Proposed Agreement between California Energy Commission and Altex Technologies Corporation

Title: Waste Vegetable Oil Driven CHP for Fast Food Restaurants
Amount: $1,435,693.00
Term: 37 months
Contact: Jean Baronas
Committee Meeting: 9/24/2009

Funding

FY	Program	Area	Initiative	Budget	This Project	Remaining Balance	
09	Electric	EPAG	CCHP	$3,500,000	$1,435,693	$68,022	2%

Recommendation

Issue

There are over 30,000 fast-food establishments in California and 230,000 nationwide. Each year these establishments produce 12 million tons of CO2 in California, and over 89 million tons of CO2 nationwide. On the other hand each restaurant produces waste vegetable oil (WVO) that is sufficient to power a 4-5 kWe CHP system. However, currently there is no CHP that can operate on this waste oil fuel efficiently and meet the California's CARB 2007 emission targets.

Background

Proposed Work

Altex Technologies is leading several Federally sponsored projects with partners ClearEdge Power (CEP), Dewey Electronics, and Penn State University (PSU) in developing HTPEM fuel cell power systems that operate on distillate fuels. The proposed work takes advantages of the expertise and experience that Altex and CEP have developed under these programs and CEP's commercialization efforts for 5-kWe home CHP systems to synergistically produce a waste vegetable-oil (WVO) fueled 4-kWe/45,000-BTU/hr CHP system based on Altex reforming technology and CEP HTPEM fuel cell technology. The proposed project aims to bring the cost of the WVO-fueled CHP system to a cost that allows for significant market penetration even if current incentives are rescinded. This market is large enough to overcome barriers to small-scale DG technology by large-scale implementation of small-scale DG technology. The will produce significant grid reliability and emissions benefits for California ratepayers and the technology addresses AB 32 by utilizing a renewable waste stream as a fuel source for a reduction in net CO2 emissions. However, the California fast-food market is not as large as other markets for power generation and CHP, which reduces the attractiveness of investment to private equity looking for large returns on their investment.

Justification and Goals

This project "[will develop, and help bring to market] advanced electricity generation technologies that exceed applicable standards to increase reductions in greenhouse gas emissions from electricity generation, and that benefit electric utility customers" (Public Resources Code 25620.1.(b)(3)), (Chapter 512, Statues of 2006)).

The general goal of Senate Bill (SB) 1250 (Perata, Chapter 512, Statutes of 2006), which states, in part, "the Public Interest Research, Development, and Demonstration Program is to develop, and help bring to market, energy technologies that provide increased environmental benefits, greater system reliability, and lower system cost, and that provide tangible benefits to electric utility customers through:

- Advanced electricity generation technologies that exceed applicable standards to increase reductions in greenhouse gas emissions from electricity generation, and that benefit electricity utility customers.
- Advance electricity technologies that may reduce or eliminate consumption of finite resources.

This proposed agreement also support California's goal to encourage the development of environmentally-sound CHP resources and distributed generation (DG).

According the 2008 Energy Action Plan Update, "new combined heat and power applications could play a large part in avoiding future greenhouse gas emissions due to the combined efficiency of the heat and power portions of the project. Other forms of DG, even if not renewable, can also have benefits over centrally located generation that suffers from transmission and distribution line losses. DG can also help support grid reliability."

This will be accomplished by:

- Developing and demonstrating a waste vegetable oil driven CHP system for fast food restaurants in Californmia.