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COM (76)668

Vol. 1976/0201

Historical Archives of the European Commission

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Conformément au règlement (CEE, Euratom) n° 354/83 du Conseil du 1er février 1983 concernant l'ouverture au public des archives historiques de la Communauté économique européenne et de la Communauté européenne de l'énergie atomique (JO L 43 du 15.2.1983, p. 1), tel que modifié par le règlement (CE, Euratom) n° 1700/2003 du 22 septembre 2003 (JO L 243 du 27.9.2003, p. 1), ce dossier est ouvert au public. Le cas échéant, les documents classifiés présents dans ce dossier ont été déclassifiés conformément à l'article 5 dudit règlement.

In accordance with Council Regulation (EEC, Euratom) No 354/83 of 1 February 1983 concerning the opening to the public of the historical archives of the European Economic Community and the European Atomic Energy Community (OJ L 43, 15.2.1983, p. 1), as amended by Regulation (EC, Euratom) No 1700/2003 of 22 September 2003 (OJ L 243, 27.9.2003, p. 1), this file is open to the public. Where necessary, classified documents in this file have been declassified in conformity with Article 5 of the aforementioned regulation.

In Übereinstimmung mit der Verordnung (EWG, Euratom) Nr. 354/83 des Rates vom 1. Februar 1983 über die Freigabe der historischen Archive der Europäischen Wirtschaftsgemeinschaft und der Europäischen Atomgemeinschaft (ABl. L 43 vom 15.2.1983, S. 1), geändert durch die Verordnung (EG, Euratom) Nr. 1700/2003 vom 22. September 2003 (ABl. L 243 vom 27.9.2003, S. 1), ist diese Datei der Öffentlichkeit zugänglich. Soweit erforderlich, wurden die Verschlussachen in dieser Datei in Übereinstimmung mit Artikel 5 der genannten Verordnung freigegeben.

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(76) 668 final.

Brussels, 22 December 1976.

COMMUNITY EXTERNAL RELATIONS IN RESEARCH AND DEVELOPMENT MATTERS

(Communication from the Commission to the Council)

COM(76) 668 final.

COMMISSION
OF THE
EUROPEAN COMMUNITIES

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL

1. On 21 June 1976, the Council adopted a decision approving the conclusion of an agreement in the form of an exchange of letters between the European Atomic Energy Community and the European Economic Community, on the one hand, and the International Energy Agency (IEA), on the other, on cooperation in the field of Energy Research and Development.

It is stated in the exchange of letters that "... the EEC and EAEC intend to cooperate with the IEA in research and development when such co-operation is likely to contribute towards the attainment of the research and development objectives of the Community in the field of energy.

This cooperation can be achieved through Community participation in the research and development programmes and projects of the IEA. In particular the Commission of the European Communities shall negotiate on a case by case basis, "Implementing Agreements" in accordance with the provisions of the Treaties establishing the European Communities".

2. In application of this exchange of letters, the EAEC adhered on 15 July 1976 to two "Implementing Agreements" concluded shortly beforehand in the IEA by several of its Member States. These were :
- Implementing Agreement on the technical exchange of information in the field of reactor safety research and development;
 - Implementing Agreement for a cooperative research and development programme leading to the construction of an intense neutron source.
3. The Council will find in the attached annexes the text of two new Implementing Agreements proposed by the IEA for signature by the Community. They are :
- a) Implementing Agreement for a programme of research and development on the production of hydrogen from water (Annex A);
 - b) Implementing Agreement for a programme to develop and test solar heating and cooling systems (Annex B).

These Implementing Agreements are "umbrella agreements" setting forth rules for the execution, with exceptions to be determined on a case by case basis, of a number of R & D "tasks" described in the annexes to each of said agreements.

When signing any Implementing Agreement, each contracting party shall have to confirm its intention to participate in one or more tasks proposed under the Agreement (art. 2, a).

4. The Commission considers that it is in the interest of the European Communities, which are carrying out R & D programmes on hydrogen production(*) and on the use of solar energy (*), to participate as far as each Community is concerned :

- in the tasks described in Annexes I and II to the Agreement on Hydrogen production;

- in the tasks described in Annexes I, III, IV and V to the Agreement on solar energy.

