Burkina Faso

Figure 1: Energy profile of Burkina Faso

Energy Consumption and Production

Burkina Faso has a population of 17.08 million (Table 1). Electricity production in 2015 was 69 ktoe with 89.8 per cent of it generated from fossil fuels (Table 2). Final consumption of electricity in 2015 was 86 ktoe (AFREC, 2015). Key consumption and production statistics are shown in Figures 2 and 3.

Table 1: Burkina Faso's key indicators

Key indicators	Amount
Population (million)	17.08
GDP (billion 2005 USD)	1.57
CO_2 emission (Mt of CO_2)	1.93

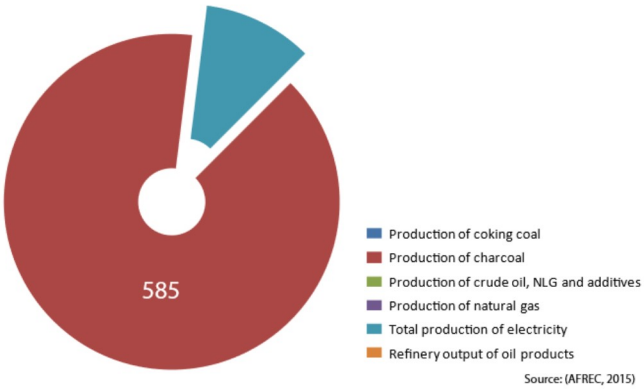
Source: (World Bank, 2015)

Energy Resources

Biomass

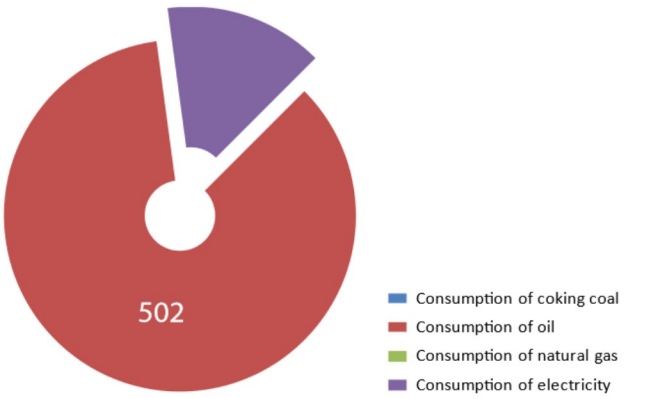
Biomass (fuelwood and charcoal) energy is used by about 90 per cent of the population, followed by hydrocarbons, hydroelectricity and renewables (mainly solar). The Sudano-Sahelian and Sudanian Zone of the country has high biomass resources to supply energy (REEEP, 2012).

Figure 2: Total energy consumption, (ktoe)



Source: (AFREC, 2015)

Figure 3: Total energy consumption, (ktoe)



Source: (AFREC, 2015)

Carrying wood fuel to market

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Table 2: Total Energy Statistics (ktoe)

Category	2000	2005	2010	2015 P
Production of coking coal	-	-	-	-
Production of charcoal	144	297	499	585
Production of crude oil, NLG and additives	-	-	-	-
Production of natural gas	-	-	-	-
Production of electricity from biofuels and waste	1	0	0	0
Production of electricity from fossil fuels	26	34	39	62
Production of nuclear electricity	-	-	-	-
Production of hydro electricity	8	9	10	6
Production of geothermal electricity	-	-	-	-
Production of electricity from solar, wind, Etc.	0	0	0	1
Total production of electricity	35	42	49	69
Refinery output of oil products	-	-	-	-
Final Consumption of coking coal	-	-	-	-
Final consumption of oil	241	418	597	502
Final consumption of natural gas	-	-	-	-
Final consumption of electricity	30	50	69	86
Consumption of oil in industry	11	0	0	0
Consumption of natural gas in industry	-	-	-	-
Consumption of electricity in industry	12	0	0	0
Consumption of coking coal in industry	-	-	-	-
Consumption of oil in transport	191	0	0	0
Consumption of electricity in transport	-	-	-	-
Net imports of coking coal	-	-	-	-
Net imports of crude oil, NGL, Etc.	-	-	-	-
Net imports of oil product	313	424	585	677
Net imports of natural gas	-	-	-	-
Net imports of electricity	0	11	33	45

(AFREC, 2015)

- : Data not applicable
0 : Data not available
(P): Projected

Hydropower

Hydroelectricity use represents about 20 per cent of national electricity consumption (including imports from Ghana and Côte d'Ivoire) (REEEP, undated). There are a number of sites that are suitable for decentralized hydroelectric power generation. 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 (REEEP, 2012).

