

Central African Republic



Figure 1: Energy profile of the Central African Republic

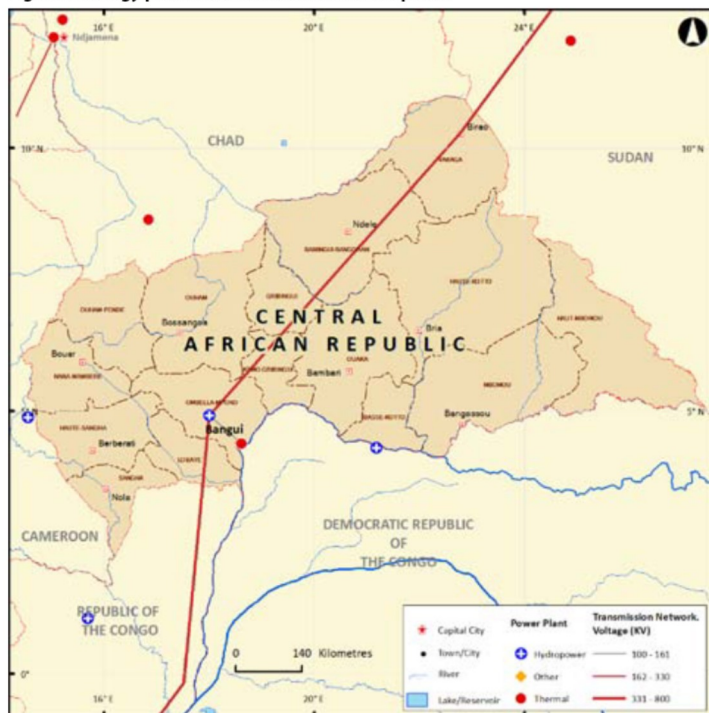
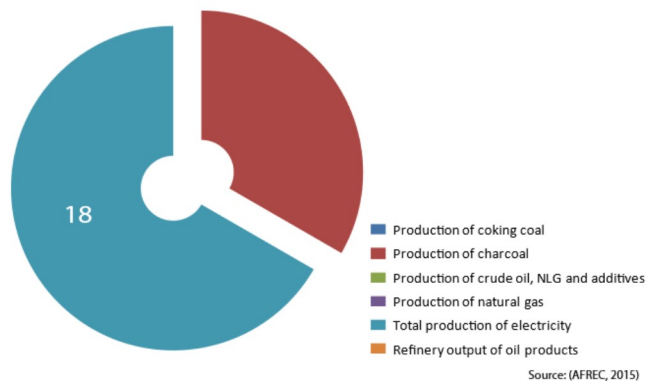
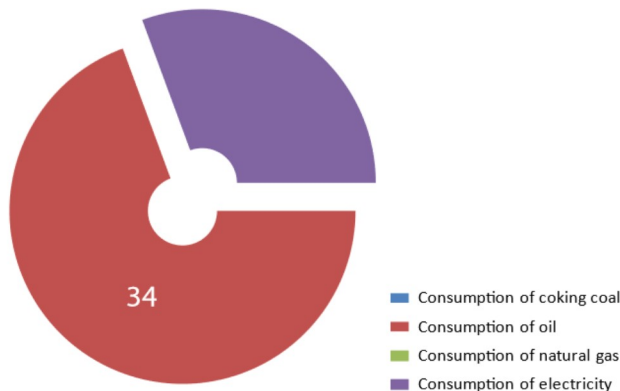


Figure 2: Total energy production, (ktoe)



Source: (AFREC, 2015)

Figure 3: Total energy consumption, (ktoe)



Source: (AFREC, 2015)

Energy Consumption and Production

The Central African Republic had a population of 4.7 million people in 2013 (Table 1) (World Bank, 2015). Electricity production in 2015 was 18 ktoe with 88.8 per cent of it generated from hydro. Final electricity consumption in 2015 was 15 ktoe (AFREC, 2015). Table 2 shows the main energy statistics. Key consumption and production statistics are shown in Figures 2 and 3.

