

## COUNTRY CHAPTER: CÔTE D'IVOIRE

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## ACRONYMS AND ABBREVIATIONS

## CÔTE D'IVOIRE

AIPO	African Intellectual Property Organization
ANARE	Agence Nationale de Régulation de l'Électricité (National Regulatory Agency)
ANDE	Agence Nationale de l'Environnement (National Environmental Agency)
BNETD	Bureau National d'Étude Technique et de Développement (National Office for Technological Studies and Development)
CACI	Cour d'Arbitrage de Côte d'Ivoire (Côte d'Ivoire Arbitration Court)
CET	Common External Tariff
CFAF	CFA Franc (1 Euro = 655,957 CFAF)
CICA	Cour d'Arbitrage de Côte d'Ivoire englische Erklärung ergänzen
CIE	Compagnie Ivoirienne d'Électricité (The Ivorian Electricity Company)
CIPREL	Compagnie Ivoirienne de Production d'Électricité (The Ivorian Electricity Production Company)
CME	Centre des Métiers d'Électricité (Electricity Trade Center)
CNR	Canadian National Resources International CI
CNRA	Centre National de Recherche Agronomique (National Center for Agricultural Research)
CTFT	Centre Technique Forestier Tropical (Technical Center for Tropical Forestry)
EDF	Électricité de France (Electricity of France)
GDP	Gross Domestic Product
GESTOCI	Société de Gestion des Stocks Pétroliers de la Côte d'Ivoire (Petroleum Product Management Company of Côte d'Ivoire)
I2T	Institut de Technologie Tropicale (Tropical Technology Institute)
IMF	International Monetary Fund
IPP	Independent Power Producer
IREN	Institut de Recherche sur les Energies Renouvelables (Research Institute on Renewable Energies)
MDP	Mécanisme pour un Développement Propre (Clean Development Mechanism – CDM)
MP	Member of Parliament
NGO	Non-governmental Organization
OIPI	Office Ivoirien de la Propriété Industrielle (Ivorian Industrial Property Office)
PETROCI	Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire (National Petrol Society)
SIR	Société Ivoirienne de Raffinage (Ivorian Refinery Society)
SMB	Société Multinationale des Bitumes (Multinational Bitumen Society)
SODEDAM	Société d'Exploitation et de Développement Aéroportuaire, Aéronautique et Météorologique (Society for Airport Operation and Development, Aviation and Meteorology)
SODEFOR	Société pour le Développement Plantations Forestières (Forest Plantation Development Society)
SOGEPE	Société de Gestion du Patrimoine du Secteur de l'Électricité (Company for the Management of the Electricity Sector's Patrimony)
SOPIE	Société d'Opération Ivoirienne d'Électricité (National Electricity Operation Society)
UN	United Nations
VAT	Value Added Tax
WAEMU	Western African Economic and Monetary Union
WAPP	West African Power Pool

## MEASUREMENTS

bbl/d	barrels per day
kWh	kilowatt hour
m/s	meter per second
m <sup>2</sup>	square meter
m <sup>3</sup>	cubic meters
MW	megawatt
MWh	megawatt hour
toe	tons of oil equivalent
TWh	terawatt hour





## SUMMARY

The Country Study of Côte d'Ivoire 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 Côte d'Ivoire. The study is structured as follows:

Chapter one provides **Background Information on Côte d'Ivoire**. 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 Côte d'Ivoire.

Chapter two summarizes facts and figures of Côte d'Ivoire'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 Côte d'Ivoire. This includes an overview of support mechanisms for photovoltaic PV as well as existing regulations, incentives and legislative framework conditions for other RE technologies.

Chapter four provides a brief overview of the **Status Quo and Potential for Renewable Energies** in Côte d'Ivoire.

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 Côte d'Ivoire.





## 1 COUNTRY INTRODUCTION

### 1.1 GEOGRAPHY AND CLIMATIC CONDITIONS

Located in West Africa and in the intertropical zone, Côte d'Ivoire has a land area of 322,462 km<sup>2</sup>. It is bordered by the Atlantic Ocean in the South and shares borders with Ghana in the East, Burkina Faso and Mali in the North and Guinea and Liberia in the West. The country is influenced by two air masses: a moist equatorial air mass called Monsoon and a dry tropical air mass coming along with a drying wind named Harmattan, with a saturation of 65–90 %.

There are four major climate zones in Côte d'Ivoire, namely an equatorial climate (or Attiean climate), a semi-damp tropical climate (or Baouleian climate), a dry tropical climate (or Sudano-Guinean climate) and a wet tropical climate (or mountain climate). Three types of vegetations can be found in the country: One vegetation area spans over the southern half of the country and the coastal basin; the Sudanese area in the North is characterized by a scattered vegetation covering (savannah). In-between these regions, a pre-forest area spans East to West with dense bush formations and gallery forests along watercourses.

The geography of Côte d'Ivoire includes plains in the South with swampy areas and a few hills no higher than 200 meters. Plateaus covering the center and the North form isolated hills or hill chains with a height of 200 to 500 meters. In the West of the country, there are chains of mountains with a height of more than 1,000 meters and single peaks of 1,300 meters and even 1,752 for Nimba Mount, the highest summit.

