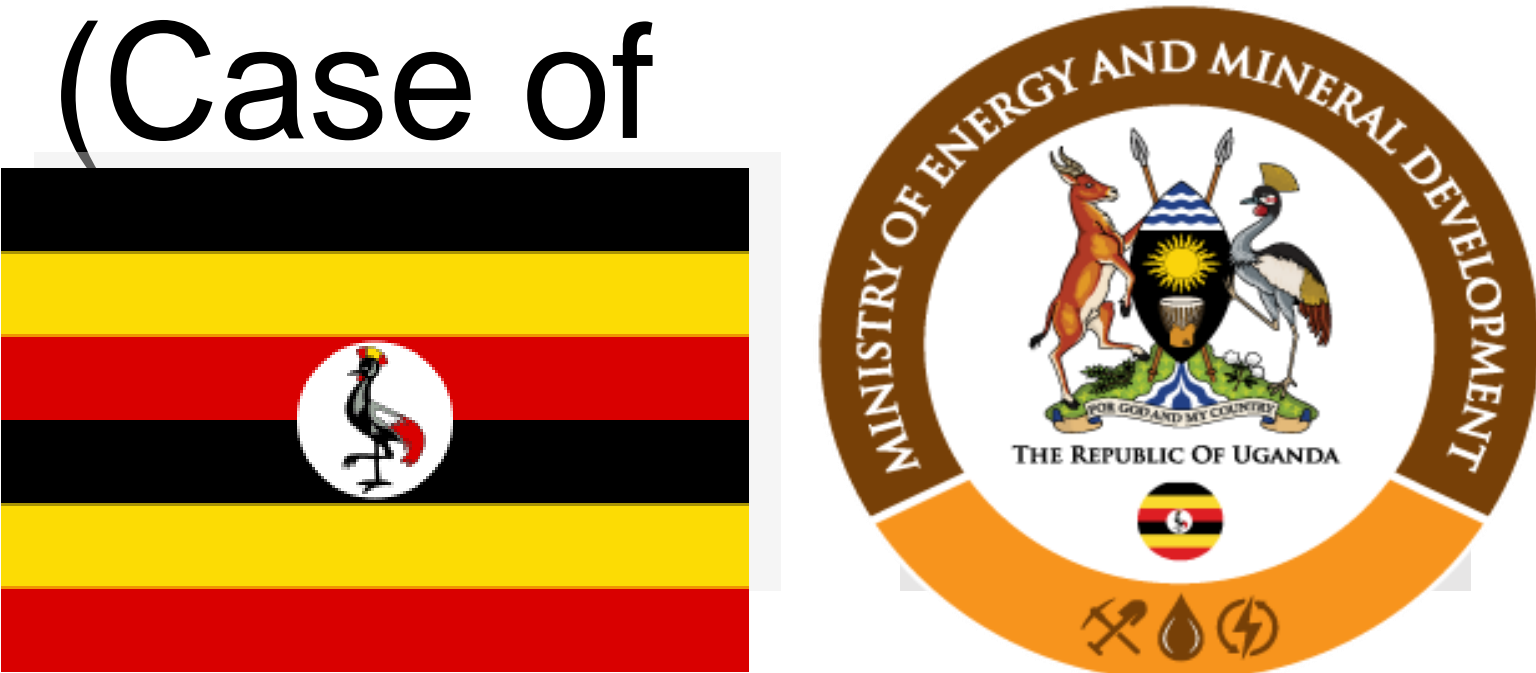


Financial viability of Renewable Energy Projects (Case of a hydro power plant)

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1. Context

- Generation, supply and use of electricity remains critical for Uganda
- Improving electricity access is a priority with a target of 80% by 2030
- Hydro power has the largest capacity and potential.

2. Aim

- To review the financial viability of renewable energy projects, case of a hydropower plant
- Asses how best to make electricity affordable and increase access to clean energy
- Asses the impact of capital investment costs on electricity prices.