Table 1: Central African Republic's key indicators

Key indicators	Amount
Population (million)	4.71
GDP (billion 2005 USD)	1.07
CO ₂ emission (Mt of CO ₂)	0.3

Source: (World Bank, 2015)

Energy Resources

Biomass

Estimates indicate that 50 per cent of the country is forested and of this, 10 per cent is currently being used to supply energy needs. Against this background, the biomass intensity is currently deemed to be sustainable (REEEP, 2012).

Hydropower

The Central African Republic has great hydroelectric power, estimated at 2,000 MW (MMEH, 2013). Existing power stations include the Boali I (8.75 MW), Boali II (10 MW) and Boali III (10 MW). Other large hydropower installations are the 300 MW Palambo project, north of Bangui. There is also potential for small hydropower in Baboua, Bambari, Bangassou, Berbérati, Bocaranga, Bossangoa, Bouar, Bria, Carnot, Kaga-Bandoro, Kembe, Mbaiki, Ndélé, Paoua and Sibut (REEEP, 2012).

Table 2: Total energy statistics (ktoe)

Category	2000	2005	2010	2015 P
Production of coking coal	-	-	-	-
Production of charcoal	4	4	141	9
Production of crude oil, NLG and additives	-	-	-	-
Production of natural gas	-	-	-	-
Production of electricity from biofuels and waste	0	0	0	0
Production of electricity from fossil fuels	2	2	2	2
Production of nuclear electricity	-	-	-	-
Production of hydro electricity	7	12	12	16
Production of geothermal electricity	-	-	-	-
Production of electricity from solar, wind, Etc.	0	0	0	1
Total production of electricity	9	14	14	18
Refinery output of oil products	-	-	-	-
Final Consumption of coking coal	-	-	-	-
Final consumption of oil	0	43	43	34
Final consumption of natural gas	-	-	-	-
Final consumption of electricity	8	7	13	15
Consumption of oil in industry	0	4	0	0
Consumption of natural gas in industry	-	-	-	-
Consumption of electricity in industry	0	3	3	2
Consumption of coking coal in industry	-	-	-	-
Consumption of oil in transport	0	0	0	27
Consumption of electricity in transport	-	-	-	-
Net imports of coking coal	-	-	-	-
Net imports of crude oil, NGL, Etc.	-	-	-	-
Net imports of oil product	0	40	0	28
Net imports of natural gas	-	-	-	-
Net imports of electricity	-	-	-	-

- : Data not applicable

0 : Data not available

(P): Projected

(AFREC, 2015)

Oil and natural gas

The country does not currently produce either petroleum or natural gas and petroleum needs are met through imports of refined products. Most of the population depends on traditional biomass to meet their energy needs. Energy self-sufficiency for the country stood at approximately 91 per cent in 2008 (REEEP, 2012).

Peat

The country has 100 km² of peatland (WEC, 2013).

Wind

Wind speeds above 5 m/s exist implying the potential for wind energy. But so far, wind power use is still largely uncharted (REEEP, 2012).

Geothermal

No study has currently been undertaken to determine the geothermal potential of the Republic (REEEP, 2012) been favourable findings of a high-temperature reservoir with a possible 3 MW of geothermal capacity (REEEP, 2012).

Solar

The average horizontal irradiation, which reaches 6.0 kWh/m²/day in some areas, makes solar power a viable option. Global irradiance ranges from 2,000 to 2,400 kWh/m². Potential applications are in pumping for water supply, telecommunication systems, household lamps, radios, televisions, telephone recharging and small computing equipment (REEEP, 2012).

Tracking progress towards sustainable energy for all (SE4All)

Access to electricity in the Central African Republic is one of the lowest in Africa, with access for 8.2 per cent and 14.8 per cent of rural and urban people respectively (Table 3 and Figure 4) (World Bank, 2016). A number of reasons conspire to explain the sector's slow growth, including low population density, the country's large size, years of social unrest and weak institutions in the energy sector.

Access to modern fuels is also low. In 2012, only 2 per cent of the rural population was using non-solid fuels and 3 per cent in urban areas had access to modern fuels (World Bank, 2015).

The Central African Republic's economy energy intensity (the ratio of the quantity of energy consumption per unit of economic output) was 7.2 MJ per US dollar (2005 dollars at PPP) in 2012, down from 13.8 MJ per US dollar in 1990. The compound annual growth rate (CAGR) between 2010 and 2012 was -0.42 (World Bank, 2015).