### 1.2 POLITICAL, ECONOMIC AND SOCIO-ECONOMIC CONDITIONS

In Côte d'Ivoire, a new constitution has been drafted in 2000, providing three separated powers: the executive power held by a Government headed by a President, the legislative power held by the parliament which consists of Members of Parliament (MPs) from several political parties and a judicial power. The political and social unrests, violence, coups d'état and rebellions did not allow the population to reap the fruit of this democratic system. The administrative system is decentralized and run by elected local representatives. Examples are the General Councils at regional level and municipalities (mayors) for the direct management of the population's needs. Since its independence, the country has been establishing a free market economic system.

Côte d'Ivoire has an estimated population of 20,807,216 inhabitants (as of 2008) with over 26 % of immigrants coming mainly from neighboring countries. There are around 60 ethnic groups belonging to four major affiliations: Gurs, Mandés, Akans and Krus. Côte d'Ivoire is a lay country with several coexisting religious denominations, the major ones being Islam (38.6 %), Christianity (35.8 %) and Animism (25.6 %). The country has two capital cities: Yamoussoukro, the political capital, and Abidjan, the economic capital. Moreover, Côte d'Ivoire is characterized by a significantly high urbanization rate and a population with about 40.3 % of its members being 15 years and under.



MAP OF CÔTE D'IVOIRE

The economy of Côte d'Ivoire has been experiencing a slow decline since the outbreak of an armed rebellion in September 2002. As a consequence, most of the foreign aid flow was interrupted (except for humanitarian assistance), thus increasing the internal and external debt burden and inducing a severe downturn in foreign and domestic investments. The Gross Domestic Product (GDP) growth rate was 0.9 % in 2006 and 1.7 % in 2007. The IMF anticipates a positive GDP growth rate of 3.8 % in 2008. The Ivorian economy is largely dependent on external factors such as weather conditions and international raw material prices. The standard of living of the population and the state of infrastructure has deteriorated since 2002. The inflation rate was approximately 2.5 % in 2007.

The economy of the country rests on agriculture providing jobs for two thirds of the national manpower and contributes to the GDP to the tune of 20 %. Côte d'Ivoire is the leading world cocoa exporter with a yearly production of several million tons. Some mining activities such as gold, diamond and manganese mining are also conducted in the country. In 2005, however, the UN Security Council banned diamond export because it served to fund arms procurement. Industrial and material development sectors account for approximately 22 % of the GDP while the tertiary sector contributes 57 %.

Côte d'Ivoire is the hub for trade activities in Western Africa, and foreign trade accounts for 90 % of the GDP. Côte d'Ivoire is a member of WAEMU (Western African Economic and Monetary Union) applying a common external tariff (CET). It is also a member of the CFAF Zone. Its top three export partners are France, the United States and the Netherlands. Cocoa is the country's main export good (generating 40 % of its export receipts). In terms of import, the top three partners of Côte d'Ivoire are France, Nigeria and Singapore. The main import goods are fuels and oils, vehicles, ships and vessels, grains and machinery.





## 2 ENERGY MARKET IN CÔTE D'IVOIRE

### 2.1 OVERVIEW OF THE ENERGY SITUATION

Côte d'Ivoire's oil industry started to take off in 2001 during the period of civil war. By 2007, oil exports accounted for 28% of the Government's export revenues. The majority of Côte d'Ivoire's electricity is generated through stations powered with natural gas and hydroelectricity accounting for around 20%. More than half of the domestic energy needs are met by combustible renewable resources and waste, mainly in the form of biomass. Table 1 presents the production/consumption figures of Côte d'Ivoire.

**TABLE 1**  
Energy Production/Energy Consumption

TYPE OF ENERGY	2004	2005	2006	2007
<b>Production</b>				
Electricity (MWh)	5,403,895	5,570,205	5,543,916	5,515,481
Electricity (MWh)	5,403,895	5,570,205	5,543,916	5,515,481
Petroleum products (1,000 tons)	1,302	2,044	3,135	2,418
Natural gas (million m³)	1,555	1,738	1,708	1,398
<b>Consumption</b>				
Electricity (MWh)	2,989,808	3,004,062	3,262,877	3,432,915
Petroleum products (1,000 TONS)	799	695	813	833
Natural gas (MILLION M³)	1,708	1,555	1,738	1,398

Source: Direction Générale de l'Energie (Energy Information System), as of 2004–2007

### 2.2 ENERGY CAPACITIES, PRODUCTION, CONSUMPTION AND PRICES

#### Electricity Sector

As of 2005, Côte d'Ivoire had installed an electric generation capacity of 1,210 megawatts (MW). In 2005, Côte d'Ivoire generated about 5.4 billion kWh of electricity, while consuming about 2.9 billion kWh. Electricity is exported through the West African Power Pool (WAPP). Most of the electricity is generated through conventional thermal power stations (> 70%), with hydroelectricity supplying the remainder. The 288 MW Azito Power Station, in operation since 1999, is located in Abidjan's suburbs and produces more than a third of the country's electricity. The phased construction of a third turbine in Azito has been delayed. Côte d'Ivoire's main hydroelectric plants include Ayame I and II, Kossou, Taabo, Buyo and Grah. Table 2 presents the electricity production capacities; Table 3 indicates the current electricity tariffs.

