

#### Annex VIII

To the Agreement Between the Department of Energy  
of the United States of America  
and the Ministry of Energy and Infrastructure of Israel  
in Energy Research and Development  
Simulation and Analysis of High Efficiency  
Absorption Systems for Solar Cooling

WHEREAS, the Department of Energy of the United States of America (hereinafter referred to as "DOE") and the Ministry of Energy and Infrastructure of Israel (hereinafter referred to as "MOEI") have entered into an Agreement in Energy Research and Development signed in Jerusalem, on June 3, 1984;

WHEREAS, DOE and MOEI (hereinafter referred to as the "Parties") recognize that it would be beneficial to both countries to work on a project in Simulation and Analysis of High Efficiency Absorption System for Solar Cooling (hereinafter referred to as "the Project");

WHEREAS, the Parties further recognize that the Project is of mutual interest to both countries;

Therefore, the Parties agree as follows:

#### ARTICLE 1

##### Scope

The goal of this project is to establish cooperation between U.S. and Israeli institutions, to advance the understanding and use of advanced absorption cycles and working fluids for solar cooling. Principal objectives are:

1. Improve analytical simulation models for predicting performance of absorption systems.
2. Perform simulation of solar cooling systems in different cycle configurations and different working fluids to identify promising cycles with high efficiency potential.
3. Expand data on properties of working fluids and establish a common base for their characterization.
4. Produce a report on the state of the art of absorption technology in Israel, to be added to similar information on the work in the U.S. and other countries.

P.6  
A

## ARTICLE 2

The activities of this Annex shall be carried out under the following tasks:

- Task 1. DOE and MOEI shall each work on the feasibility of the assembly and development of an analytical computer model or a small set of analytical computer models that would be capable of modeling the performance of a wide spectrum of high efficiency absorption cycles, including the specification of characteristics of a model and determination of what would be required to assemble and test such a model or models. The Parties shall exchange information developed under Task 1.
- Task 2. After the exchange of information under Task 1, the Parties shall hold a joint meeting to develop a program of work for further analytical work that each Party shall undertake individually and in parallel.
- Task 3. Each Party shall undertake independent development of specific portions of the analytical computer models as agreed in Task 2. Unit subprograms shall be written for simulation of absorption components forming parts of the different cycles, such as absorber, desorber, evaporators, condenser, etc. Computer subprograms shall be written to introduce the properties of different working fluids. The Parties shall exchange information and computer subprograms as developed.
- Task 4. Each Party shall collect and develop independently additional information on the properties of the different working fluids they agreed upon in Task 2. MOEI shall use analytical techniques and perform experimental work where required to bridge gaps in information presently available in published literature. The Parties shall exchange the information each Party collected and developed.
- Task 5. Upon the completion of the development of the computer analytical models in Tasks 1 and 4, the Parties shall jointly assemble the computer analytical models. Each Party shall independently perform standardized test runs of the computer analytical models. The Parties shall exchange the results of the test runs and, through mail and phone communications, resolve any discrepancies between the results of each Party.
- Task 6. MOEI shall survey and provide information to DOE

P. G.

on absorption technology in Israel, including a list and description of active projects. DOE shall provide to MOEI a report of a similar survey on active projects in the United States. MOEI shall hold a workshop covering the status of absorption technology with DOE's participation, and the Parties shall issue a report of the proceedings of the workshop.

- Task 7. DOE and MOEI shall hold a joint meeting to discuss and resolve any outstanding problems in understanding or interpretation of the results of the test runs performed in Task 5. At this meeting, the Parties shall also mutually agree upon a program of work for using the analytical computer model to calculate the expected performance for a range of high efficiency absorption cycles in solar applications. The Parties shall also agree upon a division of the program of work to be undertaken independently by DOE and MOEI and the procedures for the exchange of information and the cross-checking of each other's work.
- Task 8. DOE and MOEI shall proceed independently with the calculation of the predicted thermal performance for the high efficiency absorption cycles as mutually agreed in Task 7. The Parties shall exchange information and cross-check each other's work as appropriate.
- Task 9. The Parties shall publish in appropriate scientific journals the results of the work of this Annex. These publication(s) may be joint publication(s) by DOE and MOEI or papers prepared individually by DOE or MOEI and reviewed by the other Party prior to publication.

### ARTICLE 3

#### Schedule, Milestones and Reporting Requirements

1. Within three months of the effective date of this Annex, a set of checkpoints and major milestones shall be developed and published that shall allow for periodic assessment of Project progress and direction, and facilitate mutually agreed written modification, expansion, contraction or termination of the Project. The Parties shall set forth these checkpoints and milestones in writing, as an attachment to this Annex.

2. Each Party shall provide to the other Party brief quarterly reports that shall note the status of the Project with respect to schedules, milestones and budgets. The fourth quarter

3.6  
7.6

report shall be a full scale annual report including a specific work plan for the following year; this report shall be delivered at least thirty days before the end of the fourth quarter. The two Project Leaders appointed pursuant to Article 4.2 shall jointly prepare an annual report describing the work done, results achieved, funds expended and milestones completed. An assessment of progress made in light of the adopted set of checkpoints will be included.

#### ARTICLE 4

##### Management

1. Overall responsibility for annual approval of the Project's technical content and budget will rest with the Parties.

2. Each Party shall appoint a Project Leader for the detailed management of the Project. The Project Leaders shall be responsible to their respective Project Coordinators (appointed pursuant to Article 3.3 of the Agreement dated June 3, 1984) for the working contacts between the Parties.

