

Multi-Scenario Analysis Of Petroleum Investment: Confronting Great Risks And Opportunities In Venezuela

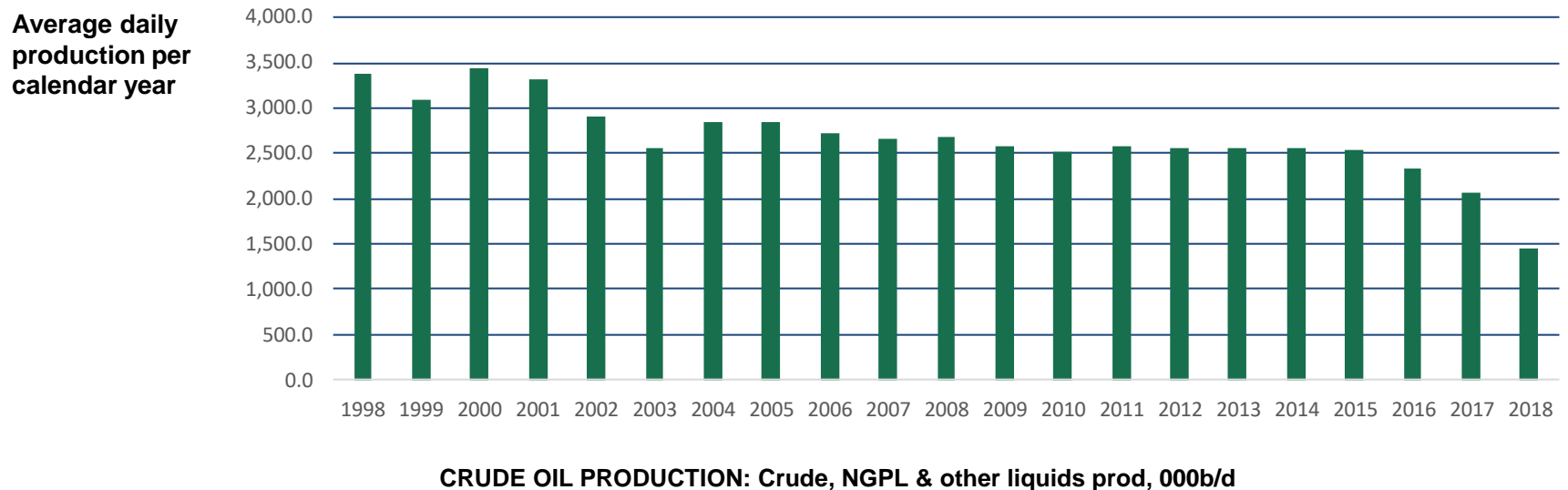
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- **Overview of Venezuela Petroleum Industry**
- **Scenario analysis**
- **Conclusions**

Overview of Venezuela Petroleum Industry

- ❑ The Venezuelan oil industry has been destroyed by the combination of a drop in international oil prices and domestic political and economic crisis. Crude production has declined sharply.
- ❑ Many Analysis institutions consider that the declining trend of crude oil production in Venezuela is difficult to ease in the short term, such as IHS, Wood Mackenzie, and BMI.



