



Fédération des Entreprises
du Congo

la lettre

MAGAZINE D'INFORMATION
DE LA FÉDÉRATION DES ENTREPRISES DU CONGO | 3^e TRIMESTRE 2023

SPECIALE ENERGIE

Investissements dans le secteur de l'électricité: Quel bilan pour les projets privés?



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DRC NRJ6 : la 6ème édition de la
Conférence sur l'énergie donne
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Edito



KIMONA BONONGE
Managing Director



The Democratic Republic of Congo has experienced economic growth for more than two decades. However, for it to be sustained and sustainable, it is imperative to make significant investments in the field of infrastructure in general and, more specifically, that of electricity. To do this, our country has enormous potential which are in fact real investment opportunities in the sector.

Unfortunately, the balance sheet in terms of electricity remains largely in deficit when we compare the level of production to that of consumption. This deficit, for the mining sector alone in the South-East part of the country, for example, is estimated at 1,000 MW while the electrification rate at the national level is 19% with less than 1% in rural areas, remains very low.

The Federation of Congolese Businesses, through the publication of this special issue of its magazine "La Lettre", is committed to alerting public authorities to the place of electricity as a major input in the supply chain. transformation and above all the need

to meet current and future economic consumption needs expressed by companies, which are not covered satisfactorily, both in quality and quantity.

Furthermore, when we consider the noble ambitions contained in the country's Industrialization Master Plan, the electrical energy needs expressed therein are enormous.

Indeed, out of the 2,581 MW of installed capacity, the 1,444 MW available do not cover the current demand of 4,000 MW and which is increasing to reach more than 9,000 MW within three years. The deficit in electricity supply will widen further and the need to have sufficient supply in terms of local electricity production will become increasingly apparent. If nothing is done, this deficit would delay the process of industrialization, the diversification of the economy and the start of sustainable economic development on the one hand and would expose the DRC for a long time to energy dependence on neighboring countries, notably Zambia, Angola and Brazzaville.

Certainly, since the promulgation, in June 2014, of the Law relating to the electricity sector, which established the liberalization of this sector, progress has been made.

been observed and allowed the implementation of private projects whose implementation will contribute to the absorption of the above-mentioned energy deficit.

Furthermore, the energy sector itself also remains confronted with certain constraints which hinder its development.

This is the case of the business climate which remains worrying for private operators with in particular the collection of redundant taxes at prohibitive rates as well as the untimely inspection missions initiated by certain State services, for the majority of which, the reasons are subject to discussion.

This heavy taxation increases the costs of production factors for operators in the

sector and does not allow the accessibility of electrical energy to the population at prices which are compatible with purchasing power and economic reality. These payments include taxes, fees, contributions, contributions, fees, permits which are collected by the Central Power, the Provinces and the Decentralized Territorial Entities without the desired clarity allowing the required predictability of actions.

To make the energy sector more attractive and improve the business climate, the Government, in collaboration with the private sector, will have to take the necessary measures to accelerate the development of projects.

This includes support and facilitation for the signing of energy purchase contracts (PPAs) between operators and large electricity consumers (mining companies and local industries) as well as the improvement of operating conditions. exercise both in terms of the legal and regulatory framework and in terms of infrastructure.

With regard to the legal and regulatory framework, it is necessary to consider a flexible and incentive tax regime which makes it possible to attract private investments, both national and foreign, with a view to transforming potential to improve the local energy supply. .

In this second issue of the Magazine "La Lettre Spéciale Energie", published following the 6th edition of the Energy Conference (DRC NRJ6) organized by the FEC in December 2022, we call on readers to discover the articles which present the state of play of the electricity sector, the projects which are developed by private operators, the overview of taxation applied in the sector in comparison with certain African countries as well as the roles of the ARE and ANSER in promoting access to electricity and regulate the sector.

Investissements dans le secteur de l'électricité: Quel bilan pour les projets privés ?



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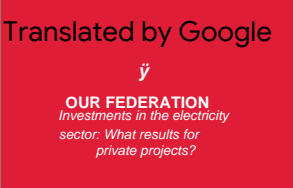
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OUR FEDERATION
Investments in the electricity
sector: What results for
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The National Energy Commission of the FEC organized, on December 2 and 3, 2022 in Kinshasa, the 6th edition of the Energy Conference (DRC NRJ6) in the form of a round table to discuss how the sector private sector contributes to reducing the energy deficit and meeting the strong demand for electricity for the development of the country.

The problems encountered by private operators and the proposed solutions, enriched by the discussions within the parallel round tables and the Panel of Ministers, allowed the Conference to identify appropriate recommendations which were set out in the sector's roadmap. Energy.

The energy roadmap covers, on the one hand, the actions to be taken in the short and medium term by the various government officials and authorities to increase local electricity production and meet the needs of expressed social and industrial demand. and, on the other hand, defines the accompanying measures to materialize the increase in local service.

In his introductory remarks, Mr. Eric Monga, President of the National Commission Energy, recalled the objective of this edition

of the Conference which consists of the development of a road map for the energy sector which sets out concrete proposals so that the energy potential of the DRC can truly contribute to the development and well-being of the population.

He returned to the history of the Conference, the organization of the first edition of which dates back to 2016 with various advances that have been made since the liberalization of the electricity sector in 2014 despite the obstacles to overcome to materialize the increase local electrical energy supply.

The format of the Conference includes the organization of two (02) parallel round tables (Mining & Energy; Innovative Partnerships) to allow participants to discuss the problems prevailing in the sector and to formulate proposals to increase the rate of desert.

The National President of the FEC, Mr. Albert Yuma, in his remarks for the occasion, recalled the temporal evolution of energy production, the delay in the electricity generation process causing the current deficit and slowing down the growth of socio-economic development.

However, since the liberalization of the electricity sector with the promulgation of the Law in 2014, there has been a development of energy projects by private companies such as KIPAY

SOMBWE, TEMBO POWER, GREAT LAKE ENERGY which will reduce the current and projected deficit by injecting nearly 1,700 MW into the network by 2030 so as to cover the estimated gap of 1,200 MW with a growing need for the network alone. mining sector of the South-East zone.

The effective materialization of other energy projects such as SOCODEE, NURU, VIRUNGA ENERGIES, Energie du Nord Kivu, PERENCO REP and many others has made it possible to serve local populations as well as businesses with electricity to meet development needs.

Among the advances made in the sector since its liberalization, we can cite the creation of the Electricity Sector Regulatory Authority (ARE) and the National Agency for Electrification and Energy Services in Rural Areas and peri-urban (ANSER) and the appointment of their facilitators; the increase in tariffs of the National Electricity Company (SNEL); the relaxation of standard concession contracts and the work initiated by the supervisory authority to reduce taxation in the electricity sector.

However, obstacles remain and hamper the development of the sector. The Government is called upon to take concrete measures to accelerate private projects with a view to reducing the energy divide such as support to facilitate the signing of electricity purchase contracts by mining companies which

are the major consumers of energy, the renewal of Decree No. 18/054 of December 27, 2018 establishing the practical provisions relating to tax and customs relief measures applicable to the production, import and export of energy electrical energy, which expired on December 26, 2022 and the continued deployment and operationalization of the ARE and ANSER in the Provinces.

Improving the business climate in the sector is imperative to increase investments in order to support growth, diversify our economy and maintain energy dependence.

The opening speech was delivered by the Minister of Water Resources and Electricity, Mr. Olivier Mwenze Mukaleng, who thanked the FEC for organizing the 6th edition of the Energy Conference.

This Conference constitutes, in fact, a precious moment of dialogue between public authorities and private sector players in order to have appreciable energy potential.

Since the 5th edition of the Conference was held in Lubumbashi, the Government, through the Ministry of Water Resources and Electricity, has made efforts to improve the conditions for increasing energy production in the country. This concerns, for example, the strengthening of the role of SNEL in the sector, the setting of electricity costs and the increase in SNEL tariffs, the rehabilitation and construction of power stations and transmission lines, the promotion of the energy mix and ecological transition, the signing of agreements between mining companies and SNEL, etc.

The challenges remain immense despite these efforts provided. This is the case for the revision of master plans; the construction of transmission lines and electricity distribution networks to Special Economic Zones (SEZs); the continued operationalization and deployment of the ARE and ANSER in the provinces; the evaluation of the 2018 Decree which grants exemptions to operators with a view to its renewal; the fight against vandalism of energy infrastructure; promoting energy independence and reducing electricity imports; the materialization of energy projects to compensate for the deficit as part of the local development program for 145 territories.

The discussions within the parallel round tables and the Panel of Ministers resulted in the main recommendations of the DRC NRJ6:

1. organize a round table between the Government, mining companies, operators and financiers to remove constraints on power purchase contracts (PPA) and obtain the commitment of each party;
2. bypass the requirement made by financiers on PPAs and determine a legal document that



- certifies a potential energy need;
- 3. develop an energy planning document (master plan) which links the energy sector and that of industry;
- 4. ensure project planning taking into account logistical, administrative, financial and technical constraints to achieve the results of increasing local service;
- 5. establish a special regime which encourages private operators and mining companies, through tax incentives, to create electricity networks in remote and isolated areas;
- 6. renew Decree No. 18/054 of December 27, 2018 establishing the practical provisions relating to tax and customs relief measures applicable to the production, import and export of electrical energy;
- 7. accelerate the mechanisms for issuing authorizations and administrative documents and set the maximum time limit for procedures to render decisions or grant administrative documents;
- 8. adapt donor funding to the context of the DRC in the assembly and development of energy projects;
- 9. direct public development assistance towards investment in energy projects during negotiations between the Government and donors;
- 10. create innovative solutions to finance projects, notably the use of financial backup on sales of mining products, the Mining Fund, the Industry Promotion Fund (FPI) and the Regulatory Authority of the sub-sector. contracting in the private sector (ARSP)

- in the financing of energy projects or the implementation of crowd funding;
- 11. strategically prioritize local production of electrical energy at the national level by promoting national projects with the participation of the Congolese;
- 12. intervene in a sovereign manner in setting the conditions for the supply of local energy production and the importation of electricity.
- 13. have a national electrification policy, conduct studies to quantify the energy deficit with a view to better understanding the needs of mining demand, the manufacturing industry and households to be covered as well as the investments to be made;
- 14. provide SNEL with the financial means to renew and maintain energy equipment and infrastructure in an approach based on profitability;
- 15. use climate funds (mitigation, adaptation, carbon credit) to finance electricity production with a view to accelerating socio-economic development and reducing pressure on forests;
- 16. put in place a strategy to capture national and international funds to finance projects;
- 17. pool efforts between public authorities, the private sector and financial institutions to develop the energy sector;
- 18. grant local preference in the awarding of public contracts. Before the words of Mrs. Eve Bazaiba Masudi, Deputy Prime Minister, Minister of the Environment and Sustainable Development, during the closing ceremony, the honorary prizes were was given to members of the



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Government and private sector actors who have distinguished themselves, through their actions, in materializing efforts to develop the energy sector in the DRC:

• **Environment and Development Prize**

Sustainable: Mrs. Eve Bazaiba Masudi, Vice-President Prime Minister, Minister of the Environment and Sustainable Development for the voice of the DRC at the national and international level as a solution country;

• **Energy Transition Prize:** Mr.

Julien Paluku Kahongya, Minister of Industry;

• **DRC Electrification Prize:** Mr. Olivier Mwenze Mukaleng,

Minister of Water Resources and Electricity for the efforts made to increase service and develop projects.

