

# INSIGHTS ABOUT GASTECHNO®

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## GasTechno Touts One-Step Process for Liquid Methanol

Walloon Lake, Mich.-based GasTechno says it has developed a single-step process to convert natural gas into liquid methanol that has the triple benefit of reducing the consumption of natural resources, the creation of emissions, and the cost of production.

GasTechno is raising \$50 million for international expansion of its technology, which uses partial oxidation of methane to avoid the interim step of creating a syngas. The simplification reduces the capital cost to of liquid methanol plants by as much as 75 percent, and operations cost by 20 percent, said GasTechno founder and CEO Walter Breidenstein.

“The world is becoming a carbon market, and people are looking for ways to create carbon reductions,” Breidenstein told the Cleantech Group. “The two main emissions are methane and CO<sub>2</sub>, and our technology deals with both of them with no competition.”

One of the biggest potential applications of the technology is harnessing natural gas that would otherwise be burned off because there’s no pipeline to transport it, a process called associated gas flaring. It’s less common in the U.S. because of the extensive pipeline network for natural gas, but the process is used in remote oil fields in places such as Russia, he said.

Associated gas flaring results in greenhouse gas emissions, as well as the waste of the natural resource. Alternately, the natural gas can be converted to syngas and then liquid methanol in a costly process that requires multiple reactions, catalysts and purification.

But GasTechno has developed a direct homogeneous partial oxidation process that Breidenstein says is superior to those options. GasTechno developed proprietary reactor and scrubber systems to clean and recycle the methane in a loop until reaching the desired conversion. GasTechno has applied

for nine U.S. patents, four of which have been approved, as well as 44 international patents that cover 50 countries. The process can be used to create liquid methanol or formaldehyde.

The company has raised \$2 million in funding from family and friends but is seeking the Series A round to capitalize subsidiaries and build demonstration plants in foreign countries that have targets to reduce gas flaring, including Russia, which has plans to halt the practice by 2012. GasTechno is also looking to focus on West Africa, China, Europe and the Middle East. The U.S. Environmental Protection Agency recently classified methane as a pollutant, which has prompted new interest at home, Breidenstein said.

“When the issue is mandated by the government, people start to mobilize, to come up with solutions,” Breidenstein said. “That’s what happened in Russia, and that’s what’s happening now in the Obama administration.”

Dow Chemical [1] and the University of Virginia have also said they are developing single-step technology to produce liquid methanol, but Breidenstein said his company is ahead of the pack, giving it a market advantage.

Breidenstein said the technology also has applications in biodiesel plants, which require methanol to blend in fuel. The company expects to apply for a grant through the U.S. Department of Energy, which has earmarked \$790 million of stimulus spending for biofuels (see U.S. offers \$790M to next-gen biofuels [2]).

And the technology can be used to capture methane at dairy farms, pig farms, and landfills, he said. GasTechno’s technology would compete in those sectors with the flaring of methane in biodigesters to produce electricity, or converting the methane to compressed natural gas (see Waste Management to build 60 new landfill gas plants [3]).

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## GasTechno Touts One-Step Process for Liquid Methanol (continued)

Breidenstein has worked in the oil and gas industry for almost 20 years but began studying the science behind GasTechno in 2001. He hired chemical engineering consultancy Nexant to evaluate the viability of the technology as a competitor for traditional conversion of natural gas into other products, including methanol, formaldehyde, ammonia, and LNG. The report came out in 2006.

“Everything hinged on this report for our next stage of investors,” Breidenstein said. “Nexant concluded that were 50 percent to 75 percent cheaper than competitors in terms of cap-ex, and 20 percent cheaper for op-ex. That truly was the holy grail that everyone’s been looking for.”

In 2007, Breidenstein and his team began engineering the process, and the next year began to build a pilot facility that’s now 80 percent complete. Breidenstein expects the results of that facility, which could come 90 days after commissioning, to help secure the Series A round. He said his preferred investors would be banks, hedge funds or carbon funds.

GasTechno is one of 15 potential new investment opportunities the Cleantech Group added to its dealflow database this week, available exclusively to members of the Cleantech Network [4]. Members can click here [5] to search the dealflow database.

Interested in investing in cleantech companies? Here are two other U.S.-based companies from the Cleantech Group’s dealflow database also looking for funding:

\* Wisconsin-based AquaMost is raising \$1 million for its water purification technology using ultraviolet light to oxidize water. AquaMost previously used the technology in aquariums but shifted its focus to a bigger market, water contaminated by leaking underground gasoline storage tanks.

\* Watertown, Mass.-based nanotechnology company QD Vision [6] is raising between \$10 million and \$20 million in a fourth venture capital round as it gears up to bring its first product to market in the fourth quarter of 2009. QD Vision developed quantum dot technology to deliver color and brightness in displays while requiring less power than current LED technologies. In April 2008, the company called down \$9 million of a \$16 million Series C round from Highland Capital Partners, North Bridge Venture Partners, and In-Q-Tel [7], the U.S. Central Intelligence Agency’s investment group. That funding was expected to launch the first products into commercial markets (see Marine power gets a boost [8]).

Seeking capital? Submit to the Cleantech’s innovation pipeline [9].

Browse past pitches here [10].

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- [1] <http://cleantech.com/news/companies/dow-chemical>
- [2] <http://cleantech.com/news/4429/us-offers-790m-next-gen-biofuels-me>
- [3] <http://cleantech.com/news/1824/waste-management-to-build-60-new-landfill-gas-plants>
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