

INSIGHTS ABOUT GASTECHNO®

ISSUE 5, SEPTEMBER 2008

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Gas Technologies LLC Seeks to Modularize Natural Gas to Methanol Technology

Modularization of the GasTechno® process that converts methane into methanol will pave the way from the utilization of small-scale sources of methane that are currently flared or shut in. The advantages of the process are that it is non-catalytic and requires no syngas production.

The United States literally burns 100-150 billion cubic feet of natural gas every year (emitting 6 to 8 million tons of greenhouse gases in the process) simply because these resources are too small or stranded from pipelines. Countless other natural gas sources are simply shut in and rendered useless.

Another problem is the fact that although methanol is such an important and strategic resource, approximately 90% of it is imported from overseas. At one time the United States produced more than 75% of the methanol it consumed from 18 different plants; now only one plant remains due to the increasing costs of natural gas since 1999.

The GasTechno® process is a direct partial oxidation process that does not require a catalyst or a syngas step to produce oxygenates. The simplified approach offers 50% to 75% in capital savings over conventional technology, giving access to smaller and cheaper methane feedstock sources.

Utilizing a "one-size-fits-all" modular design, the GasTechno® process is now being considered for individual flares, large farms, landfills, and other small sources of methane gas to bridge the gap between methane supply and methanol demand.

The GasTechno® process has a virtual monopoly on the flared gas market in that by the virtue of its existence, industry has already demonstrated an inability to deal with the gas. The same is true for shut-in gas.

When a prospective GasTechno® customer in one of these situations considers investing in the process, there really are no alternatives. The only decision they need to make is whether to build it or burn it.

Preliminary economics based on the hard numbers of having a nearly completed prototype are encouraging. Gas Technologies LLC envisions five different size modular plants that will offer over-lapping coverage of methane sources from about 30,000 SCFD to 1.0 MMSCFD:

Design Capacity	Min (MSCFD)	Max (MSCFD)
62,500 SCFD	31	78
125,000 SCFD	63	156
250,000 SCFD	125	313
500,000 SCFD	250	625
1,000,000 SCFD	500	1,250

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The GasTechno® prototype plant is currently 85% completed. The plant is scheduled to be finished within 60 days after closing of financing and extensive testing will begin.

If testing verifies extensive laboratory work and simulations (including the work of third-parties), the GasTechno® process will unlock the value of countless stranded

gas supplies throughout the United States while supplementing methanol demand. Gas Technologies LLC is currently seeking partners to assist in commercializing the process.



GasTechno Process converts methane into methanol.

Dynamic Fuels Awards EPC Contract to L-Con

Dynamic Fuels LLC selected L-Con Constructors as the lead EPC contractor for the company's first renewable synthetic fuels facility in Geismar, LA. Dynamic Fuels is a 50/50 venture between Syntroleum Corp. and Tyson Foods, Inc. to convert low grade, inedible fats and greases into renewable synthetic diesel and jet fuel.

Construction of the Geismar plant is expected to begin in the fall of 2008 with completion targeted for the end of 2009. Once in operation, the plant is expected to produce about 75 million gallons of renewable synthetic fuel annually.

Tyson and Syntroleum have approved the project budget of \$138 million. Capital funding includes \$100 million in GO Zone Bonds previously approved by the Louisiana State Bond Commission. The \$38 million balance will be funded through equity contributions in the form of cash commitments of \$19 million per owner.

The fuel produced by the venture will offer the same benefits of synthetic fuels derived from coal or natural gas while providing substantial performance and environmental advantages over petroleum-based fuels.

These benefits include higher cetane levels, which are a measure of combustion quality, and superior thermal stability, making it effective for advanced military applications. These fuels are completely interchangeable with traditional petroleum based fuels and can be used in existing engines, distribution systems, pipeline and terminals. In addition, replacing traditional petroleum fuel with this fuel substantially reduces total GHG emissions.

Various non-food grade animal fats produced or procured by Tyson Foods, such as beef tallow, pork lard, chicken fat and greases, are expected to be used as renewable feedstock for this venture.