

INTERNATIONAL ENERGY AGENCY

IMPLEMENTING AGREEMENT
FOR THE ESTABLISHMENT OF A PROJECT
ON SOLAR POWER AND CHEMICAL ENERGY
SYSTEMS (SolarPACES)
(as amended to 23rd September, 1997)

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The Contracting Parties

CONSIDERING that the International Energy Agency (the “Agency”) seeks to create conditions in which energy sectors can make the fullest possible contribution to sustainable economic development and the well-being of people and of the environment;

CONSIDERING that the Agency recognizes that international co-operation in the development and dissemination of new and improved energy technologies, including solar energy technologies, contributes to the Agency’s objectives;

CONSIDERING that the Contracting Parties, being governments (and other entities designated by their respective governments) of Agency and non-Agency countries, wish to take part in an international project on solar power and chemical energy systems under the auspices of the Agency, as provided for in the Agreement (the “Project”);

CONSIDERING that the Project was initiated in 1977 under the name “International Energy Agency Project on Small Solar Power Systems” and, on 28th June, 1977, approved by the Governing Board of the Agency recognizing the establishment of the Project as an important component of international co-operation in the field of solar energy research and development;

CONSIDERING that the results of prior stages of the Project include the design, construction, testing and operating of two solar thermal power plants at the Plataforma Solar de Almeria (PSA) in the Province of Almeria, Spain, as well as the development and testing of improved solar thermal energy systems at the PSA and other facilities;

CONSIDERING that, in April, 1991, the Executive Committee of the Project, taking into account the achievement of the Project’s original objectives and the development of new objectives, decided to change the name of the Project to “International Energy Agency Project on Solar Power and Chemical Energy Systems (SolarPACES)”;

CONSIDERING that the Contracting Parties believe in the need to pool resources and to expand awareness of the potential of solar thermal technologies, and, consequently, wish to hold

open to other entities, particularly of countries which do not yet participate in the Project, the opportunity to participate in the Project;

CONSIDERING that on 19th June, 1996 the Governing Board of the Agency agreed to extend the Project for another five years until 31st December, 2001;

HAVE AGREED as follows:

Article 1

OBJECTIVES

(a) *Scope of Activity.* The Project to be carried out by the Contracting Parties within the framework of this Agreement shall consist of co-operative research, development, demonstrations and exchanges of information and technical personnel, regarding solar power and chemical energy systems which may be carried out on the facilities of Contracting Parties and at such other locations as may be designated by the Executive Committee.

(b) *Objectives.* The objectives of the Project are to:

- (i) Support solar thermal technology development by leveraging national resources for research and development through international collaboration;
- (ii) Support market development to reduce financial, political, market and institutional hurdles to commercialization of solar thermal technology; and
- (iii) Expand awareness of the potential of solar thermal technologies -- including long term fuel supply and the potential for solar chemistry -- to address the energy and environment problems that the world faces.

(c) *Implementation of the Project.* The Contracting Parties shall implement the Project by undertaking one or more tasks (the "Task" or "Tasks") described in Annexes to this Implementing Agreement. Each Annex will be open to participation by two or more Contracting Parties as provided in Article 2 hereof. The Contracting Parties which participate in a particular Task are referred to in this Agreement as "Participants". Each Task may be structured into sectors (the "Sector" or "Sectors") in which all Participants participate. Each Sector may be structured into activities (the "Task Activity" or "Task Activities") open to participation by two or more Participants. The Task Activities are identified in the annual Programmes of Work for each Annex pursuant to Article 5(c) below.

(d) *Task Co-ordination and Co-operation.* The Contracting Parties shall co-operate in co-ordinating the work of the various Tasks and shall endeavour, on the basis of an appropriate sharing of burdens and benefits, to encourage such co-operation among the Participants engaged in the various

Tasks with the objectives of advancing research, development and operational activities in the field of solar thermal and solar chemical technologies and applications. The Contracting Parties shall also co-operate in co-ordinating the overall work of the different Tasks with other Agency projects and programmes and shall endeavour, on the basis of an appropriate sharing of burdens and benefits, to encourage such co-operation with the objectives of advancing the research and development activities in the field of solar energy.

Article 2

IDENTIFICATION AND INITIATION OF TASKS

(a) *Identification.* All Tasks undertaken by the Participants under this Agreement are identified in the Annexes to this Agreement. Each Participant shall confirm its intention to participate in one or more Tasks by giving the Executive Director of the Agency a Notice of Participation in the relevant Annex or Annexes and the Operating Agent for each Task shall give the Executive Director of the Agency a Notice of the Operating Agent's acceptance of the Annex; or such Notice may be given verbally in an Executive Committee meeting by an express statement or by participating in the decision establishing the Annex. Thereafter, each Task shall be carried out in accordance with the procedures set forth in this Agreement, unless otherwise specifically provided in the applicable Annex.

(b) *Initiation.* Additional Tasks may be initiated by any Participant according to the following procedures:

- (1) A Participant wishing to initiate a new Task shall present to one or more Participants for approval a draft Annex, similar in form to the Annex attached hereto, containing a description of the scope of work and conditions of the Task proposed to be performed;
- (2) Whenever two or more Participants agree to undertake a new Task, they shall submit the draft Annex for approval by the Executive Committee pursuant to Article 3(e)(2) hereof; the approved Annex shall become part of this Agreement; Notice of Participation in the Task by Participants and acceptance by the Operating Agent shall be effected in the manner provided in paragraph (a) above;
- (3) In carrying out the various Tasks, Participants shall co-ordinate their activities in order to avoid duplication of activities.

(c) *Application of Annexes.* Each Annex shall be binding only upon the Participants therein and upon the Operating Agent for that Task, and shall not affect the rights or obligations of other Contracting Parties.

Article 3

THE EXECUTIVE COMMITTEE

(a) *Supervisory Control.* Control of the Project shall be vested in the Executive Committee constituted under this Article. Decisions made by the Executive Committee pursuant to this Article shall be binding on each Contracting Party and the Operating Agents.

(b) *Membership.* The Executive Committee shall consist of one member designated by each Contracting Party; each Contracting Party shall also designate an alternate member who shall represent the Contracting Party if the member is unable to do so. The Executive Committee's Secretary shall inform the Contracting Parties in writing of all designations under this paragraph.

(c) *Responsibilities.* The Executive Committee shall:

- (1) Investigate and evaluate co-operative research and development possibilities which might be developed as new Tasks or Sectors under this Agreement at the appropriate time;
- (2) Adopt each year, by unanimous decision of the Contracting Parties involved, the Programme of Work and Budget, if foreseen, for each Task, together with an indicative programme of work and budget for the following two years if necessary; the Executive Committee may, as required, make adjustments within the framework of the Programme of Work and Budget;
- (3) Establish such rules and regulations as may be required for the sound management of the Tasks including financial rules as provided for in Article 7 hereof;
- (4) Consider any matters submitted to it by any Operating Agent, the Secretary or any Participant, including all proposals for Task expenditure not included in an approved budget which are not otherwise authorized by this Agreement or the respective Annex;
- (5) Carry out the other functions conferred upon it by this Agreement and the Annexes hereto;
- (6) Invite, acting by unanimity, in accordance with the decisions of the Agency Governing Board, representatives of entities which are not Contracting Parties, to participate in any Executive Committee meeting, workshop, seminar, conference or other event.
- (7) Consider any matters submitted to it by any of the Operating Agents or by any Contracting Party.

(d) *Procedures.* The Executive Committee shall carry out its responsibilities in accordance with the following procedures:

- (1) The Executive Committee shall each year elect a Chairman and one or more Vice-Chairmen;
- (2) The Executive Committee may establish such subsidiary bodies and rules of procedure as are required for the proper functioning of the Committee. Representatives of the Agency and the Operating Agents may, in their respective capacities as such, attend meetings of the Executive Committee and its subsidiary bodies in an advisory capacity;
- (3) The Executive Committee shall meet at least twice a year; additional meetings shall be convened upon the request of a Contracting Party which can demonstrate the need therefor;
- (4) Meetings of the Executive Committee shall be held at such time and in such office or offices as may be designated by the Committee;
- (5) At least twenty-eight days before each meeting of the Executive Committee, notice of the time, place and purpose of the meeting shall be given to each Contracting Party and to other persons or entities entitled to attend the meeting. If notice is not given to any person or entity otherwise entitled thereto, decisions taken at a meeting of the Executive Committee shall be invalid unless notice is waived by that person or entity before or after the meeting;
- (6) The quorum for the transaction of business in meetings of the Executive Committee shall be one-half of the members plus one (less any resulting fraction) provided that any action relating to a particular Task shall require a quorum as aforesaid of members or alternate members designated by the Participants in that Task.

