

## Country Assessment Report

### Country/Region Name- The Democratic Republic of the Congo (DRC)

DRC is situated in central Africa; bordered by Central African Republic (CAF), South Sudan, Uganda, Rwanda, Burundi, Tanzania, Zambia, Angola and Republic of Congo. It has a population of and GDP worth \$47 billion, with a growth rate over 5.7%.

### Economic structure and activity:

DRC has a mixed economic system, governed and regulated by the state with some private freedom. Worsening insecurity and uncertainty over policy continue to dissuade donor assistance and foreign investment, both necessary capital injections. Delays in election timetables and subsequent political unrest have also thwarted capital flows from the multinational, private sector. Although, the government established ANAPI (National Agency for Investment Promotion) to improve the investment and business climate, along with greater transparency over governmental procedures.

The service sector now accounts for most of the nation's economy, providing 53.9% of DR Congo's GDP. It includes large retail, transport and telecommunication services, whilst growth in the transport sector is slow due to the nation's difficult terrain and climate. Industry contributes 39% to the nation's GDP, mainly delivering oil production, mining and manufacturing services. DR Congo is endowed with vast mineral wealth which has enabled rapid economic growth, with extractive industries generating large sums of copper, cobalt and gold. Other industries include beer manufacturing, textiles, clothing, paper and wood processing, chemicals, cement and glassware. Agriculture accounts for 7.1 of GDP, primarily exporting cassava, tobacco, coffee, sugar cane, cocoa, rubber and palm oil. The country has an estimated 80 million hectares of available arable land, but only 10% is being cultivated upon.

(KPMG 2017; Statista 2019)

### Top private companies with RE commitments:

### Generation and demand: (e.g. type, MW, TWh)

Official statistics for DRC's energy generation and demand are not available. Although, The World Bank, International Energy Agency, ICF International, et al. have produced helpful studies and reports that estimate historic and current energy generation and demand. The DR Congo ranks 174 out of 189 economies on access to electricity with around 19% (World Bank 2018).

Access to electricity is a necessary, but insufficient measure. Reported energy access rates are not the same as consumption, duration, reliability, quality, affordability, and convenience. The International Energy Agency (IEA) estimates DRC's energy consumption rates to be 0.11 MWh/capita in 2014. Urban dwellers experience irregular and insufficient energy supply service. A recent study highlighted that 86% businesses strongly agree that a lack of reliable energy prevents their business from operating and growing properly in Goma, a city with more than 1 million people. Households, businesses and institutions without access to electricity often receive their power from self-supplied or neighbourhood-owned diesel generators, an expensive, high maintenance, and unclean source of power. In fact, recent research

demonstrates that the average energy cost in Goma is \$0.73/kWh (diesel costs ~ \$1.10/liter in Goma). In addition, access to electricity is very unevenly distributed in DRC's urban and peri-urban environments (e.g., Goma's Himbi neighbourhood reports access rates of 69% whereas the adjacent neighbourhood, Ndosho, only has 3% access rates).

According to the CIA, DRC has an estimated installed capacity of 2.587 million kW, producing 9 billion kWh and consuming 7.43 billion kWh in 2016. The International Energy Agency (IEA) estimates DRC's total energy production at 30Mtoe and total electricity consumption at 7.52TWh in 2016.

According to the International Hydropower Association (IHA), DRC's installed hydroelectric capacity in 2014 was 2,442 MW, although the operational capacity was just 1,281 MW. Electricity demand/supply projections indicated that the DRC would need an additional capacity of 4,000 MW by 2020 (World Bank, 2018). Hydropower represents Country Authorisation version 0.1 Page 2/5 99% of DRC's total energy production with fossil fuels representing 1% of installed capacity based on 2017 IEA numbers. The IEA estimates energy production from renewable sources (excluding hydroelectric sources) to be 10 million kWh or 0.1% of total energy production, based on 2015 estimates. In 2014, UNDP estimates a total of 2,677 MW of installed capacity with 1,300 MW available for distribution due to dilapidated energy infrastructure and mismanagement of existing energy assets.

