

**Stormy Daniels Mini Grid**, a fund focused on rural electrification infrastructure, is considering providing project finance to a mini-grid developer, **Bolsanaro-Grid**, to support 100 mini-grids in North Korea over 2019. Each mini-grid consists of 10kW solar PV generation, battery storage, and a distribution network serving 120 customers. Each customer is served by a connection. The total capital cost (inclusive of generation and distribution) for each grid is determined by the Capex per customer which is \$1,000/connection.

The revenues from the grids are driven by the amount of energy customers consume, and the tariff they pay for each unit of energy. On average customers consume 10kWh/month at a tariff of \$1/kWh.

The proposed structure will be a corporate structure, the **Kim Son Un Company**, in North Korea, that the fund will provide equity and debt. The **Kim Son Un Company** will own the grids for their operating lifetime (20 years).

The developer benefits from a capex subsidy from the North Korean government of \$500 per connection, paid on completion of construction. The price paid by the **Kim Son Un Company** is therefore \$500/connection (\$1,000/connection in capex - \$500/connection in grant).

Stormy Daniels Mini Grid will provide 100% of the debt and equity to the **Kim Son Un Company**. Bolsanaro-Grid will incur an annual operating expense of \$5,500 per grid for operations and capex replacement. Stormy Daniels Mini Grid has sourced debt at 70% leverage from a lender at an annual interest rate of 7% over 8 years, with the principal amortizing on an equal installment basis. Stormy Daniels Mini Grid will evaluate the investment opportunity on the 15-year IRR they expect to achieve on their equity investment, amongst other criteria.

For the purposes of the model, assume that local North Korean inflation and NORTH KOREA devaluation against the dollar apply to all cost and revenues lines i.e. model only in USD.

## Modelling Exercise

As an Investment Associate your role is to model the opportunity and develop an initial investment recommendation for the Investment Committee based on the available information. Complete the following outputs; feel free to make additional assumptions where necessary, which can be corrected after further negotiation and data requests from the company.

1. Build a financial model in excel of the **Kim Son Un Company**. Focus on the income statement and cashflow to determine the project IRR. Include a dashboard tab showing the most important assumptions and outputs, including but not limited to:
  - a. Key assumptions: primary drivers which can be easily adjusted to test different scenarios
  0. Key outputs: metrics you view to be most important in evaluating the opportunity

- 0. Cash flows to equity investors are a priority
  - 1. Sensitivity analysis: showing the impact of the primary risk factors affecting the deal (upside and downside risks) such as higher or lower:
    - energy consumption by consumers
    - tariffs
    - Opex
    - Capex
    - Debt terms
- For the follow-up call, prepare to discuss an investment recommendation including but not limited to the following elements:
  - a. Proposed structure evaluation: evaluate the structure
    - Risks analysis:
      - 0. identify the major risks, including any not captured by the model
      - 1. evaluate the strength of any mitigants
    - Opportunity evaluation: give your evaluation of the opportunity
  - b.