As regards tasks I and II to be carried out under the Implementing Agreement on hydrogen production, participants are to execute, in a co-ordinated manner, a certain amount of specific research work related to the technical study of

a) thermochemical cycles for the production of hydrogen from water; and

b) to join up these cycles to a heat source.

Comparison with American, Japanese and European work in this field - which is at a broadly similar stage of advancement - can only be propitious.

Joint definition of precise objectives, the sharing of tasks and the pooling of results should speed up the process of confirming the technical and economical value of this method of hydrogen production.

The main concern of tasks I, III, IV and V to be carried out under the Implementing Agreement on solar energy is to develop standards in the field of solar heating and cooling; to obtain standardized and directly comparable information; to develop methods of calculation of references, measurement procedures, and standard tests. The Community's participation in this activity is essential; it must contribute to the establishment of international criteria and can, by virtue of its experience in this field, play a decisive role.

5. The budgetary implications of participation in these tasks are set out for each one in the respective Annexes. No joint financing is proposed for any of the tasks. In principle, each contracting party should bear the costs of its own participation.

6. The provisions on dissemination of information and industrial property (article 7) call for the following comments :

Where programmes carried out under the direct action formula are concerned, no legal problems are raised in accepting the rules laid down under article 7 of these draft agreements since only the Community is concerned.

(*) Council decision 22 August 1975
O.J. Vol. 18, n° L 231, 2.9.1975
Council decision
O.J. ...

With regard, however, to programmes carried out according to the indirect action formula, one should bear in mind that the Community's rights here are limited by those of its contractors. Present rules governing our contracts :

- allow the Commission to send contractors reports to a third State or an international organization, if after informing him, the contractor does not object on the grounds that his industrial and commercial interests might be affected;
- does not allow the Commission to supply a contractor's inventions, except in exceptional cases and in favour of undertakings established in the Community.

In fact, certain contractants concerned by the hydrogen production Implementing Agreement, have orally declared their interest in taking part in cooperation in the framework of the Agency. Article 7 of the hydrogen production Implementing Agreement only sets out the conditions for exchange and publication of information and does not provide for exchange of licences for inventions.

With regard to the Implementing Agreement on solar heating and cooling systems, it seems that the Community's participation in the four tasks which are of interest to it would only concern a few of the Commission's contractors. The agreement of these contractors to grant certain licences must be obtained for each "task" in return for suitable reciprocal concessions, such as their effective association in the exchanges.

The Commission deems the clauses on the dissemination of information and industrial property in these two agreements to be acceptable to the Community.

7. Procedure

The procedure to be followed to conclude these Implementing Agreements differs according to whether the R & D programme concerned falls within the scope of the EAEC Treaty or the EEC Treaty.

With regard to the Implementing Agreement on the production of hydrogen (direct action), the draft decisions found in Annexes C and D are based on the procedures of article 101, § 2 of the Euratom Treaty. These procedures were previously implemented to ensure the EAEC's participation in the Implementing Agreements on nuclear safety and for an intense neutron source mentioned in point 2 above. These decisions are to allow that part of the Community's R & D programme based on article 7 of the EAEC Treaty to be entered into the IEA cooperative effort. This concerns that part of the Community's programme on hydrogen production carried out by direct action.

It is desirable that the Commission who is lead-organization in the hydrogen production programme of the IEA and is proposed as "Operating Agent" for one of the two tasks to be carried out under the hydrogen production Implementing Agreement, can sign this Agreement at the same time as the other participants, that is at the end of January 1977.

If the Council deems the text of the Implementing Agreement on hydrogen production to be acceptable, the Commission suggests that, in view of the urgency of this matter, the Council take at the same time both the decision issuing directives to negotiate participation in this Agreement and the decision approving the Agreement. This formula was used for the Implementing Agreements approved by the Council last summer.

With regard to the Implementing Agreement on solar energy and on hydrogen production, the procedures of the EEC Treaty are applicable to the extent that this participation involves the EEC's indirect action programmes based on article 235 of the EEC Treaty.