**TABLE 2**  
Electricity Production Capacities

HYDRAULIC POWER PLANTS	INSTALLED POWER (MW)
Ayamé 1	20
Ayamé 2	30
Kossou	174
Taabo	210
Buyo	165
Grah	5
Total	604
<b>THERMAL POWER PLANTS</b>	
Vridi	100
Ciprel	210
Azito	288
Total	606
Overall	1,210

Source: Société d'Opération d'Electricité, SOPIE, as of 2008/2009

**TABLE 3**  
Electricity Cost (in CFAF)

LOW VOLTAGE COST		PRICE FOR LOW VOLTAGE	
Household use	Price ET	Professional use	Price ET
Fixed price per kWh	1,176	Fixed price	1,664.98
Nominal tariff rate/kWh	36.05	1st price band	92.59
General tariff rate/kWh	57.43	2nd price band	78.75
<b>CATEGORY OF SUBSCRIBER</b>	<b>MEDIUM VOLTAGE COST</b>	<b>HIGH VOLTAGE COST</b>	
<b>Short-term use</b>			
Fixed price/kW/year	18,850.76		46,658.33
kWh cost for busy hours	63.59		57.01
kWh cost for peak hours	98.40		104.41
kWh cost for non-busy hours	45.68		32.15
<b>General use</b>			
Fixed price	25,936.38		63,120.76
kWh cost for busy hours	51.71		38.46
kWh cost for peak hours	75.95		104.41
kWh cost for non-busy hours	46.09		32.15
<b>Long-term use</b>			
Fixed price	37,686.39		79,563.98
kWh cost for busy hours	53.47		34.42
kWh cost for peak hours	67.91		38.46
kWh cost for non-busy hours	46.48		32.71

Source: Agence Nationale de Régulation de l'Électricité (ANARE), prices including VAT, as of 2008/2009





### Petroleum Sector

Côte d'Ivoire has proven crude oil reserves of 100 million barrels; the vast majority is located offshore. Oil production increased from around 15,000 barrels per day (bbl/d) in 2002 to approximately 62,000 bbl/d in 2006. Production problems at the so-called Baobab field constrained the oil production in 2007 to almost 52,000 bbl/d. The production is expected to increase to 70,000 bbl/d by 2009 following repairs at three of the five shut-in wells at the Baobab field. Côte d'Ivoire currently has one refinery: the SIR (Société Ivoirienne de Raffinage) located in Abidjan with a capacity of 65,000 bbl/d. The refinery receives crude oil from West African and other countries, then exports products to neighboring countries (detailed production figures are available in the Annex/Table 10 of this report). An oil pipeline connects the SIR refinery to the so-called Lion and Panther fields. The state currently owns 47.3 % of SIR; other partners include the Government of Burkina Faso, Total, Shell, ExxonMobil and Chevron. A petroleum product depot, adjacent to SIR, stores petroleum products for domestic use as well as for export (to Mali, Burkina Faso, Niger and Chad). Other fuel depots are located in Bouake and Yamoussoukro. In 2006, the national oil consumption reached 26,000 bbl/d with about 36,000 bbl/d being exported. Table 4 presents the current prices for petroleum products.

**TABLE 4**  
Price of Oil Products

PRODUCT	PRICE (CFAF)
Butane (12.5 kg bottle)	4,500
Unleaded gasoline	790
Kerosene (jet)	495
Diesel	685
DDO	793.61
FO180	471.99

Source: Direction des Hydrocarbures, as of November 2008

### 2.3 MARKET ACTORS AND REGULATION STRUCTURES

The institutional framework of the overall energy sector is rather complex as several ministries have direct or indirect influence on this keysector.

The Ministry of Mining and Energy, through its technical body named Office for the Promotion of Energy Efficiency (Bureau des Économies d'Énergie) and through the Sub-Directorate of Energy Control and Renewable Energies (Sous-Direction de la Maîtrise de l'Énergie et des Énergies Renouvelables), ensures the promotion of energy efficiency actions and RE development actions. For that purpose, the two bodies jointly carry out the following actions:

- Monitoring of the "Improved Stoves Popularization Program"
- Monitoring of power billing for public buildings in consultation with the Laboratory of Construction and Civil Engineering (Laboratoire du Bâtiment et des Travaux Publics) of the Ministry of Economic Infrastructures
- Monitoring of the use of residues in some industrial companies
- Monitoring of the activities of charcoal producers in cooperation with the National Center for Agricultural Research (Centre National de Recherche Agronomique) of the Ministry of Higher Education and Research
- Monitoring of experimental solar stations in cooperation with the Research Institute on Renewable Energies (Institut de Recherche sur les Énergies Renouvelables) of the Ministry of Higher Education and Research

The Ministry of Agriculture and Forestry also ensures control of wood and charcoal sub-sectors.

The Ministry of Higher Education and Research coordinates the activities of the research centers involved in the energy sector, i.e. the Research Institute on Renewable Energies (IREN), the Tropical Technology Institute (Institut de Technologie Tropicale – I2T) and the National Center for Agricultural Research (CNRA).