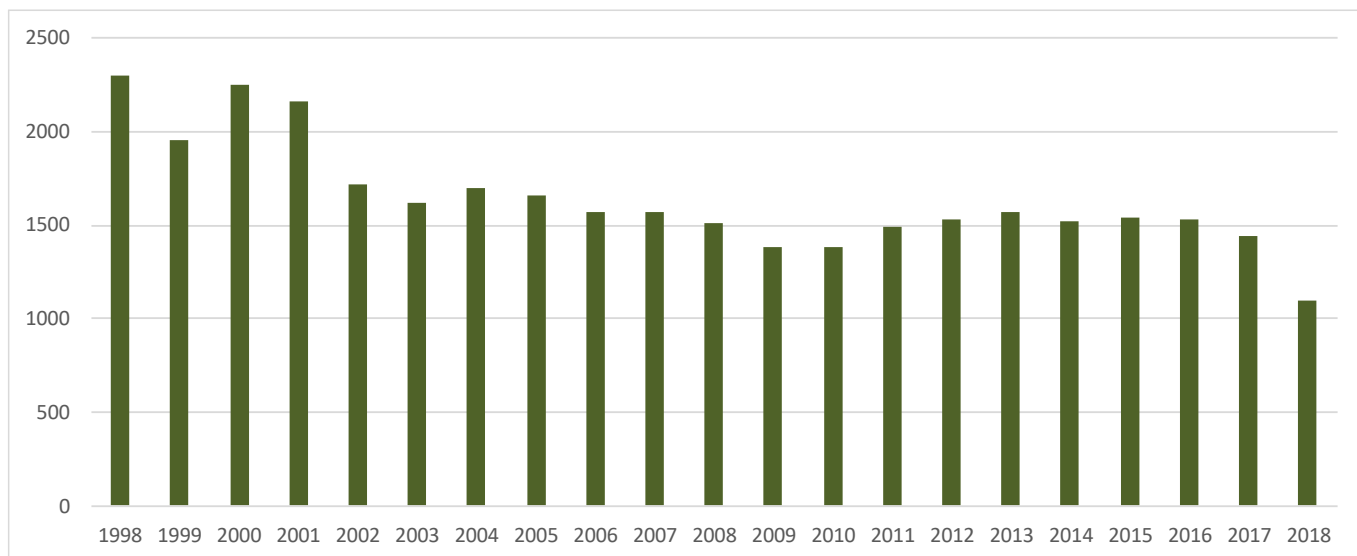
Sources: EIA

Overview of Venezuela Petroleum Industry

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- ❑ The steep decline in Venezuelan crude oil production has directly led to a reduction in export volumes.
- ❑ Exports to the United States have fallen sharply since 2017. On the basis of IHS data, US imports of Venezuelan crude registered 410,000 b/d in February 2018. That was the second lowest monthly volume since 1989.

Average daily production per calendar year



Sources: EIA

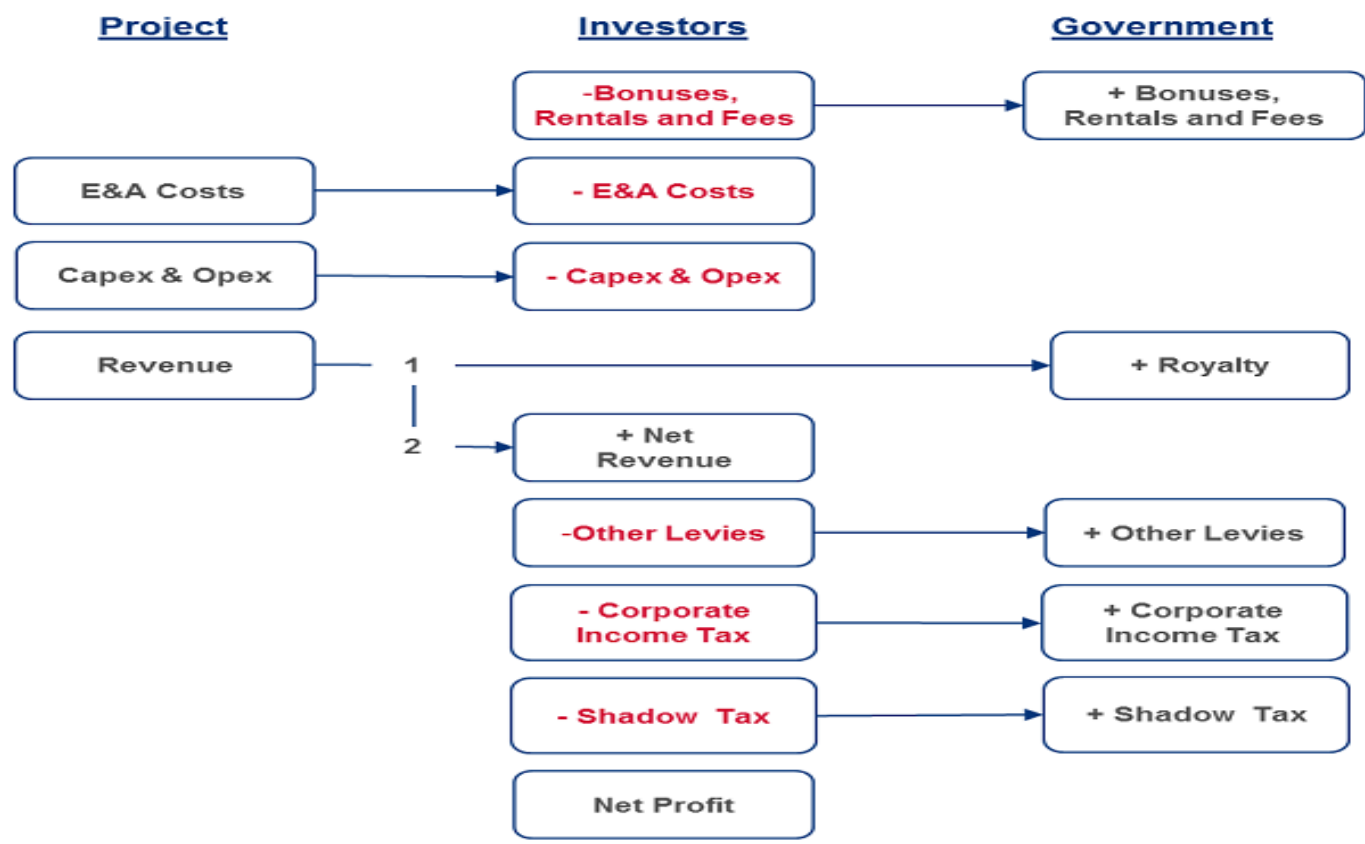
OIL TRADE: Crude & other liquids net export, 000b/d

