



DEMOCRATIC
REPUBLIC OF
CONGO



SOCIETE
NATIONALE
D'ELECTRICITE

OVERVIEW OF THE ELECTRICITY SECTOR IN THE DEMOCRATIC REPUBLIC OF CONGO.

By

Alex KADIAYI

Director of Transmission Department

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0. SUMMARY

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1. HISTORICAL BACKGROUND OF SNEL

- **Before** Concession to private trade companies for power generation, transmission and distribution
- **1970** Creation of SNEL as the general contractor for construction of Inga. Completion of Inga 1 hydropower plant (351MW).
- **1972** Establishment of SNEL as a state-owned enterprise with mandate for the generation, transmission, distribution and trading of electric power.
- **1974** Takeover by SNEL of all rights, obligations and activities of all power distribution companies therefore leading to a near monopoly.



1. HISTORICAL BACKGROUND OF SNEL

- 1979 Takeover by SNEL of all thermal power plants from the water and power distribution company. This stage was the completion of SNEL's de facto monopoly.
- 1994 Opening of Power subsector to private businesses for the construction and operation of hydropower plants and associate grids for trading purposes.
- 2003 Launch of institutional reform process in all public sectors, including the energy.
- 2009 Launch of transformation process of SNEL into a commercial company.
- 2011 completion of transformation of SNEL into a commercial company



2. ENERGY POTENTIAL OF DRC

Although the mining resources of the DRC constitute a geological scandal, it is important to highlight that the most important wealth of the Congo remains its enormous resources of the Congo river basins and its many tributaries.

The energy potential of the DRC is essentially comprised of significant hydroelectric resources estimated at over 100,000 MW.

About 44% (44,000 MW) of the total hydroelectric potential of DRC, is concentrated at the site of Inga, located at 150 km from the mouth of the Congo River.



2. ENERGY POTENTIAL OF DRC

The available capacity at Inga is guaranteed all year because of a high flow of the Congo River (42,000 m³) and its regularity, the watershed of the river being situated astride the equator.

The series of rapids encountered at Inga makes it the largest deposit of hydroelectric power in the world concentrated in one single point.

The wild, clean and renewable energy, which is dissipated at Inga annually, is about 320 billion kWh, or 27.5 million TOE (Ton Oil Equivalent).



2. ENERGY POTENTIAL OF DRC

The low generation cost of Inga hydro potential remains its true asset:

- In terms of installed capacity: from 671 USD / kW to 339 USD / kW;
- In terms of energy: 1.44 US Cents / kWh to 1.08 US Cents/ kWh.
- Clean, cheap and affordable energy

The development of hydropotential of Inga is considered as a sustainable solution to the problem of power deficit for many countries in the SADC region and in all the African continent.

Grand Inga project (39,000MW) : defined as **integrator project** by African Union (NEPAD)



3. GENERATION STATUS OF SNEL

Currently, only 2% of this potential is exploited. The existing hydropower plants are listed below with their respective installed capacity:

- | | | | |
|----------|------------|------------|-----------|
| - Inga 1 | : 351 MW | - Nzilo | : 108 MW; |
| - Inga 2 | : 1424 MW; | - Ruzizi 1 | : 28 MW |
| - Zongo | : 75 MW | - Tshopo | : 18 MW; |
| - Nseke | : 248 MW | - Kyimbi | : 18 MW; |
| - Etc. | | | |

The country's total installed capacity is 2442 MW. Which is about 100% hydro (clean energy). Available capacity is 1228MW.



4. ELECTRICITY DEMAND AND SUPPLY SITUATION IN DRC

The Democratic Republic of Congo "DRC" is a big country in the heart of Africa with an area of 2,345,000 km² and nearly 72 million inhabitants.

This constitutes a big challenge for SNEI which does not mobilise enough resources to construct transmission lines and extend the distribution grid to cover all this area and supply all this population with electricity.

Despite the enormous hydro potential that has DRC, the country's **electrification rate** is still around **9%**.



4. ELECTRICITY DEMAND AND SUPPLY SITUATION IN DRC

The Challenges to this poor electrification rate is :

- ❖ Lack of fundings;
- ❖ Tariffs (not cost reflective);
- ❖ Poor recovery of public consumption electricity invoices (about 40% of total consumption);
- ❖ Lack of financial support from the government;
- ❖ High level of technical and non technical losses chiefly in distribution ;
- ❖ etc



5. EXISTING INTERCONNECTION LIAISONS

The DRC is interconnected to many countries in the regions. The main interconnection liaisons are :

- ❖ Interconnection to SAPP system via Zambia from south Katanga ;
- ❖ Interconnection with Rwanda and Burundi from Ruzizi 2 hydropower plant in Kivu province (East of DRC);
- ❖ Interconnection with Congo Brazzaville from Kinshasa.
- ❖ **Interconnection with Angola in project**



6. ELECTRICITY INFRASTRUCTURE PROJECTS IN DRC

To improve the electrification rate in the country and address the power shortfall issue, SNEI has committed to work with various partners (multilateral, bilateral, privates, commercials etc)

Exemple of some electricity projects under construction and involved funding partners :

A. Generation

- ❖ Construction of Zongo 2 hydro power plant 150 MW (Bank of China/Sinohydro);
- ❖ Construction of Katende hydro power plant 63 MW (Indian partners);



6. ELECTRICITY INFRASTRUCTURE PROJECTS IN DRC

- ❖ Rehab. of NSEKE hydro power plant (PPP/TFM)
- ❖ rehabilitation of some units of Zongo hydropower plants, Koni and Mwadingusha hydropower plants(PPP/EGMF),
- ❖ rehab of some units at Inga 2 Power plant(PPP/KCC and World Bank)
- ❖ Rehab of some units at Inga 1 Power plant(World Bank)

B. Transmission and distribution :

- ❖ 2nd transmission line Inga-Kinshasa 400kV (World Bank, EIB);
- ❖ 2nd 220kV transmission line for export towards SAPP via Zambia (World bank);
- ❖ Rehab and extension of distribution grid of kinshasa (World bank and ADB);
- ❖ Rural electrification of 5 provinces of DRC (ADB);
- ❖ Etc.



6. ELECTRICITY INFRASTRUCTURE PROJECTS IN DRC

The DRC has enormous hydropower potential and investment opportunities in the electricity sector and SNEI is willing to work in a win - win partnership for the exploitation of these potentials.



Thank you

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Merci