The petroleum sector of Côte d'Ivoire is regulated and supervised by the Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire (Petroci). In 1998, Petroci was divided into four units: Petroci Holding (responsible for portfolio management of the oil sector), Petroci Exploration/Production (responsible for upstream hydrocarbon activities), Petroci-Gaz (responsible for the natural gas sector), and Petroci Industries Services (responsible for all other related services).

The electricity sector of Côte d'Ivoire includes the following market actors:

- SOGEPE manages the asset base and financial flow of the power sector.
- SOPIE supervises the provision of facilities with focus on the implementation of the rural electrification program.
- The National Regulatory Agency (Agence Nationale de Régulation – ANARE) is the regulatory authority for the electricity sector.
- The Ivorian Electricity Company (Compagnie Ivoirienne d'Électricité – CIE) has been granted concession for the power utility and exploits electricity generation, conveyance and distribution facilities.
- Private electricity generation operators (Independent Power Producers – IPP) including CIPREL and AZITO ENERGY and new IPPs such as EEI and LAUCHAN are about to sign an agreement with the Government, which contributes considerably to the implementation of the energy policy.





### 3 POLICY FRAMEWORK FOR RENEWABLE ENERGIES

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

The development of RE is hindered by a lack of comprehensive planning as Côte d'Ivoire does not have a clearly defined energy policy with substantial financial means to promote RE. On the institutional level, the management of RE is incumbent on the Energy Directorate and is ensured through the Sub-Directorate of Energy Control and Renewable Energies (see 2.3). Several operators and institutions (ministries, research institutes and centers, etc.), however, are active in this sector without genuine coordination. In 2005, the decision to establish a Renewable Energy Directorate (Direction des Énergies Renouvelables) within the Ministry of Mining and Energy has set a distinctive hallmark in the official RE development policy.

#### 3.2 REGULATIONS, INCENTIVES AND LEGISLATIVE FRAMEWORK CONDITIONS

As already mentioned, there is a massive lack in legal and fiscal framework conditions for the implementation and promotion of RE. Up to now, there are no specific regulations, incentives or legislative framework conditions available. The new regulations currently being drafted at the Ministry of Mines and Energy will, however, provide the necessary environment to develop the RE sub-sector in Côte d'Ivoire.

Several private enterprises are getting involved in rural electrification after securing the approval of SOPIE, the principal contractor for the provision of electrical facilities. In order to obtain this approval, all enterprises applying have to give evidence of their financial and technical capacities.

The National Authority (AN-MDP) is responsible for the MDP (Mécanisme pour un Développement Propre - Clean Development Mechanism (CDM)) implementation in Côte d'Ivoire. The AN-MDP Focal Point is housed at the National Environmental Agency (Agence Nationale de l'Environnement – ANDE). The National Work Plan on the MDP has been validated since May 2003.

Several projects (development of household wastes, sustainable forest management etc.) are currently being evaluated in order to classify them as projects liable to be funded within the opportunities provided by the MDP.

### 4 STATUS AND POTENTIAL FOR RENEWABLE ENERGIES

#### 4.1 BIOMASS/BIOGAS

Biomass energy is the most common energy source in Côte d'Ivoire. Up to 60 % of the overall energy requirements are covered by this energy source, including:

- Fuel wood and charcoal for households, small restaurants, bakeries, arts and crafts centers (smithies, jewelry-making shops, potteries etc.).
- Agricultural and forest residues for the production of steam and/or electricity in some agro-business companies (oil works, sugar refineries etc.) and sawmills

The anaerobic generation of biogas was experimented with in several pilot projects, but was not implemented in regular operation up to now. Currently, some private investors are applying for the authorization to produce electricity from household wastes, especially in Abidjan. The main sources of supply in fuel wood are natural forests, savannah woodlands and tree and bush savannahs, productive farms as well as fallows and tree plantations.

Comprising 16 million hectares of moist forests at the beginning of the previous century, the forest stand has diminished to presently 6.38 million hectares including 4.2 million hectares of highly degraded forests and two million hectares of protected areas. Resources from agro-industrial residues, crops and plantations are estimated at over 4.3 million toe per year. They represent a key energy source and the most directly useable RE potential. Table 5 presents the available biomass potential.

**TABLE 5**  
Biomass Potential

GEOGRAPHIC AREA	FORM OF ENERGY	VALUE IN TOE
North	Bagasse	120,000
	Sugar cane molasses	30,000
	Cotton seed shell	10,475
Center and South	Cobs, palm fiber and shell	100,000
	Shell, coffee hull	32.15
General use	Cocoa beans	74,000
	Cocoa cobs and shells	25,000
	Rice husk	10,000
	Urban waste	104.41
District of Abidjan		> 1,000,000 tons

Source: Direction Générale de l'Énergie, 2008





## 4.2 SOLAR ENERGY

Côte d'Ivoire enjoys abundant sunshine with a good sunshine average, estimated at 4–5 kWh/m<sup>2</sup>/day with a daily sunshine time of 6 hours (more detailed information can be found in the Annex/Figure 3 of this report). Despite this satisfactory potential, solar energy has not been developed significantly up to now. Some PV solar energy systems have been implemented in the framework of small-scale projects developed by private initiatives or NGOs for electricity supply for households, schools and health facilities. Moreover, several telecommunication facilities have also been equipped with PV solar energy systems for stand-alone energy supply. Thermal solar energy is sometimes used for water heating and solar drying purposes while solar ovens and cookers have not yet started being popularized. Recently, some private operators have started activities basically oriented towards the import, sale and installation of solar equipment.

