

# Title The Economic Assessment of Tanzania's LNG Project

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## 1. Introduction

- ❖ LNG has become a common natural gas transportation method when discovered reserves are located far away from the consumption point.
- ❖ This study focuses on assessing the economic viability of the proposed LNG plant in Tanzania.
- ❖ It is vital for investors (IOC's and Government) to have thorough understanding of economic environment surrounding the project.
- ❖ Main areas of the study are:
  - The profitability of the project to investors.
  - Determination of risks parameters to the project.
  - The probability of having a project which is economically not viable.

## 2. Methods Adapted

### ➤ Deterministic Approach

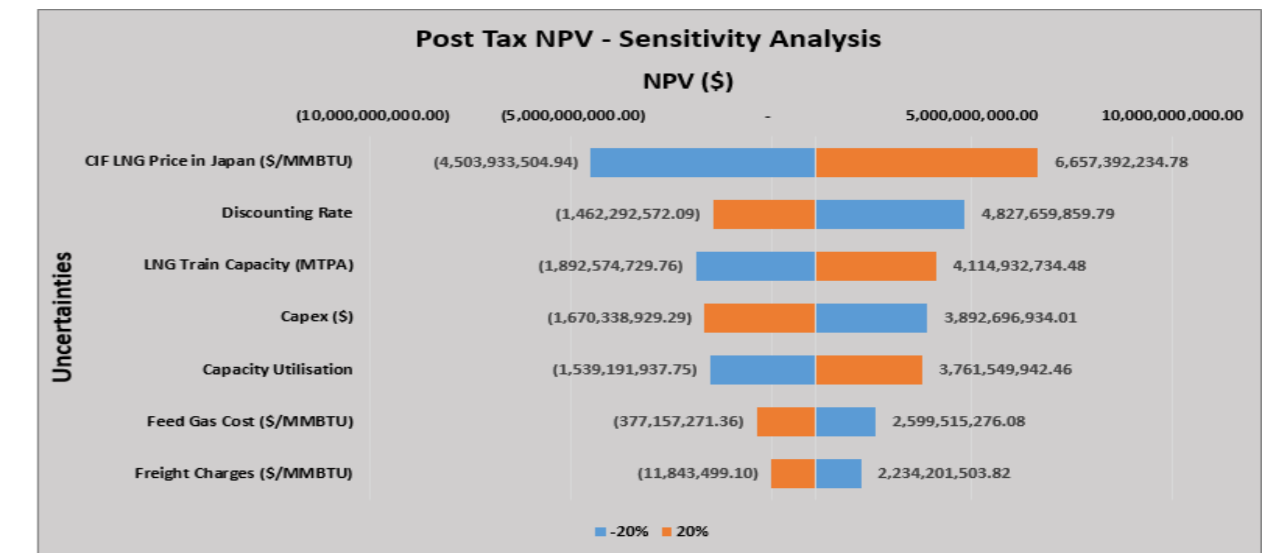
- Estimation of Cash Flows
- Calculation of Pre & Post tax NPV, PV of Tax, IRR, P/I ratio, Payback Period and BEP.

