Project Summary

Project Title:	Cool GTL® for Production of Jet Fuel from Biogas
Principal Investigator/ Project Director:	Ms. Terry Marker
Name of Applicant:	Gas Technology Institute
Solicitation Number:	DE-FOA-0001926 (Topic 1)

Objectives:

The project objectives are:

1. To develop a simple cost effective gas to liquid (GTL) process for biogas conversion to jet fuel

2. To show that the Cool GTL® technology is economically attractive (<$3/GGE) and meets required greenhouse gas reductions (reduces greenhouse gas fuels by more than 60% compared to petroleum based fuels)

3 To demonstrate good catalyst stability for the Cool Reforming and Cool Fischer Tropsch catalyst over a long steady test campaign with real biogas feed

4 To run in an integrated fashion using real biogas feed and make 100 gallons of high quality biogenic jet fuel which passes jet fuel specifications

5 To advance the Cool GTL technology from a Technology Readiness Level 3-4 level to a 5 level so that it is closer to commercial deployment

Brief description of technology proposed methods to be employed:

Gas Technology Institute (GTI) proposes to convert biogas directly into jet fuel using the Cool GTL process. This process is a new GTL process, invented by GTI, which directly converts high CO_2 and CO containing C1-C3 gases to jet fuel and gasoline. Cool GTL can be used to convert biogas from digesters, IH^{2}® or gasifiers so it has a wide range of applications. Cool GTL utilizes a unique new catalyst for CO_2/steam reforming in the first stage and a unique new catalyst and fluid bed reactor for Fischer Tropsch plus wax cracking and isomerization in the second stage to directly make jet fuel from biogas.

Potential impact of project benefits and outcomes:

The potential benefit for this technology is huge, because there are a large number of sites where biogas is produced and the Cool GTL technology is designed to be very low cost. This means the development of the Cool GTL technology should allow the DOE to meet and exceed the goal of producing jet fuel for less than $3/gallon from biomass, biogas, and bio-waste from a variety of sources. If successful this project will lead to the rapid deployment of the Cool GTL technology across the US creating 10,000+ jobs and utilizing US biomass waste to make transportation fuel.

Major participants (collaborative projects):

The major participants are GTI, Hatch Engineering, PSRI, Michigan Technological University, Synsel, LLC and Veolia Water Technologies.