AFRICA ELECTRICITY SYMPOSIUM 2025

Financing of Power Generation Infrastructure – Case Study of Chinese-Financed Power Generation Investments in Sub-Saharan Africa

Vianney Mutyaba

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INTRODUCTION

- According to World Bank Electricity Consumption per capita
  - ✓ Sub-Saharan Africa of 383 kWh
  - ✓ South Asia - 956 kWh
  - ✓ Middle East & North Africa - 3,159 kWh

- 46.7% of the population in Sub Saharan Africa does not have access to clean energy
- Low Access is on account of; inadequate investment in generation, transmission and distribution infrastructure to supply affordable and reliable energy.
- The African Development Bank (2019) estimates that Africa needs between US$ 32 and US$ 40 billion annual investments in electricity between 2018 and 2030.
- As many countries in Sub Saharan Africa struggle with; public financing of power projects, and attracting private investments, China has positioned itself as an alternative source of Foreign Direct Investment for Power projects.

- Presentation provides insights regarding the contrast between Chinese model of financing power generation infrastructure in Sub-Saharan Africa, and the traditional Independent Power Producers (IPP) Model.

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PROBLEM & THEORIES

- Prior to the year 2000, investment in power generation in many Sub-Saharan Africa countries was a government monopoly
- Between 1990 - 2001, private sector accounted for only 13% of investment in Africa's electricity sector.
- SSA liberalize their power generation in a bid to attract private financing. – Reforms
- Cost of private financing and corresponding return on investments placed a high premium on electricity end-user tariffs, forcing many countries to resort to direct subsidization.
- Consequently, many countries in Sub-Saharan Africa developed a negative perception towards private sector participation, often classified as policy mistake and responsible for high electricity tariffs.

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PROBLEM & THEORIES

- Privatization was proving not to be the solution to attract private capital to most of Sub-Saharan Africa power sector.

- Without directly pursuing a policy reversal, many countries turned to China as an alternative source of cheaper FDI for power projects.

- Address power generation financing requirements, and at the same time ensure low retail electricity tariffs,

- The absence of stringent debt requirements and more generous credit limits made Chinese financing very attractive to many SSA.

- In response to SSA investment requirement, China has positioned herself as a reliable investment partner for Sub-Saharan Africa.

- Chinese investment are responsible for 30% of new generation capacity in SSA between 2010 and 2015, and Chinese firms have built 17 gigawatts of generation capacity in SSA between 2010 and 2020.

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PROBLEM & THEORIES

- China has clearly emerged as the leader in Africa's power sector developments, accounting for 60 per cent of investments in SSA power projects

- Power Futures Lab (2020) reports that the value of Chinese investments in power generation in SSA is now more than investments by typical IPPs.

- Chinese financing has increased from US$0 (zero) in 1997 to almost US$6 billion in 2018, compared to US$4 billion by IPPs during the same period (Power Futures Lab 2020;).

This paper discusses how the Chinese model of financing electricity infrastructure projects differs from the traditional financing models and the impact/sustainability of the Chinese model of financing infrastructure projects in Sub Saharan Africa.

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PROBLEM & THEORIES

The presentation is based on the following questions;

a) How is the structuring of financing for the Chinese model different from Traditional financing;

a) How is the risk allocation for the Chinese model different from Traditional financing;

a) What is the impact of Chinese financing model on debt: Gross Domestic Product in Sub-Saharan Africa; and

a) How sustainable is the Chinese model as a model for financing future electricity infrastructure projects in Sub-Saharan Africa.

OVERVIEW OF THE RESULTS & DISCUSSION

1. FINANCING MODEL AND RISK ALLOCATION

- Chinese-financed power generation investments are usually contracted bilaterally between Chinese government and respective SSA country government (through the Export-Import Bank of China), compared to the project finance model that is popular with other sources of Foreign Direct Investments into the power sector

- Under IPPs Projects are often financed on a “non-recourse financing” basis thereby seeking to ensure that the cost recovery from the project is self-contained and viable

- SSA governments contribution, - usually 15% of the EPC costs.

- 15% contribution by Governments is recovered from the revenues of the power project after the loan is fully repaid. This for IPP under the project finance framework – where credit is repaid through the project revenues.

- Commencement of the loan repayment for Chinese financed projects is usually not pegged to the Commercial Operations Date of the project

- Debt repayment is not directly pegged on performance or utilization of the Asset

OVERVIEW OF THE RESULTS & DISCUSSION

1. FINANCING MODEL AND RISK ALLOCATION

- Requirement for recipient governments to make direct allocation of loan repayments through the National Budget.