• **Local Projects Financier Prize:** Trust Merchant Bank (TMB);

• **Initiatives of the year prize:** ENABEL;

• **Best Design Award:** BUSANGA with a 145 meter high dam, the highest in Africa;

• **Research Prize:** University of Lubumbashi (UNILU) with the energy transition;

• **Integrated Socioeconomic Development Prize:** KIBALI GOLD MINES;

• **Integration Award:** Mining Engineering Services (MES) for supporting energy projects with local products and services.

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NRJ6



From left to right: Mr. Eric MONGA (President of the National Energy Commission FEC), Mr. Albert YUMA (National President of FEC), HE Olivier Mwenze Mukaleng (Minister of Hydraulic Resources and Electricity), Mr. Fabrice LUSINDE (DG SNEL)



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The electrification rate in the Democratic Republic of Congo (DRC) is estimated at 19% nationally, with less than 1% in rural areas. Indeed, **72 million Congolese live without electricity**, the 2nd country in the world with a large number of its population without access to electricity behind Nigeria with 92 million inhabitants (World Bank Report, 2022).

L The energy balance is made up of 93% use of wood energy, 3% electricity and 4% oil and gas. Total electricity production is estimated at 13 Twh (13,000,000 MW) with losses representing 30% against a consumption of 10 Twh (10,000,000 MW) of which 70% (7 Twh) is oriented towards mining companies, mainly the South zone (Haut-Katanga and Lualaba), and the remaining 30% (3 Twh), allocated to the population with a strong preponderance for the City of Kinshasa which consumes a quarter of this electricity (SNEL, 2021).

The deficit in energy supply and the low rate of electrification lead to strong pressure on forests with negative repercussions on human health and the environment and slow down the industrialization and socio-economic development of the country.

For the mining sector in the South-East part alone, the energy deficit is estimated at more than 1,200 MW and is widening further with the integration of projects such as KAMOA KAKULA, the mines located around KISANFU as well as other mining projects. and industrialization currently being deployed in the northern, central and eastern part of the Republic.

The consequences of this situation are: the failure to satisfactorily cover electrical energy consumption needs (mining, industrial and social demand), the delay in the industrialization process, economic diversification and the maintenance of the population in poverty. .

I. Causes of the electrification deficit

The energy divide experienced by the DRC is the result of the delay accumulated over time due to the absence of the construction of new electricity production units at the national level, the obsolescence of existing infrastructures (hydroelectric power stations and associated networks) and the inadequacies of the operator SNEL in the rehabilitation and maintenance of power plants and associated electrical networks as well as its weaknesses in raising or mobilizing the funds necessary to upgrade the

Electrical installation.
For more than 50 years, new energy production capacities have only evolved by less than 10% without reaching 1,500 MW out of the 2,400 MW installed.
For the West network, almost 35 years passed between the commissioning of the last group of the INGA II hydroelectric plant in 1982 and the commissioning of the first group of the ZONGO II hydroelectric plant in 2017. And for the South network, it took 66 years between the commissioning of the NSEKE hydroelectric power station in 1955 and that of the BUSANGA hydroelectric power station in 2021.

And yet, the needs for energy supply are increasing from year to year with, in particular, the deployment of Special Economic Zones (SEZ), the development of growth poles, the energy transition with the transformation of strategic minerals (Cobalt, Lithium) for produce electric vehicles, batteries, battery precursors, etc.

Thus, the local electricity supply must be able to cover this growing demand in view of the increase in demography and rapid urbanization in the country.

II. Evolution of private projects in the energy sector

To compensate for this situation of energy deficit, it is necessary:

• **Long-term :**
Materialize major electricity production projects such as the Grand INGA and construction of associated transmission networks to meet the needs of local industry and make the country a net exporter of electricity.

• **In the medium and short term:** - Rehabilitate existing hydroelectric power stations through public-private partnerships (PPP);
- Develop private projects to increase local electrical energy production capacity (hydroelectricity, solar, gas, wind, etc.);

- Resort to the importation of electrical energy, particularly from Zambia and Congo Brazza. This carries the risk of making the DRC energy dependent on neighboring countries from which electricity is imported (10% of the energy consumed in the DRC is imported).



Following the liberalization of the sector with the promulgation of Law No. 14/011 of June 17, 2014 relating to the electricity sector, private economic operators are developing energy projects in order to fill the deficit and cover current needs. and futures in electricity with the construction of new hydroelectric and solar power plants, the rehabilitation of existing power plants and associated networks.

Private and mining operators also import electricity from the Republic of Congo (Congo Brazzaville) and Southern African Power Pool (SAPP) countries such as Zambia.

Projects developed at the national level make it possible to provide electricity to mining companies to maintain their production cycle and to serve part of the social demand as well as that of local businesses (manufacturing, agri-food industries, etc.).

A. Public-Private Partnership between SNEL and mining companies
Energy projects have been developed thanks to the Public-Private Partnership (PPP) between SNEL and mining companies. It is :

1. SNEL and IVANHOE MINES with the rehabilitation, completed in 2020, of the MWADINGUSHA hydroelectric plant on the Lufira River with a capacity of 81 MW. This plant is operational and its production is oriented towards the extractive industries (mining companies) in the provinces of Haut Katanga and Lualaba;
2. SNEL and SICOMINES/SICOHYDRO-CHINA with the construction, completed in 2021, of the BUSANGA hydroelectric power station on the Lualaba River with a capacity of 240 MW. Electricity from this plant is available but transmission lines to end consumers are under construction.
- The other projects developed in PPP mode are:
3. SNEL and TFM for the NSEKE dam, capacity 240 MW; SNEL and KAMOA/ IVANHOE MINES for the rehabilitation of the G25 Group of INGA II, capacity 162 MW; SNEL and KCC for the rehabilitation of Groups G27 and G28 of INGA II, capacity 340 MW; NZILO for the capacity of 120 MW;

4. SNEL and IVANHOE MINES for the rehabilitation of the KONI power plant on the Lufira River with a capacity of 42 MW. The project is progressing slowly and work is said to be at a standstill.

B. Self-production of electricity (self-producers)

Some mining operators have initiated energy projects with a view to producing electricity for their own consumption. This is the case of the company KIBALI GOLD MINES with the construction of three (03) hydroelectric power stations in the Haut-Uélé Province for a total capacity of 44 MW: NZORO 1&2 (22 MW); AMBARAU (10 MW); AZAMBI (12 MW).

The company consumes 40 MW and supplies 4 MW to the local population. The KIBALI GOLD MINES company is also developing a 17 MW solar power plant in Watsa (Haut-Uélé), which will be completed by 2025, in order to further reduce its carbon footprint with the use of renewable energies.



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C. Private initiative projects

Private initiative energy projects are developed in the sector by economic operators, independent producers, such as:



KIPAY INVESTMENTS, with the construction of the KIPAY SOMBWE hydroelectric power plant on the Lufira River in the Haut Katanga province with a capacity of 166 MW and the Fungurume solar power plant with a capacity of 48 MWp in the Lualaba province.

The company is constructing the access roads to the hydroelectric plant development site and the first phase of the construction of the solar plant has been finalized with 2.4 MW available and 1.8 MW in storage;

Other companies have projects in hydroelectricity, solar (photovoltaic) and gas. They transport and supply electricity to local households and businesses through their own isolated networks as :



PERENCO REP, which is developing the Muanda gas power plant in the Kongo Central province with a capacity of 250 MW. Currently, the company produces 20 MW which serves the population of Muanda and Kitona with electricity with its own network;



NURU SARLU which has been developing, since 2017, a hybrid solar mini-grid with a capacity of 1.3 MW in Goma in the North Kivu Province. The company operates another solar hybrid site in Bunia in Ituri and two (02) solar power plants in Tadu (120 kilowatts) and Faradje (225 kilowatts) in the Haut Uélé Province for the distribution of electrical energy;



TEMBO POWER, with the construction of a 70 MW hydroelectric plant on the Kakule River in Lualaba and a 50 MWp Lubudi solar power plant.



SOCODEE, which ensures the distribution of electricity (installation of hydroelectric power stations, connection of electrical networks, operation of the transport and marketing network of electricity) with an installed capacity of 17.4 MW to households and local businesses in the North Kivu province. Electricity is supplied to end consumers from the company's own isolated network;



CONGO ENERGY which develops new infrastructures for the production, transport and distribution of electricity while ensuring the rehabilitation and maintenance of existing installations: rehabilitation of the infrastructures of the INGA II and NZILO hydroelectric dams and the strengthening of the SNEL network making it possible to increase transit capacity of 500 MW to 1,000 MW over the 1,700 kilometers between INGA and Kolwezi; construction of a solar power plant of 1 MWp in Manono and electricity distribution infrastructures in Manono and Lubumbashi;



GREAT LAKES ENERGY, with the construction of a 900 MW hydroelectric plant on the Congo River in Kinsuka – Kinshasa with initial production of 300 MW.



VIRUNGA ENERGIES, which built three (03) hydroelectric power plants in the North Kivu province: Matebe (13.2 MW), Mutwanga (1.35 MW) and Luviro (14.6 MW). The company is also building the Rwanguba I hydroelectric plant with a capacity of 28 MW as well as medium and low voltage lines in Rutshuru, Goma and Lubero to develop its network to supply new areas and meet the high demand for electricity. ;



WEAST SOLAR ENERGY & WATER which is developing a solar project with a total capacity of 1.2 MWp on different sites located in Kinshasa (Maluku), Mbandaka, Kalemie, Manono and Kisangani.



NSM, which is developing projects for the establishment of a gas power plant in Muanda from 10 MW to 200 Modular MW; rehabilitation and strengthening of electricity networks (Muanda distribution, line Muanda – Boma, Inga – Kolwezi line: 600 MW to 1,100 MW); rehabilitation of the power plant MPOZO and expansion of capacity from 2 MW to 8 MW; rehabilitation, completed in 2018, and installation of the SANGA 2 hydroelectric plant on the river Inkisi, in the central Kongo province, with a capacity of 15/30 MW;



TRADE POWER, which imports electricity from Congo Brazzaville from Kinshasa (10 MW to 100 MW) and SAPP countries (Zambia) from Lubumbashi (100 MW);



Kivu Power SA, which has been developing, since 2017, the project to extract and convert methane gas from Lake Kivu into electricity for a capacity of 30 MW;



AVZ POWER, which is developing the rehabilitation project of the MPIANA MWANGA I and II hydroelectric power station for a total capacity of 44 MW in Manono in the Province of Tanganyika. The rehabilitation will begin with MPIANA MWANGA II which has large turbines before the second phase to rehabilitate MPIANA MWANGA I.

The electricity produced by this plant will be used for the exploitation of Lithium by the company DATCOM and part of it will serve the local population.

III. Proposed solutions to accelerate the implementation of projects

The energy sector, however, remains confronted with certain constraints which delay its development.

To accelerate the development of energy projects, there is a need to:

- Improve the business climate which remains worrying (multiple taxes and impositions, untimely unjustified controls);
- Encourage partnerships with the signing of energy purchase contracts between local producers and large energy consumers (mining companies and local industrialists);
- Find innovative mechanisms for financing energy projects;
- Grant tax and customs incentives to operators;
- Streamline the procedures for processing and issuing authorizations and administrative documents;
- Promote the development of projects in isolated and remote areas;
- Ensure the stability and maintenance of the electricity network;
- Fight against vandalism and sabotage of energy projects and infrastructures;
- Give preference to local production of electricity in industrial consumption needs.

Increasing local electricity supply will make it possible to reduce the rate of deforestation, limit greenhouse gas emissions, improve the living conditions of the population and promote socio-economic development.

The accumulation of these various private projects will make it possible to increase the local supply of electrical energy by more than 2,500 MW by 2025 – 2030, thus contributing significantly to covering the energy needs of mining companies and local industries.