### ➤ Sensitivity Analysis

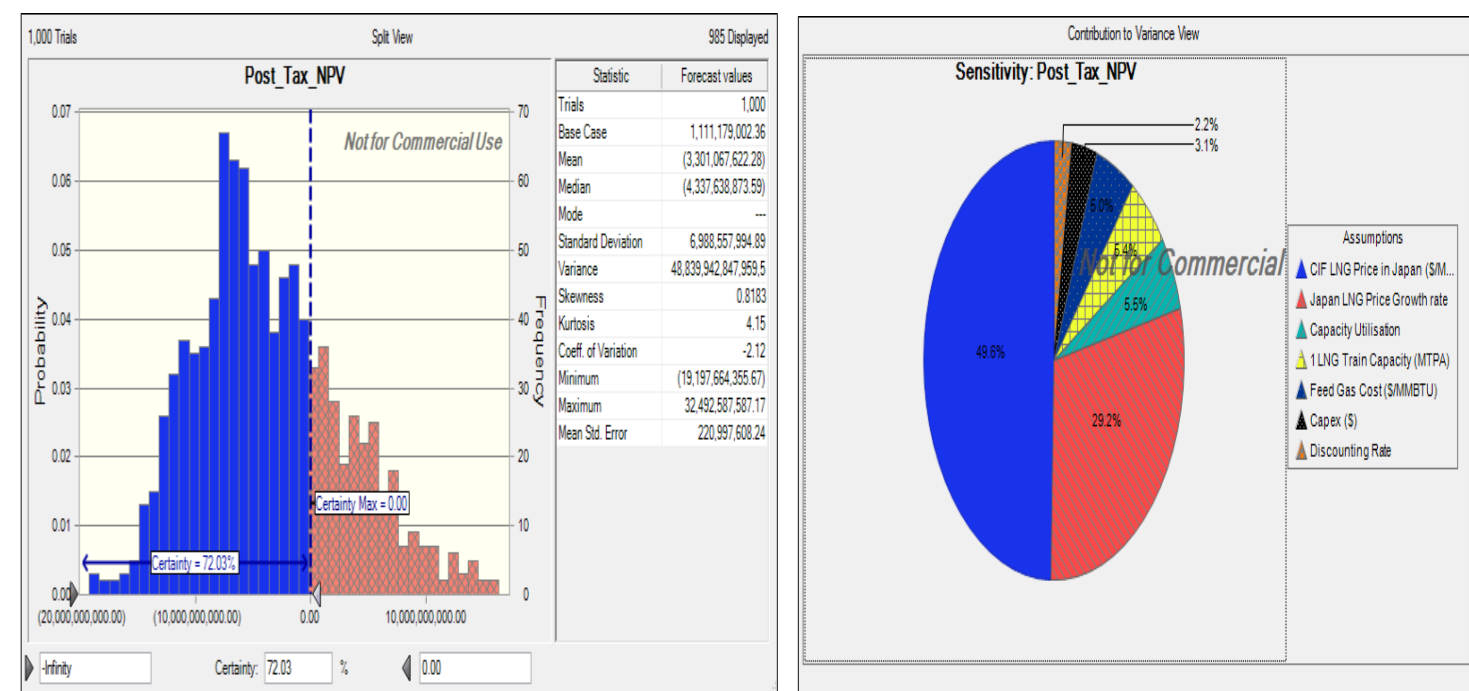
- Sensitivity analysis on LNG price, Feed gas cost, Train capacity, Capex, Discount rate, Capacity utilisation and Freight charges.
- Tornado diagram

- Sensitivity on PV of Tax as % of Negative Post Tax NPV.
- **Monte Carlo Simulation**
  - Simulation on LNG price with Lognormal distribution assuming mean reverting behaviour.
  - Simulation on Train capacity, Price growth rate, Capex, Feed gas cost and Discounting rate with Triangular distribution.
  - Simulation on Capacity utilisation with Uniform distribution.

### ➤ Sensitivity Analysis Results



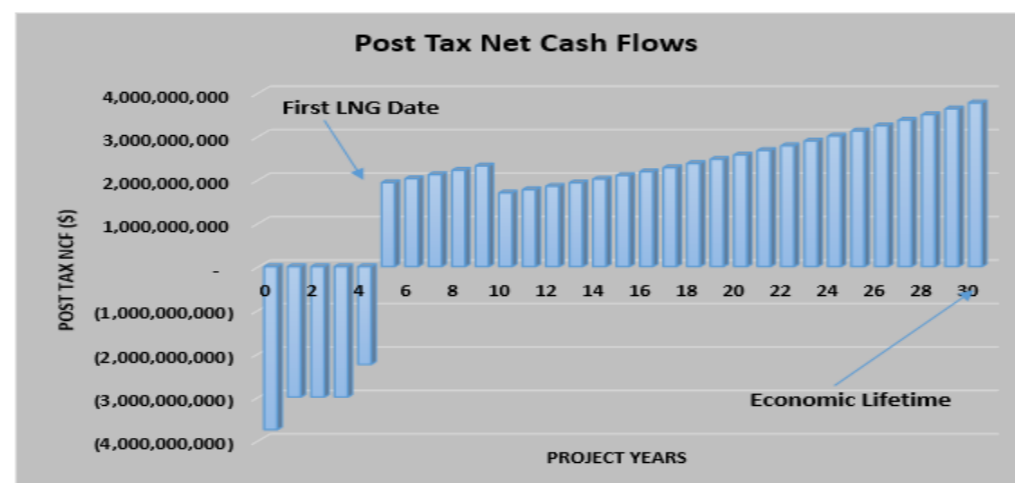
### ➤ Monte Carlo Simulation Results



## 3. Results

### ➤ DCF Results

SUMMARY OUTPUT	
Pre-Tax Net Present Value	4,719,254,682.21
Present Value of Tax	3,608,075,679.86
Post Tax Net Present Value	1,111,179,002.36
Post Tax Internal Rate of Return	0.11
Present Value of Capex	12,747,336,247.52
Profit to Investment Ratio (MOD)	3.38
Profit to Investment Ratio (Real Terms)	0.09
Approximate Simple Payback (Years)	12
BEP LNG Price (\$/MMBTU)	8.16
Present Value of Total Cost	23,264,504,413.48
Present Value of Production	2,619,777,257.59
Cost Per MMBTU (\$/MMBTU)	8.88



## 4. Conclusion

- In general, it is a highly risk project with a high probability of having negative return.
- LNG price is the riskiest variable that seems to decide the viability of the project.
- More studies are recommended when HGA and Gas contract terms become available.