

China Buys Clean Coal Technology From U.S. Based Manufacturer

By Manuela S. Zoninsein

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Even as it assumes the mantle of world's largest emitter of greenhouse gases and world's largest consumer of energy, China is taking early steps to integrate "clean coal" technologies into its energy production mix. Bixby Energy Systems, a Ramsey, Minn.-based company coming to be known for a new coal-to-gas technology, recently signed contracts to install its synthesizers in several locations throughout China and shipped its first unit to the country on Sept. 10.

In July, the China Metallurgical Group, a state-owned company involved in engineering, procurement and construction announced an agreement with Global Partners United to build coal-to-gas facilities throughout the country. GPU is strategic partner, sales agent and licensee for Bixby in China. Bixby will provide a team of engineers to help install its systems, five contracts for which have been signed and include a glass-coking factory in Changzhi in Shanxi province and four that will go to Inner Mongolia province and include a methane-production plant, a state-owned heating company and two separate chemical factories.

Robert A. Walker, founder and CEO of Bixby, says the company is expected to earn \$25 million in revenue in 2010 from leasing equipment in China its first customer nation. The company says many companies and countries have visited its demonstration plant, and that it is negotiating with numerous potential customers.

Bixby Energy uses a process to convert coal into synthetic natural gas, cutting carbon-dioxide emissions by up to 65% below the level from burning coal, says the company.

The process superheats coal in a closed-loop environment to produce synthetic natural gas that can be used for boiler fuel or energy to spin the turbines at electrical generating stations. No carbon emissions are released into the air, the company says. The system separates the coal into syngas and semi-activated carbon that has commercial value.

The Bixby modules are 15 ft long, 10 ft wide and 50 ft high. Each can process 192 tons of coal a day and create enough gas to produce about 6.25 MW. Each module has been estimated by outside analysts to cost \$4 million, though the company will not release that information. Bixby expects to receive its patent within the coming year, Walker says.

Coal-to-gas technologies can provide a bridge to cleaner coal until carbon capture and storage plants are commercial. According to John Shi, CEO of Arreon Carbon, "to reduce GHG emissions, coal-to-gas is an important component. Maybe technologies like solar and wind, these can compete on a commercial scale, be cheaper than coal; but that is like a decade away, so in the meanwhile we have to deal with coal."

“The Future of Coal,” a study published by the Massachusetts Institute of Technology in 2003, predicted that the first full-scale commercial carbon capture and storage plant wouldn't come on-stream until 2030.

China is the world's largest producer and consumer of coal, which generates 70% of the nation's electricity. With 114.5 billion short tons of recoverable coal reserves—the world's third largest after the U.S. and Russia, according to the U.S. Energy Information Administration—China is coal self-sufficient. China has little natural gas and has said it is committed to approaching natural resource independence, so clean coal technologies have caught the attention of the Communist Party there.

Walker sees China's reliance on coal as a “win-win” opportunity. “They have one of the world's largest coal supplies,” he said. “With that and our technology, they have domestic gas independence.”

He also points to a strong commitment to clean technology in China, where politicians and businesspeople “are anxious to be proactive about it.”

Arreon Carbon's Shi urges this is “a very important field with quite a bit of activity—there's a lot of interest out there and Chinese companies recognize the importance of this technology.” However, as Chinese companies already know a lot, and arguably have better technology than U.S. companies, “finding a good match [for a joint venture] that's the challenge.”

GPU said several months ago that it has a letter of intent for 100 systems after completion of Bixby's demonstration plant in Shaanxi.