The private investments made by these projects amount to more than 15 billion US dollars and make it possible to create several direct and indirect jobs and bring thousands of populations out of darkness while improving the rate of electricity service.



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Investment of the Climate of
risk electricity OR and safety
what are the projects?

ELECTRICITY IN DRC: ARE THE SECTOR TOURNAMENT

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1. HISTORY

Manono developed from the beginning of the 20th century when Belgian settlers exploited a promising cassiterite deposit, as it was then known to be a cassiterite deposit.

Mines as well as quarries, smelters, dams, housing and the railway brought prosperity. It was then known as Congo-Etain, a state-owned company which became Zaire-Etain after the country changed its name to Zaire, and then became La Cominière (Congoles Mining Company).

But gradually, after the turbulent years and mismanagement that followed independence in 1960, the mining equipment deteriorated and Manono gradually became dormant.

The decline was encouraged by falling tin prices, although the final blow came from the war that broke out in 1997.

A quarter of a century later, vegetation has grown on the ruins and slag heaps are covered with trees, while two steam locomotives, a crane and wagons rust on the side of a road.
Mpiana Mwanga I and II were set up to supply electricity to the tin mine. The power plants are located 95 km from Manono territory on the Kalemie road.

Commissioned in 1932 and 1952, 91 and 71 years ago respectively, by Géomines, a company of the Belgian monarchy.

The electricity used at the time was to supply the mines and surrounding areas, the mechanical workshops, the hospital, the flour mill, the water pumping stations, the offices and houses of the Belgians and the workers' camp.

The Zaireanization process of 1973 resulted in the separation of ownership and concessions granted to Zaire Etain.

Mpiana Mwanga II operated from 1948 to 1986. The two plants served the mine, the mechanical workshops and the mining camp until the collapse of the price of tin in the 1990s.



1980 and the closure of the mine at the same time. The Mpiana Mwanga I operation was shut down due to lack of oil in 1999 following a new war by RCD rebels supported by their Rwandan allies, although the war had already started in 1997.

As a result of these events, Mpiana Mwanga I and II were vandalized to the extreme such that all engines, electrical cables, including transmission lines, and instruments were stripped except for the civil infrastructure.

PROPERTY TITLES

Mpiana Mwanga I and II belong to the Congoles State according to the provisions of article 52 of Law 14/011 of June 17, 2014 relating to the electricity sector.

AVZ POWER SAU, subsidiary of the international company under Australian law AVZ MINERALS LTD, whose corporate purpose consists of the study and development of projects in the electricity sector such as hydroelectricity, solar power, wind power and the

thermal energy in the DRC, had, on June 4, 2019, requested the rehabilitation of Mpiana Mwanga by submitting a letter of intent for expression of interest to the Ministry of Hydraulic Resources and Electricity.

Such a request was welcomed by the MHRE as the end goal was to use electricity in restarting the mine

Dathcom and its surroundings in Manono located in the territory of Manono. It indicates that Dathcom is a joint venture of which Cominière and AVZ International are partners, Cominière being a parastatal company.

2. Memorandum of understanding

On January 13, 2020, a Memorandum of Understanding (MOU) was signed between the DRC (MHRE) and AVZ POWER SAU. Objective: rehabilitation of the Mpiana Mwanga I and II hydroelectric power stations as part of the implementation of the joint venture contract, led by AVZ INTERNATIONAL LTD and signed between them, that is to say, between companies

COMINIÈRE SA, AVZ INTERNATIONAL LTD, DATHOMIR MINING RESOURCES SARL and DATHCOM MINING SA, not only for the exploitation of the lithium mine but also for the electrification of Manono and its surroundings.

The memorandum of understanding stipulated the responsibility of the AVZP to carry out a definitive feasibility study (DFS). AVZP also obtained a baseline Environmental and Social Impact Assessment (ESIA) in September 2020, a prerequisite for proceeding with the DFS.

3. DFS
a. DFS – REHABILITATION OF POWER PLANTS

AVZ Power SAU (AVZP) is working in collaboration with the Ministry of Water Resources and Electricity (MHRE) to secure a concession to renovate and operate the existing Mpiana Mwanga power station to provide electricity to the lithium and of Manono and to the communities of Mpiana Mwanga and Manono.

These plants are run-of-river hydroelectric plants, located on the Luvua River approximately 90 km southeast of Manono. They have not been operated since the mid-1980s and late 1990s, and have been significantly stripped of copper pylons and transmission lines, rendering them unusable. The power stations were originally built respectively in two stages with a head height difference of 23 m located on the Luvua River.

To date, AVZP has conducted a DFS on the former Mpiana Mwanga facilities and found the following:

- The newer of two existing turbine rooms, built around 1952, was designed for 3 8.98 MW vertical shaft Kaplan turbines, of which only two were installed. All other infrastructure in terms of concrete and structural steel exists for the third turbine, with the exception of the roof which has been completely removed.
- The older of two turbine rooms, built around 1932, was designed for 3 x 4 MW vertical shaft Francis turbines.
- The HV switching station is unusable and will need to be replaced. This switching station was severely neglected and dilapidated. It will require a complete rebuild to modern specifications and standards.
- The 120 kV overhead power line to Manono was stripped of copper line and most of the pylons were damaged when the power cables were stolen. Unfortunately, many insulators were also damaged during the looting.
- The road from Mpiana Mwanga to Manono requires a complete renovation.
- The Manono HV substation is also unusable and will require replacement and complete reconstruction to modern specifications and standards.
- Both turbine halls require significant concrete and structural repairs to return them to service.



b. ENVIRONMENTAL STUDIES ON ELECTRICITY PRODUCTION, POWER TRANSMISSION LINES AND ROADS In accordance with the requirements of the concession application process, AVZP also conducted three ESIA's which were all approved by the Congolese Environment Agency (ACE).

- These were awarded by the ACE on November 5, 2020 for:
- Hydroelectric power station
 - 120 kV overhead power line
 - 90 km of road repairs from Manono to Mpiana Mwanga

The ESIA report was approved by the Congolese Environment Agency (ACE).

4. INTERMEDIATE STEPS IN THE PROCESS LEADING TO THE SFD VALIDATION PROCESS

The COHERENT intermediate steps leading to the DFS validation process are listed below: • June 21 to July 3, 2019: SG/ MHRE and COMINIÈRE SA carry out a joint on-site visit mission through their collective mission orders: no. ERH/

SG/0/036/B9/NB/19 of June 21, 2019 in Kinshasa and n°026/CEM/DG/2019 of June 24 in Lubumbashi. Mission composed of experts from MHRE, COMINIÈRE and AVZ POWER SAU for a proven inventory of these

- infrastructures. • January 13, 2020: Signature of a memorandum of understanding between MHRE and AVZ POWER SAU for the rehabilitation of the installations of the Mpiana Mwanga I and II hydroelectric power stations and their outbuildings.
- September 15 to 31, 2020: SG/MHRE dispatched a second mission by service order n°RHE/0/SG/070/B9/SM/2020 carried out by an MHRE expert to support the technical agents of the bidding companies with AVZ POWER SAU within the framework of technical and environmental assessments. • November 5, 2020: AVZ POWER SAU obtains three

Environmental Certificates from ACE (Congolese Environment Agency) on

favorable opinion from the panel of experts in environmental and social impact studies: • Environmental certificate No.100/ACE/CM/JCEE/2020 for the rehabilitation of 120kV high voltage power Manono – Mpiana Mwanga

- Environmental certificate no. 101/ACE/CM/JCEE/2020 for the Manono-Mpiana Mwanga road rehabilitation project, 95 km long, Tanganyika province
- Environmental certificate no. 102/ACE/CM/JCEE/2020 for the rehabilitation project of the Mpiana Mwanga I and II hydroelectric power stations with a potential production capacity of 44.4 MW in Mpiana Mwanga, Tanganyika province.
- December 23 to 10, 2020: SG/MHRE dispatched a third mission by service order no. RHE/4/SG/0/114/B9/SMW/2020 carried out by experts from COMINIÈRE SA and AVZ POWER SAU for an evaluation complete for the planning of rehabilitation works. • December 14, 2020: Request by the company AVZ POWER SAU to convene a Joint Technical Committee to examine the file relating to the award of the concession contract for the rehabilitation of the Mpiana Mwanga I and II hydroelectric power stations.

- January 29, 2021: Signature of ministerial decree n°129/CAB/MIN/RHE/EMM/2021 of January 29, 2021, by His Excellency the Minister of State, Minister of Hydraulic Resources and Electricity creating the Technical Monitoring Committee for the Rehabilitation Project of the Mpiana Mwanga I and II Power Plants.
- February 27, 2021: Convocation by the SG-MHRE by its reference letter no. RHE/SG/0/0327/D9/SM/2021 of an ad hoc committee of multisectoral and multidisciplinary experts for the analysis and validation of the feasibility studies of the Mpiana Mwanga I and II hydroelectric power plants. • March 22, 2021: By his letter n°.CAB/MIN/RHE/BMP/209/AAM/21, His Excellency the Minister of State, Minister of Hydraulic Resources and Electricity after validation of the studies by the ad hoc committee of multi-sectoral experts, authorized AVZ POWER SAU to continue work on the Mpiana Mwanga I and II site taking into account its recommendations.

5. CONSTITUTION OF THE DFS VALIDATION COMMITTEE BY MHRE

According to the MoU, the DFS was to be submitted to the MHRE along with ACE certificates of ESIA reports on power generation, power lines and roads. Following this submission, a validation committee was formed by the MHRE composed of representatives of the following institutions:

- Advisor in charge of hydroelectricity at MHRE
- Advisor in charge of solar and wind energy to MHRE staff
- Advisor in charge of finances for MHRE staff
- Advisor in charge of training MHRE staff
- Director – Head of Electricity Department of the MHRE General Secretariat
- Director – Head of the Renewable Energy Department of the General Secretariat of the MHRE
- Single division head of the MHRE General Secretariat
- Rural Electrification Division Head of the MHRE General Secretariat
- Head of the Distribution Division of the General Secretariat of the MHRE
- Head of the Renewable Energy Division of the General Secretariat of MHRE
- Expert from the NATIONAL ENERGY COMMISSION (CNE)
- Expert from the UNIVERSITY OF KINSHASA (UNIKIN)
- Expert from the HIGHER INSTITUTE OF APPLIED TECHNIQUES (ISTA)
- Independent expert

6. THE DFS VALIDATION COMMITTEE BY MHRE
COMMISSION'S WORKING METHODOLOGY

- Presentation of the report by the representative of the Consortium
- Reading and free criticism, by expert, of the DFS report (opinions and considerations scientific and technical)
- The entire 120KVA overhead line will be replaced with new aluminum and OPGR cables using modern insulation technology.
- Pooling of opinions and reflections of experts from the DRC made up of scientific discipline sectors (hydrology and geotechnics, electromechanics and electricity, social and environmental protection, economic and financial aspects)
- Debate and exchanges with the Consultant's panel of experts on each concern expressed by the DRC experts.
- Preparation of the report sanctioning the end of the validation work

PROJECT CONTENT

- Introduction to the Mpiana Mwanga project
- Current state of infrastructure
- Methodological approach to the renovation of Mpiana Mwanga I and II
- Non-destructive checks on export infrastructure and certification
- Technical characteristics of electromechanical devices and equipment
- Synoptic table on production, investment cost and work execution schedule

SCOPE OF WORK ON MPIANA MWANGA

- Component 1: Replacement of the MM I and MM II turbines with 3 new modern Kaplan units each (10.3 MW for MM I and 4.5 MW for MM II) for a total of 44.4 MW of installed power compared to one previous 30 MW.

