

# ONSHORE SHALE GAS INVESTMENT IN CHINA: A CASE STUDY OF THE SICHUAN BASIN

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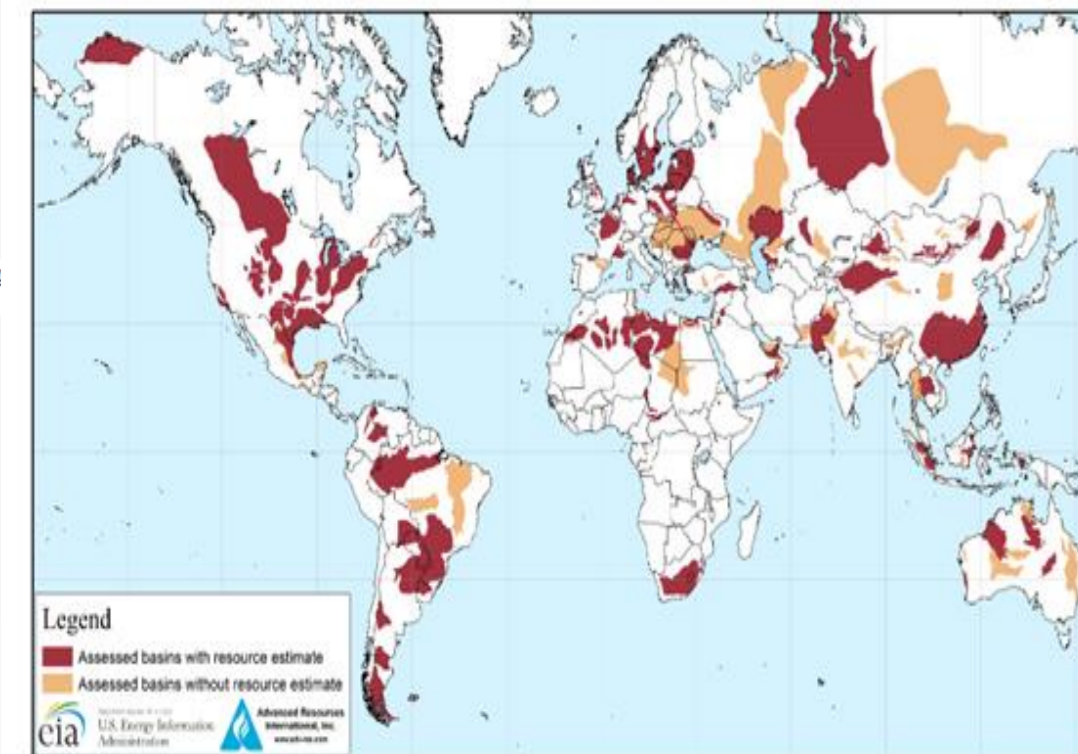


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## INTRODUCTION

China's increasing population continues to exhaust its energy supply. Its coal consumption produces harmful emissions.

Shale gas development can combat these issues (EIA, 2015) estimates China to have 1,115 tcf of shale gas resources – making it number 1 in the world.



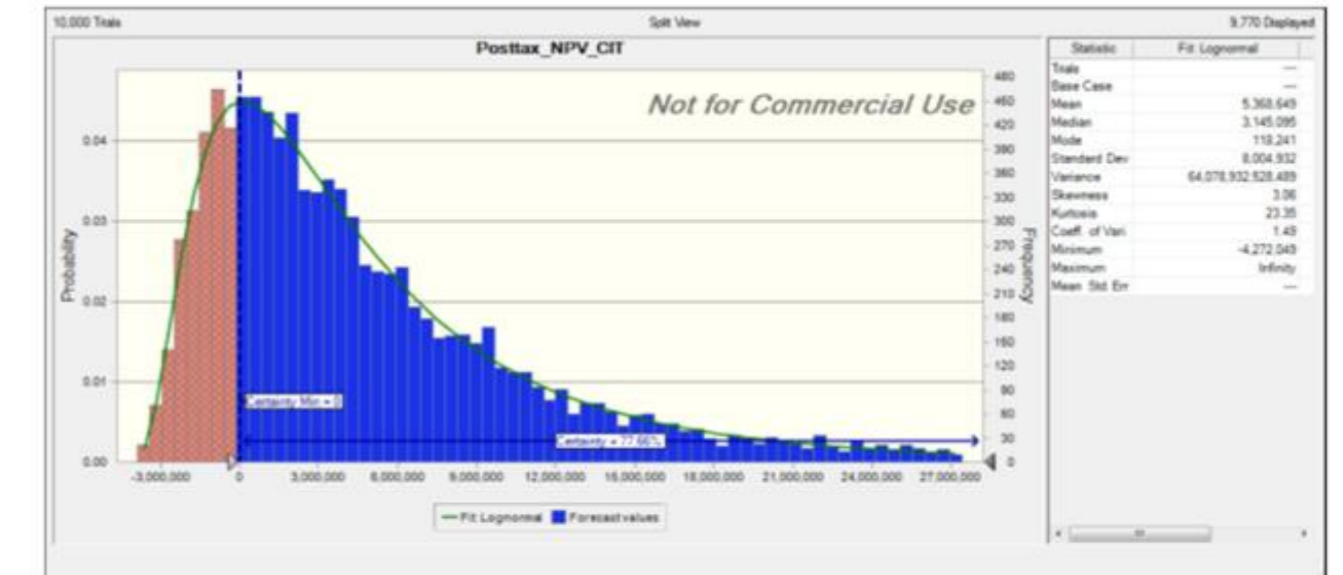
Rank	Country	Shale gas (trillion cubic feet)
1	China	1,115
2	Argentina	802
3	Algeria	707
4	U.S. <sup>1</sup>	665 (1,161)
5	Canada	573
6	Mexico	545
7	Australia	437
8	South Africa	390
9	Russia	285
10	Brazil	245
<b>World Total</b>		<b>7,299 (7,795)</b>

<sup>1</sup> EIA estimates used for ranking order. ARI estimates in parentheses.