Contrary to that of the EAEC Treaty where article 101 applies to both contracts as well as to international agreements, the procedures of the EEC Treaty do not provide for action by the Council for the conclusion of contracts with third States, international organizations or nationals of third States. Council action is only required for conclusion of international agreements.

Now, the Implementing Agreements concluded under the auspices of the IEA are not international agreements within the meaning of article 228 EEC Treaty. On the one hand, they are open to participation by public bodies or even private ones who are not subject to international law. On the other, they are not governed by the rules of international law but by applicable national law, as is the case for contracts.

An examination of the Guiding Principles drawn up by the Governing Board of the IEA regulating the preparation and implementation of Implementing Agreements, confirms this interpretation, as also does the texts of the Implementing Agreements themselves.

Taking into account the contractual nature of these Implementing Agreements the Commission is therefore entitled to conclude them by virtue of its competences under article 211 of the EEC Treaty as far as those programmes of the Community based on the EEC Treaty are concerned.

Nevertheless, the Commission has considered it desirable to inform the Council before signature of its intention to conclude these agreements and to await any comments the Members of the Council may wish to make.

8. In conclusion, the Commission proposes to the Council :

- a) 1 - to take a decision issuing directives to the Commission, as set forth in the draft in Annex C.
The aim of these directives is to launch, within a specific legal framework, a balanced cooperation with the IEA based on the Community's R & D programme for hydrogen production undertaken under article 7 of the Euratom Treaty;

- 2 - to take, at the same time, a decision (Annex D) approving the conclusion of the Implementing Agreement negotiated on the basis of the directives referred to in a) 1 above;
- b) to note the intention of the Commission to conclude the Implementing Agreement for a programme to develop and test solar heating and cooling systems (tasks I, III, IV and V).

PROOF: 30th November 1976

INTERNATIONAL ENERGY AGENCY

**IMPLEMENTING AGREEMENT
FOR A PROGRAMME OF RESEARCH
AND DEVELOPMENT ON THE PRODUCTION
OF HYDROGEN FROM WATER****The Contracting Parties**


CONSIDERING that the Contracting Parties, being either governments or international organisations or parties designated by their respective governments pursuant to Article III of the Guiding Principles for Co-operation in the Field of Energy Research and Development adopted by the Governing Board of the International Energy Agency (the "Agency") on 28th July, 1975, wish to take part in the establishment and operation of a Programme of Research and Development on the Production of Hydrogen from Water (the "Programme") as provided in this Agreement;

CONSIDERING that the Contracting Parties which are governments and the governments of the other Contracting Parties (referred to collectively as the "Governments") participate in the Agency and have agreed in Article 41 of the Agreement on an International Energy Program (the "I.E.P. Agreement") to undertake national programmes in the areas set out in Article 42 of the I.E.P. Agreement, including research and development on the production of hydrogen from water;

CONSIDERING that in the Governing Board of the Agency on 19th-20th March, 1975 the Governments approved the Programme as a special activity under Article 65 of the I.E.P. Agreement;

CONSIDERING that the Agency has recognised the establishment of the Programme as an important component of international co-operation in the field of hydrogen production research and development;

HAVE AGREED as follows:



Article 1
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OBJECTIVES

- (a) *Scope of Activity.* The Programme 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 regarding the production of hydrogen from water.
- (b) *Method of Implementation.* The Contracting Parties shall implement the Programme by undertaking one or more tasks (the "Task" or "Tasks") each of which 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, for the purposes of that Task, referred to in this Agreement as "Participants".
- (c) *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 co-operation among Participants engaged in the various Tasks with the objective of advancing the research and development activities of all Contracting Parties in the field of hydrogen production from water.

Article 2
IDENTIFICATION AND INITIATION OF TASKS

- (a) *Identification.* The Tasks undertaken by Participants are identified in the Annexes to this Agreement. At the time of signing this Agreement, each Contracting Party 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 Acceptance of the Task Annex. Thereafter, each Task shall be carried out in accordance with the procedures set forth in Articles 2 to 11 hereof, unless otherwise specifically provided in the applicable Annex.
- (b) *Initiation of Additional Tasks.* Additional Tasks may be initiated by any Contracting Party according to the following procedure:
- (1) A Contracting Party wishing to initiate a new Task shall present to one or more Contracting Parties for approval a draft Annex, similar in form to the Annexes attached hereto, containing a description of the scope of work and conditions of the Task proposed to be performed;
 - (2) Whenever two or more Contracting Parties 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 draft

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Annex shall become part of this Agreement; Notice of Participation in the Task by Contracting Parties and acceptance by the Operating Agent shall be communicated to the Executive Director 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 Task 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 Programme shall be vested in the Executive Committee constituted under this Article.

