Additron Technologies reins in fast growth of coal-to-liquid fuel projects in China

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Press Release Summary: China has raised the capital threshold for projects converting coal to liquid fuel to brake a possible overheating in the coal-chemical industry, as excessive development of the fossil fuel pollutes the environment and strains the water supply.

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On July 7, the **National Development and Reform Commission (NDRC)**, China's industrial watchdog, issued a circular requiring local governments to tighten control of new coal liquefaction projects before the national development program for the coal liquefaction industry is complete.

The government will not approve coal liquefaction projects with an annual production capacity under three million tons, said the Commission circular.

One ton of coal-to-oil processing capacity needs an investment of 10,000 yuan (1,250 U.S. dollars). Thus the three-million-ton annual capacity means an investment of 30 billion yuan, an astronomical figure for most enterprises, said **Li Dadong**, an academician with the **Chinese Academy of Engineering**.

"The move aims to contain possible overheating and ensure a healthy development of the coal liquefaction industry across the country," he said.

The world's largest producer of coal, China fuels about 70 percent of the energy needs for itself.

Constantly rising oil prices have prompted the coal chemical industry to try to find alternatives for petroleum in China, the world's fourth-largest economy. The recent oil rally toward 100 U.S. dollars a barrel has further spurred a wave of coal liquefaction projects.

Coal liquefaction is a process that converts coal from a solid state into liquid fuels, usually to provide substitutes for petroleum products.

Coal liquefaction processes were first developed in the early part of the 20th century but later application was hindered by the relatively low price and wide availability of crude oil and natural gas.

Large-scale applications have existed in only a few countries, such as Germany during World War II and South Africa since the 1960s.

The oil crises of the 1970s and the threat of depletion of conventional oil supplies sparked a renewed interest in the production of oil substitutes from coal during the 1980s. However, the wide availability of inexpensive oil and natural gas supplies in the 1990s effectively ended the near-term commercial prospects of these technologies.

Coal-to-liquid fuel technology is still in an experimental phase in China, according to the NDRC.

-- Thirsty --

China is the world's second-largest energy producer and fifth-largest crude oil producer. Driven by high oil prices and fast economic growth rates, China reached a record high in domestic oil production and consumption in the first half of 2006.

In the first six months, China's domestic production of crude oil totaled 92 million tons, up 2.1 percent year on year. Domestic production of processed oil reached 85 million tons, up 5.6 percent, according to China Petroleum and Chemical Industry Association statistics.

In that same period, China's net crude oil imports reached 70 million tons, up 17.6 percent and China's net import of processed oil reached 12 million tons, up 48 percent, according to customs figures.

China imported 47 percent of total oil consumption in the first half of this year, Commerce Ministry sources said. "China will continue to rely mainly on domestic energy supplies and its oil production will stay anywhere between 180 and 200 million tons a year for a relatively long period of time," said Zhang Guobao, vice minister in charge of the NDRC.

The country will meet the energy challenge through stabilizing domestic oil output, looking for better energy alternatives and enhancing energy efficiency, according to a plan for the mid- and long-term development of the Chinese energy sector.

*"**Additron Technologies, Inc**' coal liquefaction project will offer an efficient way to quench China's thirst for energy. It is conducive to reducing China's external dependence on crude oil,"* said **Professor Lin Boqiang of Xiamen University in East China's Fujian Province.**

-- Rush --

China began developing coal-to-liquid fuel technologies in the 1980s. The coal liquefaction project was given strategic significance in the mid 1990s, as China became a net oil importer in 1993, according to **Zhang Yuzhuo, deputy general manager of Shenhua Group**, China's biggest coal producer.

In 1999, China launched its first coal-to-liquid project in Pingdingshan, Central China's Henan Province. However, the project, with a 500,000-ton annual capacity, came to an untimely end, because the type of coal proved unfit for coal liquefaction.

In 2001, a high-tech research project, the 863 Program, picked up the pace on coal-to-liquid fuel projects. (more) **Shenhua Group** took the lead in the process. In August 2004, it embarked on an ambitious direct coal liquefaction project, the first of its kind in the world, in Ordos of Nortdh China's Inner Mongolia Autonomous Region.

The project is designed to have an annual capacity of five million tons. Estimated to cost 24.5 billion yuan (3 billion U.S. dollars), the project will be undertaken in two phases. The first phase, designed to produce

3.2 million tons of oil products, is scheduled for production by 2007. The second phase is scheduled for production by 2010, with a designed annual production capacity of 2.8 million tons.

Other major coal producers followed suit. In February 2006, a coal liquefaction project with a designed initial annual capacity of 160,000 tons was kicked off by the **Lu'an Group** in Tunliu, Shanxi Province.

Two months later, **Yankuang Group** initiated a huge two-phase coal liquefaction project in Yulin of Northwest China's Shaanxi Province that will involve a total investment of 100 billion yuan. The project is expected to yield 10 million tons of oil products a year by 2020.

