crops | –2.74 | –2.05 | 2.56 | 0.50 | 0.85 |
| Cash crops | 0.36 | 0.82 | 0.22 | –0.81 | –1.43 |
| Livestock | 5.25 | 0.25 | 0.56 | 0.44 | 0.32 |
| Forestry | 0.06 | 0.09 | 0.13 | 0.10 | 0.12 |
| Fishing | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 |
| Secondary sector | 2.16 | 1.25 | 1.28 | 1.18 | 1.79 |
| Mining | 0.01 | 0.04 | 0.09 | 0.18 | 0.55 |
| Modern drinks and tobacco | 0.20 | 0.31 | 0.52 | –0.13 | –0.06 |
| Cotton shelling | 0.70 | 0.50 | –0.61 | 0.01 | –0.63 |
| Electricity, gas and water | 0.45 | –0.19 | 0.25 | 0.14 | 0.27 |
| Other modern processing industries | 0.78 | 0.25 | –0.12 | –0.74 | 1.08 |
| Informal processing industries | –0.42 | 0.51 | 0.51 | 1.05 | 0.07 |
| Building works | 0.45 | –0.17 | 0.65 | 0.66 | 0.52 |
| Services sector | 3.38 | 3.29 | 2.22 | 3.37 | 1.52 |
| Market services | 2.01 | 2.88 | 1.96 | 2.55 | 0.89 |
| Trade | 0.60 | 0.44 | 0.45 | 0.03 | 0.10 |
| Transport | 0.22 | 0.57 | 0.17 | 0.34 | 0.20 |
| Mail and telecommunications | 0.12 | 0.22 | 0.10 | 0.08 | 0.02 |
| Financial services | 0.13 | 0.20 | 0.11 | 0.15 | 0.01 |
| Other market services | 0.95 | 1.44 | 1.12 | 1.95 | 0.55 |
| Non-market services | 1.38 | 0.42 | 0.26 | 0.82 | 0.64 |
| Import duties and taxes | –0.37 | 1.11 | 0.19 | 0.82 | 0.73 |
| SIFIM | –0.10 | –0.15 | –0.09 | –0.12 | –0.01 |
| G.D.P. (Market price) | 8.0 | 4.6 | 7.10 | 5.5 | 3.9 |

Source: data compiled by the author

**TABLE 11**

Price Structure of Petroleum Products at Ouagadougou (Bingo) Depot (July 2008)

| PRICE XOF PER LITER<br>1 Euro = 656.759 XOF | GASOLINE | PARAFFIN OIL | GAS OIL | DDO<br>(ELECTRICITY PRODUCTION) |
|---|---|---|---|---|
| 1. CIF price at coastal depots | 310.49 | 328.33 | 357.67 | 352.32 |
| 2. Charges at coastal depots | 15.55 | 15.53 | 15.19 | 15.45 |
| 3. Transport and transit | 43.70 | 43.70 | 43.70 | 43.70 |
| 4. Importers expenses and spreads | 28.41 | 28.39 | 28.31 | 27.92 |
| 5. Outside depot excluding taxes | 398.15 | 415.95 | 444.87 | 439.39 |
| 6. Customs duties and taxes | 40.51 | 24.05 | 45.89 | 25.61 |
| 7. Petroleum products dues | 125.00 | 0.00 | 50.00 | 0.00 |
| 8. Value-added taxes | 96.34 | 0.00 | 92.24 | 0.00 |
| 9. Outside depot including all taxes | 660.00 | 440.00 | 633.00 | 465.00 |
| 10. Subsidy | 0.00 | 0.00 | 0.00 | 0.00 |
| 11. Distributors expenses and spreads | 36.00 | 25.00 | 40.00 | 31.00 |
| 12. Retailers expenses and spreads | 24.00 | 25.00 | 22.00 | 5.00 |
| 13. Pump selling price | 720.00 | 490.00 | 695.00 | 501.00 |

Source: Ministry of Trade, Promotion of Entrepreneurship and Handikrafts, as of July

**TABLE 12**

Price Structure of Petroleum Products at Bobo Dioulasso Depot (July 2008)

| PRICE XOF PER LITER<br>1 Euro = 656.759 XOF | GASOLINE | PARAFFIN OIL | GAS OIL | DDO<br>(ELECTRICITY PRODUCTION) |
|---|---|---|---|---|
| 1. CIF price at coastal depots | 310.49 | 342.42 | 357.67 | 352.32 |
| 2. Charges at coastal depots | 11.17 | 10.95 | 10.92 | 10.70 |
| 3. Transport and transit | 38.04 | 38.04 | 38.04 | 38.04 |
| 4. Importers expenses and spreads | 28.18 | 26.08 | 27.94 | 27.80 |
| 5. Outside depot excluding taxes | 387.88 | 417.49 | 434.57 | 428.86 |
| 6. Customs duties and taxes | 39.72 | 24.51 | 45.12 | 25.14 |
| 7. Petroleum products dues | 125.00 | 0.00 | 50.00 | 0.00 |
| 8. Value-added taxes | 94.40 | 0.00 | 90.31 | 0.00 |
| 9. Outside depot including all taxes | 647.00 | 442.00 | 620.00 | 454.00 |
| 10. Subsidy | 0.00 | 0.00 | 0.00 | 0.00 |
| 11. Distributors expenses and spreads | 40.00 | 24.00 | 35.00 | 32.00 |
| 12. Retailers expenses and spreads | 21.00 | 24.00 | 19.00 | 2.00 |
| 13. Pump selling price | 708.00 | 490.00 | 674.00 | 488.00 |

Source: Ministry of Trade, Promotion of Entrepreneurship and Handikrafts, as of July 2008