(b) *Membership.* The Executive Committee shall consist of one member designated by each Contracting Party; each Contracting Party shall also designate an alternate member to serve on the Executive Committee in the event that its designated member is unable to do so.

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

- (1) Adopt for each year, acting by unanimity, 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; the Executive Committee may, as required, make adjustments within the framework of the Programme of Work and Budget;
- (2) Make such rules and regulations as may be required for the sound management of the Tasks, including financial rules as provided in Article 6 hereof;
- (3) Carry out the other functions conferred upon it by this Agreement and the Annexes hereto; and
- (4) Consider any matters submitted to it by any of the Operating Agents or by any Contracting Party.

(d) *Procedure.* 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 its proper functioning. A representative of the Agency and a representative of each Operating Agent (in its capacity as such) may attend meetings of the Executive Committee and its subsidiary bodies in an advisory capacity;
- (3) The Executive Committee shall meet in regular session twice each year; a special meeting shall be convened upon the request of any 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; notice need not be given to any person or entity otherwise entitled thereto if notice is waived 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 this 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. If a government has designated more than one Contracting Party to this Agreement, those Contracting Parties may cast only one vote under this paragraph;

- (3) The decisions and recommendations referred to in 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 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 paragraph.
- (f) *Reports.* The Executive Committee shall, at least annually, provide the Agency with periodic reports on the progress of the Programme.

Article 4

THE OPERATING AGENTS

- (a) *Designation.* Participants shall designate in the relevant Annex an Operating Agent for each Task. 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 Article 7 hereof and to 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) The Operating Agent shall hold, 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 of the Operating Agent.

- (c) *Reimbursement of Costs.* The Executive Committee may 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 6 hereof.
- (d) *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.
- (e) *Resignation.* An Operating Agent shall have the right to resign at any time, by giving six months written notice to that effect to the Executive Committee, provided that:

- (1) 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 other Participants to that effect, in writing, not less than three months in advance of the effective date of such resignation; and
- (2) Such Participant or entity is approved by the Executive Committee, acting by unanimity.

(f) *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.

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

Article 5

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 Task Annex, and the decisions of the Executive Committee.

(b) *Information and Reports.* Each Operating Agent shall furnish to the Executive Committee such information concerning the Task as the Committee may request and shall each year submit, not later than two months after the end of the financial year, a report on the status of the Task.

(c) *Staff.* It shall be the responsibility of the Operating Agent 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 also, as required, utilise the services of personnel employed by other Participants (or organisations or other entities designated by Contracting Parties) 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 Contracting Parties shall be entitled 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 6 (f) (6) hereof.

Article 6

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 Tasks, unless provision is made for such costs to be reimbursed from common funds as provided in paragraph (g) below.

(b) *Common Financial Obligations.* Participants wishing to share the costs of a particular Task shall agree in the appropriate Task Annex to do so. The apportionment of contributions to such costs (whether in the form of cash, services rendered, intellectual property pursuant to Article 7 (f) hereof or the supply of materials) and the use of such contributions shall be governed by the regulations and decisions made pursuant to this Article by the Executive Committee.

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

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

In placing external contracts providing for the expenditure of common funds, the Operating Agent shall take into account the necessity of ensuring a fair distribution of contracts in the Participants' countries, where this is fully compatible with the most efficient technical and financial management of the Task.

(d) *Crediting of Income to Budget.* Any income which accrues from a Task shall be credited to the Budget of that Task.