According to the Demographic Health Survey (2007-2013), only 6% of DRC households use electricity for cooking, whereas 62.8% use charcoal and 28.9% use wood, meaning more than 92% rely on DRC's forests for energy. Urban and peri-urban contexts are driving wood-fuel demand: 92% of Congolese households depend on charcoal and wood-based fuel as an energy source. According to ICF, Kinshasa's charcoal market is worth an estimated \$1 billion annually.

Despite these low rates of electrification, ICF International, a consultancy, estimates that there is more than 2,900MW of under-served or unmet electricity demand in DRC in 2017.

University of California Berkley researchers estimate that DRC could install a minimum of 70GW of solar PV and 15GW of wind power within 25km of existing and planned transmission lines. In mining areas, these researchers estimate the total potential installed capacity is 2400GW for solar PV and 130GW for wind power. The African Development Bank and Sustainable Energy for All Africa Hub estimate the annual potential market for the minigrid and off-grid solutions at up to \$921 million based on current grid coverage

#### **Electrical Interconnection and import/export:**

Ruzizi III 147MW - Ruzizi III is a run-of-river hydropower project to be located on the Ruzizi River between Rwanda and DRC. Ruzizi River flows from Lake Kivu to Lake Tanganyika in central Africa and delineates the southern border of Rwanda with DRC and also forms the border between DRC and Burundi. DRC imported 20 million kWh (2016 est.) and exported 422 million kWh (2015 est.), according to the CIA.

Inga 3 Basse Chute (BC) is the next phase of the Inga site development with a 4,800MW installed capacity (Inga 1 and Inga 2 were built in the 70s and 80s). The Inga 3 BC development consists of a diversion of part of the water of the Congo River into the Bundi tributary and a dam across the Bundi valley. It will not require the construction of a dam on the Congo River itself. The project has been selected by the Caucus of the African Governors in the Bretton Woods Institutions as one of the hydropower projects in Africa demanding

particular attention from the World Bank. In the weak investment and governance environment of DRC, the proposed project provides technical assistance to contribute to the development of Inga 3 BC and mid-size hydropower projects in a manner that maximizes their impact on ending extreme poverty and promoting shared prosperity (World Bank, 2014).

### Market Structure:

The energy sector in DRC is regulated by the Law N° 14/011 of June 17, 2014. This legal framework entails the liberalization of the energy sector by attracting private sector participation in order to significantly increase the national electrification rate. By 2050, the Government is aiming to increase electricity service rates to 95%. (ANAPI, 2019).

The electricity sector is dominated by a state-owned monopoly called the Société Nationale d'Electricité (SNEL). SNEL owns approximately 50 central/distributed units in the country, with 36 hydro-units and 14 thermal units (ICF 2017). Cumulatively, SNEL owns approximately 2,442 MW of capacity (or 94% of total installed capacity). In addition, captive producers, chiefly comprising the mining industry in the country, have approximately 135 MW of installed capacity (or 6% of installed capacity).

