

MEMORANDUM OF UNDERSTANDING BETWEEN
THE UNITED STATES ENERGY RESEARCH AND
DEVELOPMENT ADMINISTRATION AND THE
FRENCH NATIONAL CENTER FOR SCIENTIFIC RESEARCH
FOR COOPERATION IN JOINT RESEARCH ON
SOLAR THERMAL CONVERSION SYSTEMS

I. PREAMBLE

WHEREAS the Government of the United States and the Government of the French Republic have, in joint statements on cooperation in science and technology released on September 23, 1969 and November 25, 1969, expressed the intention to cooperate through their respective agencies and institutes in activities to explore methods of providing alternative energy sources; and

WHEREAS the National Science Foundation of the United States (NSF) and the National Center for Scientific Research of the French Republic (CNRS) have been cooperating in the study, research, and evaluation of components, subsystems, and systems for the thermal conversion of solar energy into electrical power through an agreement signed on June 24, 1974 between the Georgia Institute of Technology (GIT) and CNRS; and

WHEREAS the United States Energy Research and Development Administration (ERDA) and CNRS, hereinafter referred to as the Parties, desire to continue the aforesaid program of cooperation;

NOW, THEREFORE, the Parties hereby agree as follows:

II. GENERAL PRINCIPLES

1. The immediate aim of the cooperative program described in Section III of this Memorandum of Understanding is to (a) share information on research regarding the design and prototype construction of cavity boilers, (b) proceed with the effort undertaken in the aforesaid agreement between CNRS and the GIT regarding the development of cavity boilers, (c) test and evaluate at the CNRS facilities at Odeillo, France, several prototype components, such as radiation receivers and cavity boiler/superheaters, together with ancillary controls and equipment essential to these tests.

2. The scientific and technical data resulting from the cooperative effort described in paragraph 1 hereabove will be freely available to CNRS and ERDA, under the conditions set forth in Section III, subsection B. herein below.

3. The cooperative efforts contemplated by this Memorandum of Understanding shall be conducted by the Parties, acting on their own behalf or through their designated contractors or representatives, at the CNRS facilities at Odeillo, France, and such other locations as may be agreed by the Parties, including future test facilities available in the United States and in France. These future cooperative efforts will be specified in a separate Memorandum of Understanding.

4. The cooperative effort may be extended to include research on other components and subsystems associated with solar thermal conversion systems, such as heliostats, guidance and control equipment, and heat exchangers. Such extension of the research effort will be made the subject of further agreements. Such further agreements will specify,

with respect to each program, each Party's contribution of equipment and manpower, the conditions under which the program is to be implemented and under which the data may be used, and the allocation of rights to inventions and to any use of such inventions. In each instance, a Joint Committee will be responsible for the implementation of the jointly agreed upon program.

III - SPECIFIC PROVISIONS GOVERNING THE COOPERATIVE PROGRAM SET FORTH IN SECTION II, PARAGRAPHS 1, 2 AND 3 OF THIS MEMORANDUM OF UNDERSTANDING.

A. CONDUCT OF THE PROGRAM

1. A Joint Committee composed of six members is hereby established to coordinate the program contemplated by Section II, paragraph 1 of this Memorandum, ensure appropriate safety practices, and settle disagreements. ERDA and CNRS shall each appoint three members of the Joint Committee, and alternate members as may be necessary. The Joint Committee shall meet at least once a year, and at such other times as may be reasonably necessary upon the request of one or more of its members. The Joint Committee may establish one or more subcommittees and may delegate to any such subcommittee any of the functions of the Joint Committee which are enumerated in this Memorandum of Understanding. Each such subcommittee shall have the same powers as the Joint Committee to act in connection with any such delegated function.