The share of renewable energy in the total final energy consumption (TFEC) increased from 81.0 to 94.0 per cent between 2010 and 2012. Traditional solid biofuels form the biggest share of renewable sources at 37.8 per cent of TFEC in 2012, while modern solid biofuels contributed 53.4 per cent and hydro only 2.8 per cent. Renewable sources contributed a 74.1 per cent share of electricity generation in 2012 (World Bank, 2015).

Table 3: Central African Republic'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	3	6	10	10.8		
	7.1.2 Per cent of population with primary reliance on non-solid fuels	2	2	3	3.22		
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	93.9	86.0	81.0	94.0		
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)	13.8		7.2	7.2	7.10	7.16

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
10.8%	3.22%	NA	78.37%
			

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

INDC
*Implement the National programme for advanced conversion of wood.
*Implement the National programme for reforestation and rehabilitation of post-exploitation areas.
*Build a photovoltaic solar power plant at Bangui.
*Develop a 180 MW Dimoli hydroelectric plant (integration project).
*Develop the 72 MW Lobaye hydroelectric plant.
*Develop the 60 KW La Kotto hydroelectric plant.
*Develop the Mobaye hydroelectric plant (integration project).
*Implement the National Rural Electrification Programme.
*Build a sluice dam along the Ubangi at Zinga.
*Implement improved cook stoves programme.
*Implement the National Biofuels Programme.
*Implement the Programme for the reduction of short-lived climate pollutants.
*Ensure the promotion of energy saving light bulbs.

Source: (ROC, 2015)

Table 5: Central African Republic'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	<ul style="list-style-type: none"> • Ministry of Mines, Energy and Hydraulics • Rural Electrification Agency
Presence of a Functional Energy Regulator	<ul style="list-style-type: none"> • Autonomous Agency for the Regulation of the Electricity Sector (ARSEC) • Autonomous Agency Rural Electrification (ACER)
Ownership of sectoral resources and markets (Electricity/power market; liquid fuels and gas market)	
Level of participation in regional energy infrastructure (Power Pools) and institutional arrangements	Central African Power Pool (CAPP)
Environment for Private Sector Participation	
Whether the Power Utility(ies) is/are vertically integrated or there is unbundling (list the Companies)	State owned vertically integrated Energie Centrafricaine (ENERCA)
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)	<ul style="list-style-type: none"> • Central African Oil Products Storage Company (SOCASP) • Oil Product Price Stabilization and Regulation Agency (ASRP)
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	National Energy Policy
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	<ul style="list-style-type: none"> • Order No. 05.001 of 1 January 2005 - the Electricity Code • Decree No. 05.272 of 11 September 2005 stipulates the roles of ARSEC • Decree No. 05.273 of 11 September 2005 operationalises ACER • Decree No. 10.092 of March 18, 2010 legalising the energy policy

This table was prepared with material from (MMEH, 2013); (REEEP, 2012) and (WTO, 2013)

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

In September 2015, the country submitted its Intended Nationally Determined Contributions (INDCs). The INDCs guide the country on a sustainable, low-carbon development pathway while strengthening the resilience of the agriculture, food security, natural resources, health and infrastructure sectors against the impacts of climate change. Table 4 shows those related to energy.

Institutional and Legal Framework

The Ministry of Mining, Energy and Hydraulics is in charge of the energy sector. The energy regulator is the Autonomous Agency for the Regulation of the Electricity Sector (ARSEC). The state-owned vertically integrated ENERCA (Énergie Centrafricaine) produces, distributes and sells electricity. On a regional level, the country is a member of the Central Africa Power Pool (CAPP). The legal framework is provided by the Order No. 05.001 of 1 January 2005 -the Electricity Code (Table 5).

The Energy Policy 2004 guides the sector and is keen on developing renewable energies as one of the strategies to address poverty and to encourage a low carbon development pathway through reducing emissions by 5 per cent compared to the business-as-usual reference level of 5,498.3 kt eq-CO₂ of avoided emissions at the 2030 horizon.