(e) Voting.

- (1) When the Executive Committee adopts a decision or recommendation for or concerning a particular Task, the Executive Committee shall act:
 - (i) When unanimity is required under this Agreement: by agreement of those members or alternate members which were designated by the Participants in that Task and which are present and voting;
 - (ii) When no express voting provision is made in this Agreement: by majority vote of those members or alternate members which were designated by the Participants in that Task and which are present and voting.
- (2) In all other cases in which the Agreement expressly requires the Executive Committee to act by unanimity, this shall require the agreement of each member or alternate member present and voting, and in respect of all other decisions and recommendations for which no express voting provision is made in this Agreement, the Executive Committee shall act by a majority vote of the members or alternate members present and voting.

- (3) The decisions and recommendations referred to in sub-paragraphs (1) and (2) above may, with the agreement of each member or alternate member entitled to act thereon, be made by mail, telex, or cable, or other means of electronic transmission without the necessity for calling a meeting. Such action shall be taken by unanimity or majority of such members as in a meeting. The Chairman of the Executive Committee shall ensure that all members are informed of each decision or recommendation made pursuant to this sub-paragraph.
- (4) If a government has designated more than one Contracting Party to this Agreement, those Contracting Parties may cast only one vote under this paragraph.

(f) *Reports.* The Executive Committee shall, by 31st May each year, provide the Agency with thirty copies of reports containing technically substantial, non-proprietary information on the progress of the Project and its results.

Article 4

THE SECRETARY

(a) *Designation of Secretary.* Deutsche Forschungsanstalt für Luft- und Raumfahrt e.V. shall become secretary (the "Secretary") of the Project to carry out such functions as the Executive Committee may request it to perform.

(b) *Scope of Authority.* The Secretary shall conduct the international co-ordination referred to in Article 1 of this Agreement, especially the technical and administrative interface management between the Tasks. The Secretary also shall provide managerial and technical support to the Operating Agents after mutual consultation. The Secretary shall carry out its functions under the supervision of the Executive Committee. Representatives of the Secretary may attend meetings of the Executive Committee and its subsidiary bodies in an advisory capacity.

(c) *Programme of Work and Budget.* The Secretary shall each year prepare and submit to the Executive Committee at its last annual meeting for unanimous approval a draft Programme of Work and Budget for the following year.

(d) *Reimbursement of Costs.* The Executive Committee may provide that expenses and costs incurred by the Secretary in acting as such pursuant to this Agreement shall be reimbursed to the Secretary from funds made available by the Contracting Parties pursuant to Article 7(b) hereof.

(e) *Replacement.* Should the Executive Committee wish to replace the Secretary with another government or entity, the Executive Committee may, acting by majority and with the consent of such government or entity, take such action.

(f) *Resignation.* The Secretary shall have the right to resign its office at any time by giving six months' written notice to that effect to the Executive Committee.

(g) *Information and Report.* The Secretary shall furnish to the Executive Committee such information concerning its work as the Committee may request and shall each year submit a summary report on the status of all Tasks.

Article 5

THE OPERATING AGENTS

(a) *Designation.* Participants shall designate in the relevant Annex an Operating Agent for each Task. Except as otherwise provided in this Agreement, references in this Agreement to the Operating Agent shall apply to each Operating Agent in respect of the Task for which it is responsible.

(b) *Scope of Authority to Act on Behalf of Participants.* Subject to the provisions of the applicable Annex:

- (1) All legal acts required to carry out each Task shall be performed on behalf of the Participants by the Operating Agent for the Task;
- (2) Except as otherwise provided in this Agreement, the Operating Agent shall hold, in trust for and for the benefit of the Participants, the legal title to all property rights which may accrue to or be acquired for the Task.

The Operating Agent shall operate the Task under its supervision and responsibility, subject to this Agreement, in accordance with the law of the country in which operations under the Annex take place.

(c) *Programme of Work.* The Operating Agent shall each year prepare and submit to the Executive Committee, at its last annual meeting for unanimous approval a draft Programme of Work for the following year, together with an indicative Programme of Work for the following two years. The Programme of Work shall contain at least the following elements:

- (1) A list of subjects to be investigated, as well as a list of entities involved;
- (2) A description of the Task Activities as defined in Article 1(c) hereof;
- (3) The number of person-years and amount of money involved for each Participant;
- (4) A time schedule with relevant milestones;
- (5) A definition of results which are expected to be freely available to the Participants;

- (6) Information on legal restrictions for information distribution and data dissemination;
- (7) Evidence of Participants' contributions and benefits, the objective being to achieve a fair cost/benefit ratio among Participants with due regard to each Participant's technical and financial possibilities.

(d) *Implementation.* The Operating Agent shall be responsible for taking all steps required to implement the Task in accordance with this Agreement, the Annexes hereto, and the decisions of the Executive Committee. Such responsibility shall include, but shall not be limited to:

- (1) Executing the Programmes of Work and Budget subject to the control of the Executive Committee;
- (2) Concluding all contracts necessary in connection with the Programmes of Work and Budget in accordance with the rules laid down in or made pursuant to this Agreement;
- (3) Acquiring on behalf of the Participants information and data and intellectual property rights now held by third parties, or which cannot be used without the consent of third parties, and which are necessary for the purposes of carrying out the Task, but in so doing shall not enter into any commitment which has not been authorized by the Executive Committee;
- (4) Recording the results of the work of the Task in accordance with the procedure set forth in paragraph (j) below; and
- (5) Performing such analysis of the results as may be provided in the Programmes of Work and Budget.

(e) *Reimbursement of Costs.* The Participants shall as a rule bear the expenses and costs of the designated Operating Agent. The Executive Committee may, acting by unanimity, provide that expenses and costs incurred by an Operating Agent in acting as such pursuant to this Agreement shall be reimbursed to the Operating Agent from funds made available by the Participants pursuant to Article 7(c) hereof.

(f) *Replacement.* Should the Executive Committee wish to replace an Operating Agent with another government or entity, the Executive Committee may, acting by unanimity and with the consent of such government or entity, replace the initial Operating Agent. References in this Agreement to the "Operating Agent" shall include any government or entity appointed to replace the original Operating Agent under this paragraph.

(g) *Resignation.* An Operating Agent shall have the right to resign at any time according to the following procedures:

- (1) For each Operating Agent, by giving six months' written notice to that effect to the Executive Committee, provided that:

- (A) A Participant or entity designated by a Participant is at such time willing to assume the duties and obligations of the Operating Agent and so notifies the Executive Committee and the Participants to that effect, in writing, not less than three months in advance of the effective date of such resignation; and
 - (B) Such Participant or entity is approved in its function of Operating Agent by the Executive Committee, acting by unanimity.
- (2) For each Operating Agent serving as a custodian of a common fund pursuant to Article 7(c) hereof, in the event that the Operating Agent does not receive within ninety days from the date payment is due all of the contributions of the Participants required under a financial plan adopted by the Executive Committee, acting by unanimity, by giving written notice of intention to resign to the Executive Committee and the Participants, making reference to this paragraph of the Agreement. Unless all such contributions are made within a further period of ninety days from the receipt of such notice, the Operating Agent may notify the Executive Committee and the Participants in writing of its resignation as Operating Agent, and such resignation shall be effective thirty days after the giving of such notice of resignation.

(h) *Accounting.* An Operating Agent which is replaced or which resigns as Operating Agent shall provide the Executive Committee with an accounting of any monies and other assets which it may have collected or acquired for the Task in the course of carrying out its responsibilities as Operating Agent.

(i) *Transfer of Rights.* In the event that another Operating Agent is appointed under paragraph (f) or (g) above, the Operating Agent shall transfer to such replacement Operating Agent any property rights which it may hold on behalf of the Task.

(j) *Information and Reports.* Each Operating Agent shall supply to the Executive Committee such information concerning the operation of the specific Task as the Executive Committee may request. Reports on the carrying out of the specific Tasks shall be submitted by the Operating Agents to the Executive Committee at semi annual intervals or at such other intervals as the Executive Committee shall determine.

Article 6

ADMINISTRATION AND STAFF

(a) *Administration of Tasks.* Each Operating Agent shall be responsible to the Executive Committee for implementing its designated Task in accordance with this Agreement, the applicable Annex, and the decisions of the Executive Committee and the regulations of the establishment at which the work is carried out.

(b) *Observers.* The Executive Committee may nominate observers (not to exceed three at any one time) among nationals of countries of Participants, to monitor progress on a Task in accordance with rules determined by the Committee.