Figure 1. Map of Uganda

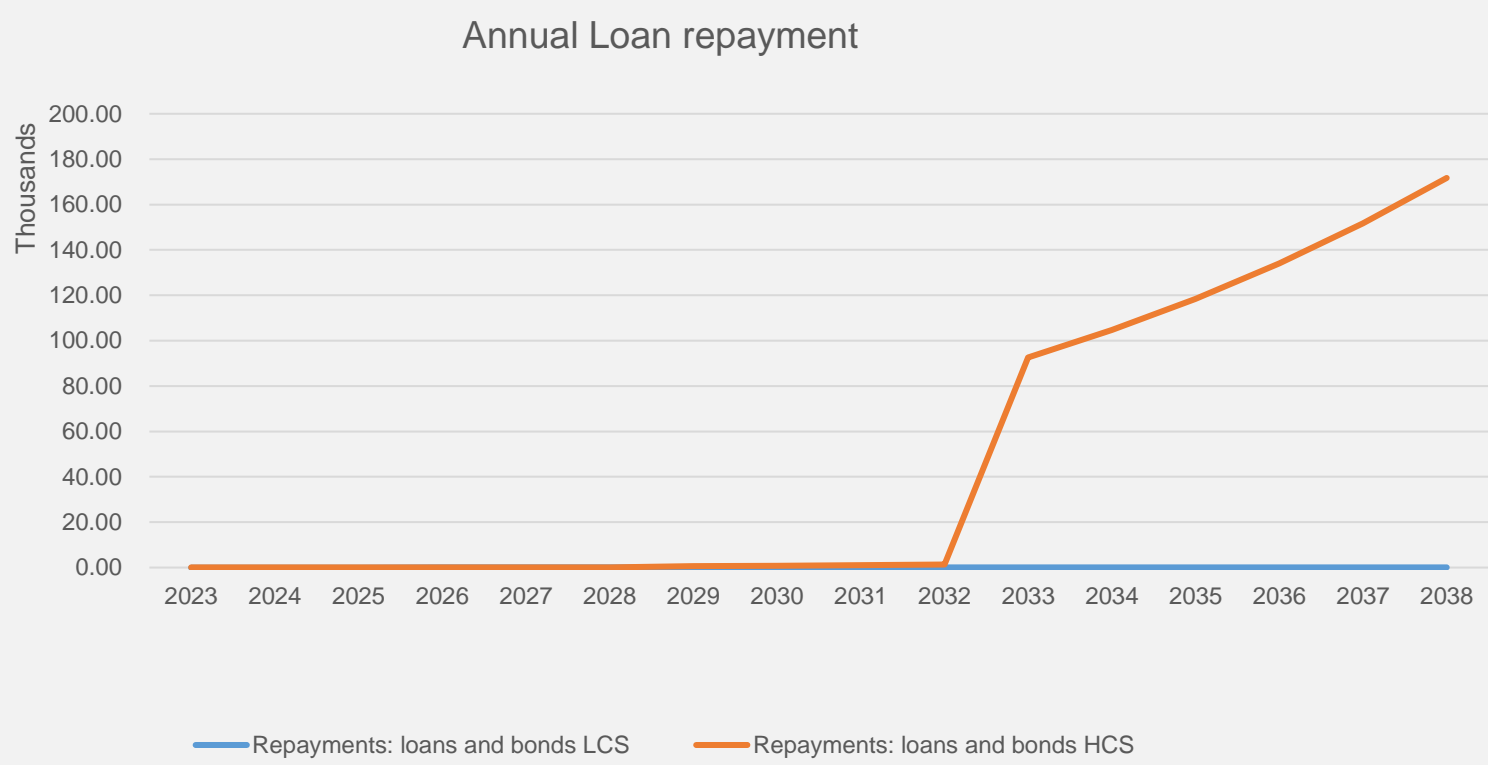
3. Methods & Scenarios

Analysis was carried out using the Model for Financial Analysis of Electric Sector Expansion Plans (FINPLAN). The project case data and financial/economic data has been collected from the energy sector reports and financiers.

- The plant parameters are as follows:.