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

(f) *Programme of Work and Budget, Keeping of Accounts.* Should Participants agree to maintain common funds for the payment of obligations under a Programme of Work and Budget of the Task, accounts shall be maintained as follows unless otherwise decided by the Executive Committee, acting by unanimity:

- (1) The financial year of the Task shall correspond to the financial year of the Operating Agent;
- (2) The Operating Agent shall each year prepare and submit to the Executive Committee for approval a draft Programme of Work and Budget, together with an indicative programme of work and budget for the following two years, not later than three months before the beginning of each financial year;
- (3) The Operating Agent shall maintain complete, separate financial records which shall clearly account for all funds and property coming into the custody or possession of the Operating Agent in connection with the Task;
- (4) Not later than three months after the close of each financial year the Operating Agent shall submit to auditors selected by the Executive Committee for audit the annual accounts maintained for the Task; upon completion of the annual audit, the Operating Agent 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 Operating Agent shall be preserved for at least three years from the date of termination of the Task;
- (6) Where provided in the relevant Annex, a Participant supplying services, materials or intellectual property to the Task pursuant to Article 7 (f) hereof 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 exceeds the amount of the Participant's contribution); such credits for services of staff shall be calculated on an agreed scale approved by the Executive Committee and include all payroll-related costs.

(g) *Contribution to Common Funds.* Should Participants agree to establish common funds under the annual Programme of Work and Budget for a Task, any financial contributions due from Participants in a Task shall be paid to the Operating Agent in the currency of the country of the Operating Agent 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 Operating Agent shall be used solely in accordance with the Programme of Work and Budget for the Task;
- (2) The Operating Agent shall be under no obligation to carry out any work on the Task until contributions amounting to at least fifty per cent (in cash terms) of the total due at any one time have been received.

(h) *Ancillary Services.* Ancillary services may, as agreed between the Executive Committee and the Operating Agent, be provided by that Operating Agent for the operation

of a Task and the costs of such services, including overheads connected therewith, may be met from budgeted funds of that Task.

(i) *Taxes.* The Operating Agent 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 a Task, as expenditure incurred in the operation of that Task under the Budget; the Operating Agent shall, however, endeavour to obtain all possible exemptions from such taxes.

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

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

Article 7

INFORMATION AND INTELLECTUAL PROPERTY

(a) *Executive Committee's Powers.* The publication, distribution, handling, protection and ownership of information and intellectual property arising from activities conducted under this Agreement shall be determined by the Executive Committee, acting by unanimity, in conformity with this Agreement.

(b) *Right to Publish.* Subject only to copyright restrictions, the Participants in any Annex shall have the right to publish all information provided to or arising from that Annex except proprietary information.

(c) *Proprietary Information.* The Participants in any Annex 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 Agreement, proprietary information shall mean information of a confidential nature such as trade secrets and know-how (for example, computer programmes, design procedures and tech-

niques, chemical composition of materials, or manufacturing methods, processes, or treatments) which is appropriately marked, provided such information:

- (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 Participant 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 appropriately marked.

(d) *Production of Relevant Information by Governments.* The Operating Agent should encourage the governments of all Agency Participating Countries and all Participants 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.

(e) *Production of Available Information by Participants.* 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 in the Task and which is freely at the disposal of the Participant and the transmission of which is not subject to any contractual and/or legal limitations.

(f) *Acquisition of Information for the Task.* Each Participant shall inform the Operating Agent of the existence of information that can be of value to a Task, but which is not freely available, and the Participant shall endeavour to make the information available to the Task under reasonable conditions, in which event the Executive Committee may, acting by unanimity, decide to acquire such information.

(g) *Reports on Work Performed under the Task.* Each Operating Agent shall provide reports of all work performed under each Task and the results thereof (arising information), including proprietary information, to the Task Participants. Reports summarizing the work performed and the results thereof, excluding proprietary information, shall be prepared by the Operating Agent and forwarded to the Executive Committee.

(h) *Copyright.* The Executive Committee, or any member appointed by it, shall take appropriate measures necessary to protect copyrightable material generated under a Task. Copyrights obtained shall be the property of the Operating Agent; provided, however, that Task Participants may reproduce and distribute such material, but shall not publish it with a view to profit.

(i) *Authors.* Each Participant will, without prejudice to any rights of authors under its national laws, take necessary steps to provide the co-operation from its authors required to carry out the provisions of this Article. Each Participant will assume the responsibility to pay awards or compensation required to be paid to its employees according to the laws of its country.