2. Prototype subsystems such as cavity boiler/superheaters will be provided by ERDA to be tested by CNRS at its facilities at Odeillo,

France. ERDA will supply subsystems up to the interfaces with the solar furnace and will provide personnel to check out the subsystems prior to connection with the furnace and to assist as needed with their connection to the furnace, post-connection checkout, overall testing, and data reduction [mise en forme des donnees]. ERDA and CNRS will have joint responsibilities in the analysis of the experimental data. Unless otherwise agreed, equipment or material furnished by ERDA shall be delivered by ERDA to the CNRS site designated by CNRS at the time or times agreed upon by the Parties. Unless otherwise agreed, ERDA shall assume all responsibility for such delivery to the designated site or sites. Unless otherwise agreed, title to any equipment or material furnished by ERDA shall remain in ERDA, which shall arrange for disposition of the material or equipment at the conclusion of the activity for which it is supplied.

3. CNRS will furnish personnel and necessary equipment and materials for connecting the ERDA prototype subsystem to the interfaces of the furnace, for checking out the subsystems after connections, for testing and for supporting the general operation of the CNRS facilities, as needed. Tests involving the use of the CNRS 1000 KW solar furnace for experiments will be the responsibility of the CNRS staff.

4. To the maximum extent possible and consistent with sound management and operational safety, plans for installation, checkout, and testing or changes in design will be formulated and implemented by direct contact or interchange between interested scientists representing ERDA, or its contractors, and CNRS, or its designated representatives.

It is recognized that components, subsystems or systems furnished by ERDA for testing, and the test procedures themselves, must comply with established safety procedures at the facilities.

5. In case of disagreement over the plan or possible changes to the test model's subsystems, the Joint Committee shall endeavor to arrive at a solution acceptable to the Parties.

6. The Joint Committee will check out the safety conditions and the functioning of the CNRS test facilities and the components, subsystems, or systems furnished by ERDA for testing, and will make all recommendations it deems necessary. In case of an accident involving the CNRS facilities the components, subsystems, or systems furnished by ERDA for testing, or a combination of the CNRS facilities and such ERDA components, subsystems, or systems, the Joint Committee shall endeavor to reach conclusions as to the responsibilities therefor, and shall transmit these conclusions to CNRS and ERDA. Notwithstanding the foregoing provisions of this Section III, subsection A, paragraph 6, CNRS assumes responsibility for the safe operation of the test facilities and agrees to indemnify ERDA from any and all liability [dommage] which may result from operation of the test facilities;

provided, that this indemnity shall not apply to liability which results from the failure of any component, subsystem, or system furnished by ERDA to meet the technical specifications required for its use in the test facilities and which ERDA has agreed to meet;

provided further, that ERDA assumes responsibility for the failure of any component, subsystem, or system furnished by ERDA to meet the technical specifications required for its use in the test facilities

and which ERDA has agreed to meet, and ERDA agrees to indemnify CNRS from any and all liability which may result from such failure of an ERDA-furnished component, subsystem, or system; and

provided further, that neither CNRS nor ERDA shall assume any such responsibility or agree to any such indemnity for any liability arising from circumstances in which it is impossible to determine whether the the event giving rise to such liability resulted from the operation of the test facilities or from the failure of any component, subsystem, or system furnished by ERDA to meet the technical specifications required for its use in the test facilities and which ERDA has agreed to meet.

7. Immediately preceding and during the test period, members of the Joint Committee shall endeavor to make themselves available for consultation, at least by telephone.

8. The Parties agree that each side will share in the effort and the cost of approved activities by providing for the cost of its participation in activities carried out hereunder. This provision, however, does not require precise matching of funds, manpower, or facilities, nor does it require joint accounting procedures.

9. Within four months after completion or cessation of testing, a joint evaluation report shall be prepared. Each Party's obligation to participate in the preparation of this report may be discharged by persons acting on its behalf.

B. DATA

1. Scientific and technical results, information, and data resulting from the program activities set forth in Section III, subsection A, will be freely available to both ERDA and CNRS for their use or for use by other persons as either Party may deem appropriate.

2. Each Party will be permitted to disseminate these data as publications in scientific journals or by other channels customary to the scientific community.

3. This subsection B applies only to scientific and technical information and data not subject to the provisions of Section III, subsection C below.