(c) *Staff.* It shall be the responsibility of each Operating Agent, subject to the availability of funds, to retain such staff as may be required to carry out its designated Task in accordance with rules determined by the Executive Committee. The Operating Agent may, if provided for in the relevant Programme of Work, utilize the services of personnel employed by other Participants (or organizations or other entities designated by Participants) and made available to the Operating Agent by secondment or otherwise. Such personnel shall be remunerated by their respective employers and shall, except as provided in this Article, be subject to their employers' conditions of service. The Participants shall be entitled, upon decision of the Executive Committee, to claim the appropriate cost of such remuneration or to receive an appropriate credit for such cost as part of the Budget of the Task, in accordance with Article 7(h)(6) hereof.

Article 7

FINANCE

(a) *Individual Obligations.* Each Contracting Party shall bear the costs it incurs in carrying out this Agreement, including the costs of formulating or transmitting reports and of reimbursing its employees for travel and other per diem expenses incurred in connection with work carried out on the respective Task, unless provision is made for such costs to be reimbursed from common funds as provided in paragraph (j) below.

(b) *Secretary's Common Fund.* A common fund shall be established by the Executive Committee for the purpose of funding the obligations of the Secretary under this Agreement (the "Secretary's Common Fund"). The Budget of the Secretary for carrying out its obligations pursuant to Article 4(c) hereof is to be decided at yearly intervals by the Executive Committee, acting by unanimity. The Secretary's Common Fund shall be funded by the Contracting Parties in equal shares, unless the Executive Committee, acting by unanimity, decides otherwise. If the number of Contracting Parties changes, the Executive Committee, acting by unanimity, shall decide whether to adjust the proportionate shares of the Contracting Parties in the Budget or adjust the Programme of Work to take account of such change.

(c) *Common Task Financial Obligations.* Participants wishing to share the costs of a particular Task shall agree in the appropriate Annex to establish a common fund. The apportionment of contributions to such a common fund (whether in the form of cash, services rendered, intellectual property or the supply of materials) and the use of such a common fund shall be governed by the regulations and decisions made pursuant to this Article by the Executive Committee, acting by unanimity.

(d) *Custodian and Beneficiaries of Common Funds.* The Secretary shall serve as custodian to hold the Secretary's Common Fund, defined in Article 7(b) above, in custody or possession for the

benefit of the Contracting Parties. Should the Participants in a Task decide to establish a common fund to share the costs of that Task, the Operating Agent of that Task shall serve as custodian to hold the common fund of that Task in custody or possession for the benefit of the Participants in that Task. The custodians which hold common funds under this paragraph in custody or possession are referred to in this Article as the "Custodians", and the Contracting Parties or Participants in a Task for whose benefit the common funds are held by the Custodians are referred to in this Article as the "Beneficiaries".

(e) *Financial Rules, Expenditure.* The Executive Committee, acting by unanimity, may make such regulations as are required for the sound financial management of each common fund including, where necessary:

- (1) Establishment of budgetary and procurement procedures to be used by the Custodian in making payments from the appropriate common funds or in making contracts on behalf of the Beneficiaries; and
- (2) Establishment of minimum levels of expenditure for which Executive Committee approval shall be required, including expenditure involving payment of monies to the Custodian for other than routine salary and administrative expenses previously approved by the Executive Committee in the budget process.

In the expenditure of common funds, the Custodian shall take into account the necessity of ensuring a fair distribution of such expenditure in the Beneficiaries' countries, where this is fully compatible with the most efficient technical and financial management.

(f) *Crediting of Income to Budget.* Any income which accrues from the Project shall be credited to the appropriate common fund.

(g) *Accounting.* The system of accounts employed by the Custodian shall be in accordance with the accounting principles generally accepted in the country of the Custodian and shall be consistently applied.

(h) *Programmes of Work and Budget, Keeping of Accounts.* Should Contracting Parties or Participants agree to maintain common funds for the payment of obligations under the appropriate Programme of Work and Budget, the following provisions shall be applicable unless the Executive Committee, acting by unanimity, decides otherwise:

- (1) The financial year shall correspond to the financial year of the Custodian;
- (2) The Custodian shall each year prepare and submit to the Executive Committee for unanimous approval a draft Programme of Work and Budget, together with an indicative Programme of Work and Budget for the following two years, if necessary, not later than three months before the beginning of each financial year;
- (3) The Custodian shall maintain complete, separate financial records which shall clearly account for all funds and property coming into the custody or possession of the Custodian in connection with the Agreement;

- (4) Not later than three months after the close of each financial year, the Custodian shall submit for audit the annual accounts in a form approved by the Executive Committee to the Custodian's external auditors or other auditors selected by the Executive Committee and shall present the accounts, together with the auditors' report, to the Executive Committee for approval;
- (5) All books of account and records maintained by the Custodian shall be preserved for at least three years from the date of termination of its services to the Project;
- (6) Upon unanimous approval by the Executive Committee, a Beneficiary supplying services, materials or intellectual property to the Project shall be entitled to a credit, determined by the Executive Committee, acting by unanimity, against its contribution (or to compensation if the value of such services, materials or intellectual property exceeds the amount of the Beneficiary's contribution); such credits for services of staff shall be calculated on an agreed scale approved by the Executive Committee and shall include payroll-related costs.

(i) *Contribution to Common Funds.* Financial contributions due from Beneficiaries for a common fund shall be paid to the Custodian in the currency of the country of the Custodian, at such times and upon such other conditions as the Executive Committee, acting by unanimity, shall determine, provided, however, that:

- (1) Contributions received by the Custodian shall be used solely in accordance with the appropriate Programme of Work and Budget;
- (2) The Custodian shall be under no obligation to carry out any work of the Project until contributions amounting to at least fifty per cent (in cash terms) of the total due at any one time have been received;
- (3) The Executive Committee may decide, by unanimity, that contributions shall be paid in such other currency as the Custodian may request.

The Executive Committee may adjust the contribution levels as required in order to ensure that the adjusted contributions represent a realistic assessment of the funds needed for the purposes of the appropriate Programme of Work.

(j) *Ancillary Services.* Ancillary services may, as agreed between the Executive Committee and the Custodian, be provided by that Custodian and the cost of such services, including overheads connected therewith, may be met from budgeted funds.

(k) *Taxes.* The Custodian shall pay all taxes and similar impositions (other than taxes on income) imposed by national or local governments and incurred by it in connection with the Project as expenditure incurred in the operation under the appropriate budget; the Custodian shall, however, endeavour to obtain all possible exemptions from such taxes.

(l) *Audit.* Each Participant Beneficiary shall have the right, at its sole cost, to audit the accounts of any work in the Project for which common funds are maintained, on the following terms:

- (1) The Custodian shall provide the Beneficiaries with an opportunity to participate in such audits on a cost-shared basis;
- (2) Accounts and records relating to activities of the Custodian other than those conducted for the Project shall be excluded from such audit, but if the Beneficiary concerned requires verification of charges to the Budget representing services rendered to the Project by the Custodian it may at its own cost request and obtain an audit certificate in this respect from the auditors of the Custodian;
- (3) Not more than one such audit shall be required in any financial year; and
- (4) Any such audit shall be carried out by not more than three representatives of the Beneficiaries.

Article 8

INFORMATION AND INTELLECTUAL PROPERTY

(a) *Application to Agreement and Annexes.* Pursuant to the General Guidelines Concerning Information and Intellectual Property, adopted by the Governing Board of the Agency on 21st November, 1975, and any modification thereof, the following information and intellectual property provisions shall apply to this Agreement and each of the Annexes thereto. Exceptions and additions to these provisions may be made in any particular Annex, in which case they shall apply to that Annex alone.

(b) *Copyright.* In accordance with rules determined by the Executive Committee, acting by unanimity, the Operating Agent, or each Participant for its own work, shall take appropriate measures necessary to protect copyrightable material generated under the Task. Copyrights obtained shall be the property of the Participant for its own work, and the Operating Agent for other works generated under the Task in trust for and for the benefit of the Participants, provided, however, that Participants may reproduce and distribute such material, in accordance with paragraph (f) below.

(c) *Production of Relevant Information.* Each Participant agrees to provide to the Operating Agent all previously existing information, and information developed independently of the Task, which is needed by the Operating Agent to carry out its functions under the Annex and freely at the disposal of the Participant and the transmission of which is not subject to any contractual or legal limitations. Such information shall be made available, preferably in English, in accordance with the terms and conditions agreed upon by the Participant and the Operating Agent within the scope of the rules, procedures and guidelines which may be established by the Executive Committee. The Operating Agent shall encourage the governments of those Agency countries which do not participate in this Agreement, to make

available or to identify to the Operating Agent all published or otherwise freely available information known to them that is relevant to the Task.