- ❑ The production capacity of refineries in Venezuela has continued to shrink. There are many factors to decline the utilization rate of refining production, such as the decline in crude oil production, the lack of maintenance and upgrading of refineries, and the shortage of labour and so on.



Fiscal Terms

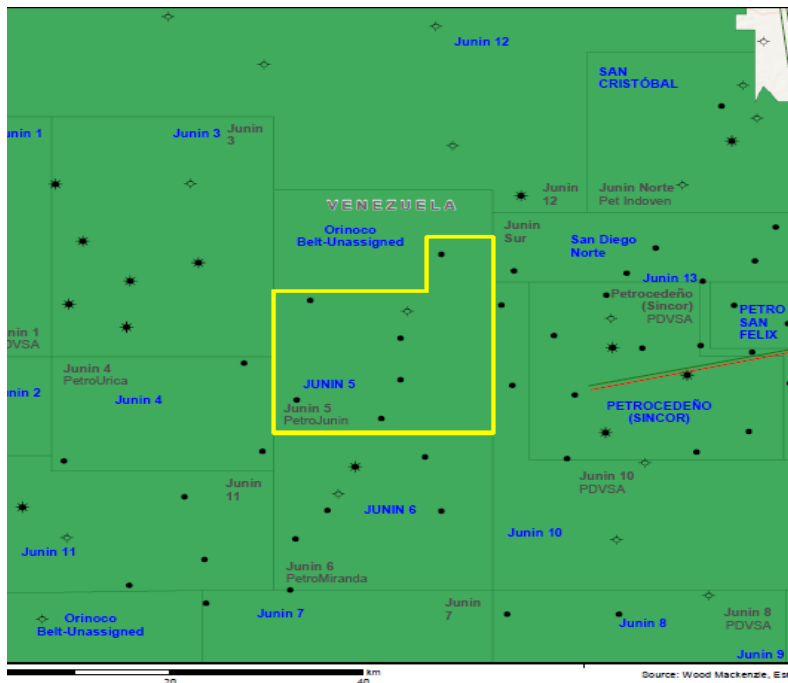
□ The economic evaluation model is built up on the basis of Venezuela concession fiscal terms .



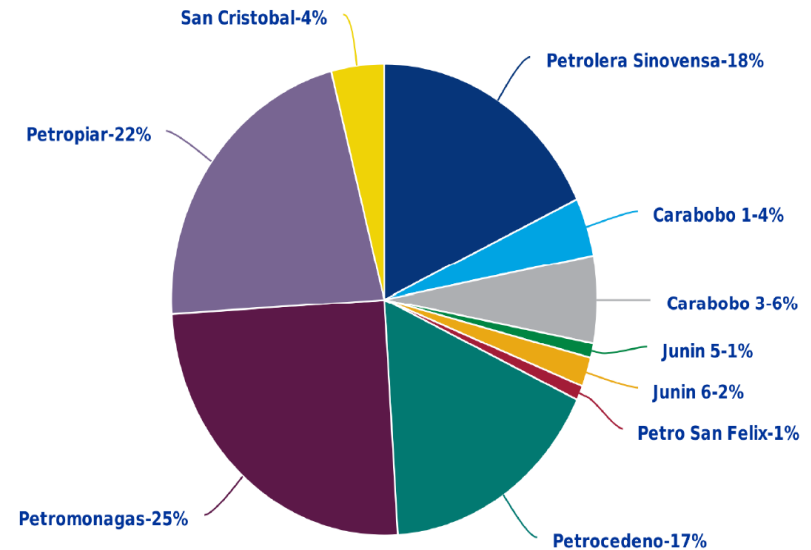
Project Information

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- ❑ The Junín 5 block is located in the middle of Venezuela's Orinoco Heavy Oil Belt(also known as the Faja). The Faja is the world's largest heavy oil deposit with estimated commercial oil reserves of 235 billion barrels.
- ❑ Capex and production data comes from Wood Mackenzie.