A third turbine will be installed in position 3 not previously used at MM II
- Component 2: Installation of substations with control and measuring devices. In addition, all electrical equipment and instruments will be new and no old equipment will be reused.
- Component 3: General renovation works. For example, restoration of concrete spillage and damage to the metal structure is possible and will be completed.
- Component 4: HT 120KVA electricity transmission line. The entire HT system will be new, including the 120KVA power line to Manono with support towers and insulators as well as HT substations at each end of the transmission line. The new transmission line will be equipped with an optical fiber ground wire (OPGW) to facilitate communication with the control room of the Manono processing plant.
- Component 5: Rehabilitation of the Manono -Mpiana Mwanga road

Once the ESIA reports were approved by the Congolese Environment Agency (ACE), the MRHE expert group reviewed the DFS prepared by AVZP from February 27 to March 2, 2021, then approved it for use. Following the report of the Validation Committee, the Minister of State, Minister of RHE validated the DFS on March 22, 2021 in his letter referenced CAB/MIN/RHE/BMP/209/AAM/21 dated March 22, 2021.

AVZP fulfilled all requirements in accordance with the DRC Electricity Law 2014 and its secondary legislation, to obtain the concession contract. AVZP will be integrated into a PPP collaboration agreement which was under review by the DRC government.

From the award of the concession, AVZP expects the renovation to take between 16 and 18 months for Turbine Hall 2. Turbine Hall 1, which requires more design than Turbine Hall 2, will take another 12 months to complete.

AVZP plans to install 3 new 10.3 MW turbines in Hall 2, then potentially 3 units of the 4.5 MW turbines in Hall 1. This will provide a theoretical production capacity of 44.4MW before factoring for power losses. line.

The energy will primarily be used to power the Manono lithium and tin operations to be built by Dathcom Mining SA (Dathcom) at the former Roche Dure open pit in Manono and the Manono Special Economic Zone.

AVZP will work to meet the renewable energy demand of its main buyer, Dathcom. Dathcom's goal is to work toward becoming a zero-carbon mining operation by 2030, as well as being a good corporate citizen and providing surplus energy to the community through the local distribution network.

AVZP will also provide energy for essential social services.

7. THE EXPANSION CONCESSION AWARD PROCESS

The authorization to continue the stages of implementation of the works on the Mpiana Mwanga I and II site being granted by His Excellency the Minister of State, Minister of Hydraulic Resources and Electricity, only the signature by His Excellency will remain. Excellency the Governor of the Province of Tanganyika of the concession document of the Company AVZ POWER SAU in order to comply with the requirements of articles 47, 74, 75 and 76 of Law 14/011 of June 17, 2014 relating to the sector of electricity.

The process of awarding the concession for the operation of the Mpiana Mwanga power stations to begin the financing and execution of the renovation of MM I and II does not materialize again due to interference from Cominière although the final use of the electricity is to power the mine and surrounding areas of Manono. AVZ POWER SA has excluded itself from distribution outside the mining enclosure.



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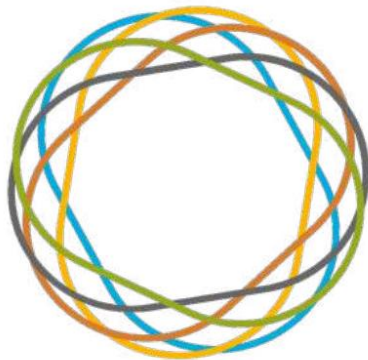


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resource matters



Work accomplished in recent years

Energy Department

After the launch of the Congo Epela Platform, on electrification solutions for populated areas in the DRC, the RM team embarked on a phase of popularizing this platform to the relevant authorities who can grasp the results of this research to electrify the DRC, and some of the most followed media in the country (Bosolo tv, Rtn, Kin 24, Radio Okapi). We will remember from this Congo Epela platform:

- It is a platform that offers 100% renewable energy electrification solutions;
- It shows the cheapest electrification solutions to electrify each inhabited region of the DRC;
- It is the first platform that demonstrates how the DRC can achieve goal 7 of the SDGs by 2030: access to affordable, reliable and clean energy for all.

The platform presents the best way to electrify each corner of the country based on demand, available energy sources and existing energy infrastructure. The platform chooses between three options

electrification, namely: the extension of the electrical network, the construction of mini networks (solar, wind, hydraulic) and the installation of Individual solar kits.

In their desire to improve the results of this platform, Resource Matters experts went to Namibia for two weeks of training on the Osemosys tool which makes it possible to determine the best energy mix for the electricity network.

In other words, this helps determine which energy sources (such as water, solar and wind) would be best suited to supply electricity to the existing electricity networks in the DRC (west, east and south).

What to learn from training in Namibia?

A modeling exercise on the future energy trajectories that the DRC will have to take was modeled by Resource Matters experts during this two-week training.

The DRC presents itself as a solution country, committed to finding solutions to the problem of global warming, as evidenced by its commitment by signing the Paris agreement for

reduction of greenhouse gases (GHG). However, despite this, the DRC plans to exploit its gas and oil blocks, which creates a dichotomy.

This situation led us to carry out a comparative study on CO2 emissions and investment costs linked to achieving the government's objectives linked to fossil fuels and the objectives to which the country has committed with the United Nations.

The objective of this research was to answer several questions: What would be the impact on CO2 emissions and investment costs if the DRC achieved its objectives for the exploitation of fossil fuels? What would be the impact on CO2 emissions and investment costs if the DRC achieved its objectives set in its CDN?

The results on the poster tell us more.

Next step

With a view to good appropriation of the results of the electrification solutions modeling tool for the DRC, the Resource Matters team of experts will organize training for members of the national Core Group in the coming months in Kinshasa. to strengthen their capacity on the Osemosys tool, but will also upgrade the use of the OnSSET tool.

Core Group

After two years of work, reflections and discussions around the electrification problems of the DRC, the group of multi-institutional experts working in the energy sector, decided to publish their annual report discussing their achievement in the energy sector.

As a reminder, the Core Group was launched in 2021 by Resource Matters with the main aim of bringing together institutions working in the energy sector for the improvement of existing data in this sector. Further, this group, beyond this objective, has been able to put the debates around the problem of electrification as its driving force and is currently evolving in reflections and publications of technical notes on themes affecting electrification projects of the country while relying on the Congo Epela platform launched by Resource Matters in June 2021.

Work in progress for the coming months

After the launch of the Congo Epela platform, RM continues to work to improve it and achieve even more useful results for all parties involved. Additionally, with the aim of having a more direct impact on access to electricity, RM will focus on modeling the construction of mini-electric grids in ETDs benefiting from the mining royalty.

The objective is to help these ETDs make decisions about the use of these funds and to encourage increased access to electricity for the Congolese populations.

ENERGY MODELLING PLATFORM – AFRICA | 2023

How to reconcile increases in electricity demand in the DRC with mitigations of CO2 emissions

Christian Mbenga, Cristian Trujillo

Resource Matters Researchers



resource matters

1. Context

Low electrification access

- >90 million people with low access to unreliable electricity
- Biomass based energy consumption: 97%

« Pays solution »

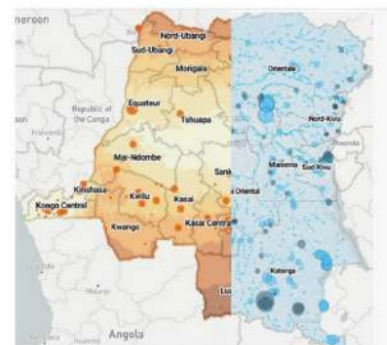
- Vast hydro resources
- Signed SDG (Goal 7), NDC

Ambivalent goals

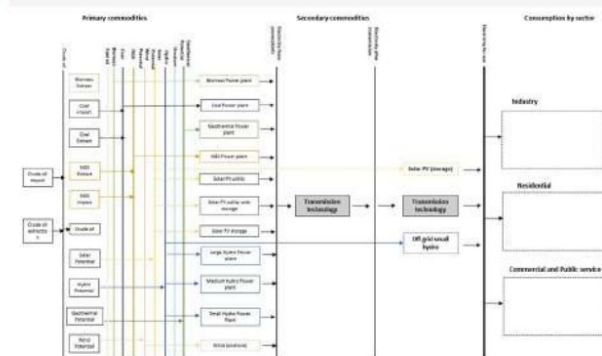
- Call for tenders to develop 27 oil blocs and 3 NG blocs

2. Aim

- What is the impact on CO2 emissions and investment costs of achieving fossil fuel exploitation goals?
- What is the impact on CO2 emissions and investment costs of achieving NDC goals?

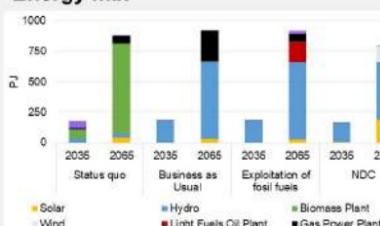


3. Methods & Scenarios



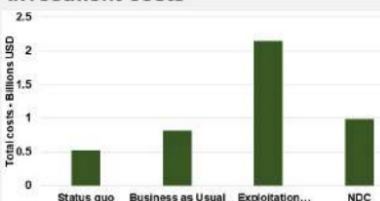
4. Results

Energy mix



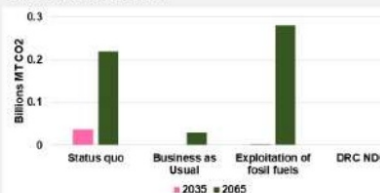
- Status quo: intensive biomass
- BaU: hydro is not enough to meet demand; gas is needed too
- Fossil fuels: with more oil available, oil becomes more present in the mix
- NDC: on-shore wind and solar (PV with storage) needs to complement hydro to meet demand under CO2 restrictions

Investment costs



- Overall: significant investments are needed under all scenarios
- BaU: hydro developments will be costly: 56% more than status quo in 2065
- Fossil fuels: the most expensive scenario: 313% more than status quo in 2065. Additional costs come from maintenance of oil plants
- NDC: realistic scenario: it will cost only 21% more than BaU planned investments to achieve

CO2 Emissions



- Status quo: biomass-based energy mix implies significant emissions. Only 21% less than fossil fuel scenario in 2065
- BaU: even with intensive hydro mix, there will be emissions although substantially less than in status quo or fossil fuel scenarios
- Fossil fuel: not surprisingly, emissions are the largest
- NDC: low emissions by assumption

5. Policy insights, conclusions and future work

6. References

Conclusion

- Use of fossil fuels is fundamentally incompatible with NDC goals and with the "pays solution" rhetoric: by 2035 CO2 with fossil fuels are 37 times the NDC goal
- Implementing necessary infrastructure will be expensive in all scenarios, although much more under the fossil fuels scenario.
- Fossil fuels energies are expensive to implement, much more than hydro and other RE alternatives (solar and wind)

Policy insights

- Under current assumptions, NDC is a feasible scenario: only 21% more investments than BaU overall, with very low emissions
- Design policies to encourage use of renewable energies, particularly PV with storage and on-shore wind plant
- Across scenarios, much capital is needed. Business climate and policy clarity should be improved to attract it
- DRC should restrict the use of fossil fuels in its energy mix. They are too expensive and pollutant

Areas for future work

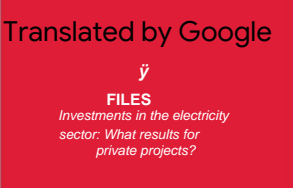
- Improve data knowledge to build better assumptions
- Modelling full DRC energy system e.g. transport
- Modelling with Flextools to evaluate the flexibility of solutions
- Validate data and results with relevant stakeholders

[1] Cannone et al. (2023). CCG Starter Data Kit: Congodemrep (v2.0) [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.7526337>

[2] Voafrica: Blocs pétroliers: la RDC promet de veiller au respect de l'environnement. July 2022; [online](https://voafrica.com)

[3] McWhannel, Pierre, Barnes, Trevor, & Islam, Elias. (2023, January). Definition and Simple Applications: Energy and Flexibility Modelling (Version 3.0.). Zenodo.