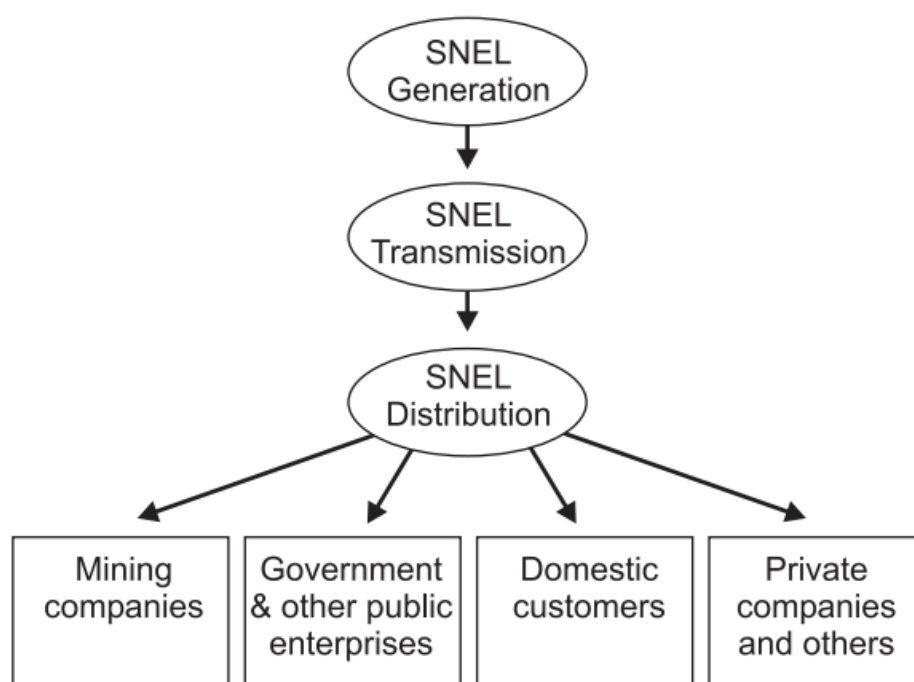


Figure 1. Market structure of DR Congo's power sector.

**Responsible Government Department:** (include key contacts)

National Investment Promotion Agency (ANAPI) is a public technical institution led by [REDACTED]. Its responsibilities are to popularize the laws and regulations which grant tax and special tax incentives as regards investments; make use of means which should eradicate barriers or red tape to operations of setting up, extending and modernizing enterprises; receive, analyse, and evaluate, in due approval period, applications for eligible investment projects to the advantages of the Investment Code and submitting to the Ministers the Plan, Finances and Budget of these projects for approval or rejection, with advices/notices conform to the eligibility conditions and advantages of the Investment Code.

*Ministry of Hydraulic Resources and Energy (MRHE)* is charged with formulating energy and water sector policy and reform, led by [REDACTED].

*National Energy Commission (CNE)* is responsible for monitoring the energy sector. The Commission consists of an advisory committee, chaired by the Minister for Energy, and a permanent secretariat. The CNE is directly responsible for the renewable energy sector of the country and as part of its remit, has previously conducted studies into the potential use of wind power and micro-hydro for rural electrification.

*The Ministry of Mines, Energy and Hydrocarbons (MMEH)* has within it the Department of Electricity and Water Affairs which has the responsibility of managing energy policy, and supervises the technical aspects of SNEL, the national power authority.

*The Ministry of the Environment and Sustainable Development (MESD)* is responsible for the implementation and monitoring of government policy on environmental protection and sustainable development. ([REDACTED])

(REEEP 2012)

**Existing/Planned Energy Legislation:** (is there a CPO)

The executive policy for the electricity sector is formulated and approved by the national Ministry on Electricity and Hydraulic Resources (MRHE). In addition, the Ministry of Environment, Tourism and Nature. Conservation (MECNT), Ministry of Hydrocarbons, and Ministry of Rural Development also supplement the policymaking process for the energy sector. There is an integrative/enabling policy on liberalisation of the energy sector (see below) but no RE policy framework or strategy.

Electricity Law – passed in 2014 created the Electricity Regulation Authority (ARE), National Electrification Fund (FONEL), and National Rural Electrification Agency (ANSER). It provided for diversification of the energy mix, a focus on energy conservation and efficiency measures, and a 60% increase in the overall national electrification rate. It also terminated the de facto monopoly in the electric power sector and opened the sector to independent power producers.

(ICF 2017)

**Environmental Legislation for RE:**

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**Existing/Planned Certificate Systems:** (purpose, extent)

Energy Peace Partners has been put forward as a local issuer of I-RECs in DR Congo pending accreditation from the Foundation. EPP will allow for the issuance of I-RECs and I-RECs with the Peace Renewable Energy Credits (PRECs) label. PRECs are RECs which are designed to stimulate renewable energy market development in some of the most fragile and least electrified regions in the world. PRECs support and extend the impact of developers working in these challenging markets. At the same time, PRECs expand renewable energy purchase options in regions with limited infrastructure, particularly for consumers interested in meeting voluntary sustainability commitments and social responsibility objectives. By providing developers more incentives and offering consumers more choices, PRECs extend the benefits of the renewable energy revolution to some of the most vulnerable communities on the planet (Energy Peace Partners, 2019).