Oil and natural gas

Burkina Faso depends on imports of refined petroleum products from Ivory coast for use in its transport, electricity generation and other industries. About 15 per cent of the electricity it uses is also imported. The *Société Nationale Burkinabe d'Hydrocarbures* (SONABHY) controls the supply of petroleum products. It is a state-owned company supervised by the Ministry of Trade and the Ministry of Finance.The Bureau of Mines and Geology ensures quality control for retailed petroleum products (REEEP, undated).

Peat

Burkina Faso has 10 km^2 of peat land (WEC, 2013).

Wind

Burkina Faso's location on the west coast of Africa is not ideal for wind energy. The average wind speeds recorded are between 1 and 3 m/s, with the faster speeds recorded in the northern parts of the country. Although this is rather low, it is currently being used to support small-scale water pumping and desalination systems (REEEP, 2012).

Geothermal

No study has been conducted to assess the geothermal potential of Burkina Faso (REEEP, 2012).

Solar

Annually, Burkina Faso receives about 3,000-3,500 hours of peak sunshine and this has the potential to generate an average of 5.5 kWh/m2/day. Solar systems are currently being used for communication, lighting, refrigeration, water pumping and television (REEEP, 2012). There are plans for a 71.5 MW photovoltaic installation (World Bank, 2015).

Tracking progress towards sustainable energy for all (SE4All)

Burkina Faso is one of the top 20 countries that have a serious deficit in access to electricity as well as one of the lowest global rates of electrification (World Bank, 2015). In 2012, access to electricity was only 1.4 per cent in rural areas while in urban areas it was 48.5 per cent (Table 3 and Figure 4). Access to modern energy services is also very low with 2 per cent in rural areas and 20 per cent in urban areas using non-solid fuels (World Bank, 2015). As with other African countries, most of the energy supply is derived from biomass — firewood in rural areas and mostly charcoal in urban areas. Consumption of biomass is estimated at 0.69 kg of firewood per person per day. Charcoal production currently utilizes inefficient technologies and could increase pressure on forest resources.

Energy intensity (the ratio of the quantity of energy consumption per unit of economic output) of Burkina Faso's economy was 7.0 MJ per US dollar (2005 dollars at PPP) in 2012, down from 14.1 MJ per US dollar in 1990 (World Bank, 2015). The compound annual growth rate (CAGR) between 2010 and 2012 was -2.36 (World Bank, 2015).

The share of renewable energy in total final energy consumption (TFEC) has been steadily declining. Between 2006 and 2011, it was 80.01 per cent (World Bank, 2016). Traditional solid biofuels form the biggest share of renewable sources at 78.0 per cent of TFEC in 2012, while modern solid biofuels contributed 0.7 per cent and hydro only 0.4 per cent . Renewable sources contributed a 24.5 per cent share of electricity generation in 2012 (World Bank, 2015).

Table 3: Burkina Faso's progress towards achieving SDG7– Ensure access to affordable, reliable, sustainable and modern energy for all

Target	Indicators	Year					
		1990	2000	2010	2012	2000-2010	2011-2015
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	7.1.1 Per cent of population with access to electricity	6	7	13	13.1		
	7.1.2 Per cent of population with primary reliance on non-solid fuels	2	4	5	5.29		
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	7.2.1 Renewable energy share in the total final energy consumption	92.4	96.5	85.3	79.1		
7.3 By 2030, Double the rate of improvement of energy efficiency	7.3.1 GDP per unit of energy use (constant 2011 PPP $ per kg of oil equivalent)	-	-	-	-		
	Level of primary energy intensity(MJ/$2005 PPP)	14.1		7.4	7.0	7.32	7.02

Sources: (World Bank, 2015); (World Bank, 2016)

Figure 4: SDG indicators

Percentage of population with access to electricity	Access to non-solid fuel (% of population)	GDP per unit of energy use (PPP $ per kg of oil equivalent) 2013	Renewable energy consumption (% of total final energy consumption), 2006-2011, 2012
13.1%	5.29%	NA	80.01%