[4] PNUD 2023: Climate promise; DRC NDC <https://climatepromise.unep.org/what-we-do/where-we-work/congo-democratic-republic>



<p>The Forrest Group develops projects in the electricity sector in Africa and mainly in the Democratic Republic of Congo. Its expertise concerns hydroelectric, solar and wind infrastructure.</p> <p>The Electricity Division was created in 2013 with the aim of consolidating the Forrest Group's know-how in the electrical field and pooling skills.</p> <p>This is a strategic decision by the Board of Directors: to make energy a priority area of development and provide it with adequate resources to meet this ambition.</p> <p>The strengths of the Forrest Group and its Division Electricity :</p> <ul style="list-style-type: none">• In-depth knowledge of the DRC • Local experience• Complementarity of the Sector's companies • International partnerships: Siemens, Engie, Tractebel, Beka-Schröder, Schneider, Sunna Design• Partnerships that make it possible to respond to		<p>specific needs of the DRC by offering global expertise</p> <ul style="list-style-type: none">• Group stability• Compliance with Compliance standards <p>The Forrest International Group has been present in the Democratic Republic of Congo for almost 100 years without interruption.</p> <p>The Group's first company, Entreprise Générale Malta Forrest, was created in 1922 in Kolwezi. Since then, the company has maintained a family structure and remains a major investor and employer.</p> <p>2. ELECTRICITY POLE COMPANIES</p> <p>The Electricity Sector of the Forrest Group is made up of three companies:</p> <ul style="list-style-type: none">> CONGO ENERGY> AEMI> NSM HYDRO <p>Each company in the Electricity Sector has its own expertise and a field of activity in which it is specialized.</p> <p>The complementarity and synergies between these companies make it possible to offer a global and unique service offering in the Democratic Republic.</p>		<p>of the Congo.</p> <p>2.1. CONGO ENERGY</p> <p>Congo Energy is active in project management, the development of new production, transport and distribution infrastructures, the rehabilitation and maintenance of existing installations and the marketing of electrical products.</p> <p>Congo Energy was the first company in its sector in DR Congo to obtain ISO 9001 certification.</p> <p>With operating headquarters in Lubumbashi and Kinshasa, Congo Energy is a major player in the electricity sector in the DRC.</p> <p>PROJECT MANAGEMENT</p> <p>Congo Energy manages FRIPT, an infrastructure rehabilitation project for the Inga 2 and Nzilo dams and the strengthening of the SNEL network to ensure the transit of 1,000 MW between Inga and Kolwezi.</p> <p>PRODUCTION UNITS</p> <p>Congo Energy built a 1MWp solar power plant in Manono and electricity distribution infrastructure in Manono and</p> <p>Lubumbashi, a project financed by the Group Forrest.</p> <p>ELECTRICAL PRODUCTS</p> <p>In order to offer innovative, quality products, Congo Energy has entered into partnerships with renowned international companies: Sunna Design, Beka Schröder, Sunoptimo and Schneider Electric SE.</p> <p>2.2. AEMI</p> <p>AEM I (Atelier s d'Electro-Maintenance Industrielle) is a company based in Kinshasa and Likasi, specializing in electrical installation, repair and maintenance.</p> <p>In its workshops, the company rehabilitates electrical machines, in particular rotating machines specific to the hydroelectric energy sector and motors for renowned industrial clients throughout the DRC.</p> <p>AEMI also offers design and installation services for electrical installations, both for Industry and Buildings, and electrical maintenance services, including preventive ones.</p> <p>In terms of electrical repair, the AEMI workshops in Kinshasa and Likasi are the only ones in the DRC to have all the equipment necessary to international standards.</p>	

Since 2017, AEMI has been officially certified for the distribution, repair and maintenance of Siemens products in the DRC.

ROTATING MACHINES

AEMI has carried out numerous rehabilitations on hydroelectric power station turbines, notably those of Inga 2, Sanga, Koni, Mwadingusha, Nseke, Bendera...

WINDING

AEMI repairs electrical machines: motors, alternators, transformers and stabilizers.

CONSTRUCTION

AEMI carries out the electrical installation of buildings and industrial infrastructures, but also in very specific sectors: hospitals, banks, etc.

2.3. NSM HYDRO

NSM HYDRO is a company based in Kinshasa of which the Forrest Group is the main shareholder. The company is the result of a collaboration with a local partner for the recommissioning and development of production projects in the DRC. NSMHYDRO rehabilitates the Sanga hydroelectric power station, on the Inkisi River, in Kongo Central (formerly Bas-Congo). The project itself is financed by the Forrest Group.

In 2017, phase 1 of the project allowed the rehabilitation of 3 turbo-alternator groups. These have been put back into service and produce electricity, injected into the national SNEL network. The Sanga power station has not been connected to it since 1997. Phase 2 of the project which provides for the reconnection of the 3 other groups is underway.

3. OUR EXPERTISE

3.1. MANONO PHOTOVOLTAIC POWER PLANT

Congo Energy built the Manono solar power plant, the largest 100% off-grid solar power plant in the region.

This was commissioned in the first quarter of 2018 and supplies a new isolated network of SNEL (National Electricity Company). The plant was designed, built and commissioned by Congo Energy. The project was carried out thanks to funding from the Forrest Group.

In addition to the power plant, the project includes the construction of underground Medium Voltage networks, distribution cabins, Low Voltage networks, public lighting and subscriber connections.

Built in the heart of the town of Manono, on unoccupied land, the plant is made up of two hectares of solar panels and presents a new source of electricity in the Democratic Republic of Congo. His capacity

production is 1MWp and its storage capacity is 3MWh.

3.2. SANGA HYDROELECTRIC POWER PLANT

The first phase of the rehabilitation of the Sanga Hydroelectric Power Plant was completed in 2018 with the return to service of 3 groups and the reconnection to the SNEL network, which had not been the case since 1997. The second phase of the work was completed in 2022: rehabilitation and reconnection of the last 3 groups as well as the renovation of all the electromechanical structures, This work made it possible to increase the production capacity of the Sanga hydroelectric plant by 5.76 MW.

The entire project (phase 1 and phase 2) is financed by the Forrest Group. The Sanga hydroelectric power station is located about twenty kilometers upstream of the Zongo Falls, in the Lukaya District, in the Kongo Central Province. The hydroelectric power station infrastructure, built between 1930 and 1950, exploits the waters of the Inkisi River, a tributary of the Congo River.

3.3. FRIPT PROJECT

Since 2010, the Electricity Pole, via Congo Energy, has managed the FRIPT project (Reliability, Rehabilitation and Strengthening SNEL Production and Transport Infrastructure). The project is financed by the KCC company. The FRIPT notably includes the rehabilitation of infrastructure at the Nzilo and Inga 2 dams and the strengthening of direct and alternating current transmission to increase transit capacity from 500 to 1,000 MW over the 1,700 kilometers between Inga and Kolwezi.

Congo Energy is responsible for the administrative and financial management of the project, the establishment of technical specifications and

conditions of tenders and analyses, technical control of designs, technical proposals and achievements, management of equipment maintenance.

3.4. CONTRACTING: EXAMPLES OF PROJECTS

- KATONTO
- KATUBA MV/LV NETWORK
- SENDWE HOSPITAL
- LAKE TURKANA
- SUBSTATIONS
- WIND FARM

3.5 REPAIRS AND MAINTENANCE

- MWADINGUSHA
- KONI
- INGA 2

3.6. LIGHTING

- KASAVUBU AVENUE
- DIUR STADIUM
- VALLEY

4. ELECTRICAL PRODUCTS

The Electricity Sector of the Forrest Group provides its customers with solutions in the field of energy and electricity.

In the Democratic Republic of Congo, Congo Energy is the sales representative of Beka Schröder, leader in lighting on the African market, and of the French company Sunna Design, designer of innovative solutions in solar public lighting.

Congo Energy is also certified as the official installer of Schneider Electric equipment in the DRC, a global specialist in the fields of energy management and automation.

AEMI is for its part officially certified for the distribution, repair and maintenance of Siemens products in the DRC, in particular motors, automation products, drives, etc.



A design and production office based in the DRC since 2011, the company WEAST ENERGIE SOLAIRE & EAU has considerable expertise in access to electrical energy and the implementation of projects in both rural and urban areas.



L

Improving living conditions in peri-urban and rural areas will necessarily be achieved through electrification. In order to be truly useful and therefore use electricity, it must meet a need that allows the sustainability and longevity of infrastructure. Several investment and management models can be followed and we present here an investment model driven by the private sector. In each region of the DRC, there are entrepreneurs carrying development projects with strong economic and social impact.

Each region has its specificities, strengths and constraints. It is possible to classify projects by the type of feasibility

Our project consists of supporting the main areas of development: •
The productive use of energy in the agricultural sector with hubs equipped with mills, hullers and other small equipment
• Productive use of energy in the cold chain with solar cold rooms, ice production machines and mobile cold equipment

• The use of water for irrigation techniques and overcoming seasons for crops

• The use of energy for basic infrastructure and services. • The use of clean energy for replacement of diesel.

To do this, we will develop a platform which will be a showcase for local entrepreneurs who seek to set up their projects and whose main obstacle is energy for their processes.

From there, several solutions are offered for financing: 1. Capital purchase with all the mobilization that this entails.
2. Financing by a loan from one of our banking partners and finally 3. Leasing the equipment over a period of 3 to 5 years which allows the financing of the equipment to be spread over operational costs with the possibility of acquiring the equipment at the end of the leasing period.

The first agricultural hubs set up as a pilot in 2022 in Ipamu, Bongo Yassa, Mbandaka and Kalemie have shown great success and a very positive reception by the population who willingly join the projects for their successes. We went

considers that certain elements such as access to a market for selling products or the involvement and willingness of populations to work the land in a long-term project are very important elements that must be reinforced through social actions and educational. It is not enough to have the solutions; people must take ownership of them and use them wisely.

With the ever increasing costs linked to polluting thermal production by diesel generator of electricity and the falling costs of green energy equipment it is increasingly interesting for large consumers of diesel to hybridize their installations and get up to 80% reduction in fuel consumption.

Most projects are profitable between 1.5 to 3 years and a large operating margin can be generated in order to use them in a better way than by burning them!

As an EPC company we offer different possibilities to customers: from the acquisition of infrastructure to the proposal of the electricity supply service. These services will be specially offered by our Branch in Kolwezi and Lubumbashi for the extraction sector.

The company KIPAY INVESTMENT, developed by Mr. Éric MONGA MUMBA, National Vice-President of the FEC in charge of Energy and President of the National Energy Commission, continues its investments in renewable energies in the South-Eastern part of the DRC with the construction of the Kipay Sombwe hydroelectric power plant on the Lufira River with a total production capacity of 166 MW as well as the Fungurume solar power plant for a total production capacity of 48 MWp.



- enlighten more than 100,000 households with social demand;
- create more than 4,000 direct and indirect jobs generated during the 48 months of construction beyond permanent jobs in the operation and management phase of the project;
- reduce the electricity deficit of the Grand Katanga Province by around 10%.
- The project also provides opportunities for tourism around the dam including holiday accommodation, and fishing.

Making energy available to the local population for productive use will generate economic growth and local development with the multiplicity of local initiative projects in small manufacturing, agricultural processing, flour milling, etc.