10

Article 8

LEGAL RESPONSIBILITY AND INSURANCE

(a) *Liability of Operating Agent.* The 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; such costs and expenses arising from other work undertaken for a Task shall be charged to the Budget of that Task if the Task Annex so provides or the Executive Committee, acting by unanimity, so decides.

(b) *Insurance.* The 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 Contracting Parties.* The Operating Agent shall be liable, in its capacity as such, to indemnify 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 such insurance as it may be required to maintain under paragraph (b) above; or
- (2) Result from the gross negligence or wilful misconduct of any officers or employees of the Operating Agent in carrying out their duties under this Agreement.

Article 9

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 Parties, 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.* Participants in the various Tasks 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 10

ADMISSION AND WITHDRAWAL OF CONTRACTING PARTIES

(a) *Admission of New Contracting Parties: Agency Countries.* Upon the invitation of the Executive Committee, acting by unanimity, the admission to this Agreement shall be open to the government of any Agency Participating Country (or a national agency, public organisation, private corporation, company or other entity designated by such government), which signs or accedes to this Agreement, accepts the rights and obligations of a Contracting Party, and is accepted for participation in at least one Task by the Participants in that Task, acting by unanimity. Such admission of a Contracting Party shall become effective upon the signature of this Agreement by the new Contracting Party or its accession thereto and its giving Notice of Participation in one or more Annexes and the adoption of any consequential amendments thereto.

(b) *Admission of New Contracting Parties: Other OECD Countries.* The government of any Member of the Organisation for Economic Co-operation and Development which does not participate in the Agency may, on the proposal of the Executive Committee, acting by unanimity, be invited by the Governing Board of the Agency to become a Contracting Party to this Agreement (or to designate a national agency, public organisation, private corporation, company or other entity to do so), under the conditions stated in paragraph (a) above.

12

(c) *Participation by the European Communities.* The European Communities may take part in this Agreement in accordance with Article IV (c) of the Guiding Principles for Co-operation in the Field of Energy Research and Development adopted by the Governing Board of the Agency on 28th July, 1975.

(d) *Admission of New Participants in Tasks.* Any Contracting Party may, with the agreement of the Participants in a Task, become a Participant in that Task. Such participation shall become effective upon the Contracting Party's giving Notice of Participation in the appropriate Task Annex and the adoption of consequential amendments thereto.

(e) *Contributions.* The Executive Committee may require, as a condition to admission to participation, that the new 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.

(f) *Replacement of Contracting Parties.* With the agreement of the Executive Committee, acting by unanimity, and upon the request of a government, a Contracting Party 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 procedure provided therein.

(g) *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 hereof. 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 common funds for a Task, their proportionate shares in the Task Budget shall be adjusted to take account of such withdrawal.

(h) *Change of Status of Contracting Party.* A Contracting Party other than a government or an international organisation 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 Contracting Parties, otherwise agrees:

- (1) That Contracting Party shall be deemed to have withdrawn from the Agreement under paragraph (g) above on a date to be 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; if approved by the Executive Committee, acting by unanimity, such entity shall become a Contracting Party with effect from the date on which it signs this Agreement and gives Notice of Participation in one or more Annexes.

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

14

Article 11

FINAL PROVISIONS

- (a) *Term of Agreement.* This Agreement shall remain in force for an initial period of three years from the date hereof, and shall continue in force thereafter unless and until the Contracting Parties unanimously agree on its termination.
- (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 Participants have made from the beginning of the operation of the Task, 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 9 (d) hereof, for which purpose a former Contracting Party shall be regarded as a Contracting Party.
- (d) *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.
- (e) *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. A copy of this Agreement shall be furnished to each Agency Participating Country, to each Member country of the Organisation for Economic Co-operation and Development and to the European Communities.

Done in Paris, this day of December, 1976. sm.

15

[BELGIUM]

For the KERNFORSCHUNGSANLAGE JÜLICH G.m.b.H.
(designated by the Government of Germany):

For the COMITATO NAZIONALE PER L'ENERGIA
NUCLEARE (designated by the Government of Italy):

[JAPAN] .