Faja JV production 2019



Scenario Analysis

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- ❑ Scenario 1 : Tax incentives scenario.
- ❑ According to petroleum law, Royalty can be reduced from 33.3%to 20 % in the mature reservoirs and super-heavy oil fields.
- ❑ The contractor can negotiate on the terms of the preferential contract to enhance the benefits of the project, which includes shadow tax and royalty.

Brent	50	60	70	80
NPV(10%,MM\$,No Incentives)	(2435)	(1858)	(1290)	(779)
NPV(10%,MM\$, Royalty 20%,shadow tax 40%)	(1858)	(1182)	(585)	(36)
NPV(10%,MM\$, Royalty 20%,shadow tax 0)	(1259)	(757)	(278)	142

Scenario Analysis

- ❑ The comparative economic evaluation analyses shows that oil company can gain more profit from the shadow tax exemption than royalty rate reduction.
- ❑ Shadow tax is the amount equivalent to the difference if there is a gap between 50% the value of the hydrocarbons extracted and the sum of the tax payments made by the joint venture.
- ❑ However, it is difficult to reach the agreement in this environment of low oil price.

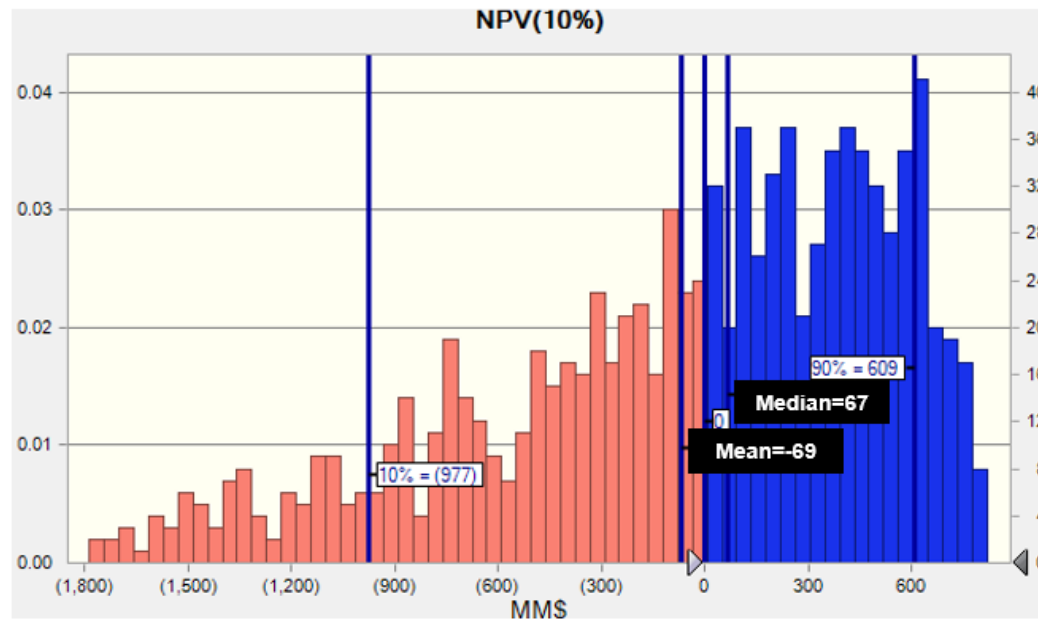
Scenario Analysis

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- ❑ Scenario 2 : exchange rate scenario.
- ❑ Operating expenses are paid by US dollars and bolívar fuerte.
Exchange rate effect the operating cost. In this scenario, project benefits is calculated on the different exchange rate to quantify the risk.