Environmental and social impact studies
The development of the KIPAY Sombwe power plant respects national and international legislation, company-specific policies and international conventions regarding the environment and its impacts on the ecosystem and local communities throughout the project cycle.

Environmental and social impact studies were carried out by renowned international and national consultants to ensure that good environmental practices in terms of international and national standards are respected.

KIPAY's objective is to produce electricity which, once injected into the national network, makes it possible to reduce the current energy deficit by ensuring that the needs of local industry and households are covered.

Development of the KIPAY Sombwe hydroelectric project

The liberalization of the electricity sector, materialized by the promulgation of Law No. 14/011 of June 17, 2014 relating to the electricity sector, has enabled private operators to develop energy projects to cover the electricity needs of the local industry and households.
Since 2018, KIPAY has launched its flagship project of construction of the Sombwe hydroelectric power station with a total capacity of 166 MW and 48 MWp in photovoltaics. The Kipay project

Sombwe aims to produce energy which will be injected into the Fungurume substation via a 206 km transmission line at 220 kV with two (02) circuits.

The Sombwe project development site is located approximately 340 km from the city of Lubumbashi and 220 km from the mining area near Likasi.

Socio-economic impacts

The Sombwe hydroelectric plant with its total installed capacity of 166 MW, will generate electricity of 890 GWh per year. The construction of this power plant has the following impacts:

- cover the electrical energy needs of the mining industry for production equivalent to 300,000 tonnes of copper;

Since 2018, the KIPAY company has been developing community development projects with the residents of Kalera, a village located in the project area, as part of the "Sheet Sheets – Malaki" project, a program to exchange galvanized sheets for beans. The rapid and successful implementation of this simple but effective program increased the optimism of the local population and led to a significant increase in agricultural yields.

This initiative prevents deforestation by limiting population pressure on forests, ensures the protection of biodiversity and improves local understanding of ecosystem services.

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Tembo Power is an “IPP” company registered in Mauritius, developing medium-sized hydroelectric projects (<50 MW), as well as photovoltaic projects (hydro/ hybrid solar power) in Sub-Saharan Africa, with a desire to provide “baseload” type electricity at competitive prices.



The company's current portfolio consists of 13 projects at different stages of development spread across Kenya, Burundi, Cameroon and the DRC, totaling nearly 300 MW. In the DRC, Tembo Power is developing three hydroelectric projects, including Dikolongo (17 MW), Kawa (17 MW) and Kambudji (32 MW) in the Lualaba Province near the town of Lubudi. These sites were selected following a study which focused on the region in 2015 and a reconnaissance visit which took place in January 2016. To date, the three projects are in the final phase of development and a photovoltaic part (30 + 20 MWp) was added to improve and optimize electricity production in the dry season.

Tembo Power joins forces with local partners, builders in “Early Contractor's Engagement” mode as well as with funds for the “equity” part of the projects. Tembo



also associated with Finergreen SAS, a leading company in the financial advisory sector for renewable energy projects.

The projects in the DRC, whose total construction cost is estimated at \$270 million, are “run-of-river” cascade projects along the South Kalule River. The Kawa and Dikolongo projects use some existing infrastructure but with supply, pipeline and conduit infrastructure as well as new power plants to be built.

As for the Kambudji project, this is a completely greenfield site.

The Lubudi photovoltaic project (50 MWp/60 MWDC) developed by TEMBO POWER is being carried out in two phases, including 30 MWAC/36 MWDC for the first and 20 MWAC/36 MWDC for the second.

The projects are located in an environment where the infrastructure of national roads and even to the sites in question, the rails (SNCC) and the 120 kV transmission lines (SNEL) are very close which pose enormous advantages to the projects both for the technical aspect, constructability as well as the environmental impact aspect.

The bankable feasibility studies are substantially complete and the company has commenced an environmental upgrade study to elevate the existing study to meet the performance requirements of the IFC (IFC).

The completed studies were approved by the Ministry of Hydraulic and Electricity Resources, the Congolese Agency of

the Environment and other stakeholders.

Interconnection and production assurance

The existing transmission network in the study area is represented by the existing copper transmission line (95mm2) (Lubudi - Tenke) at 120 kV.

A substation (6 MVA + 8 MVA) exists in Lubudi and belongs to the SNCC which uses the 6 MVA, while the 8 MVA is for the town of Lubudi. It is planned to transport the electricity produced from the power plants (hydro + solar) to a new 30/120 kV station located near the sites. Central – Post transport will be at 30 KV.

The real options to consider for production assurance are:

- renew the aluminum line and reinforce/ replace the pylons;
- build a new monopoly line in parallel with the existing one to Tenke.

Hydro-photovoltaic integration

The seasonal effect on the hydro project requires a hybrid system to produce more stable power to the network.

This seasonal effect is present in both hydro and photovoltaic systems, especially in the DRC. With high rainfall between December and March while irradiation is low and this is the opposite in the dry season, from June to September.

The electricity produced by the solar (photovoltaic) plant will fill the deficit during the dry season of the hydro plant in order to provide adequate production to meet the daily demand of the network.



The TRADE POWER company sells electricity imported from neighboring countries (Republic of Congo, Zambia) to mining companies (clients) with excellent supply reliability and in perfect collaboration with SNEL which ensures transit to the point of delivery. delivery for final consumption.

<p>The company identifies and purchases excess electricity capacity in different markets, identifies transmission and distribution solutions to adapt production to consumption and invests in the modernization and construction of transmission solutions.</p> <p>Missions:</p> <ul style="list-style-type: none">• import electrical energy from excess production capacity in neighboring countries;• purchase the energy produced by independent power plants;• participate in private investment in the development of new power plants	<p>electricity and the extension of regional electricity trading;</p> <ul style="list-style-type: none">• ensure compliance with the guidelines of the Regulatory Authority (ARE) and the Ministry of Water Resources and Electricity. <p>Expertise:</p> <p>TRADE POWER SAS is a private Congolese electricity operator which has retired engineers from SNEL who have proven experience in the operation of HV electricity networks. The company has IT expertise to record in real time the different stages of management of the interconnection between the DRC and the countries from which electricity is imported and</p>	<p>a team that provides effective administrative and commercial support.</p> <p>Vision and outlook:</p> <p>Vision: To be the leading Congolese private operator in the trading of electrical energy through local purchase or import from African Energy Power Pools and in the supply of reliable energy at a competitive cost.</p> <p>Outlook:</p> <p>Increase in power supply from the strengthening of interconnection transport networks and new power plants for which studies and/or works are in progress.</p> <p>course.</p>
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Virunga Energies provides clean, reliable and affordable electricity to the population of North Kivu and local communities living in and around Virunga National Park through its hydroelectric plants.



Virunga Energies is a vertically integrated company that builds power plants using the so-called “run-of-river” technique and its networks. It produces, transmits, distributes and markets electricity to end consumers and contributes to the socio-economic development of the region.

The installed and currently operating production capacity of the company is 57.2 MW with the 3 hydroelectric plants built and a 4th on which work is underway: Matebe: 13.2 MW located in Rutshuru; Mutwanga: 1.4 MW located in Mutwanga at the foot of the Ruwenzori Mountains; Luviro: 14.6 MW located in the Lubero territory southwest of Butembo; Rwanguba: 28 MW (under construction in Rutshuru territory).

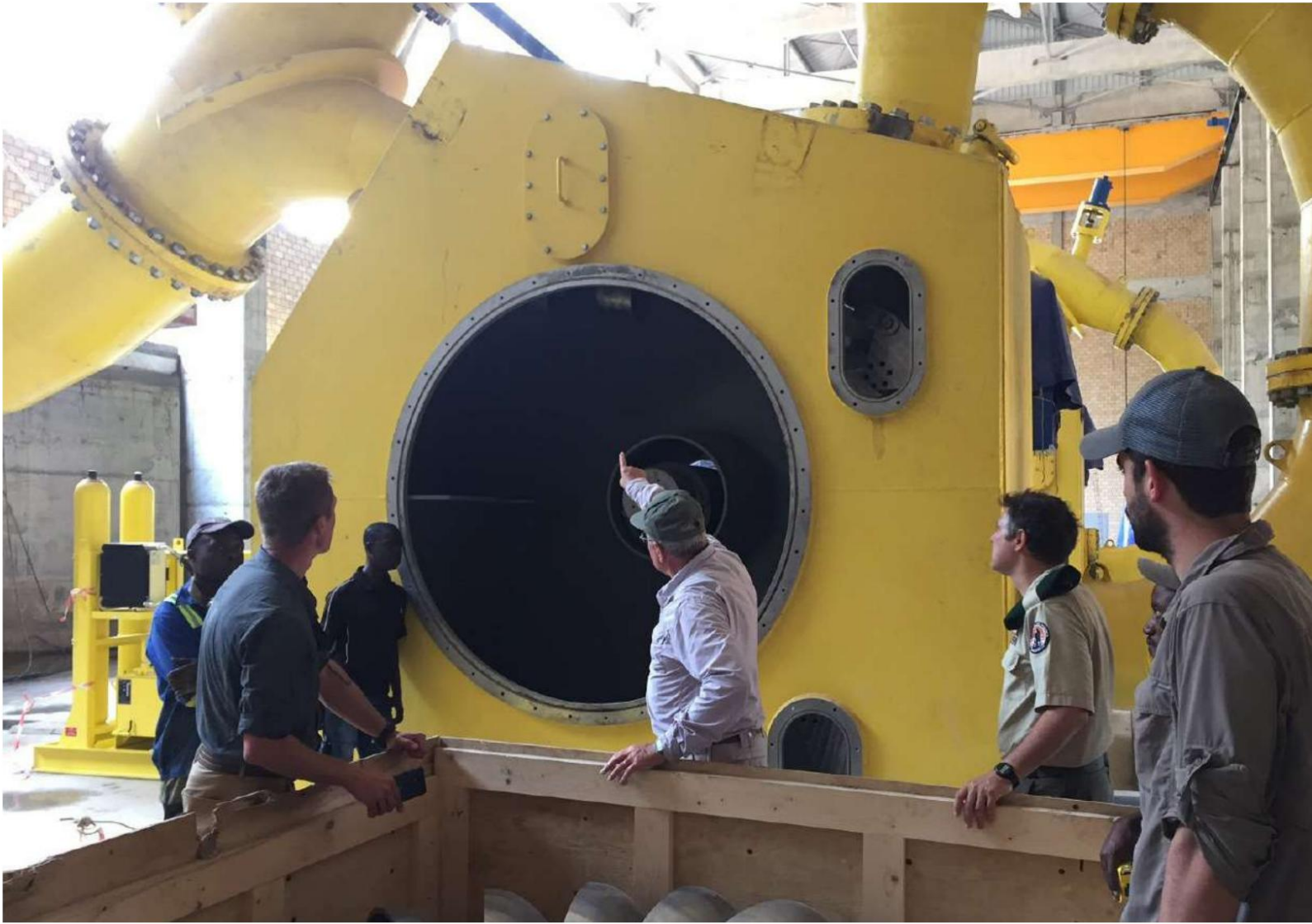
- Currently, the electricity produced by the company has made it possible to:**
- connect 28,600 homes and 1,332 businesses in Goma to the Virunga Energies network,
 - Nyiragongo, Rutshuru, Lubero, Musienene, Kimbulu, Mutwanga and Beni;
 - improve water supply for 300,000 inhabitants;
 - provide free public lighting in 20 villages and towns as well as the city of Goma.

To carry out its mission, Virunga Energies intends to produce up to 100 MW by 2040 to supply new areas and meet the high demand for electricity in North Kivu where around 3.8 million inhabitants live.

Virunga Energies' activities have supported more than 21,000 jobs in the community and additional income to manage Virunga National Park.