(d) *Proprietary Information.* The Contracting Parties and the Operating Agent shall take all necessary measures in accordance with this Article, the laws of their respective countries and international law to protect proprietary information. For the purposes of this Article, proprietary information shall include information of a confidential nature such as trade secrets and know-how (for example, computer programmes, design procedures and techniques, chemical composition of materials, or manufacturing methods, processes, or treatments) which:

- (1) Is not generally known or publicly available from other sources;
- (2) Has not previously been made available by the owner to others without obligation concerning its confidentiality; and
- (3) Is not already in the possession of the recipient Contracting Party without obligation concerning its confidentiality.

It shall be the responsibility of each Contracting Party supplying proprietary information to identify the information as such and to ensure that it is marked "Proprietary Information".

(e) *Use of Confidential or Proprietary Information.* If a Participant has access to confidential or proprietary information which would be useful to the Operating Agent in conducting studies, assessments, analyses, or evaluations, such information may be communicated to the Operating Agent, to the extent permitted under applicable confidentiality obligations, laws and regulations, but shall not become part of reports or other documentation, nor be communicated to the other Participants except as may be agreed between the Operating Agent and the Participant which supplies such information. The Participant shall endeavour to make such information available to the Task under reasonable conditions, and the Executive Committee may, acting by unanimity, decide to acquire such information.

(f) *Access by Participants to Information.* The Participants shall be entitled without charge to have access to data maintained by the Task, to receive, reproduce and, in accordance with the rules determined by the Executive Committee, distribute to their nationals copies of relevant literature and data produced by the Task. Information so received by the Participants shall not be published with a view to profit except as the Executive Committee, acting by unanimity of the Participants, may agree or provide by rule. The Executive Committee may lay down guidance as to the use any Participant may make of the data maintained by the Task and, where appropriate, the charges to be imposed.

(g) *Warranties.* Subject to Article 10(b) below, each Participant warrants that the use of the information it provides under the Annex does not violate proprietary rights, copyrights or security classification rules of its country. However, the Participants do not warrant the accuracy of the information provided by them or its suitability for any particular use or application by the recipient.

(h) *Exchange of Information with Others.* The Executive Committee shall, acting by unanimity of the Participants, determine the rules by which information available to the Task may be made available

to international organizations as well as governments and other appropriate entities of countries which do not participate in the Task.

(i) *Task Activities.* Whenever the Operating Agent intends to include an additional Task Activity (Article 1(c)) in the Task's Programme of Work, the Participants who wish to undertake the additional Task Activity shall determine whether exceptions or additions to the provisions contained in this Article are required to protect inventions and other proprietary information which may be developed in the course of or under the proposed additional Task Activity. Should those Participants deem such exceptions or additions necessary, they shall, in consultation with the Operating Agent, prepare and submit, through the Operating Agent, to the Executive Committee, for its approval, draft information and intellectual property provisions applicable for the proposed additional Task Activity.

(j) *Determination of "National".* The Executive Committee may establish guidelines to determine what constitutes a "national" of a Participant.

(k) *Effect of Termination or Withdrawal.* The Executive Committee shall, at the time of the termination of this Agreement or any Annex or the withdrawal of any Contracting Party from this Agreement, adopt appropriate measures for the subsequent application of paragraph (f) above and related questions which shall include rules as to the use any previous Participant may make of the information and, where appropriate, the charges to be imposed.

Article 9

LEGAL RESPONSIBILITY AND INSURANCE

(a) *Liability of Operating Agent.* Each Operating Agent shall use all reasonable skill and care in carrying out its duties under this Agreement in accordance with all applicable laws and regulations. Except as otherwise provided in this Article, the cost of all damage to property and all expenses associated with claims, actions, and other costs arising from work undertaken with common funds for a Task shall be charged to the Budget of that Task, within the limit of the total amount of the Budget of the Task. Such costs and expenses arising from other work undertaken for a Task shall be charged to the Budget of that Task if the Annex so provides or the Executive Committee, acting by unanimity, so decides.

(b) *Insurance.* Each Operating Agent shall propose to the Executive Committee all necessary liability, fire and other insurance and shall carry such insurance as the Executive Committee may direct. The cost of obtaining and maintaining insurance shall be charged to the Budget of the Task.

(c) *Indemnification of Participants.* Each Operating Agent shall be liable in its capacity as such to indemnify the Participants against the cost of any damage to property and all legal liabilities, actions, claims, costs and expenses connected therewith to the extent that they:

- (1) Result from the failure of the Operating Agent to maintain any such insurance as it is required to maintain under paragraph (b) above; or
- (2) Result from the gross negligence or wilful misconduct of any of the Operating Agent's employees or officers in carrying out its duties under this Agreement.

(d) *Suspension of Obligations.* The obligations of a Contracting Party or an Operating Agent (other than any obligations to make payment of any monies as provided above) shall be suspended for any period during which such Contracting Party or the Operating Agent, as the case may be, is prevented or substantially hindered from complying therewith, in whole or in part, by any case beyond its control including, but not limited to, acts of God, unavoidable accidents, laws, rules, regulations or orders of any national, state, governmental or local authority, acts of war or conditions arising out of or attributable to war, strikes, lockouts or other disputes with work-people, shortages of materials, equipment or labour or shortages of or delays in transportation. Such Contracting Party or Operating Agent shall take all reasonable measures to minimize the effects of such suspension and shall give notice to the Executive Committee promptly at the beginning and the termination of the suspension.

Article 10

LEGISLATIVE PROVISIONS

(a) *Accomplishment of Formalities.* Each Participant shall, within the framework of applicable legislation, use its best endeavours to facilitate the accomplishment of formalities involved in the movement of persons, the importation of materials and equipment and the transfer of currency which shall be required to conduct the Task in which it is engaged.

(b) *Applicable Laws.* In carrying out this Agreement and its Annexes, the Contracting Parties shall be subject to the appropriation of funds by the appropriate governmental authority, where necessary, and to the constitution, laws and regulations applicable to the respective Contracting Party, including, but not limited to, laws establishing prohibitions upon the payment of commissions, percentages, brokerage or contingent fees to persons retained to solicit governmental contracts and upon any share of such contracts accruing to governmental officials.

(c) *Decisions of Agency Governing Board.* The Participants in the various Tasks acting in their capacity as such shall take account, as appropriate, of the Guiding Principles for Co-operation in the Field of Energy Research and Development, and any modification thereof, as well as other decisions of the Governing Board of the Agency in that field. The termination of the Guiding Principles shall not affect this Agreement, which shall remain in force in accordance with the terms hereof.

(d) *Settlement of Disputes.* Any dispute among the Contracting Parties concerning the interpretation or the application of this Agreement which is not settled by negotiation or other agreed mode of settlement shall be referred to a tribunal of three arbitrators to be chosen by the Contracting Parties concerned who shall also choose the Chairman of the tribunal. Should the Contracting Parties concerned fail to agree upon the composition of the tribunal or the selection of its Chairman, the

President of the International Court of Justice shall, at the request of any of the Contracting Parties concerned, exercise those responsibilities. The tribunal shall decide any such dispute by reference to the terms of this Agreement and any applicable laws and regulations, and its decision on a question of fact shall be final and binding on the Contracting Parties. Operating Agents which are not Contracting Parties shall be regarded as Contracting Parties for the purpose of this paragraph.

Article 11

ADMISSION AND WITHDRAWAL OF CONTRACTING PARTIES

(a) *Admission of New Contracting Parties.* In accordance with the decisions of the Agency Governing Board, the Executive Committee, acting by unanimity, may invite any government (or a national agency, public organization, private corporation, company or other entity designated by such government) or any international organization to participate in the Agreement as a Contracting Party and in at least one Annex as a Participant. The terms and conditions (including duration) shall be agreed in each case between the new Contracting Party and the Executive Committee, acting by unanimity, and taking into account decisions of the Agency Governing Board, in particular, on the participation by entities from non-Agency countries. Such admission of a Contracting Party shall become effective upon its signature of this Agreement, or its accession thereto, and the receipt by the Executive Director of the Agency of written notice of participation by the new Contracting Party in the or those Annexes in which its participation has been accepted, and the adoption by the Executive Committee of any consequential amendments to the Agreement.

(b) *Participation by the European Communities.* The European Communities may participate in this Agreement in accordance with arrangements to be made with the Executive Committee, acting by unanimity.

(c) *Admission of New Participants in Tasks.* Any Contracting Party may, with the agreement of the Participants in a Task, acting by unanimity, become a Participant in that Task. Such participation shall become effective when the conditions of Article 2(a) above are satisfied and when the consequential amendments to the Annex are adopted.