Probability

Frequency



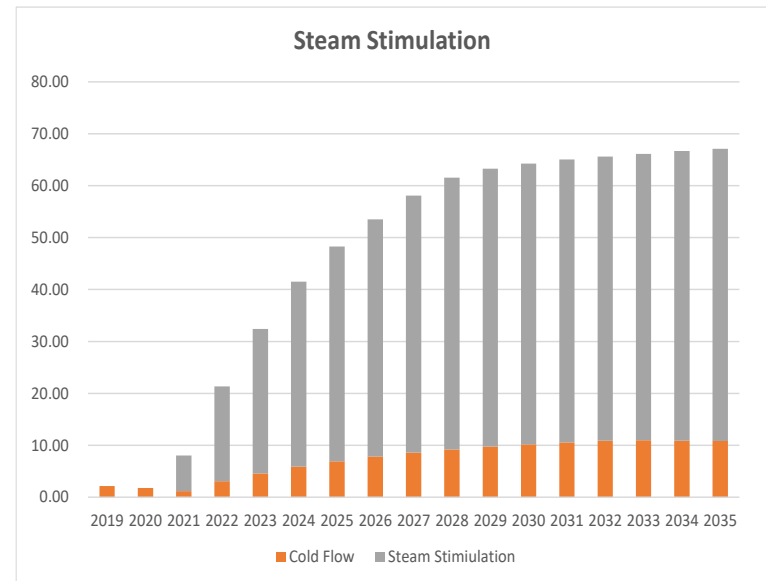
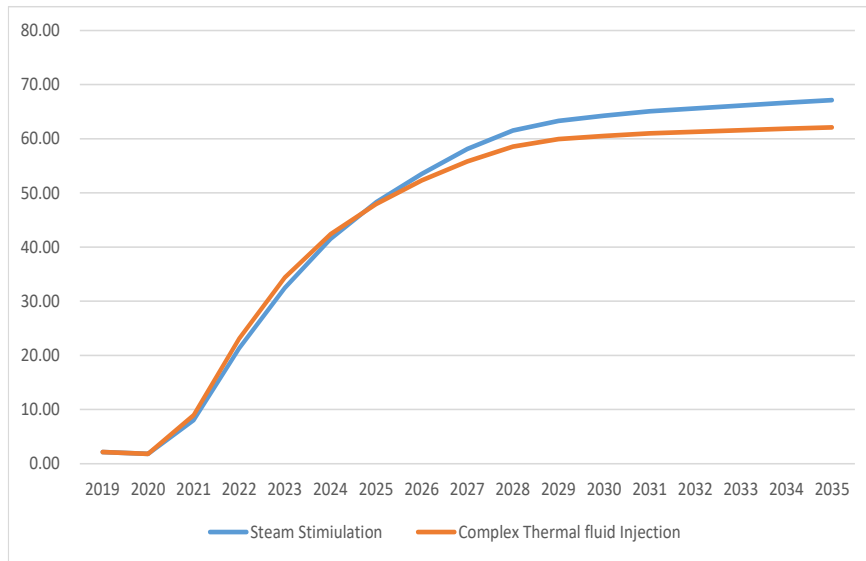
Scenario Analysis

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- ❑ Because of the exchange rate distortions in recent years, Venezuela's actual labour costs were not reflected truly.
- ❑ On the basis of crystal ball software and economic model, project present valuation is calculated under a certain exchange rate range to qualify the risk.
- ❑ At the same time, oil companies are urged to increase their dollar bidding and settlement in an effort to reduce the risk.

Scenario Analysis

Scenario 3 : Different thermal recovery technologies scenario



Scenario Analysis

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- Potential different thermal-recovery technologies for heavy oil is evaluated in various oil price assumption.
- Due to the influence of fuel costs, facility corrosion maintenance, and power facilities, the estimated operating costs of thermal recovery technologies may be quite different from the actual ones.
- It is necessary to strengthen research and further collect relevant data in the pilot test.

Brent	50	60	70	80
NPV(10%,MM\$, Steam Stimulation)	(3206)	(2350)	(1514)	(715)
NPV(10%,MM\$, Complex Thermal fluid Injection)	(4019)	(3179)	(2340)	(1522)

Conclusions

- ❑ **The contractors strive for the biggest tax incentives according to project actual situation.**
- ❑ **The contractors increase the scope and proportion of US dollar in operating expenses as far as possible to reduce the impact of local currency hyperinflation.**
- ❑ **If the domestic political and economic crisis can ease with the rise of oil price, and the government introduces more favourable policies to attract foreign investment, the future prospects of investment in Venezuela are still bright and rosy.**



Thanks!