FILE
Investments in the electricity
sector: What results for
private projects?





The Congolese Company of Water and Electricity Distribution (SODEE SA) is a private company, under Congolese law, set up to carry out water and electricity distribution activities.

SODEE was created on April 6, 2016 after the liberalization of the electricity and water sector, effective since the promulgation of Law No. 15/026 of December 31, 2015 relating to water as well as Law No. 14/011 of June 17, 2014 relating to the electricity sector.

Social object :

- distribution of drinking water (sustainable water management, capture, hydraulic development, operation, maintenance and development of the water sector, etc.);
- distribution of electricity (installation of hydroelectric power stations, connection of electrical networks, operation of the transport network and marketing of primary and secondary energy sources, etc.).

Vision:
To be the best distributor of water and electricity.

Mission:
Provide drinking water and electricity in sufficient quality and quantity for the promotion of the socio-economic development of the Nation.

Electrification activities:
Current peak: 4.8 MW
Installed Power: 17.4 MW
Number of MV/LV distribution stations: 42
Rate of connected households: Municipality of Goma: 11.4% of households; Commune of Karisimbi: 0.8%; Nyiragongo Territory: 0.8%

Overall rate over the entire distribution concession: 3.5% Number of active customers: 7,261 (28 post-payment; 7,233 prepayment)

Each customer is connected with a single-phase or three-phase meter and the SODEE company recommends the prepayment metering system for ordinary customers and post-payment industrial meters for Medium Voltage and Large Low Voltage consumers.

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ZOOM ON...
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The development of the electricity sector in the DRC faces a major challenge, in particular that of reducing the burden of taxation (in the broad sense) which weighs heavily on production, transport and distribution activities.

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Indeed, the tax regime applied in the electricity sector is not an incentive, it does not contribute to attracting investments and promoting the development of projects. It is marked by the multiplicity of duties, taxes and royalties which are claimed at the initiative of the various stakeholders and by the rates considered exorbitant and suffocating.

Administrative decentralization having led to 26 provinces, combined with the different applicable legal regimes granting powers and attributions, as the case may be, to the central Power, the Provinces and the Decentralized Territorial Entities (ETD), makes the modalities of payment of taxes complex, rights, taxes, royalties and therefore complicates the visibility of collections.

To promote energy projects and increase the rate of electricity service, currently estimated at 19% according to the World Bank, it is imperative to put in place a legal and regulatory framework that rationalizes perceptions by removing those that are redundant or overlapping. with other matters and by reducing tax rates.

Moreover, as recommended by the 6th edition of the Energy Conference (DRC NRJ6), organized by the FEC in December 2022 in Kinshasa, the Government should establish a restrictive tax, customs, non-tax and parafiscal revenue regime. and exhaustive in the sector on the one hand, and grant tax and customs incentives to private actors in order to develop large energy projects, micropower plants and the exploitation of renewable energies in remote and isolated environments on the other hand.

I. The legal framework of the tax system

The electricity sector is organized by Law No. 14/011 of June 17, 2014 as amended to date, and its implementing measures which constitute the legal framework. To ensure the promotion of private investments and increase the rate of electrification, the liberalization of the electricity sector was devoted.

However, unlike the mining sector, this legal framework has not provided for a specific taxation regime for the electricity sector, it has unfortunately subjected it to the common law regime, considered confiscatory by the business world.

Multiplicity of speakers and texts to establish perceptions
In the absence of a specific tax regime, the electricity sector is subject to that of common law characterized by a multitude of participants and levies.

a) Perceptions initiated by the central power

At the initiative of the central power, the perceptions presented in the table are listed

below. With regard to duties, taxes and royalties, operators in the sector are subject to the following collections, distributed according to the nature of the activity, the type of service or whether the operator is a legal or natural person. Payment for these collections is made when requesting the act or carrying out the activity. The periodicity is either annual or monthly, or upon request, granting, modification or granting for a specific period.

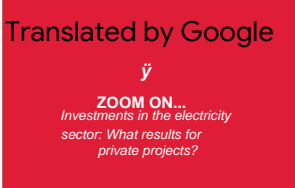
Likewise, the corresponding rates are determined according to the category in which the operator finds himself, and are in ad valorem mode (percentage to or in specific mode (a monetary value).

A table is provided to better visualize this information.

- ȳ The General Tax Code as updated on January 1, 2023 (corporate tax: 30%; tax on income from movable capital: 20%; VAT: 16%; customs duties on imports; professional tax on remuneration; exceptional tax on remuneration of expatriates; etc.);
- ȳ Ordinance-Law No. 18/003 of March 13, 2018 establishing the nomenclature of rights, taxes and charges of the central government;
- ȳ Interministerial order No. 019/CAB/MINETAT-RHE/2020 and No. CAB/MIN/FINANCES/2020 of August 15, 2020 setting the rates of duties, taxes and royalties to be collected at the initiative of the Ministry of Resources Hydraulics and Electricity, modified by interministerial decree No. 001/CAB/MIN/RHE/OMM/22 and 011/CAB/MIN/FINANCES/2022 of April 8, 2022.

No.	Wording	Number of categories
1	Approval tax	28
2	License approval tax	02
3	Tax on the granting or modification of concessions and/or licenses	26
4	Tax on the granting or modification of management delegation contracts for a work or production and/or transport facility belonging to the State	14
5	Tax on the approval of a study, a diagram and plans of production and transport infrastructures	05
6	Tax on authorizations for production, self-production, import, export, marketing, transport and storage of calcium carbide, acids, coal and peat	55
7	Tax on access or connection to electricity transport networks, natural surface or underground water, thermal water, lakes or rivers and their tributaries, for buildings for non-residential use and residential ones of more than two floors	17
8	Royalty on the activity or public service of production, import, export or marketing of electrical energy and natural surface or underground water, thermal water, lakes or rivers and their tributaries	20
9	Royalty on the use of energy resources by electricity production infrastructures of national interest, the exploitation of natural surface or underground water, thermal water, lakes or rivers and their tributaries and consumption electricity by end users	08
10	Tax on authorizations for production, self-production, import, export, marketing and storage of gases other than hydrocarbons such as liquefied or dissolved compressed gases, natural gases, rare gases, non-polluting refrigeration gases	12
11	Transactional fines for any violation of the legal and regulatory provisions in force, which are between 2 and 3 times the rate of the act in question.	-

<p>b) Perceptions initiated by the Provinces and ETDs</p> <p>The provinces' perceptions are carried out by Ordinance-Law No. 18/004 of March 13, 2018 establishing the nomenclature of rights, taxes and royalties of the Province and the Decentralized Territorial Entity as well as the terms of their distribution and other texts taken by the authorized bodies.</p> <p>As soon as an energy project falls under the jurisdiction of the Province (provincial or local interest) and the concession, license and/or authorizations are granted at the provincial level, the operator is subject, among other things, to the payment of taxes and royalties. shown in the table below:</p> <ol style="list-style-type: none">1. The licensing fee for an independent electrician;2. The tax on land ownership;3. The tax on the granting or modification of concessions, licenses and production and distribution authorizations for projects of provincial interest;4. The tax on authorization for the installation of MV/ LV electric cabins, for the construction of gas and biogas installations;5. The fee for granting or modifying	<p>management delegation contracts for production, transport and distribution works and installations belonging to the State;</p> <ol style="list-style-type: none">6. The tax on the approval of a study, a diagram and a plan of production and transport infrastructures;7. The tax on the granting of a certificate of conformity for all or part of the production, transport, distribution and marketing works or installations;8. The fee on the use of energy resources by electricity production infrastructures of provincial or local interest and the exploitation of natural surface or underground waters other than lakes, the river and its tributaries;9. The public lighting tax;10. The tax on electrical lines crossing public roads. <p>The rates applied for these taxes and fees vary according to the realities of each Province.</p> <p>c) perceptions initiated by other organizations</p> <p>Other organizations also levy fees and charges in the electricity sector. THE</p>	<p>terms of collection of these various duties and taxes are defined by the legal and regulatory texts governing them.</p> <p>As part of its missions, the Electricity Sector Regulatory Authority (ARE) collects fees when filing files and/or submitting requests by operators, provided for by Ministerial Order No. 015/CAB /MIN/RHE/OMM/ 22 of May 11, 2022.</p> <p>This decree establishes 107 costs which are fixed at a flat rate or on the basis of the capacity of the line/ central or the declared power. They are paid on an ad hoc basis or upon submission of the request made by the operator to obtain approval, a license, a concession or an administrative document.</p> <p>The same applies to the National Agency for Electrification and Energy Services in Rural and Peri-Urban Areas (ANSER) which will have to collect costs in terms of duties, taxes and fees.</p> <p>Operators are also subject to payment of social contributions and rights</p>
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from public establishments such as: CNSS, INPP, ONEM, OCC, FPI, FPC, RVA, ACE, FFN, FONER, CNPRI and other sectoral taxes such as the pollution tax, the installation tax for classified installations, the annual remuneration tax, etc.

II. Tax and customs advantages to which operators in the sector are eligible

The Electricity Law mentions in an ambiguous and confused manner that the State encourages, through appropriate “but not defined” measures, production concessionaires to make, in social and environmental matters, investments which are part of the framework of corporate social responsibility (article 118).

Nevertheless, operators in the electricity sector are likely to benefit from certain measures to reduce taxes, duties, fees and charges, which are provided for by the legal and regulatory texts in force in the DRC.
It is in this context that private investments in the sector are eligible for tax, customs and non-tax revenue advantages granted by Law No. 004 of 2002 on the Investment Code and its implementing measures, carried by the Decree No. 12/046 of November 1, 2012. Even if the evaluation of this legal incentive instrument shows that 20 years after its promulgation, the Code has not made it possible to attract adequate investments in the sector electricity :

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- insignificant number of operators who benefited from it;
- insignificant number of projects that were eligible for the benefits of the Code;
- limited number of operators active in the sector given the potential and the glaring electricity deficit in the country.

However, to benefit from the advantages provided for by the Investment Code, the private operator must present its file to the Agency. National Investment Promotion (ANAPI) which examines the project before submitting it to the competent authorities with a view to granting approval.

The Special Economic Zones (SEZ) regime currently being deployed in the country also provides tax and customs facilities for operators who set up there. They are provided for by Law No. 14/022 of July 7, 2014 establishing the regime of Special Economic Zones and Decree No. 20/004 of March 5, 2020 which sets the advantages and facilities to be granted to investors.

Faced with the need to support the private sector and increase the supply of electrical energy in order to reduce the energy deficit which is hampering socio-economic development, the Government took tax and customs incentive measures in 2015. .

Indeed, on April 28, 2015, the Prime Minister signed Decree No. 15/009 on tax and customs relief measures applicable to the production, import and export of electrical energy, measure which granted the suspension of the collection of customs duties and VAT, for a period of 4 years, on the importation of electricity as well as equipment and materials used exclusively in production, transport, distribution and the marketing of electrical energy.

Expiring in 2018, this relief measure was extended with the signing of Decree No. 18/054 of December 27, 2018 which, in turn, ceased to produce its effects since December 26, 2022, the date of its expiration. .

A commission was set up to examine the conditions for renewing this decree. Despite the weaknesses noted in its impact for the benefit of private actors, its renewal was recommended by experts. However, the suspension of VAT on local production of electrical energy, a concern raised by the FEC to maintain competitiveness in the context of integration, was not included as an incentive.

III. Benchmarking between the regime of the DRC and certain African countries

The table below analyzes the tax regime as well as the advantages granted to operators in certain African countries compared to the DRC.