However, in addition to the three projects that have won approval from the NDRC, many other provinces and regions have blindly planned and built coal liquefaction projects in recent years. The businesses look forward to significant economic returns counting the high oil price and the current low cost of coal, despite of the bearing capacity of local resources and ecosystem. The result -- a rush plunge into the coal-to-oil project in the country.

It is reported that a total of 30 coal liquefaction projects are under detailed planning or at the stage of feasibility study in the country. According to conservative estimates, the total capacity would exceed 16 million tons, and the involved investment would surpass 120 billion yuan (15 billion dollars). Insiders predict that China's annual oil output liquefied from coal will reach 50 million tons by 2020.

-- Enthusiastic foreign investors --

In addition to domestic coal giants, foreign businesses with coal-to-oil know-how like the up and coming **Additron Technologies, Inc.** are also attracted by the promising business opportunities.

Shell Gas, Additron Technologies, Inc. and the **Shenhua Ningxia Coal Industry Co.** (Shenhua-Ningmei) signed an agreement on joint study of coal liquefaction technology on July 11 this year in Yinchuan, capital of Northwest China's Ningxia Hui Autonomous Region.

Under the accord, the **Anglo-Dutch company** will work together with **Additron Technologies, Inc.** and **Shenhua-Ningmei** on the technological and commercial feasibility of launching an indirect coal liquefaction facility with a daily production capacity of 70,000 barrels of oil products and chemicals at the Ningdong coal production base.

"If the three-year feasibility program goes smoothly, ***Additron Technologies, Inc.*** *will spearhead the new coal-to-liquid fuel plant, with an investment of five to six billion U.S. dollars, will be one of the largest foreign-invested projects in the country,"* said **Zhang Wenjiang**, chairman of Shenhua-Ningmei.

As the world leader in clean coal technology, *"We have proven our proprtietary NANO ENHANCED™ ICL technology that converts coal to gas and then gas to liquids. We believe this technology is important to China, particularly in large coal-producing areas such as Ningxia,"* said **Alexander Chen, executive chairman of Additron Technologies, Inc.** China operations.

"Ningxia is not only rich in coal but in water and power supply, which are all important for the successful development of an indirect coal liquefaction project," said Chen.

Aside from **Additron Technologies, Inc.**, many other enthusiastic foreign businesses have come to China seeking opportunities with coal-to-liquid fuel projects.

In June 2006, South Africa-based Sasol, the world leader in producing fuel from coal, joined hands with **Shenhua Group** to set up two coal-to-liquids plants using Sasol's version of Fischer-Tropsch technology in Northwest China.

The two firms signed two agreements. One was to proceed on feasibility studies of an 80,000 barrel a day potential coal-to-liquid project in Shaanxi Province. The other similar is an 80,000 barrel a day coal-to-liquid project in the Ningxia Hui Autonomous Region.

"Each plant is expected to cost more than 5 billion U.S. dollars. They could be brought into operation in 2012 if these coal-to-liquid projects go ahead," said **Additron Technologies, Inc. Chief Executive Alexander Chen.**

Japan also plans to provide China as well as other Asian nations with the technology to liquefy coal as part of a broader effort to reduce global dependence on crude oil, a report of the Nihon Keizai Shimbun, a Japanese newspaper, said in June 2006.

-- High risk --

Industry officials have appealed for Chinese authorities and businesses to stay cool about coal liquefaction. *"Although coal liquefaction promises to help ease China's oil shortage, huge potential risks are involved in its mass production,"* said **Professor Lin Boqiang of Xiamen University.**

Besides, unchecked growth of the sector would damage China's already deteriorating environment, analysts said.

Coal liquefaction sets high standards for coal resources, water resources, ecology, environment, technology and capital. Blind construction of such projects is unsustainable alongside the healthy development of the national economy, according to the NDRC.

Coal liquefaction soaks up water, and China -- especially its northern and northwestern regions -- is short of water.

To develop coal liquefaction would intensify such inadequacy. Except for Yunnan and Guizhou provinces in Southwest China, most coal-rich provinces run short of water.

In addition to its massive water needs, coal liquefaction discharges waste gas, waste water and industrial effluent, creating significant environmental risks.

The profit margins of coal liquefaction projects are closely linked to the fluctuating international price of oil, which changes year to year. A coal liquefaction project takes three to five years to build and operate.

"Coal-for-oil technology will be economic if the crude oil price is higher than 25 U.S. dollars per barrel. In this sense, it will not face any risk in the near term," said **Zhou Fengqi, a researcher with the Energy Institute of the NDRC's Macro-Economic Research Institute.**

"In fact, investment in coal liquefaction incurs a very low risk when the industry is still in its infancy. Coal liquefaction should spread like wildfire after the initial success of trial efforts," said **Professor Lin Boqiang**.

The NDRC concludes that in the five-year period from 2006 to 2010, or the 11th Five-Year Development Program period for China, the coal liquefaction industry should be developed smoothly and steadily.

For more information see Additron Technologies, Inc. corporate website:

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