



## AACTOR !GT

# DEVELOPMENT OF AN INVERTED GAS TURBINE „AACTOR“ FOR POWER FROM RE- NEWABLE SOURCES AND INDUSTRIAL WASTE HEAT, PHASE 2

## Annual Report 2008

Author and Coauthors	M. Schmid, J. Schiffmann, J. Borth
Company / Institution	Center of Appropriate Technology and Social Ecology CATSE
Address	4438 Langenbruck BL
Phone, e-mail, Internet	062 387 31 37, <a href="mailto:schmid@oekozentrum.ch">schmid@oekozentrum.ch</a> , <a href="http://www.oekozentrum.ch">www.oekozentrum.ch</a>
SFOE Project/Contract-number	102'820 / 153623
SFOE-Project Coordinator	Th.Kopp, Head of R&D Program, Heat Pumping Technologies, Cogeneration, Refrigeration' of SFOE
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### SUMMARY

During this project, all relevant analysis and simulations according thermodynamics, heat transfer and rotor kinetics, as well as the design of the turbine and its periphery shall be performed. The aim of this project phase (II) is the design of a project development unit (PDU) of a micro-turbine with a nominal grid feeding power of 2.4 kWe. Basing on this design, the PDU shall be ready to be produced.

Parallely peripheral components such as burner and recuperator shall be designed, produced and tested in the laboratories of CATSE. The burner is specially designed for the combustion of lean gases ( $H_u < 4 \text{ MJ/m}^3_n$ ).

In the following project phase (III), a PDU will be produced and tested in the field. It will be fired with lean gas (such as land fill gas from degrading sites) under atmospheric conditions.

From this PDU, a prototype of a lean gas micro-turbine with 9 kWe grid feeding power shall be derivated. Other applications are foreseen, such as a combined heat and power (CHP) unit for solid fuels (wood pellets). During project phase III it has to be investigated, whether the inverted brayton cycle remains advantageous if applied in larger combined-cycle installations using concentrated solar radiation (CSP).

As this project has been started in the last quarter of 2008, no results can be presented so far.