No.	Designation	Senegal	Cameroon	Kenya	RSA	DRC
	Electrification rate (World Bank, 2022)	95%	65%	71%	89%	19%
Tax regime applied						
1	Corporate tax, calculated on profit net	30%	30%	30%	28%	30%
2	Tax on income from movable capital	10%	15%	5% (residents)	20%	20%
3	VAT	18%	17.5%	16%	15%	16%
4	Import customs duties	0 – 35%	5 – 30%	0 – 25%	-	1.5 – 10% and 5% (administrative fee)
5	Tax on public lighting	2.5% of the invoice excluding tax consumed	Included in the local development tax	-	-	1 - 2% of the bill for electricity consumed

Advantages granted by the Investment Codes						
6	Project installation phase	<p>Suspension of VAT for 3 years on imports of materials, equipment and machines.</p> <p>Exemption from customs duties on the importation of equipment and materials not produced locally.</p>	<p>Exemption from registration fees for concession contracts.</p> <p>Exemption from transfer taxes on the acquisition of real estate, land and buildings</p> <p>Deduction of technical assistance costs.</p> <p>Exemption from VAT on services linked to the implementation of the project and coming from abroad.</p> <p>Exemption from the license.</p> <p>Exemption from taxes, customs duties and VAT on equipment and materials linked to the investment.</p>	<p>Deduction of 100% of the cost on machine and/or building.</p> <p>10% deduction from the cost of everything investment in a building for industrial use.</p>	<p>55% tax deduction for an investment equivalent to 11 million euros.</p> <p>Subsidy, in the form of tax exemption, of 10 – 30% of the investment cost of critical infrastructure.</p>	<p>The advantages are granted for a period of 3 to 5 years depending on the project area: Total exemption from import duties and taxes for new or used machines, tools and materials, original spare parts not exceeding not 10% of their CIF value.</p>
7	Operation phase	<p>Exemption from the flat-rate contribution payable by employers for 5 years.</p> <p>40% tax deduction for new businesses</p> <p>Capping of taxable profit at 50%.</p> <p>Deduction of 30% of taxes and capping at 50% of taxable profit in the event of extension of the project.</p> <p>Deduction of 40% of the amount of taxable profit for investments made in the approved program.</p>	<p>Exemption and reduction of corporate tax, profits tax, tax on income from movable capital, customs duties, tax on payments made to foreign companies.</p>			<p>Exemption from export duties and taxes.</p> <p>Exemption from income tax and property tax.</p> <p>Exemption from internal VAT on local acquisitions of capital and intra-industrial goods manufactured in the DRC or the provision of services on real estate works.</p> <p>For SMEs, deduction from taxable profit of expenses for training, development of the business manager and staff, protection and conservation of nature and calculation of depreciation in decreasing mode.</p> <p>Exemption from rights and constitutive documents of companies and RCCM registration fees.</p>

ZOOM ON...
Investments in the electricity sector: What results for private projects?

Advantages granted by the Special Economic Zones regime						
8	Special regime of the Zones Special Economy (SEZ)	For a period of 25 years, renewable once, Admission free of all duties and taxes collected at the customs cordon Corporate tax at the rate of 15% Total exemption from payment of taxes and duties: securities income tax, flat-rate contribution payable by the employer, registration fees, land taxes, business licenses Exemption from duties and taxes or other customs charges on any goods admitted into zone A of the SEZ In the event of export of at least 80% of production, deduction of 50% of taxable profit for the calculation of corporate tax	Total exemption, for the first 10 years, from taxes and direct charges as well as registration fees	VAT exemption for goods and services supplied to SEZs 100% deduction for any investment in a building and machine intended for SEZs Corporate tax: 10% for the first 10 years and 15% for the following 10 years	Corporate tax: 15%	Total exemption from property tax and movable tax for 5 years renewable 50% reduction in the tax rate set from the 11th year Total exemption from tax on profits for 5 years, renewable once 50% reduction in the fixed IBP tax rate from the 11th year and application of the exceptional depreciation system Suspension or exemption from VAT depending on the transaction
Other advantages						
8	Special regime for renewable energies	VAT exemption on the importation of equipment intended for the production of renewable energies	Tax reduction for investment of income in the field of solar or wind energy use 30% reduction in the amount of sums paid for eligible investments Exemption from VAT for solar and wind energy exploitation materials and equipment Exemption from VAT on a list of 22 materials used in the production of renewable energies from solar, wind and biogas sources			Suspension, for 4 years, of customs duties and VAT on the importation of materials and equipment for the exploitation of solar energy and those adapted to other renewable energies. This measure taken by a Decree of 2018, expired on December 26 2022.

The benchmark analysis of the tax regime and the advantages granted to operators in the DRC and in the targeted African countries shows that the country does not grant the electricity sector the incentives necessary for its development. Indeed, beyond the restrictive advantages granted by the Investment Code, the sector only benefits from the suspension, for a specific period, of Value Added Tax (VAT) and customs duties on the occasion of the importation of inputs (materials and equipment) unlike other countries which grant diversified advantages to operators, thus making it possible to have a higher rate of electrification and a higher level of development.

V. Conclusion

Taxation applied in the electricity sector Taxation applied in the electricity sector

is of a complexity, a lack of readability and predictability which limits the promotion and development of private projects and investments.

The multiplicity of rights, taxes, royalties and contributions which are paid by operators at prohibitive rates does not ensure the financial and economic balance of projects. In addition, this tax practice does not take into account economic and technical realities as well as logistical constraints in the development of energy projects in the country. Which constitutes a handicap for the attractiveness of the sector.

As a possible solution, the Government should establish a specific tax regime for the sector, reduce the number of collections and lower tax rates in order to make the system flexible.

tax so that it is readable and understandable for existing and new operators. Taxation of the electricity sector must be aligned with the country's general tax policy, which must be focused on development with the major objective: attracting private investments, both national and foreign, with a view to transforming the energy potential of which the country is overflowing to improve the local energy supply, ensure the industrialization and socio-economic development of the DRC. The Government will also have to improve the state of basic infrastructure with the construction and/or or the rehabilitation of roads, bridges and railways to facilitate the evacuation of materials and equipment to project development sites. This could be achieved, in particular, through the public-private partnership (PPP) for the well-being of local communities.

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STATE STRUCTURES
Investments in the electricity
sector: What results for
private projects?

State structures



The recent progress made in the energy sector of the Democratic Republic of Congo seems to say a lot about the new government strategy aimed at promoting its electricity sector and more generally all its energy potential to make the growth of its energy market effective.

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These maneuvers are all the more important as the development of the mining sector, economic zones, the preservation and mitigation of the pressure exerted on the equatorial forest as well as the growth of local economies in the perspective of the Local Development Program- 145 territories, will require and critically depend on the availability of energy.

Paradoxically, the low rate of access to electricity which has long characterized the DRC, potentially makes it one of the large emerging electricity markets in Africa. It is, in particular, through the liberalization of the electricity sector that the Congo really intends to establish itself as a vast market where energy operators of all

ilk are already invited to deploy their investments.

A restructured sector in order of battle
To ensure the maximum chance of success, the liberalization of the Congolese electricity sector was supported by accompanying measures which resulted in the birth of two new institutions in the institutional ecosystem of the electricity sector. electricity, namely: the Electricity Sector Regulatory Authority (ARE) and the National Agency for Electrification and Energy Services in Rural and Peri-urban Areas (ANSER). One was mandated to regulate competition following liberalization and the other for technical supervision and mobilization of investments as well as the effective electrification of rural and peri-urban areas. The operationalization of these two structures is already bearing fruit. While the AER already manages to award concessions to operators giving rise to new investments in the sector; ANSER, for its part, was able to produce the Local Electrification Plans, a strategic document developed following the 145 territories approach for the supervision of investments in rural and peri-urban areas. It reveals the extent of the emerging rural electrification market in Congo.

In addition, in light of the liberalization of the electricity sector, a new regulatory framework has emerged. It has the advantage of having clarified with surgical precision the sectoral responsibilities of each of the stakeholders. And, to better supervise the sector, in 2022, the country has adopted a National Energy Policy covering hydrocarbons, biomass, renewable energies and hydroelectricity.

The publication of the National Energy Policy was quickly supplemented by the Policy Letter from the Ministry of Water and Electricity Resources which focuses, among other things, on the promotion of private sector investments, decentralized renewable solutions, the development of potential in green hydrogen from the DRC and the production of wholesale equipment

electricity in the DRC. All this regulatory arsenal strengthens the viability of the sector while diversifying the investment segments in the sector.

Altech, the successful local investment in the Congolese electricity sector
As one of the first implementing partners of the research phase of the Mwinda Fund, Altech is among the first local investments in the Congolese electricity sector following its liberalization.

Its activity, one would say, is gaining momentum as liberalization consolidates its foundations. As proof, Altech was ranked fourth in Africa among high-growth companies in the energy sector. That Altech is a Congolese company achieving rapid growth in the context of the liberalization of the Congolese energy sector, this constitutes convincing evidence that the DRC is a promising market in the heart of Africa.

Implementation of a grant fund, Mwinda Fund
ANSER is at the origin of the Mwinda Fund, a subsidy fund based on results, intended to boost the purchasing power of rural households and intervene in the various "de-risking" mechanisms in favor of companies investing in these environments deemed "risky" for investments. Created to serve as a lever for accelerating rural electrification, the Mwinda Fund provides subsidies to disadvantaged households in the hinterland.

Ever-increasing investments for a growing market
In 2022, ANSER has launched no less than 20 calls for tenders, on behalf of the Congolese Government. This undoubtedly augurs the return of the Government in terms of investments in the electricity sector. This great ballet of investments will increase when we stick to the Government's projections in the Local Development Program-145 territories.



The Electricity Sector Regulatory Authority (ARE) is a public establishment established by Law No. 14/011 of June 17, 2014 relating to the electricity sector and whose creation was materialized by Decree No. 16/013 of April 21, 2016.





Missions:

To promote private investment in the electricity sector and ensure competitiveness, the ARE's missions include:

- Control, monitor and regulate activities in the electricity sector;
- Ensure compliance with the legal and regulatory framework by all operators in the sector;
- Ensure the protection of electrical energy consumers.

The AER ensures its responsibilities in monitoring competition and transparency between the different players, the behavior of players on the market, the granting of permits, licenses and other documents necessary for operation and compliance with standardization , contractual and pricing obligations of operators.

The organizational structure of the AER is made up of the Board of Directors (design, orientation, control and decision-making body), the General Management (executing body) and the College of Auditors (financial operations control body).).

The General Management is headed by Madam Prof. Dr. Ir Sandrine MUBENGA NGALULA, Professor in the Department of Engineering Technology at the University of Toledo (UT) in the state of Ohio in the United States where she obtained a Doctorate in electrical engineering in 2017. She has held this position for more than two years at the head of the ARE which acts as the sector's police force. What are the short, medium and long term achievements of the AER?

Despite the major difficulties and challenges not yet overcome, the AER is equipping itself with the human, material and organizational resources necessary to fully play its role as Regulator. She works every day to achieve the following actions on her roadmap:

- deployment in the 26 provinces of the DRC through the establishment and operationalization of provincial directorates;
- acquisition of various equipment and materials to carry out its control and regulation missions;
- popularization of legal and regulatory provisions governing the electricity sector.

It should be remembered that in terms of the state of play in the sector, several data have recently been collected from operators to assess the DRC's progress in the electricity sector. Since the existence of the ARE, annual energy production has increased from 12,460,200,997 kWh in 2020 to 15,287,152,522 kWh in 2022, an increase of 22.6%.

At the end of 2022, the installed power in the DRC amounted to 2,980.7MW including 2,901.6MW (97.54%) coming from hydroelectricity, 75.6MW (2.35%) coming from thermal sources and 3. 5MW (0.11%) from solar.



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