(d) *Contributions.* The Executive Committee may require as a condition to admission to participation, that the Contracting Party or new Participant shall contribute (in the form of cash, services or materials) an appropriate proportion of the prior budget expenditure of any Task in which it participates.

(e) *Replacement of Contracting Parties.* With the agreement of the Executive Committee, acting by unanimity, and upon the request of a government, a Participant designated by that government may be replaced by another party. In the event of such replacement, the replacement party shall assume the rights and obligations of a Contracting Party as provided in paragraph (a) above and in accordance with the procedures provided therein.

(f) *Withdrawal.* Any Contracting Party may withdraw from this Agreement or from any Task either with the agreement of the Executive Committee, acting by unanimity, or by giving twelve months' written Notice of Withdrawal to the Executive Director of the Agency, such Notice to be given not less than two years after the date on which the withdrawing Party became a Contracting Party. The withdrawal of a Contracting Party under this paragraph shall not affect the rights and obligations of the other Contracting Parties; except that, where the other Contracting Parties have contributed to a common fund, their proportionate shares in the Budget shall be adjusted to take account of such withdrawal. Notwithstanding the foregoing, the continuance of a Task by a Contracting Party shall be conditional on the appropriation of funds by the appropriate governmental authority where necessary.

(g) *Change of Status of Contracting Party.* A Contracting Party other than a government or an international organization shall forthwith notify the Executive Committee of any significant change in its status or ownership or of its becoming bankrupt or entering into liquidation. The Executive Committee shall determine whether any such change in status of a Contracting Party significantly affects the interests of the other Contracting Parties; if the Executive Committee so determines, then, unless the Executive Committee, acting upon the unanimous decision of the other Participants, otherwise agrees:

- (1) That Contracting Party shall be deemed to have withdrawn from the Agreement under paragraph (f) above on a date fixed by the Executive Committee; and
- (2) The Executive Committee shall invite the Government which designated that Contracting Party to designate, within a period of three months of the withdrawal of that Contracting Party, a different entity to become a Contracting Party; and if approved by the Executive Committee, such entity shall become a Contracting Party with effect from the date on which it signs or accedes to this Agreement and gives the Executive Director of the Agency a Notice of Participation in one or more Annexes.

(h) *Failure to Fulfil Contractual Obligations.* Any Contracting Party which fails to fulfil its obligations under this Agreement within sixty days after its receipt of notice invoking this paragraph and specifying the nature of those obligations, may be deemed by the Executive Committee, acting by unanimity, to have withdrawn from this Agreement.

Article 12

FINAL PROVISIONS

(a) *Term of Agreement.* This Agreement shall remain in force until 31st December, 2001. It may be extended by the Executive Committee, acting by unanimity, with the prior approval of the Governing Board of the Agency. The Executive Committee may, acting by unanimity, terminate this Agreement at any time.

(b) *Legal Relationship of Contracting Parties and Participants.* Nothing in this Agreement shall be regarded as constituting a partnership between any of the Contracting Parties or Participants.

(c) *Termination.* Upon termination of this Agreement, or any Annex to this Agreement, the Executive Committee, acting by unanimity, shall arrange for the liquidation of the assets of the Task or Tasks. In the event of such liquidation, the Executive Committee shall, so far as practicable, distribute the assets of the Task, or the proceeds therefrom, in proportion to the contributions which the Contracting Parties have made from the beginning of the Project toward the development of such assets, and for that purpose shall take into account the contributions and any outstanding obligations of former Contracting Parties. Disputes with a former Contracting Party about the proportion allocated to it under this paragraph shall be settled under Article 10(d) hereof, for which purpose a former Contracting Party shall be regarded as a Contracting Party.

(d) *Indemnification after Termination.* Upon termination of this Agreement, the Executive Committee, acting by unanimity, shall also agree upon appropriate arrangements to ensure that the Operating Agents are indemnified against all expenditures and commitments they have incurred for the purposes of the Task in accordance with this Agreement.

(e) *Amendment.* This Agreement may be amended at any time by the Executive Committee, acting by unanimity, and any Annex to this Agreement may be amended at any time by the Executive Committee, acting by unanimity of the Participants in the Task to which the Annex refers. Such amendments shall come into force in a manner determined by the Executive Committee, acting under the voting rule applicable to the decision to adopt the amendment.

(f) *Deposit.* The original of this Agreement shall be deposited with the Executive Director of the Agency and a certified copy thereof shall be furnished to each Contracting Party, to the Operating Agents and to the Secretary. A copy of this Agreement shall be furnished to each Agency country, to each Member country of the Organisation for Economic Co-operation and Development (OECD) and to the European Communities.

Done in Paris, this 6th day of October, 1977.

For the ENERGY RESEARCH AND
DEVELOPMENT CORPORATION (ERDC)
(designated by the Government of Australia):

P. Harrington

For the CENTRO DE PESQUISAS DE ENERGIA
ELETRICA (CEPEL)
(designated by the Government of the
Federal Republic of Brazil):¹

José Carlos de Medeiros

For the NEW AND RENEWABLE ENERGY
AUTHORITY (NREA)
(designated by the Government of Egypt):²

M. Sami Zannoun

For Le CENTRE NATIONAL DE LA RECHERCHE
SCIENTIFIQUE
(designated by the Government of France):

Daniel Pardo

For the DEUTSCHE FORSCHUNGS- UND
VERSUCHSANSTALT FÜR LUFT- UND
RAUMFAHRT e.V.
(designated by the Government of Germany):³

J. Winter
v. Kries

For the WEIZMANN INSTITUTE OF SCIENCE
(designated by the Government of Israel):⁴

Parienti R.

For the INSTITUTO DE INVESTIGACIONES ELÉCTRICAS (IIE)
(designated by the Government of Mexico):⁵

Julián Sánchez Gutiérrez

1 Having been designated by the Government of a non-Agency country, the CENTRO DE PESQUISAS DE ENERGIA ELETRICA (CEPEL) participates in the Agreement under the terms and conditions as provided in the Guiding Principles for Co-operation in the Field of Energy Research and Development of the Agency and other decisions of the Agency's Governing Board as well as decisions of the Executive Committee.

2 Having been designated by the Government of a non-Agency country, the NEW AND RENEWABLE ENERGY AUTHORITY (NREA) participates in the Agreement under the terms and conditions as provided in the Guiding Principles for Co-operation in the Field of Energy Research and Development of the Agency and other decisions of the Agency's Governing Board as well as decisions of the Executive Committee.

3 The German Contracting Party subsequently changed its name to Deutsche Forschungsanstalt für Luft- und Raumfahrt e.V.

4 Having been designated by the Government of a non-Agency country, the WEIZMANN INSTITUTE OF SCIENCE participates in the Agreement under the terms and conditions as provided in the Guiding Principles for Co-operation in the Field of Energy Research and Development of the Agency and other decisions of the Agency's Governing Board as well as decisions of the Executive Committee.

5 Having been designated by the Government of Mexico as a non-Agency country, the INSTITUTO DE INVESTIGACIONES ELÉCTRICAS (IIE) participates in the Agreement under the terms and conditions as provided in the Guiding Principles for Co-operation in the Field of Energy Research and Development of the Agency and other decisions of the Agency's Governing Board as well as decisions of the Executive Committee.

For the INSTITUTE OF HIGH
TEMPERATURES OF THE RUSSIAN ACADEMY
OF SCIENCES (IVTAN)
(designated by the Government of the
Russian Federation):⁶

E. Shpilrain

For the MINISTRY OF INDUSTRY AND ENERGY
(CENTRO DE ESTUDIOS DE LA ENERGIA)
for and on behalf of the Government of Spain:⁷

Alberto Oliart Saussol

For the FEDERAL OFFICE OF ENERGY
for and on behalf of the Government of Switzerland:⁸

C. Zangger
Subject to ratification

For BG plc
(designated by the Government of the United
Kingdom of Great Britain and Northern Ireland):

David Thatcher

For the DEPARTMENT OF ENERGY
for and on behalf of the Government of
the United States of America:

James R. Schlesinger

The following Contracting Parties have withdrawn from the Agreement:

The Republic of Austria
The Government of Belgium
The National Energy Council of the Ministry of Coordination (Greece)
Ansaldo Meccanico Nucleare (A.M.N.) (Italy)
The Consiglio Nazionale delle Ricerche (Italy)
Franco Tosi (Italy)
Snamprogetti (Italy)
The National Energy Administration (Sweden)
The United Kingdom Atomic Energy Authority

6 Having been designated by the Government of a non-Agency country, the INSTITUTE OF HIGH TEMPERATURES (IVTAN) of the Russian Academy of Sciences originally signed the Agreement under the terms and conditions as provided in the Guiding Principles for Co-operation in the Field of Energy Research and Development of the Agency and other decisions of the Agency's Governing Board as well as decisions of the Executive Committee.