**RE market potential:**

DRC has significant hydro potential. The currently untapped Inga rapids has an estimated capacity of 40 GW. The development project on the Congo river is known as the Grand Inga scheme, with the first phase involving the deployment of the Inga 3 dam. If its potential is fulfilled, the Grand Inga would represent the world's largest hydropower project, generating twice as much electricity as the Three Gorge Dam. The current designs of Inga 3 and later phases of the wider Grand Inga would divert the Congo River, leaving behind a reservoir that would flood Bundi valley.

The DR Congo is situated along a very high sun belt given its positioning on the equator. Its average irradiation levels are between 3.25 and 6 kWh/m<sup>2</sup>/day. Solar deployment across the country is therefore viable, with an existing range of 836 solar systems, with a total generating capacity of 83 kW. Hanergy plans to invest \$500 million to establish a thin film solar module factory and a utility-scale plant to support the development of solar technologies in DR Congo and neighbouring nation states. The UN have also been cited as a provider of an energy-as-a-service solar leasing model, adding a 200kW solar system with 200 kW/450 kWh of batteries. This would help reduce diesel usage for electricity generation by 80%, with a payback period of less than four years and 10-year savings of nearly \$2.6 million (PV Magazine 2019).

Data also supports widespread implementation of wind power. One particular hotspot has been declared in Ugoma, where wind speeds average between 6-6.6 m/s. Overall, wind could be converted into a total installed capacity of up to 15 GW, but it remains unclear what proportion of this is economically viable. There is also significant potential for geothermal electricity deployment. Eastern DRC hosts multiple untapped volcanoes and active geothermal sites. Their hot spring temperatures range from 35 to 90 C, with flow rate averaging between 11 and 162 litres/sec. In early 2020, DRC's president reportedly pledged to use off-grid renewable energy systems to expand electricity access to at least 21 million by 2029.

### Market risks and challenges:

The size of the DRC represents a big challenge for SNEL, which does not have enough resource at its disposal to construct new transmission lines and extend the distribution cover of electricity to the entire country.

Political instability conveys a potentially significant market risk for RE deployment. Though progress was made in improving the institutional and policy framework in the power and mining sectors and regarding property rights, rules-based governance, and transparency, lack of accountability and corruption in the public sector remain recurrent, major issues. The weak governance context was reflected in the Country and Policy Institutional Assessment, which highlights that the DRC's governance score is well below the average of Sub-Saharan African IDA-eligible countries.

The governance risks raise the prospect of negative political patronage around project implementation, while the volatile political environment may lead to delays in project effectiveness and/or implementation. To mitigate probable delays, project preparation has involved government officials expected to remain in position until and after elections. Governance issues will be addressed by preparing a detailed project implementation manual that will lay out clear and strict procedures and provide training on procedures. Frequent supervision during project implementation is also necessary.

(World Bank 2017)

**Extent of Engagement with Government:** (brief summary of any contact already made with the national government regarding certification in general and I-REC)

Initial introduction of the I-REC market has been presented to the Office of the President of the Republic-Special Advisor for Infrastructure and the Director General of ANAPI. Following a positive response from these high-level officials, an informal presentation is scheduled for the President of the Republic and the Minister of Hydraulic Resources & Energy during the week of UN General Assembly.

### Expected response from Government:

It is expected that the government will agree to make a statement in support of acceptance of IREC and to engage with I-REC with ANAPI as the initial point of contact

### Current Environmental Reporting in Energy:

Currently there are no environmental reporting measurements in energy by the government.

### Any other Relevant Information:

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