## 4.3 WIND POWER

There are no wind measurements available beside those for civil aviation compiled by the “Société d'Exploitation et de Développement Aéroportuaire, Aéronautique et Météorologique (SODEXAM) services. These measurements taken at 12 m above the ground generally range from 1–2 m/s. San Pedro on the western shoreline and Korhogo in the North record wind frequencies between 20–35 % for wind speeds above 6 m/s. Bouake in the Center, and Tabou on the western shoreline are swept by winds with frequencies from 20–45 % and speeds faster than 4 m/s. There are no other wind tapping projects known to date except those in Touba and Korhogo.

## 4.4 HYDRO POWER

Up to now, four large identified hydroelectric sites have not been developed yet. These sites have a power capacity ranging from 5–288 MW. Several other sites have potential for small Hydro Power plants with capacities of 0.5–5.0 MW, but have also not been exploited yet. The potential identified in the context of a study conducted by Électricité de France in 1980 adds up to an estimated theoretical hydroelectricity capacity of 46 TWh. The economically exploitable potential equals 12.4 TWh, i.e. 27 % of the theoretical potential. Table 6 presents the available Hydro Power potential of Côte d'Ivoire. A detailed map of Hydro Power potential is available in the Annex of this report (Figure 4).

TABLE 6

### Hydroelectric Potential

SITE	RIVER	POTENTIAL CAPACITY (MW)
Soubré	Sassandra	288
Ndielesso	Comoé	100
Malamalasso	Comoé	90
Louga	Sassandra	280
Singrobo	Bandama	67
Kokumbo	Bandama	78
Bouloubéré	Sassandra	156
Daboitié	Bandama	91
Gribo popoli	Sassandra	112
Tiassalé	Bandama	51

Source: based on a study conducted by Électricité de France, as of 1980

## 5 MARKET RISKS AND BARRIERS

The business environment in Côte d'Ivoire is ruled by national and regional legal institutions and instruments:

- The OHADA Treaty is a legal purview regulating business law in the sixteen states signed in to the treaty including Côte d'Ivoire. It comprises common legal rules designated as the “Uniform Acts”.
- The Labor Code developed in 1995 aims at three goals: enabling companies to meet their requirements in terms of manpower and competitiveness; preserving the workers' fundamental rights; rehabilitating enterprises and confirming their prominent place in the economic and socio-development process through their capacity to generate wealth and employment.
- The Environment Code of 1996 is the legal basis of the environmental protection and preservation policy in Côte d'Ivoire. The Rural Land Code was passed in 1998 and is amended in Article 26 in 2004.
- The Côte d'Ivoire Arbitration Court (Cour d'Arbitrage de Côte d'Ivoire – CACI) and the Common Ohada Justice and Arbitration Court (Cour Commune de Justice et d'Arbitrage de l'OHADA) are redress bodies in case of conflicts.

Côte d'Ivoire is allied with several European Union countries through bilateral agreements tending to avoid double taxation and to prevent tax evasion in terms of income tax. The Ivorian Industrial Property Office (Office Ivoirien de la Propriété Industrielle – OIPI) is the national entity cooperating with the African Intellectual Property Organization (AIPO), which protects intellectual works such as inventions, brands, drawings or industrial design or trademarks. It ensures an effective control of counterfeiting and unfair competition.





There are several private and public universities in the country. Public universities and engineering colleges like the Institut Polytechnique Houphouët Boigny, as well as research centers like the CNRA and Institut de Technologie tropicale (I2T) also serve as centers of cooperation with external organizations and provide for incentives to invest in Côte d'Ivoire. This type of investment encouragement has been reinforced since the outbreak of the September 2002 crisis to support the private sector.

- Special privileges are granted by the four specific legal texts: the Investment Code, the Mining and Oil Code, the Law Establishing Information and Communication and the Law Establishing a Biotechnology Free-Trade Zone.
- Common law privileges are recorded in the General Tax Code and are applied every year by a Tax Schedule to the Appropriation Act.
- Customs measures: The WAEMU Treaty has established a common market by the enforcement of the Common External Tariff (TEC). Third party countries are in general subject to the following import duties: custom duties ranging from 0–20 %, a statistics due of 1 % in general and the Community Solidarity Levy of 1 % of the total value of the products