7 The CENTRO DE INVESTIGACION ENERGETICA MEDIOAMBIENTAL Y TECNOLOGICA (CIEMAT) has succeeded to the Junta de Energía Nuclear and the Centro de Estudios de la Energía of the Ministry of Industry and Energy as the Spanish Contracting Party.

8 Switzerland has since ratified this Agreement.

ANNEX I

SOLAR THERMAL ELECTRIC POWER SYSTEMS

1. *Identification*

The Activities foreseen under this Task address the design, testing, demonstration, evaluation, and application of solar thermal electric power systems, including both central (e.g. troughs and towers) and distributed (e.g. dish/engine) systems. The focus of efforts is on ultimate application of complete systems and the needs associated with getting them into the marketplace. The component development and research efforts of Annex III will logically feed this Task as new components are merged into systems, while the results of this Task will help provide direction on new component needs that could be addressed in Annex III.

2. *Participants*⁹

The Contracting Parties which are Participants in this Task, as defined in Article 1(c) of the Agreement, are the following:

The Energy Research and Development Corporation (ERDC) (Australia),
The Centro de Pesquisas de Energia Eletrica (CEPEL) (Brazil),
The New and Renewable Energy Authority (NREA) (Egypt),
The Centre National de la Recherche Scientifique (CNRS) (France),
The Deutsche Forschungsanstalt für Luft-und Raumfahrt e.V. (DLR) (Germany),
The Weizmann Institute of Science (Israel),
The Instituto de Investigaciones Eléctricas (IIE) (Mexico),
The Institute of High Temperatures of the Russian Academy
of Sciences (IVTAN),
The Centro de Investigacion Energetica Medioambiental y Tecnologica (CIEMAT) (Spain),
BG plc (United Kingdom),
The United States Department of Energy (United States of America).

3. *Organization and Structure*

The Activities are divided into the following four Sectors:

9 The list contained in paragraph 2 indicates the names of the Participants as of 23rd September, 1997. Relevant successions to, and names changes of, the Participants which have occurred since their signatures of, or accessions to, the Agreement are shown on pp. 24, 25.

(a) Sector I, 1: Central Generation Systems.

The objective of this Sector is to develop and to test improved central generation (central receiver and parabolic trough) solar thermal electric power systems in order to advance the state-of-the-art of related technologies and to bring these systems closer to operational maturity;

(b) Sector I, 2: Distributed Generation Systems.

The objective of this Sector is to test improved distributed generation solar thermal electric power systems in order to advance the state-of-the-art of related technologies and to bring these systems closer to operational maturity;

(c) Sector I, 3: Solar Thermal Analysis, Review and Training (START).

The objective of this Sector is to support the analysis and review of solar thermal energy opportunities and the training of experts in any specific country in the transition period between pre-commercial development and commercial market introduction;

(d) Sector I, 4: Market Barriers and Opportunities.

The objective of this Sector is to understand and address financial, environmental, regulatory, marketing, and other largely non-technical issues associated with facilitating commercial market penetration by solar thermal technologies.

4. *Operating Agent*

(a) The Sandia National Laboratories of the United States of America is designated as Operating Agent.

(b) The Operating Agent may designate, with the approval of the Executive Committee, a leader for each Sector (the "Sector Leader") to co-ordinate the Sector's Activities. Such designation shall not affect the responsibility of the Operating Agent to the Executive Committee.

5. *Means*

The Participants shall achieve the objectives of the four Sectors by:

(a) Monitoring and documenting performances of experimental or pilot power stations that are in operation in countries of the Participants and that may be important for the commercialization of solar thermal power generation in central or distributed application;

(b) Evaluating performances of different technologies along a jointly agreed methodology and providing the results to the other Participants;

(c) Supporting project evaluations and development by the World Bank and other international financing institutions;

- (d) Developing advanced analytical tools to support industry and potential users in establishing a commercial implementation programme, and covering grid-connected, stand-alone or remote applications that are also suitable for hybrid operation, particularly with natural gas;
- (e) Organizing, at least twice a year, working meetings with experts from countries of the Participants to exchange information, data and experience in the areas of work covered by this Task;
- (f) Supporting the organizing of and contributing to the bi-annual SolarPACES conference series, “International Symposium on Solar Thermal Concentrating Technologies”;
- (g) Accomplishing START missions jointly with governments, or their agencies, of countries with the potential for commercial application of solar thermal power generation, pursuant to paragraph 6 below;
- (h) Defining and sponsoring market identification and assessment studies, development of innovative financing models, and other activities that help in reducing hurdles to commercialization of solar thermal technology.

6. *Solar Thermal Analysis, Review and Training (START)*

The Participants may decide to initiate individual Solar Thermal Analysis, Review and Training (START) missions with experts involved in any Task of this Agreement.

- (a) *START Means.* START missions may be implemented in any potential solar thermal energy user country (“START” country) unanimously agreed to by the Executive Committee. START countries may include Participants’ and Agency countries and, in accordance with the decisions by the Agency’s Governing Board, non-Agency countries which do not participate in the Agreement. The Operating Agent shall, for each START mission, determine, in collaboration with the Secretary and the respective START country, the activities of the START team which may include:
 - (i) Analysis of appropriate solar thermal power technologies in the START country;
 - (ii) Review of specific sites for solar thermal power projects in the START country;
 - (iii) Review of the terms of reference for detailed feasibility and implementation studies;
 - (iv) Training of START country experts at a facility in one of the Participant’s countries;

- (v) Development of a concept of financial engineering based on the applicable law in the START country;
 - (vi) Identification of potential funding sources and options for projects in the START country;
 - (vii) Comparison of power generation costs in the START country.
- (b) *Composition of START Teams.* Each Participant shall propose to the Operating Agent qualified experts for that purpose. The Operating Agent shall, based on the proposals made by the Participants, decide on the composition of individual START teams. Unless otherwise decided by the Executive Committee, acting by unanimity, the travel costs of the START team members shall be covered by the Secretary's Common Fund established by the Executive Committee pursuant to Article 7(b) of the Agreement. The remaining costs involved in any expert's participation in a START team shall be assumed by the respective Participant of the country of that selected expert. The Operating Agent shall endeavour to agree with the START country to assume at least the hotel and per diem costs of the START team experts during their mission in the START country.
- (c) *Results.* The Operating Agent shall, no later than three months after the end of the START mission to the START country, provide the Executive Committee with a written report on the results of its activities. Each Participant shall have access to the START report and be entitled to reproduce the report and distribute it to its nationals. The Executive Committee may agree to make the START report available to international organizations and entities of countries which do not participate in the Task.

7. *Funding*

- (a) Notwithstanding paragraph 6(b) above, each Participant shall bear its own costs in carrying out the Task Activities, including travel expenses of its representatives and the costs of preparing reports to the other Participants and the Operating Agent.
- (b) The cost of organizing and hosting meetings shall be borne by the host countries.

8. *Specific Responsibilities of the Participants*

- (a) Each Participant shall nominate a National Co-ordinator to provide the Operating Agent with the necessary assistance in carrying out its responsibilities under this Annex and shall keep the Operating Agent advised of the identity, title, address, telephone/telefax number and E-mail address of its National Co-ordinator.
- (b) Through its National Co-ordinator, each Participant shall:

- (i) Provide Annual Progress Reports (one page summary for each national project containing title, participating experts, objectives, status, publication list);
- (ii) Participate in the Annual Task Meetings and in other Task meetings, as appropriate; and
- (iii) Keep the Operating Agent informed of contacts and developments of potential interest to Task Activities.

9. *National Co-ordinators' Group*

At least once a year the Operating Agent will convene under its chairmanship a meeting of the National Co-ordinators' Group (NCG) consisting of the National Co-ordinators and the Operating Agent. Each Participant shall nominate one or more alternate members to serve on the NCG. The NCG may invite technical experts from the Participants' and, in accordance with Article 3(c)(6) of the Agreement, other countries to take part in the meeting. The NCG shall:

- (a) Review the current progress of the Task Activities;
- (b) Advise the Operating Agent on the preparation of the Programme of Work for the following year;
- (c) Discuss technical and other issues and advise, through the Operating Agent, the Executive Committee on future developments of the Task.