- Limited emphasis is placed on the generation tariff determination processes. Investments are also secured using the assets of the off-taker as collateral. Contrary to this, the traditional project financing framework does not provide recourse to direct appropriations from the project sponsor or the Government

- Traditional project financed IPP investments required a sovereign Guarantee as project security. Secure payment for power revenue, 3 months payment guarantee/ insurance.

- There is no clear separation between the project financer, and the EPC contractor. The EPC contractor is usually a Chinese State-Owned Enterprises and many Sub-Saharan Africa countries are not involved in the EPC decision making process.

- The traditional project financing stream adopted by other IPPs, gives preference to the engagement of a credible EPC contractor through a transparent procurement process.

OVERVIEW OF THE RESULTS & DISCUSSION

1. FINANCING MODEL AND RISK ALLOCATION

- The operational risks of power projects, including revenue/market risk, supplier risks, exchange rate risk, regulatory risk, environmental risks; may not directly exist for Chinese-financed investments.
- Operation of Chinese financed power plants is usually transferred to a Government Agency after the Commercial Operations Date.
- The same does not hold for traditional project finance, since the responsibility for operational risks during the term of the concession is allocated to the project sponsor.
- Debt repayment is not directly pegged on performance of the assets during the operation phase of the project.

• LIMITED PARTICIPATION IN COMPETITIVE PROCUREMENT

• LIMITED INVESTMENT IN SOLAR AND WIND PROJECTS

China's share in all the manufacturing stages of solar panels (such as polysilicon, ingots, wafers, cells and modules) exceeds 80%.

OVERVIEW OF THE RESULTS & DISCUSSION

- Capital/return -----proportion to the risk.
- Given its collateralized approach to financing and direct contracting with government, the risk profile and cost of capital of Chinese financed projects is significantly lower. Interest during construction is paid by the recipient government as and when it is incurred, contrary to traditional project finance where interest during construction is accrued and capitalized as part of the project development costs.

- Notably, Chinese-financed power generation investments are exposed to the same project risks like the traditional project financed IPPs. The project development risks of construction delays, cost overrun, licensing, design and technology; apply to both Chinese-financed projects and traditional project finance projects.

- The development cost or EPC cost per Megawatt (excluding interest during construction) for Chinese financed power plants is comparable to the cost per Megawatt for traditional project financed IPPs.

OVERVIEW OF THE RESULTS & DISCUSSION

2. DEBT TO GDP AND INDEBTEDNESS OF SUB-SAHARAN AFRICA

- 15% contribution of EPC costs by SSA countries. In addition, there is requirement to appropriate funds to debt repayment through the annual National Budget, and creation of contingency liabilities. These requirements put pressure of Debt to GDP requirement and indebtedness of SSA.

- China is Africa's largest bilateral creditor responsible for at least 21 per cent of African debt – and payments to China account for nearly 30 per cent of 2021's debt service.

- Estimates also show that one-third of countries in SSA were either in or at risk of debt distress even before the onset of the covid-19 pandemic, which has since worsened

- According to the IMF (2020), 38 countries in Sub-Saharan Africa are eligible for relief under the G20's debt service suspension initiative.

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CONCLUSION

- Policy makers in SSA believe that Chinese-financed power generation investments are cheaper compared to traditional project finance by IPPs.

- Here is a higher fiscal impact on Government cashflows given the need to undertake budget appropriation for debt repayment.
- There is notable difference between projects financed under IPP and Chine
- China is Africa's largest bilateral creditor responsible for at least 21 per cent of African debt – and payments to China account for nearly 30 per cent of 2021's debt service.
- The jury is still out, as many of the Chinese funded projects are yet to reach their 10th anniversary.
- Sub Saharan Africa needs to reduce the cost of electricity to increase its competitiveness support industrialization and its economic growth. The Chinese model has positioned its self as a solution that addresses the infrastructure deficit without necessarily increasing electricity prices.

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CONCLUSION

As Sub Saharan Africa considers financing of power generation projects going forward, the following needs to be considered;

i) Reconsider risk allocation under the Chinese financing model especially in respect to operational risk.

ii) Even with the debt to GDP constraints, development of infrastructure projects that stimulate economic growth will support debt service obligations and not strain debt service obligations when energy is consumed and ultimately debt is repaid through the electricity tariff, and

iii) De risk Private Project Development. Sub Saharan Africa needs to establish frameworks that derisk private sector project development. Ensure establishment of stable and predictable regulatory frameworks, and cost recovery models. This will inevitability reduce the cost of capital and therefore reduce the generation tariffs for privately financed power plants.

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2025

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www.aes.era.go.ug
symposium@era.go.ug
+256 393 260166