## 6 RENEWABLE ENERGY BUSINESS INFORMATION AND CONTACTS

TABLE 7

Authorities and Societies in the Energy Market

NAME	ADDRESS	PROFILE
Société Nationale d'Opérations Pétrolières de la Côte d'Ivoire (PETROCI)	Building Les Hévées 14, Boulevard Carde Plateau BP V194 Abidjan Phone: +225 20 20 25 00 Fax: +225 20 21 68 24 info@petroci.ci	Ensures the promotion of the Ivorian sedimentary basin and the development of its oil and gas resources through the exploration and exploitation of the Ivorian oil and gas deposit in partnership with key international companies
Société de Gestion des Stocks Pétroliers de la Côte d'Ivoire (GESTOCI)	GESTOCI Abidjan 15 BP 89 Abidjan 15 Phone: +225 21 75 98 00 Fax: +225 21 2717 82 gestoci@gestoci.ci	Ensures the management of security stocks for a SIR shut-down period of 60 days and also manages the means of transport between the three depots Abidjan, Bouaké, Yamoussoukro
Société d'Opération Ivoirienne d'Electricité (SOPIE)	II Plateaux 7ème Tranche 01 BP 8529 Abidjan 01 Phone: +225 22 52 76 00 Fax: +225 22 52 76 13 courrier@sopie.ci www.sopie.ci	Supervision of works in the electricity sector
Autorité Nationale de Régulation du Secteur de l'Electricité (ANARE)	Tour EECI 16 BP 1106 Abidjan Phone: +225 20 20 63 18 Fax: +225 20 20 61 14 recours@anare.ci	Monitoring of compliance with regulations and conventions; arbitration of conflicts between the players of the electricity sector; defense of consumers' interests
Société de Gestion du Patrimoine du secteur de l'Electricité (SOGPE)	Tour EECI 01 BP 1345 Abidjan 01 Phone: +225 20 20 60 00 sogpe@sogpe.ci	Management of the power sector assets and financial flows
Société Ivoirienne de Raffinage (SIR)	Vridi Boulevard Petit Bassam 01 BP 1269 Abidjan 01 Phone: +225 20 20 25 00 Fax: +225 20 21 68 24 info@sir.ci	State-of-the-art refinery with two atmospheric distribution units, and one of the only two hydrocrackers existing in Africa
Société Multinationale des Bitumes (SMB)	Vridi Boulevard Petit Bassam 12 BP 622 Abidjan 12 Phone: +225 21 23 70 70 www.smb.ci	Specialized in bitumen production.
Société des pour le Développement Plantations Forestières (SODEFOR)	01 PB 3770 Abidjan 01 Phone: +225 22 44 46 16 Fax: +225 22 44 02 40	Reforestation program to fight deforestation, to enhance bush fire control, to participate in public sales and to control quota of timber for export
Bureau National d'Etude Technique et de Développement (BNEDT)	04 BP 945 Abidjan 04 Phone: +225 22 44 28 05 Fax: +225 22 44 56 66 www.bnted.sita.net	Development and implementation of public or private investment projects of all kinds in all sectors of economy (including energy)
Agence Nationale de l'Environnement (ANDE)	II Plateaux, 7ème tranche 08 BP 09 Abidjan 08 Phone: +225 22 42 70 93	Protection of the environment and promotion of RE
Chambre de Commerce et de l'Industrie de Côte d'Ivoire	6, Avenue Joseph Anoma 01 BP 1399 Abidjan 01 Phone: +225 20 33 16 00 Fax: +225 20 32 39 42 demma@chamco-ci.org	Training and information concerning economy, finance and commerce (for members)
Cour d'Arbitrage de Côte d'Ivoire (CICA)	Phone: +225 20 31 90 73 Fax: +225 20 21 72 56 acoulibaly@fnisci.net webad@fnisci.ci	Management and handling of enquiries related to energy development projects
Bourse de Sous-Traitance et de Paternariat de Côte d'Ivoire	Phone: +225 20 33 88 94 Fax: +225 20 32 02 60 secretariat@bstp-ci.com	Promotion of the market of subcontractors, development of conditions for an optimal use and performance of business capacities





TABLE 8

## Private Companies and Organisations

NAME	ADDRESS	PROFILE
Groupe EOULEE	Maroory, Zone 4C 20 BP 347 Abidjan 20 Phone: +225 21 25 41 44	Management of the Akouédo dumpsite (biomass)
Groupe THANRY	Rue de l'Indenié Abidjan Plateau 01 BP 3916 Abidjan 01 Phone: +225 20 21 31 33 Fax: +225 20 21 71 00	Wood processing, generation of industrial steam and electricity out of industrial agro-industrial residues
Compagnie Ivoirienne d'Électricité (CIE)	1, Avenue Christiani, Treichville 01 BP 6923 Abidjan 01 Phone: +225 21 23 33 00 Fax: +225 21 23 35 88 www.cie.ci info@cie.ci	Concession holder of a national utility with 12 regional directorates for the generation, conveyance, distribution, export and import of electrical energy
AZITO ENERGIE	II Plateaux, rue K57 Lot 33 BP 1296 Cedex 1 Phone: +225 22 40 02 40 Fax: +225 22 41 75 18 www.azitoenergie.com info@azitoenergie.com	Second independent electricity producer with an installed capacity of 296 MW
Compagnie Ivoirienne de Production d'Électricité (CIPREL)	Building SIDAM 01 BP 4039 Abidjan Phone: +225 20 31 97 95 Fax: +225 20 32 80 27	First independent electricity producer with an installed capacity of 210 MW
Canadian National Resources International CI (CNR)	01 BP 8007 Abidjan 01 Building Kharrat Phone: +225 20 31 00 15 Fax: +225 20 31 00 40	Exploration and production of crude oil and natural gas; operating company of the Espoir & Baobab oil fields
DEVON Côte d'Ivoire	04 BP 827 Abidjan 04 Phone: +225 20 25 40 40 Fax: +225 20 22 62 29 Koyate.fatou@dvn.com	Exploration and production of crude oil and natural gas; operating company of the Espoir & Baobab oil fields
FOXTROT International	15 BP 324 Abidjan 15 Phone: +225 21 21 76 00 Fax: +225 21 21 76 31	Exploration and production of crude oil and natural gas