## RESULTS AND FINDINGS

Results Table	Corporate Income Tax	Resource Tax
Pre Tax Net Present Value (\$)	2,014,188	2,014,188
Post Tax Net Present Value (\$)	- 870,242	1,101,836
Post Tax Internal Rate of Return	5.40%	16%
NPV Capex	14125017	14,125,017
Post Tax NPV Capex Ratio	-0.06160996	0.078006027
Approximate Simple Payback (years)	4	3
Total take to Government (\$)	3,172,872	912,351

Post-tax NPV under corporate income tax and resource tax is highly affected by the flowrate, capital expenditure, gas price and government subsidy in that order. The higher the flowrate, the bigger the impact on increasing the NPV and vice versa. But a higher subsidy has a lower impact on the NPV.



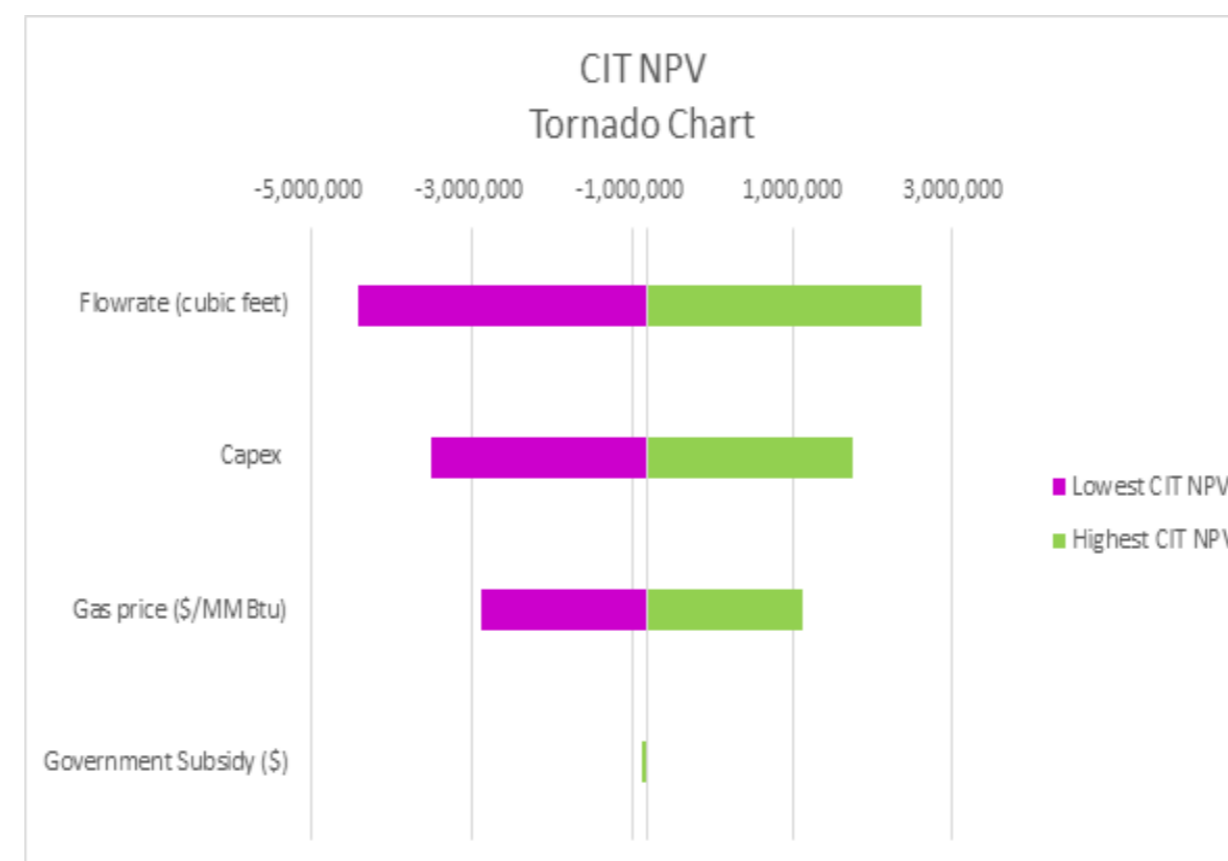
Forecast Posttax\_NPV\_CIT  
Trials = 10,000  
Certainty = 77.66%  
Selected range is from 0 to Infinity

- There is a 78% certainty that the post-tax NPV under CIT regime will be positive after 10,000 trials when the natural gas price changed.
- 0% certainty that the post-tax NPV under the CIT regime will be positive. Meaning the post-tax NPV remained negative throughout the 10,000 trials with respect to change in capex.

## AIM & METHODOLOGY

The aim of this project is to estimate the profitability of shale gas development in the Sichuan Basin – China's most prolific shale gas play. This will be done by taking into account the risks and uncertainties involved in a petroleum exploration project.

- Discounted Cash Flow
- Sensitivity Analysis
- Monte Carlo Simulation



## CONCLUSION

As it stands, shale gas production in China is not a profitable venture especially under the corporate income tax regime. However, considering resource tax, it is profitable.

Government needs to introduce more policies that will encourage technology innovation and shale gas exploration.