#### ARTICLE 5

##### Funding

1. The cost estimated for the work to be carried out in Israel under this Project is \$95,000 U.S. dollars per year for one year from the date of signature of this Annex, with DOE providing \$75,000 U.S. dollars. Each year after the first year the Parties shall review the Project based on the annual report delivered in accordance with Article 3 of this Annex, including the proposed future work statement therein. The Parties shall mutually agree annually in writing on the budget for this Project. **The DOE will identify its funding commitment within 30 days of the signing of this Annex, and transmit it to MOEI as an addition to this Annex.** PG  
A-1

2. The cost of meetings shall be borne by the Party that incurs them, and visits and assignments of personnel shall be borne by the Party sending the personnel, both in accordance with the normal procedures of each Party.

3. DOE funds provided for the Project that are to be expended in Israel shall be deposited with an authorized depository of MOEI in an account at the beginning of each quarter of the U.S. fiscal year during which the project activities are to be funded. The initial deposit by DOE shall be provided only after the approval by the Parties of the checkpoints and milestones attachment as set forth in Article 3. Subject to established fiscal controls of MOEI, the Israeli Project Coordinator shall cause said funds to be distributed as is necessary and convenient to carry out the activities authorized herein. PG  
A-1

4. The Parties shall maintain appropriate financial records of this Project that clearly account for all funds expended on this Project, including funds transferred from one Party to the other pursuant to paragraph 3 above. Either Party receiving funds from the other shall, within 3 months following the end of the other's fiscal year, provide the other with a certification common, at its agency, of the amount and use of funds provided by the other Party which were utilized in the Project.

## ARTICLE 6

### Information and Intellectual Property

1. The publication, distribution, handling, protection and ownership of information and intellectual property, and rules and procedures related thereto, not covered by this Annex shall be determined by the Parties by unanimity.

2. Subject to restrictions applying to patents and copyrights, the Parties shall have the right to use and disseminate all information provided to or arising from the Project. It is intended that the results of this Project shall be published in the scientific literature.

3. A Party possessing information arising in the course of or under this Project ("arising information") regarding inventions on which patent protection is to be obtained shall notify the other Party and thereafter such information shall not be published or publicly disclosed until a patent application has been filed, provided, however, that this restriction on publication or disclosure shall not extend beyond six months from the date of notice to the other Party under this paragraph. Such information shall be appropriately marked to restrict publication or disclosure.

4. Reports containing arising information and information developed prior to or outside the Project necessary for and used in the Project shall be exchanged by the Parties and will cover the work performed by each Party under this Project.

5. Inventions made or conceived in the course of or under this Project ("arising inventions") shall be owned by MOEI in Israel and by DOE in the United States and third countries. Each Party, its Government and the nationals of its country designated by it, shall receive a royalty-free, non-exclusive license in the countries where the invention is owned by the other Party.

6. Copyrights of either Party shall be accorded treatment consistent with internationally recognized standards of protection. Any material which may be the subject of copyright developed under this Project may be copyrighted. A Party securing a copyright or rights thereto shall grant a royalty-free, non-exclusive license to the other Party to

P. G.  
A-11

reproduce, publish, distribute, duplicate and use the copyrighted material.

7. Each Party shall, without prejudice to any right of inventors or authors under its national laws, take all necessary steps to provide the co-operation of its authors and inventors required to carry out the provisions of this Article 6. Each Party shall assume the responsibility to pay awards or compensation required to be paid to his employees according to the laws of its country.

8. It is not anticipated nor shall it be required that any exchange of proprietary information will occur under the activities specified under this Annex. Should a circumstance arise in which it is necessary or desirable to exchange proprietary information, then additional agreements will be developed.

#### ARTICLE 7

##### Other Agreements

The provisions of this Annex shall not affect the rights or duties of the Parties under other agreements or arrangements. This Annex also in no way precludes commercial firms or other legally constituted enterprises in each of the two countries from engaging in commercial dealings in accordance with the applicable laws of each country; nor does it preclude the Parties from engaging in activities with other governments or persons.

#### ARTICLE 8

##### Laws and Regulations

Activities under this Annex shall be in accordance with laws and regulations of the countries of the Parties. All questions related to this Annex shall be settled by the Parties by mutual agreement.

#### ARTICLE 9

##### Appropriated Funds

It is understood that the ability of the Parties to carry out their obligations under this Annex is subject to the availability of appropriated funds.

#### ARTICLE 10

##### Term

1. This Annex shall enter into force upon signature, shall continue in force for two-year period, and may be amended or extended by mutual written agreement of the Parties.

2. In the event that, during the period of this Annex, the nature of either Party's energy programs should change

PLG  
AmT

substantially, either Party shall have the right to request revisions in the scope and/or terms of this Annex.

3. This Agreement may be terminated at any time at the discretion of either Party, upon six months advance notification in writing by the Party seeking to terminate the Annex. Any such termination shall be without prejudice to the rights which have accrued under this Annex to either Party up to the date of such termination.

Done at Jerusalem, Israel this \_\_\_\_\_  
day of June 17, 1985.

*[Signature]*  
For the Department of Energy  
of the United States of America

*P. Gluckstein*  
For the Ministry of Energy  
and Infrastructure of Israel