TABLE 9

## Research and Training Centers

NAME	ADDRESS	PROFILE
Centre National de Recherche Agronomique (CNRA)	Abidjan, Km 17, Route de Dabou 01 BP 1740 Abidjan 01 Phone: +225 23 47 24 24 Fax: (225) 23 47 24 11 www.cnra.ci info@cnra.ci	Agricultural research, technological research, biotechnologies, agricultural produces conservation, processing, bioenergies
Centre Technique Forestier Tropical (CTFT)	08 BP 33 Abidjan 08 Phone: +225 22 44 28 58	Technical training in forest management
Centre des Métiers d'Électricité (CME)	Phone: +225 22 40 34 12	Training of high level technicians, skilled workers and staff for Ivorian companies and countries in the sub-region; training for development and continuous education
Société Ivoirienne de Technologie Tropicale (IZT)	04 BP 1137 Abidjan 04 Phone: +225 21 27 91 51	Development of agricultural by-products (coconut cops) for stand-alone generation of electricity from gas generator





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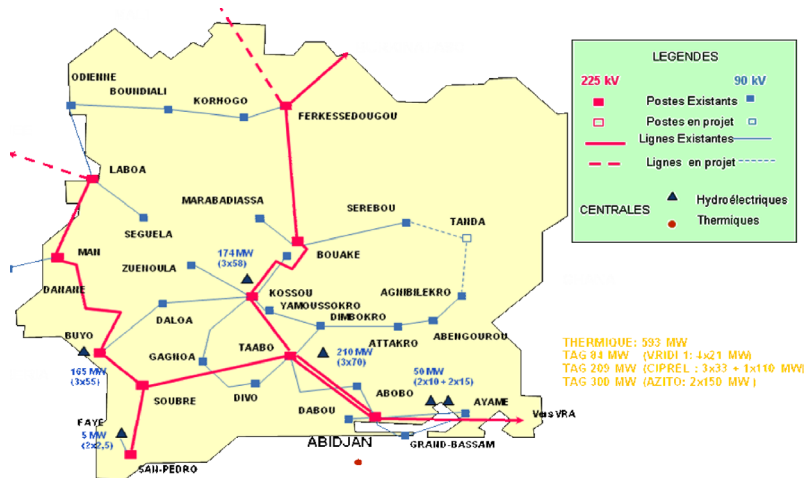