For the NAAMLOZE VENNOOTSCHAP DSM
(designated by the Government of the Netherlands):

For the SWEDISH NATIONAL BOARD FOR ENERGY SOURCE
DEVELOPMENT (designated by the Government of Sweden):

[SWITZERLAND]

[UNITED STATES OF AMERICA]

15

Annex I

CHEMICAL ENGINEERING EVALUATIONS OF THERMOCHEMICAL PROCESSES

1. Objectives

The overall objective of Tasks undertaken in thermochemical processes is to provide a basis for the selection of specific processes, including hybrid cycles, by means of experimental research, engineering studies, and techno-economic assessments.

The objectives of this Task include the carrying out of design evaluations of specific process steps (chemical reactions or operations); the estimation of plant capital costs for specific process steps and, eventually, for a complete thermochemical plant; and the identification of general problem areas.

2. Means

- (a) Participants will undertake the following actions related to seven important steps in the sulphur and iron chlorine cycles:
 - (i) Thermal Decomposition of H_2SO_4 ;
 - (ii) Thermal Decomposition of a Metal Sulphate;
 - (iii) Hydrolysis of $FeCl_2$;
 - (iv) Liquid-Liquid Separation of H_2SO_4/HI from Solution;
 - (v) Reverse Deacon Reaction;
 - (vi) Decomposition of HI ;
 - (vii) Decomposition of $FeCl_3$.
- (b) As appropriate, the following aspects will be covered in each study of the above steps:
 - (i) Extrapolation from conventional chemical plant sizes;
 - (ii) Heat transfer in the endothermic reactions at high temperature;
 - (iii) Coupling of the high temperature step to the heat source;
 - (iv) Thermal efficiency of the separation step.
- (c) The exchange of specialists is foreseen in carrying out this Task.
- (d) A 3-4 day Workshop will be held prior to the end of the first year for the purpose of discussing progress reports, comparing methodologies, and detailed planning of the next year's work programme.

3. *Time schedule*

Three years (1st January, 1977 to 31st December, 1979).

4. *Results*

The results of these co-operative activities will be:

- (a) Within the first year, a list of all internal reports or working papers at the disposal of Participants will be produced and circulated to Participants;
- (b) During the latter part of the first year, progress reports will be prepared by each Participant on its work underway on one or more of the steps described in paragraph 2 above;
- (c) A final report will be produced containing design evaluations of the process steps studied, plant capital cost estimates, and conclusions regarding process selection.

Each Participant will be entitled to receive a copy of each of the reports on the results of the co-operative activities in this Task.

5. *Responsibilities of the Operating Agent*

The Operating Agent will be responsible for the overall management of this Annex, in particular for actions arising under paragraph 4 above, and for implementing actions required by the Executive Committee.

6. *Budget*

- (a) Each Participant will bear its own costs in carrying out the Task, including costs of calculating, reporting and travel expenses of representatives;
- (b) The cost of meeting organisation shall be borne by the host country.

7. *Operating Agent*

Commission of the European Communities (acting through JRC Ispra).

8. *Participants in this Task*

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



Annex II

HIGH TEMPERATURE REACTOR (HTR)- THERMOCHEMICAL PLANT (TCP) INTERFACE

1. *Objective*

The overall objective of Tasks undertaken in thermochemical processes is to provide a basis for the selection of specific processes, including hybrid cycles, by means of experimental research, engineering studies, and techno-economic assessments.

The objective of this Task is to relate a sulphuric acid based process for hydrogen production to the engineering and economic parameters of a high temperature nuclear heat source. The evaluation of other cycles is also foreseen.

2. *Means*

Participants will assemble the necessary data and will then prepare a "standardised HTR-TCP interface specification matrix". The exchange of specialists is foreseen in carrying out this Task.

The Operating Agent will organise a Workshop which will be held prior to the end of the first year for the purpose of discussing progress reports, comparing methodologies, and detailed planning of the next year's work programme.

3. *Time schedule*

Three years (1st January, 1977 to 31st December, 1979).

4. *Results*

The results of these co-operative activities will be:

- (a) Within the first year, a list of all internal reports or working papers at the disposal of Participants will be produced and circulated to Participants;
- (b) During the latter part of the first year, progress reports will be prepared by each Participant on its work underway;
- (c) A final report will be produced containing design evaluations, plant capital cost estimates, and conclusions regarding the feasibility of the HTR-TCP interface.

