

## Cars Can Run on Gas from Cow Manure, Study Shows

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SAN FRANCISCO, Calif., Sept. 22, 2005 - Methane gas derived from dairy manure offers a substitute for natural gas that can power motor vehicles, according to a new study released by a collaboration of energy, dairy, and environmental groups. Known as biomethane, the gas is entirely renewable and environmentally preferable, and can be produced locally.

"There are 8.5 million cows in the United States, each producing enough manure to potentially generate about 30 cubic feet of biomethane per day, which could replace significant amounts of natural gas at today's prices," said Allen Dusault, biofuels project manager for Sustainable Conservation. "If used as vehicle fuel, biomethane could power a million cars."

The new study, "Biomethane from Dairy Waste: A Sourcebook for the Production and Use of Renewable Natural Gas in California," offers the most effective and economical technologies for producing biomethane, as well as specific applications and markets for the gas.

"This is no 'cow-pie in the sky' solution," said Dusault. "The technologies for converting dairy manure to biomethane are already used at several landfills around the United States. Sweden has 20 plants producing biomethane and runs 2,300 buses on it. As natural gas prices continue to rise, biomethane fuel is becoming cost-competitive with natural gas and diesel, and is much cheaper than hydrogen. Switching to biomethane improves air quality, reduces greenhouse gas emissions, improves water quality and strengthens rural economies."

"It is not actually the manure we'll put in the tank," said Paul Martin, environmental services director of Western United Dairymen. "We'll use the gas that forms when manure is processed in a methane digester and then upgraded to vehicle fuel quality. More than a dozen methane digesters are operating or under construction on dairy farms in California. Dairy farmers in New York, Wisconsin and other states are also discovering the economic, environmental and community benefits of locally produced energy."

Currently, some of the methane produced on dairy farms is used to generate electricity. However, the methane digesters can be upgraded to make biomethane for vehicle fuel. As technology advances, market forces evolve and infrastructure is created, biomethane may become a viable vehicle fuel on the farm and/or for local sale and distribution.

California has particularly good reasons for using biomethane. The state is home to more than 1.7 million dairy cows, with a technically feasible potential for producing about 18 billion cubic feet of methane a year, equivalent to over 150 million gallons of gasoline. The San Joaquin Valley, where most of the cows reside, has some of the nation's most polluted air. A dairy biomethane industry along Highway 99 could serve as the start for a renewable fuel highway, possibly evolving in the future into a 'renewable hydrogen highway,' should it prove advantageous to convert biomethane to hydrogen.

"Unlike ethanol and biodiesel, biomethane receives no direct government funding or incentives. To quickly achieve the full potential of biomethane, the federal and state governments must support development of the technology, markets, programmatic infrastructure and regulatory environment that will allow rapid use of this practical, domestic energy resource," said Michael Marsh, CEO, Western United Dairymen.

*Biomethane from Dairy Waste: A Sourcebook for the Production and Use of Renewable Natural Gas in California* represents a collaboration among experts from a wide range of specialties, including advanced transportation technologies, alternative fuels, dairy operations and environmental impacts. The study was funded by a grant from U.S. Department of Agriculture - Rural Development. Project partners include Sustainable Conservation, Western United Dairymen, Institute for Environmental Management, Great Valley Center, CalStart, and RCM Digesters.