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Gas station in Burkina Faso

Table 4: Burkina Faso's key aspects/key mitigation measures to meet its energy Intended Nationally Determined Contributions (INDCs)

INDC
*Diversify energy sources (solar, wind, biogas)
*Promote energy-saving technologies in industry and construction
*Produce and distribute 540,000 improved cook stoves with at least 50 per cent in urban and semi-urban areas
*Promote at least 80 per cent of traditional Dolo beer brewers use an improved cook stove, 95 per cent of which are in rural areas and 100 per cent in urban and semi - urban areas. This contributes to a reduction of YY per cent in the demand for firewood
*Promote the use of Dolo cook stoves with the aim of affecting 97 per cent of dolo brewers at the 2030 horizon, with a biomass energy/ waste recovery energy score = 935.
*Produce and distribute improved cook stoves in urban and semi-urban areas, with a biomass energy/ waste recovery energy = 865
*Promote methane recovery from used water from the Ouagadougou municipal purification station, with a biomass energy/ waste energy recovery = 770.
*Promote methane recovery from the solid waste of the city of Ouagadougou's landfill, with a biomass energy/ waste energy recovery = 725
*Produce and distribute improved cook stoves in urban and semi - urban areas. Net emissions to be avoided = 610 $GgCO_2$. with a targets of distributing 540,000 household cook stoves over 15 years.
*Promote Dolo cook stoves with the aim of reaching 97 per cent of dolo brewers at the 2030 horizon. Net emissions to be avoided= 610 $GgCO_2$, with a target of distributing 180,000 Dolo cook stoves over 15 year

Source: (ROBF, 2015)

Intended Nationally Determined Contributions (INDC) within the framework of the Paris climate Agreement

In October 2015, the government stated its the energy-related Intended Nationally Determined Contributions (INDCs). These are listed in Table 4.

Institutional and Legal Framework

The Ministry of Mines and Energy is in charge of the energy sector (Table 5). The energy regulator is the Electricity Regulatory Authority (ARSE). The National Electricity Company of Burkina (SONABEL) is the main vertically-integrated electricity operator with a national monopoly on the generation and distribution of electricity in the urban centres. On a regional level, the country is a member of the West African Power Pool. The legal framework is provided by the Electricity Law of 2007. The main sector policy is the Energy Sector Policy 2014-2025.

Table 5: Burkina Faso's Institutional and legal framework

Basic Elements	Response
Presence of an Enabling Institutional Framework for sustainable energy development and services (Max 5 institutions) most critical ones	• Ministry of Mines and Energy • National Agency for Renewable Energy and Energy Efficiency
Presence of a Functional Energy Regulator	Electricity Regulatory Authority (ARSE)
Ownership of sectoral resources and markets (Electricity/ power market; liquid fuels and gas market)	National Electricity Company of Burkina (SONABEL)
Level of participation in regional energy infrastructure (Power Pools) and institutional arrangements	
Environment for Private Sector Participation	
Whether the Power Utility(ies) is/are vertically integrated or there is unbundling (list the Companies)	
Where oil and gas production exists, whether upstream services and operations are privatized or state-owned, or a mixture (extent) e.g., licensed private exploration and development companies)	
Extent to which Downstream services and operations are privatized or state-owned, or a mixture (extent)	Société Nationale Burkinabé d'Hydrocarbures (SONABHY)
Presence of Functional (Feed in Tariffs) FIT systems	
Presence Functional IPPs and their contribution	
Legal, Policy and Strategy Frameworks	
Current enabling policies (including: RE; EE; private sector participation; & PPPs facilitation) (list 5 max) most critical ones	• Energy Sector Policy 2014-2025 • Electrification Development Fund • Strategy for Accelerated Growth • Sustainable Development (SCADD 2011-2015)
Current enabling laws/pieces of legislation (including: RE; EE; private sector participation; & PPPs facilitation) – including electricity/grid codes & oil codes (5 max or yes/ no) most critical ones	• Electricity Law of 2007 • Decree No. 2001-342/PRES/PM/MEE of 17 July 2000 requiring EIA

This table was prepared with material from (REEEP, 2012)