10. *Results*

The products of work performed under this Annex will be designed for use by the Participants, their governments, industrial companies and research institutions in Participants' countries, international development and financing agencies and other partners as unanimously agreed upon by the Executive Committee. Results of the joint Activities of the Participants will include:

- (a) Technical (and Non-Technical) Reports on major achievements to be published in the corresponding internal SolarPACES report series for use by nationals of the Participants pursuant to Article 8(j) of the Agreement;
- (b) Proceedings of working meetings for distribution to the participating experts;
- (c) Proceedings of the bi-annual International Symposia on "Solar Thermal Technologies" to be commercially published by the organizers;
- (d) START Mission Reports pursuant to sub-paragraph 6(c) above;

(e) Expertise provided to the World Bank and other financing institutions as agreed with them and unanimously approved by the Executive Committee;

(f) Manuals for the use of advanced analytical tools, for use by nationals of the Participants;

(g) Periodic contributions to the particular SolarPACES Newsletter and World Wide Web Site.

11. *Time Schedule*

This Annex will remain in force until 31st December, 2001. It may be extended by agreement of two or more Participants, acting in the Executive Committee and shall thereafter apply only to those Participants.

ANNEX II

SOLAR CHEMISTRY RESEARCH

1. *Identification*

The Activities foreseen under this Task deal with the development of technologies and systems in the field of solar-driven thermochemical, photochemical and electrochemical processes for the production of energy carriers, for the production of chemical commodities, and for the detoxification and recycling of waste materials.

2. *Participants*¹⁰

The Contracting Parties which are Participants in this Task are the following:

The Energy Research and Development Corporation (ERDC) (Australia)
The Centro de Pesquisas de Energia Eletrica (CEPEL) (Brazil)
The Centre National de la Recherche Scientifique (CNRS) (France),
The Deutsche Forschungsanstalt für Luft- und Raumfahrt e.V. (DLR) (Germany),
The Weizmann Institute of Science (Israel),
The Institute of High Temperatures of the Russian Academy
of Sciences (IVTAN),
The Centro de Investigacion Energetica Medioambiental y Tecnologica (CIEMAT)
(Spain),
The Federal Office of Energy (Switzerland),
The United States Department of Energy (United States of America).

3. *Organization and Structure*

The Activities are divided into the following three Sectors:

(a) Sector II.1: Solar Production of Energy Carriers.

The objectives of this Sector are to:

- (i) Explore new ideas and concepts for the thermochemical, photochemical and electrochemical production of chemical fuels and chemical heat pipes for storage and transportation of solar energy;
- (ii) Develop and test the required solar process technology;
- (iii) Assess their technical and economic feasibility and implementation;

¹⁰ The list contained in paragraph 2 indicates the names of the Participants as of 23rd September, 1997. Relevant successions to, and name changes of, the Participants which have occurred since their signatures of, or accessions to, the Agreement are shown on pp. 24, 25.

(iv) Set priorities of research and development needs;

- (b) Sector II.2: Solar Production of Chemical Commodities.
The objectives of this Sector are to:
- (i) Identify chemical processes for the solar production of fine and bulk chemical commodities;
 - (ii) Develop and test the required solar process technologies;
 - (iii) Assess their technical and economic feasibility and implementation;
- (c) Sector II.3: Solar Detoxification and Recycling.
The objectives of this Sector are to:
- (i) Test and evaluate solar detoxification processes;
 - (ii) Further develop and demonstrate solar detoxification systems up to commercial level.

4. *Co-operation*

To avoid overlapping with the work of other IEA Implementing Agreements, a regular exchange of information shall take place between the Operating Agent and the Chairmen of the IEA Implementing Agreements on Hydrogen, Bioenergy, Advanced Fuel Cells and Greenhouse Gases.

5. *Operating Agent*

- (a) The Paul Scherrer Institute (PSI) of Switzerland is designated as Operating Agent.
- (b) The Operating Agent may designate, with the approval of the Executive Committee, a leader for each Sector (the "Sector Leader") to co-ordinate the Sector's Activities. Such designation shall not affect the responsibility of the Operating Agent to the Executive Committee.

6. *Means*

The Participants shall achieve the objectives of the three Sectors by:

- (a) Monitoring and documenting RD&D efforts performed in institutions of Participants' countries;
- (b) Jointly assessing the technical and, at a later point in time, the economic potential of processes under development in Participants' countries;
- (c) Defining parameters and criteria to be applied in analytical work or technological experiments;

- (d) Organizing, at least once a year, working meetings with the National Co-ordinators (and experts invited by them from their respective countries) to exchange information, data and results and to agree on parameters and criteria for the joint work, pursuant to paragraph 9 below;
- (e) Supporting the organization of and contributing to:
 - (i) The bi-annual International SolarPACES Symposium on “Solar Chemistry”;
 - (ii) The bi-annual SolarPACES conference series, “International Symposium on Solar Thermal Concentrating Technologies”;
- (f) Contributing to and publishing, twice a year, the Solar Chemistry Newsletter and maintaining a corresponding World Wide Web Site.

7. *Funding*

- (a) Each Participant shall bear its own costs in carrying out the Task Activities, including travel expenses of its representatives and the costs of preparing reports to the other Participants, and the Operating Agent.
- (b) The cost of organizing and hosting meetings shall be borne by the host countries.

8. *Specific Responsibilities of the Participants*

- (a) Each Participant shall nominate a National Co-ordinator to provide the Operating Agent with the necessary assistance in carrying out its responsibilities under this Annex and shall keep the Operating Agent advised of the identity, title, address, telephone/telefax number and E-mail address of its National Co-ordinator.
- (b) Through its National Co-ordinator, each Participant shall:
 - (i) Provide Annual Progress Reports (one page summary for each national project containing title, participating experts, objectives, status, publication list);
 - (ii) Contribute periodically to the Solar Chemistry Newsletter;
 - (iii) Participate in the Annual Task II Meetings and in other Task meetings, as appropriate; and
 - (iv) Keep the Operating Agent informed of contacts and developments of potential interest to Task Activities.

9. *National Co-ordinators' Group*

At least once a year the Operating Agent will convene under its chairmanship a meeting of the National Co-ordinators' Group (NCG) consisting of the National Co-ordinators and the Operating Agent. Each Participant shall nominate one or more alternate members to serve on the NCG. The NCG may invite technical experts from the Participants' and, in accordance with Article 3(c)6 of the Agreement, other countries to take part in the meeting. The NCG shall:

- (a) Review the current progress of the Task Activities;
- (b) Advise the Operating Agent in the preparation of the Programme of Work for the following year;
- (c) Discuss technical and other issues and advise, through the Operating Agent, the Executive Committee on future developments of the Task.

10. *Results*

The products of work performed under this Annex will be designed for use by the Participants, their governments, industrial companies and research institutions in Participants' countries and other partners as unanimously agreed upon by the Executive Committee. Results of the joint Activities will include:

- (a) Technical reports on major achievements and status of joint Activities to be published in the corresponding internal SolarPACES report series, for use by nationals of the Participants pursuant to Article 8(j) of the Agreement;
- (b) Proceedings of working meetings and of International Symposia for distribution to participating experts;
- (c) Solar Chemistry Newsletter and corresponding World Wide Web Sites on the Internet.

11. *Time Schedule*

This Annex will remain in force until 31st December, 2001. It may be extended by agreement of two or more Participants, acting in the Executive Committee, and shall thereafter apply only to those Participants.

ANNEX III

SOLAR TECHNOLOGY AND APPLICATIONS

A. GENERAL

1. *Identification*

The general objectives under Task III deal with developments of concentrating solar thermal technologies and solar chemistry components. This includes their validation with suitable tools by proper theoretical analyses and simulation codes as well as experimentally in adapted facilities. For this purpose procedures and techniques shall be developed on how to design, test, evaluate and use in an optimized way the components and subsystems which concentrate, receive, transfer, store and apply solar thermal energy. The technical results of the efforts of this Task shall feed the other Tasks of the Agreement in preparing and supporting their Activities, while the results of the other Tasks of the Agreement shall serve for continuous review of the existing Task III Activities and may lead to new Activities under this Task.

2. *Participants*¹¹

The Contracting Parties which are Participants in this Task are the following:

The Energy Research and Development, Corporation (ERDC) (Australia),
The Centro de Pesquisas de Energia Eletrica (CEPEL) (Brazil),
The Centre National de la Recherche Scientifique (CNRS) (France),
The Deutsche Forschungsanstalt für Luft- und Raumfahrt e.V. (DLR) (Germany),
The Weizmann Institute of Science (Israel),
The Institute of High Temperatures of the Russian Academy
of Sciences (IVTAN),
The Centro de Investigacion Energetica Medioambiental y Tecnologica (CIEMAT)
(Spain),
The Federal Office of Energy (Switzerland),
The United States Department of Energy (United States of America).

3. *Organization and Structure*

(a) The Activities are divided into the following four Sectors:

Sector III.1: Solar Specific Technology Components and Subsystems;

¹¹ The list contained in paragraph 2 indicates the names of the Participants as of 23rd September, 1997. Relevant successions to, and name changes of, the Participants which have occurred since their signatures of, or accessions to, the Agreement are shown on pp. 24, 25.