## 8 ANNEX

FIGURE 2

Electricity Network of Côte d'Ivoire



Source: unknown

FIGURE 3

Overview of Sun Energy Potential

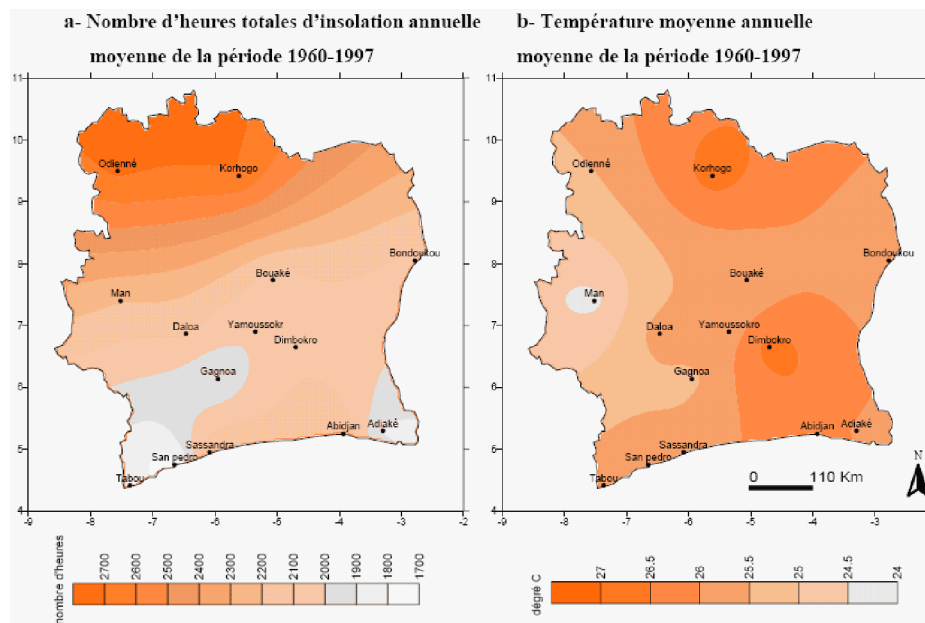


Tableau 4 : Température (°C) et insolation (heures) moyenne de 1977 à 1999

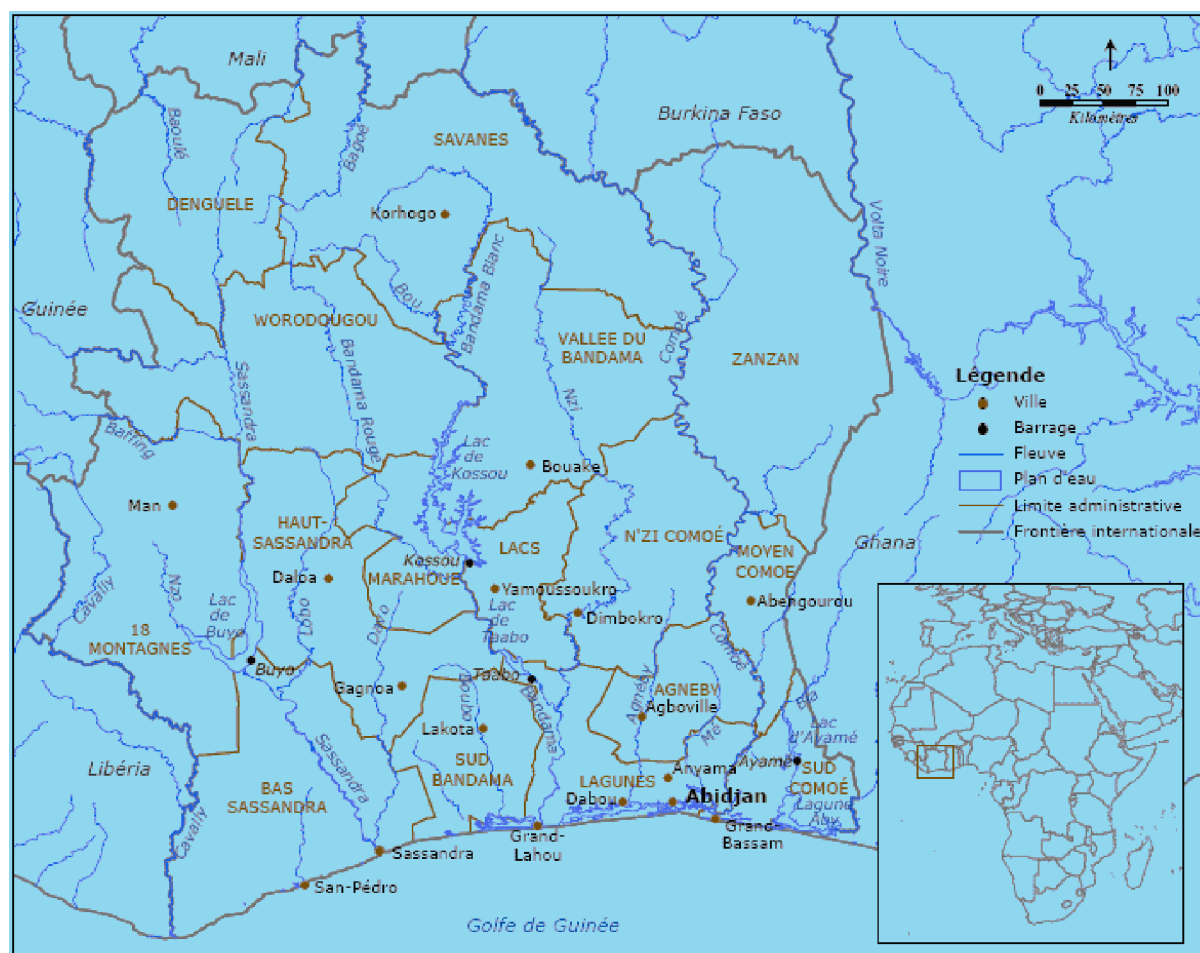
Stations	Paramètres	J	F	M	A	M	J	Jt	At	S	O	N	D	année
Abidjan	Température	26,7	27,5	27,8	27,9	27,5	26,1	24,9	24,0	24,5	26,0	27,3	27,0	26,4
	Insolation	212	206	218	216	202	130	133	110	134	197	221	207	2191
Daloa	Température	25,7	27,2	27,3	26,9	26,4	25,5	24,5	24,4	24,9	25,4	25,6	24,9	25,7
	Insolation	212	204	201	210	209	162	116	111	140	183	181	177	2111
Korhogo	Température	26,6	28,9	29,3	28,7	27,5	25,9	24,9	24,7	24,9	26,0	26,8	26,2	26,7
	Insolation	273	243	230	225	244	209	160	162	183	240	256	258	2690

Source: unknown



FIGURE 4

Map of Available Hydro Power Potential



Source: unknown

TABLE 10

Production Figures of Petroleum Products (SIR-2007)

PRODUCT	2007	2006	Variation (%)
Butane	83,588	76,367	9.46
Unleaded gasoline	564,284	604,840	-6.71
Kerosene (paraffin/jet)	932,828	975,842	-4.41
Gasoil	1,088,501	1,209,526	-10.01
DDO	146,530	58,990	148.40
HVO	74,033	84,411	-12.29
Fuel oil	289,309	521,446	-44.52
Total for petroleum products	3,179,073	3,531,422	-9.98

Source: Direction des Hydrocarbures, as of 2008