C. INVENTIONS

1. It is acknowledged that the CNRS facility to be used in the present test and evaluation at Odeillo was originated by CNRS and that the cavity boiler/superheater subsystem to be tested was originated by ERDA. As to this facility and this subsystem, this Memorandum shall not affect existing rights between the Parties to the inventions conceived or first actually reduced to practice prior to this Memorandum.

2. With respect to any invention or discovery made or conceived by either Party or its contractors under or in the course of the implementation of the cooperative program specified in Section II, paragraphs 1, 2 and 3 of the Memorandum of Understanding, the invention and patent rights will be allocated in accordance with the following principles:

a. Each Party shall determine the allocation of all rights in such invention in its own country.

b. As to the right to acquire patents in third countries to inventions made in the course of this exchange:

(1) CNRS shall have this right as to inventions in the CNRS facility system and components,

(2) ERDA shall have this right as to inventions in the cavity boiler/superheater subsystem, and any other subsystems or components originated and supplied to CNRS by ERDA for testing.

c. The Party owning a patent covering any invention referred to in this Section III, subsection C, paragraph 2 shall license the patents to nationals of the other Party upon request of such other Party, on non-discriminatory terms and conditions. At the time of such a request, the other Party will be informed of all licenses already granted under such patent.

3. The Parties to this Memorandum shall provide all necessary cooperation from their inventors to carry out the provisions of paragraphs 1 and 2 above.

4. Each Party to this Memorandum shall assume the responsibility to pay awards or compensation required to be paid to its own nationals according to its own laws.

5. Disclosure of inventions made by one Party to the other during the course of any technical interchange or review shall be held confidential for the period necessary to file patent applications in the country of either Party.

6. The Joint Committee established in Section III, subsection A hereinabove is responsible for coordinating matters and settling disputes resulting from the application of paragraphs 1 and 2' above.

7. The meaning of "Party" in this Section III, subsection C shall include any affiliated government agency holding patents on behalf of a Party.

D. AVAILABILITY OF FUNDS

Responsibilities of the Parties hereto are subject to the availability of appropriations as such appropriations are determined in accordance with applicable laws.

E. FINAL PROVISIONS

1. This Memorandum will become effective upon signature by the duly authorized representatives of both Parties and will remain in effect for two years after the date of signature.

2. By mutual consent of the Parties, this Memorandum may be renewed for additional periods and may at any time be modified.

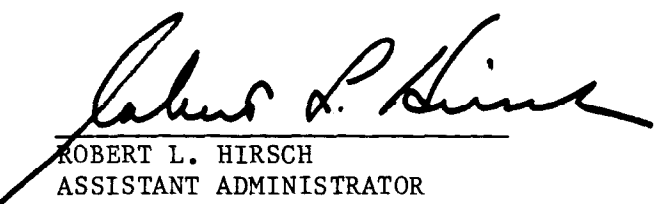
3. The termination, cancellation, expiration, or amendment of this Memorandum may, if the Parties agree, not affect the carrying out of any program or testing undertaken in accordance with this Memorandum and not fully completed at the time.

4. In case of disagreement regarding interpretation or application of the provisions of this Memorandum not settled by the Joint Committee, CNRS and ERDA shall consult for the purpose of amicably settling the dispute before presenting it to the competent legal authority.

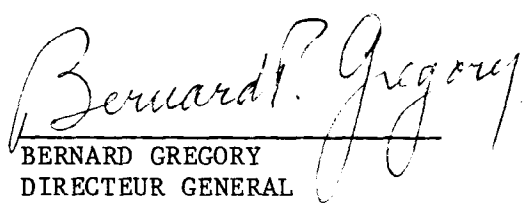
5. The Parties agree that no classified information will be transferred under this Memorandum.

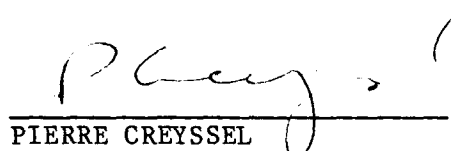
IN WITNESS WHEREOF, the Parties have executed this Memorandum on May 7, 1976.

FOR THE ENERGY RESEARCH AND
DEVELOPMENT ADMINISTRATION


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