Sector III.2: Supporting Tools and Test Facilities;
Sector III.3: Research in Advanced Technologies and Applications;

- (b) The Activities of the first Sector concentrate on the development and testing of selected solar technical components and subsystems, whereas the second Sector aims at providing dedicated computation and measurement techniques and facilities to support the first Sector's development and testing activities. The work to be performed within the third Sector focuses on investigations in certain areas of advanced technologies and the technical and economic potential of the solar/hybrid advanced power plant concept.
- (c) To avoid overlapping with the work of the IEA Implementing Agreements a regular exchange of information shall take place between the Operating Agent and the Chairmen of the IEA Implementing Agreements on Process Integration, Energy Storage and Solar Heating and Cooling.

4. *Operating Agent*

- (a) The Deutsche Forschungsanstalt für Luft- und Raumfahrt (DLR), Germany, is designated as Operating Agent.
- (b) The Operating Agent may designate, with the approval of the Executive Committee, a leader for each Sector (the "Sector Leader") to co-ordinate the Sector's Activities. Such designation shall not affect the responsibility of the Operating Agent to the Executive Committee.

5. *Funding*

- (a) Each Participant shall bear its own costs in carrying out the Task Activities, including travel expenses of its representatives and the costs of preparing reports to the other Participants and the Operating Agent.
- (b) The cost of organizing and hosting meetings will be borne by the host countries.

6. *Specific Responsibilities of the Participants*

- (a) Each Participant shall nominate a National Co-ordinator to provide the Operating Agent with the necessary assistance in carrying out its responsibilities under this Annex and shall keep the Operating Agent advised of the identity, title, address, telephone/telefax number and E-mail address of its National Co-ordinator.

- (b) Through its National Co-ordinator, each Participant shall:
- (i) Provide Annual Progress Reports (one page summary for each national project containing title, participating experts, objectives, status, publication list);
 - (ii) Participate in the Annual Task Meetings and in other Task meetings, as appropriate; and
 - (iii) Keep the Operating Agent informed of contacts and developments of potential interest to Task Activities.

7. *National Co-ordinators' Group*

At least once a year the Operating Agent will convene under its chairmanship a meeting of the National Co-ordinators' Group (NCG) consisting of the National Co-ordinators and the Operating Agent. Each Participant shall nominate one or more alternate members to serve on the NCG. The NCG may invite technical experts from the Participants' and, in accordance with Article 3(c)(6) of the Agreement, other countries to take part in the meeting. The NCG shall:

- (a) Review the current progress of the Task Activities;
- (b) Advise the Operating Agent in the preparation of the Programme of Work for the following year;
- (c) Discuss technical and other issues and advise, through the Operating Agent, the Executive Committee on future developments of the Task.

8. *Time Schedule*

This Annex will remain in force until 31st December, 2001. It may be extended by agreement of two or more Participants, acting in the Executive Committee and shall thereafter apply only to those Participants.

B. SECTOR III.1: SOLAR SPECIFIC TECHNOLOGY COMPONENTS AND SUBSYSTEMS

1. *Objective*

The objective of this Sector is to promote technological development of advanced components and subsystems for application in high performance solar thermal power plants or solar chemistry processes. Relevant technologies covered are those which concentrate, receive, transfer, store and apply solar thermal energy.

2. *Means*

The Participants shall achieve the objective of this Sector by:

- (a) Monitoring, evaluating and documenting technological developments in Participants' countries, providing Tasks I and II with relevant inputs;
- (b) Initiating and providing key specifications for the technological developments of advanced parabolic troughs, low-cost heliostats and paraboloid dishes with a view to their supporting accelerated commercial applications of solar thermal systems;
- (c) Initiating and providing key specifications for the technological developments of new and advanced receivers of different concepts and thermal or chemical storage systems;
- (d) Providing other Participants with analytical and experimental support to develop test specifications, measurement devices, evaluation tools and standards;
- (e) Providing suitable test facilities for testing of other Participants' hardware;
- (f) Organizing, at least twice a year, working meetings with experts of Participants' countries to exchange information, data and experience in the field of work covered by this Sector;
- (g) Supporting the organization of, and contributing to, the bi-annual SolarPACES conference series, "International Symposium on Solar Thermal Concentrating Technologies".

3. *Results*

The products of work performed in this Sector will be designed for use by the Participants, their governments, industrial companies and research institutions in Participants' countries, international development and financing agencies and other partners, as unanimously agreed upon by the Executive Committee. Results of the joint Activities of the Participants will include:

- (a) Technical reports on major achievements (e.g. test results, cost reduction studies, comparative analyses) to be published in the corresponding SolarPACES Report series, for use by nationals of the Participants pursuant to Article 8(j) of the Agreement;
- (b) Proceedings of working meetings for distribution to the participating experts;
- (c) Contributions to START missions of Task I and their reports.

C. SECTOR III.2: SUPPORTING TOOLS AND TEST FACILITIES

1. *Objectives*

The objectives of this Sector are to support the development of, and constantly up-date information on tools and facilities specifically needed for development, assessment and evaluation of, solar thermal systems being applied for generating power or for running chemical processes.

2. *Means*

The Participants shall achieve the objectives of this Sector by:

- (a) Collecting and disseminating in their countries information on all relevant existing test facilities (e.g. plants, furnaces and experimental laboratories) and constantly updating this information;
- (b) Collecting and disseminating in their countries all relevant existing analytical tools (such as simulation and other codes) and constantly updating this information;
- (c) Organizing measurement campaigns to comparatively prove measurement devices on specific solar thermal devices, (e.g. for measurement of high heat fluxes);
- (d) Providing support for training activities as part of START missions (see Task I);
- (e) Supporting the organization of, and contributing to, the bi-annual SolarPACES conference series, "International Symposium on Solar Thermal Concentrating Technologies".

3. *Results*

The products of work performed in this Sector will be designed for use by the Participants, their governments, industrial companies and research institutions in Participants' countries, international development and financing agencies and other partners, as unanimously agreed upon by the Executive Committee. Results of the joint Activities of the Participants will include:

- (a) Handbooks on test facilities and analytical tools;
- (b) Technical Reports on particular measurement campaigns to be published in the corresponding internal SolarPACES report series, for use by nationals of the Participants pursuant to Article 8(j) of the Agreement.

D. SECTOR III.3: RESEARCH IN ADVANCED TECHNOLOGIES AND APPLICATIONS

1. *Objectives*

The objectives of this Sector are to:

- (a) Advance certain solar thermal concentrating technology areas such as process heat applications;
- (b) Develop new materials;
- (c) Investigate the technical and economic potential of the solar/hybrid advanced power plant concept, which could lead to increased competitiveness and near-term marketability of solar thermal technology in highly insolated parts of the world.

2. *Means*

The Participants shall achieve the objectives of this Sector by:

- (a) Monitoring, evaluating and documenting technological developments in the Participants' countries, in particular with respect to desalination, refrigeration, food preservation, textile production, water pumping, and chemical processes; providing inputs for national RD&D activities;
- (b) Jointly developing, testing and optimizing absorber materials, surface layers and coatings, catalysts, quartz windows and advanced storage materials;
- (c) Supporting other Participants in providing test facilities and specifying test procedures for the RD&D work in the above two areas;
- (d) Developing, in co-operation with industry, potential schemes of solar/hybrid power plant concepts and assessing their technical, operational and economic potential;
- (e) Developing a common evaluation methodology for assessment studies;
- (f) Identifying RD&D requirements for advanced hybrid plant concepts;
- (g) Organizing, at least twice a year, working meetings with experts of Participants' countries to exchange information, data and experience in the field of work covered by this Sector;
- (h) Contributing to the bi-annual SolarPACES conference series, "International Symposium on Solar Thermal Concentrating Technologies".

3. *Results*

The products of work performed in this Sector will be designed for use by the Participants, their governments, industrial companies and research institutions in Participants' countries, international development and financing agencies and other partners, as unanimously agreed upon by the Executive Committee. The results of this Sector's Activities shall include:

- (a) Test reports and assessment reports, including methodology, to be published in the SolarPACES series of technical reports for use by nationals of the Participants pursuant to Article 8(j) of the Agreement; and
- (b) Contributions to workshops and symposia and their proceedings.

The Legal Counsel of the International Energy Agency hereby certifies that the present copy conforms to the original text deposited with the Executive Director of the International Energy Agency (as amended to the date hereof, by agreement of the Contracting Parties).

Paris,

THE LEGAL COUNSEL:

CRAIG BAMBERGER