ANNEX V

TO THE AGREEMENT

BETWEEN

THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA AND THE MINISTRY OF INDUSTRY, COMMERCE AND HANDICRAFT OF THE REPUBLIC OF ITALY

IN THE FIELD OF ENERGY RESEARCH AND DEVELOPMENT FOR COOPERATION IN THE FIELD OF BIOMASS ENERGY

WHEREAS. the Department of Energy of the United States of America (hereinafter referred to as "DOE") and the Ministry of Industry, Commerce and Handicraft of the Republic of Italy (hereinafter referred to as "MICA") entered into an Agreement for Cooperation in the Field of Energy Research and Development on May 25, 1995 (hereinafter referred to as the "Agreement");

WHEREAS, the DOE and MICA (hereinafter referred to as the "Parties") have a mutual interest in collaborating in the field of biomass technology;

The Parties agree to enter into this Annex in accordance with Article IV of the Agreement.

ARTICLE I
SCOPE

The Parties agree to cooperate in a manner which will facilitate joint activities and market deployment of biomass energy in an environmentally responsible way. These joint activities may include, but will not be limited to:

1. Information exchange on biomass systems, with particular emphasis on promising technologies, their reliability and economical competitiveness.

2. Information exchange on how to reduce the cost and increase the efficiency and the reliability of biomass gasifiers, in the medium-scale (5-25 MWe) and small-scale (100 KWe-2 MWe) ranges, with emphasis on methods for improving the gas quality and for extending the range of usable feedstocks.

3. Task-sharing research and development on hot-gas clean up process for medium-scale gasifiers. Investigation will be focused on tar destruction, including catalytic cracking or physical removal. The most appropriate catalysts to be added to the bed will be selected, and the possibility of using bed materials having own catalytic ability (Dolomite, olivine, etc.) will be explored.

4. Development of gas cleaning systems for small-scale gasifiers. Investigation will be focused on a gas cleaning system to produce a gas compatible with internal combustion engines and/or stirling engines. Filters, made with local available materials, such as corn cobs particles, rice husks, etc., will be tested.

5. Long-duration tests simulating a "stand-alone" system for remote power with an internal combustion engine or stirling engine.

6. Development of better methods for handling ash in the gas stream in order to improve the performance of gasifiers using feedstocks with high ash contents and low melting points, subject to availability of expertise and funding.

ARTICLE II
MANAGEMENT

The DOE Assistant Secretary for Energy Efficiency and Renewable Energy shall be responsible for the programmatic aspects of this Annex for DOE. MICA designates ENEA as the Italian Party responsible for the implementation of this Annex.

Each Party shall designate one Program Coordinator to supervise activities under this Annex. These Program Coordinators shall provide technical management and coordination of the activities under the Annex. Each task undertaken under this Annex shall be described in a work plan approved by the Coordinators, who will designate Co-Project Officers for the task.

ARTICLE III
EXPENSES

Each Party shall independently bear the costs of its activities under this Annex unless otherwise agreed to in writing.

ARTICLE IV
GENERAL PROVISIONS

Cooperation under this Annex shall be subject to the provisions of the Agreement.

ARTICLE V

TERM

This Annex shall enter into force upon signature and shall remain in force for five years . It may be amended or extended by agreement of the Parties.

Done at Washington, D.C., the United States of America this 24th day of March 1998.

FOR THE DEPARTMENT OF ENERGY OF THE UNITED STATES OF AMERICA

FOR THE MINISTRY OF INDUSTRY, COMMERCE AND HANDICRAFT OF THE REPUBLIC OF ITALY