

Coal - SRI Research Identifies Environmentally Friendly Process to Make Coal-Based Liquid Fuel

Menlo Park, Calif. — December 20, 2011 — Research from SRI International has identified a promising new way to produce liquid transportation fuels from coal without consuming water or generating carbon dioxide. Based on data from bench-scale tests, SRI engineers estimate that the capital cost for a full-scale plant using SRI's process would be less than half that of a conventional coal-to-liquids (CTL) plant that uses a process called Fischer-Tropsch synthesis (FTS). FTS produces only a small fraction of the hydrocarbons needed for fuel and requires extensive recycling.



SRI's new process uses natural gas to provide the hydrogen needed to convert coal to syngas (a mixture of carbon monoxide and hydrogen). Syngas is first converted into methanol, which can then be efficiently processed to make transportation fuels.

Using natural gas eliminates the need to add water as a source of hydrogen, reduces the need to add energy to drive the gasification reaction, and results in the use of a smaller gasifier. In conventional CTL approaches, energy is supplied by burning a portion of the coal feed, which then produces carbon dioxide. SRI's approach makes it economical to use carbon neutral electricity, such as nuclear, hydro, or solar as a source of additional energy.

"The implications of this research are expansive, including enhancing US energy security through the use of domestic carbon sources," said [Robert Wilson](#), Ph.D., director, [Chemical Science and Technology Laboratory](#), SRI International. "The process can also dramatically reduce the environmental footprint associated with alternative transportation fuels."

SRI performed a series of analyses to examine the environmental impact of the technology under several scenarios. Based on these analyses, if diesel were produced using biogas as the source of methane, the resulting product would qualify as an alternative fuel under the revised Renewable Fuels Standard of the Energy Independence and Security Act of 2007. The Act requires alternative fuels to meet a standard of 50-percent reduction of greenhouse gas emissions compared to other fuels.

The SRI process was recently presented at the 28th Annual International Pittsburgh Coal Conference in a presentation titled, "Coal Gasification with Methane Reforming: A Novel Environmentally Benign CTL Process" by [Ripudaman Malhotra](#), associate director of SRI's Chemical Science and Technology Laboratory.

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