

Is Coal Chemistry Really the Future for China - An Opinion

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Coal chemistry is certainly a big topic for the Chinese industry, as proven by the numerous magazines, market studies, conferences, political debates and of course the large number of coal chemical projects currently starting or being discussed. It is not the aim of this paper to summarize the current status of coal chemistry, but rather to highlight a few key aspects and state an opinion on the prospects of the industry. Hopefully this will lead to further discussions.

Background and Rationale for Coal Chemistry in China

The traditional coal-to-chemicals businesses started in China in early 1940s, mainly producing coke, ammonia, calcium carbide and methanol (coal is the feedstock for about 70% of methanol currently produced in China).

In the early 2000s, two reasons then led to increased interest in broadening the range of chemicals produced from coal in China. One was the rising oil price (particularly compared to the relatively low price of coal), the other the reliance of China on imports for more than half of its crude oil needs (compared to the substantial coal reserves available domestically). The two factors combined led to both a certain degree of political support for coal chemicals and strong company interest to turn coal into chemicals, specifically into liquids (Coal-to-Liquids, CTL), to olefins (CTO) and to gas (CTG).

Participants in Coal Chemicals

In contrast to the Chinese petrochemicals segment that is very much dominated by just two SOEs (state-owned enterprises), there is a broader range of companies participating in coal chemicals. These companies come from different angles:

* The petrochemical SOEs - while also to some extent lobbying against coal chemicals as it threatens their petrochemical-based business - have entered coal chemistry as an alternative source of products to be sold via their retail networks

* Coal producers see coal chemicals as a way to generate higher value from their existing coal production assets

* Chemical companies are primarily interested in a cheap and stable supply of chemical raw materials that can then either be further processed into downstream products, or sold via these companies' existing chemical distribution network

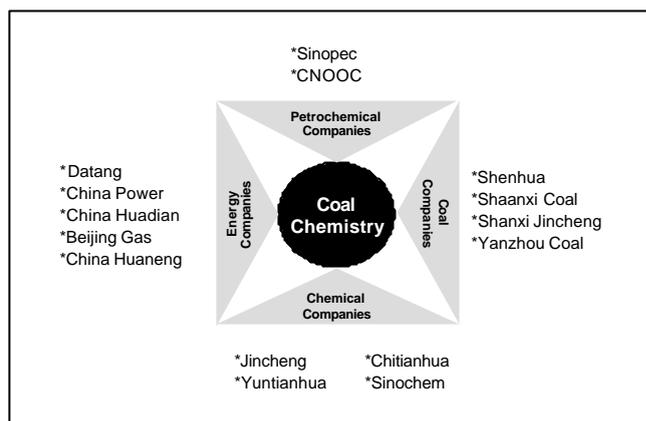
* Energy companies see coal chemicals as a diversification from their current business in which they can still utilize their infrastructure and some of their coal expertise obtained in running power plants (even if may just be in having a supplier network).

Risks of Coal Chemistry in China

The overview of participating companies immediately illustrates one of the risks of coal chemicals in China. Obviously, a large number of companies is currently moving into the segment, and some of them do not bring any specific advantages to be a successful player in coal chemicals. This phenomenon of strategic crowding is obviously not unique to coal chemistry, but is more risky in this segment as both the investment and the uncertainties are higher than in other areas.

A second risk is the technology employed

Fig. 1: Companies Participating in Coal Chemicals in China



in coal chemistry. As mentioned, investments required are huge - but at the same time, many technologies employed in coal chemistry are still in an early stage of development. Thus there is a substantial risk of individual investments becoming obsolete even if the coal chemical segment is successful as a whole.

And the whole segment will only be successful if the oil price stays sufficiently high. Recent developments suggest that indeed the oil price may increase, but at the same time, currently olefins from the Middle East and imported methanol are much cheaper than produced from domestic coal.

Environmental concerns in the shape of carbon dioxide emission and air pollution are an additional risk. However, this may actually be the one risk that is overestimated in current predictions as in essence, any alternative use of coal in China (e.g., as fuel in power stations) will generate similar problems, and it is unlikely that as a consequence China will reduce the current level of coal mining.

The real reason coal chemicals do not have good long-term prospects

All the risks mentioned above may well turn

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out to be manageable. However, the real reason why the long-term prospects of coal chemicals in China are limited simply is the lack of coal in China.

China currently is the biggest coal producer in the world. However, the country already strongly relies on coal imports and is likely to rely on them even more in the future. For example, Citigroup forecasts that in 2011, China will import an estimated 233 million t of coal. Domestic coal supply is

lower than demand as China's coal mines are old, far away from the centers of consumption, and often relatively expensive to extract. But even if China could solve all these problems tomorrow, the domestic coal reserves would only last for the next 38 years (according to a BP calculation based on 2009 production figures). If China had inexhaustible reserves, the country could afford to waste energy by turning it from a lower-value incarnation (coal) to a higher-

value one (chemicals). However, with only 38 years of reserves available, it is much more sensible to get the full energetic value from coal by using it as fuel for power stations than to lose a high share of this energy in the conversion process. It is very likely that the current cautious government policy represents a compromise between this realization and the enthusiasm of the many companies involved in coal chemistry. ■