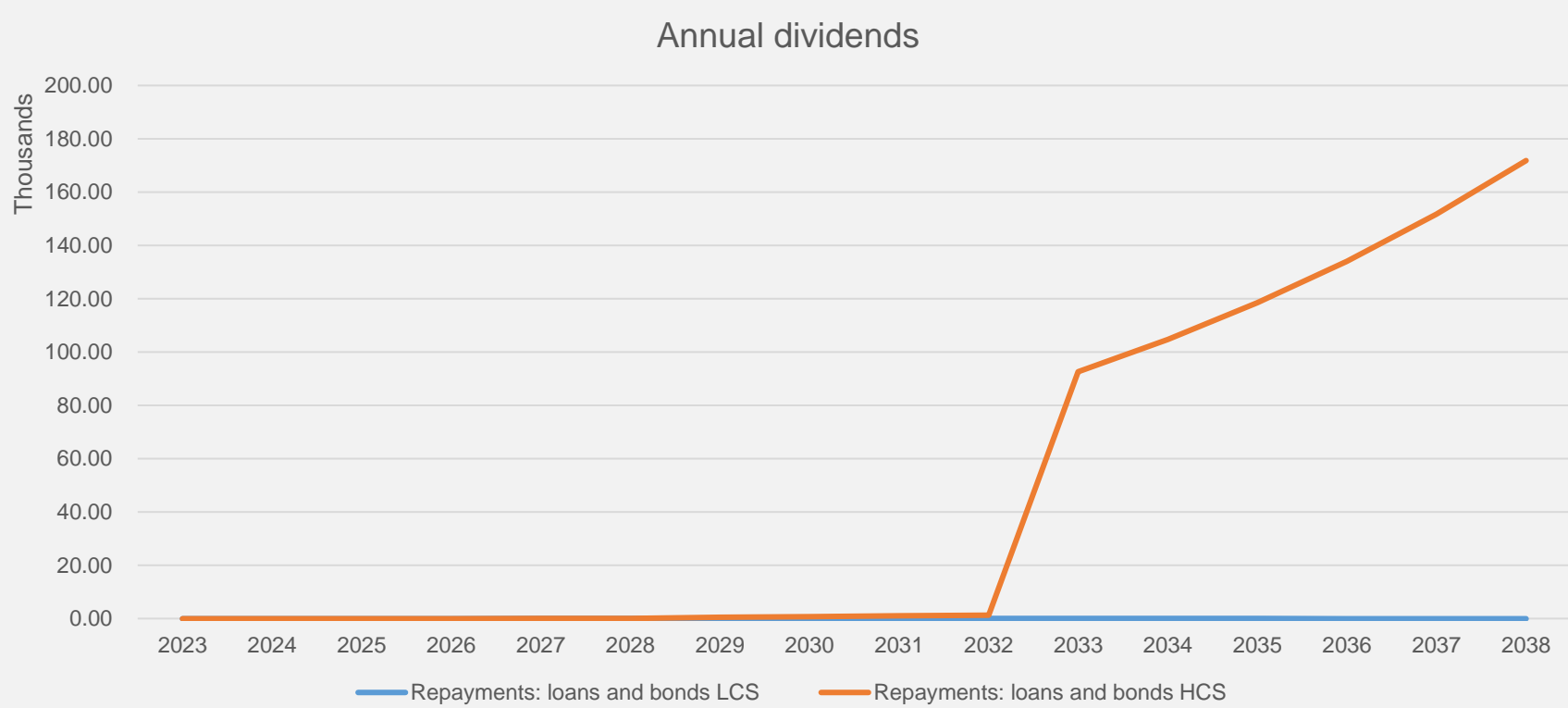
| | |
|---------------------|------------------------------------|
| Type of grid | Renewable energy hydro power plant |
| Construction period | 2022-2025 |
| Start of operation | 2025 |
| Duration of plant | 30yrs |
| Inflation rate | 5% |
| Generated amount | 2000gwh |
| Plant size | 300mw |
| Electricity price | 600ugx per kwh |
| Estimated cost | 350US dollars(Million) |

4. Results



- higher loan repayments for the HCS
- Normal loan repayments for the LCS

| | NPV | IRR |
|-----|-------|-----|
| HCS | 74824 | 80% |
| LCS | 229 | 20% |



- Higher pay-out dividends for the HCS
- Normal pay-out dividends for the LCS

5. Conclussions, Policy insights and future work

Conclusions

- The project is financially viablle for the higher and lower case scenarios
- Even with reduction in price by 62% and the investment cost by 25% the project still has a positive NPV
- The project has the potential to meet loan repayment requirements.

Policy

- The government should emphasise lower costs of capital (reducing interests charged on loans for debt financing)
- Project developers should consider concessional funding to reduce the cost of finance
- The country should consider accessing green financing to finance green projects
- The government should participate in project investments to de risk investments

Future Work

- Assess the cost efficiency of electricity generation hydropower plants using standard benchmarking models.
- Undertake sensitivity analysis in the various development scenarios.

6. References

GeTFiT Annual report 2021

Model for Financial Analysis of Electric Sector Expansion Plans 2023

Uganda Revised Energy Policy 2023

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