

**ANNEX IV
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 ON ADVANCED GEOTHERMAL TECHNOLOGY**

WHEREAS, the Department of Energy of the United States of America (hereinafter referred to as "DOE") and the Ministry of Industry, Commerce, and Handcraft 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"), and

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

NOW THEREFORE 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 the field of advanced geothermal technology. The cooperative activities may include:

- a. exchange of information;
- b. exchange of equipment;
- c. visits of experts; and
- d. joint tests and evaluations of equipment.

Cooperation shall include five key tasks:

Task 1: A study of the operational problems encountered in mature geothermal systems and the prediction of system response to injection of supplemental water. This study will involve sharing the experiences of field operations at Larderello, Italy, and the Geysers, U.S.A.

o Ente Nazionale per L'Energia Elettrica SpA (hereinafter referred to as ENEL) shall provide the information on Larderello operations.

o DOE and U.S. industry shall provide the information on the Geysers operation.

o DOE and ENEL shall jointly analyze the data and prepare, publish, and disseminate the final results.

Task 2: Comparison of reservoir simulation programs for predicting the energy recoverable from geothermal systems.

o Both DOE and ENEL shall analyze the data using available simulation codes and shall jointly prepare a report discussing the strengths and weaknesses of these computer codes.

Task 3: Exchange of information and experiences in air-drilling technology in geothermal environments and in the related equipment and materials.

Task 4: Exchange of information on the occurrence of scaling and corrosion in wellbores and production equipment. This task will involve the exchange of information and test results of the control measures adopted, the selection of appropriate materials, and the adoption of suitable chemical processes to reduce scaling and corrosion.

Task 5: Exchange of experiences on environmental aspects of geothermal activities, particularly in areas related to H₂S abatement and noise control.

ARTICLE II MANAGEMENT

1. The DOE Assistant Secretary for Energy Efficiency and Renewable Energy shall be responsible for the programmatic aspects of this Annex for DOE. ENEL shall be responsible for the implementation of this Annex for MICA.

2. A Management Committee shall be established to manage cooperation under this Annex. The Committee shall consist of four members, two designated by each Party. The Committee shall elect a Chairman and the chairmanship shall alternate between the Parties each year.

3. The Management Committee shall review annually the status of cooperation under this Annex and adopt any changes in the activities related to scientific, technical, schedule, or financial items, and approve future work according to availability of funds.

**ARTICLE III
EXPENSES**

Each Party shall pay for the travel and living expenses as well as salaries of its personnel.

Each Party shall support its own costs that are directly incurred in any joint testing under Article I, regardless of the cost supported by the other Party.

**ARTICLE IV
GENERAL PROVISIONS**

Cooperation under this Annex shall be subject to 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 ²⁴ 27 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

