

Biogas Integrated Concept a European Program for Sustainability

BICEPS

Action Line: Polygeneration
Contract Type: Integrated projects
Activity area: Bioenergy

Coordinator:

Organisation: Ansaldo Fuel Cells SpA
Corso Perrone 25
16152 Genova
Italia

Contact Person: Giovanni Vespasiani giovanni.vespasiani@afc.ansaldo.it

Project details

Reference:	BIOENE/019904/2005	Start Date:	01/01/2007
Status:	Execution	End Date:	01/10/2011
Project Cost (€):	16.948.491	Duration (months):	57
Project Funding (€):	6.975.095		

Summary

The basic goal of BICEPS is to demonstrate the generation of electricity, heat and refrigeration from biogases. The larger purpose behind the project is to further the development and competitiveness of next generation technologies for renewable energy, for the European market.

To achieve this target, the project will demonstrate two 1 MW molten carbonate fuel cell systems (MCFC) using biogas / landfill gas and generating electricity, heat and refrigeration. Within BICEPS, core subunits of the fuel cell system will be markedly improved: a media-supply system including gas purification, an adsorption chiller with higher efficiency compared to state of the art, and a micro gas turbine to increase the overall electrical efficiency.

The improvement of subunits, the scale-up of fuel cell size, and the new, cost effective gas purification for different biogases will reduce the overall costs for decentralized energy generation significantly. An 18 months field test within BICEPS will validate the reliability of the technology.

The demonstration sites for the 1 MW MCFC fuel cells will be in Spain (CESPA for MTU CFC Solutions, landfill gas) and in Italy (ASM Treni for Ansaldo Fuel Cell, sewage gas). Planning and construction will be done by Technip and IZAR, assisted by ZAE for the chiller technology. BASF together with Fraunhofer Umsicht will develop the purification system. E.ON Engineering and the universities of Genova, Nitra and OVM Romania, are to be integrated into the project as well.

Fuel Cell Energy, a major US producer of MCFC, will also participate in BICEPS, with funding from DoE. This would represent a first "virtual development and demonstration project" between US and EU fuel cell companies.

Partners

1	Ansaldo Fuel Cells SpA	IT
2	Balcke - Duerr GmbH	DE
3	Centro di ricerca Interuniversitario in Monitoraggio Ambientale - Università di Genova	IT
4	TURBEC R&D AB	SE
5	CESPA Ingeniería Urbana, S.A. - Servicios Medioambientales	ES
6	ASM terni S.p.A	IT
7	E.ON Engineering	DE
8	Università degli Studi di Genova - Dipartimento di Ingegneria Ambientale	IT
9	Slovenska polnohospodarska univerzita v Nitre	SK
10	Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung e.V.	DE
11	Bavarian Center for Applied Energy Research	DE
12	Oskar Von Miller - Institut de Conceptie, Cercetare si Proiectare Echipamente Termoenergetice	RO