

Economics of GTL projects

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Abstract:

Technology advances has lowered the cost of plants to the point where Fischer-Tropsch based GTL plants can be profitable option to monetize gas reserves, based on recent published data, GTL can be a significant alternative for monetizing natural gas in the 21st century.

GTL technologies include more than Fischer-Tropsch technology and extend to other liquid fuels; however “F-T process” is now often used as a synonym for gas-to-liquids or “GTL”. This paper will review FT technology, which has a powerful operational background from its discovery in 1923, and it is a proven technology in term of operation.

Certainly, GTL technology will play important role both in meeting future world energy demand and energy security in the world. Most important advantages of Fischer-Tropsch-based GTL technology includes:

- Monetization of stranded gas.
- Production of high quality petroleum products.
- Increasing world liquid hydrocarbon reserves.
- Reduction of gas flaring.

Now, international oil companies are negotiating with some countries, in order to reach an agreement to implementation GTL projects in the commercial scale.

This article tries to study the new condition of GTL industry, economically through the survey of effective elements on a GTL projects cash flow. Elements like Oil Price, Gas Inlet Price, Capital and operating cost have investigated comprehensively and their affects on GTL project economy have shown by sensitivity analysis. Financial Indicators like IRR, NPV, Production cost and Payback period have used to economic evaluation of a typical GTL project.

The results show that Oil price, Capex and Gas Inlet Price respectively are the most important effective factors on a GTL project cash flow and under certain assumptions a typical GTL project may achieve to the IRR more then 20 percent.

Key Words:

GTL (Gas to Liquids), FT (Fischer-Tropsch), Syngas, Refining, Gas Inlet Price, Petroleum Products, Power Factor.