Each Participant will be entitled to receive a copy of each of the reports on the results of the co-operative activities in this Task.

5. *Responsibilities of the Operating Agent*

In addition to the responsibilities described in paragraph 2 above, the Operating Agent will be responsible for the overall management of this Annex, in particular for actions

arising under paragraph 4 above, and for implementing actions required by the Executive Committee.

6. Budget

- (a) Each Participant will bear its own costs in carrying out the Task, including costs of calculating, reporting and travel expenses of representatives;
- (b) The cost of meeting organisation shall be borne by the host country.

7. Operating Agent

Kernforschungsanlage Jülich, G.m.b.H.

8. Participants in this Task

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

Y. (C)

PROOF : 26th November, 1975

INTERNATIONAL ENERGY AGENCY

IMPLEMENTING AGREEMENT
FOR A PROGRAMME TO DEVELOP AND TEST
SOLAR HEATING AND COOLING SYSTEMS

The Contracting Parties

CONSIDERING that the Contracting Parties, being either governments or international organisations or parties designated by their respective governments pursuant to Article III of the Guiding Principles for Co-operation in the Field of Energy Research and Development adopted by the Governing Board of the International Energy Agency (the "Agency") on 28th July, 1975, wish to take part in the establishment and operation of a Programme to Develop and Test Solar Heating and Cooling Systems (the "Programme") as provided in this Agreement;

CONSIDERING that the Contracting Parties which are governments and the governments of the other Contracting Parties (referred to collectively as the "Governments") participate in the Agency and have agreed in Article 41 of the Agreement on an International Energy Program (the "I.E.P. Agreement") to undertake national programmes in the areas set out in Article 42 of the I.E.P. Agreement, including research and development in solar energy;

CONSIDERING that in the Governing Board of the Agency on 28th July, 1975, the Governments approved the Programme as a special activity under Article 65 of the I.E.P. Agreement;

CONSIDERING that the Agency has recognised the establishment of the Programme as an important component of international co-operation in the field of solar energy research and development;

HAVE AGREED as follows:

Article I

OBJECTIVES

(a) *Scope of Activity.* The Programme 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 regarding solar heating and cooling systems.

(b) *Method of Implementation.* The Contracting Parties shall implement the Programme by undertaking one or more tasks (the "Task" or "Tasks") each of which 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, for the purposes of that Task, referred to in this Agreement as "Participants".

(c) *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 co-operation among Participants engaged in the various Tasks with the objective of advancing the research and development activities of all Contracting Parties in the field of solar heating and cooling systems.

Article 2

IDENTIFICATION AND INITIATION OF TASKS

(a) *Identification.* The Tasks undertaken by Participants are identified in the Annexes to this Agreement. At the time of signing this Agreement, each Contracting Party 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 Acceptance of the Task Annex. Thereafter, each Task shall be carried out in accordance with the procedures set forth in Articles 2 to 11 hereof, unless otherwise specifically provided in the applicable Annex.

(b) *Initiation of Additional Tasks.* Additional Tasks may be initiated by any Contracting Party according to the following procedure:

- (1) A Contracting Party wishing to initiate a new Task shall present to one or more Contracting Parties for approval a draft Annex, similar in form to the Annexes attached hereto, containing a description of the scope of work and conditions of the Task proposed to be performed;
- (2) Whenever two or more Contracting Parties 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 draft Annex shall become part of this Agreement; Notice of Participation in the Task by Contracting Parties and acceptance by the Operating Agent shall be communicated to the Executive Director 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 Task 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 Programme shall be vested in the Executive Committee constituted under this Article.

(b) *Membership.* The Executive Committee shall consist of one member designated by each Contracting Party; each Contracting Party shall also designate an alternate member to serve on the Executive Committee in the event that its designated member is unable to do so.

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

- (1) Adopt for each year, acting by unanimity, 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; the Executive Committee may, as required, make adjustments within the framework of the Programme of Work and Budget;
- (2) Make such rules and regulations as may be required for the sound management of the Tasks, including financial rules as provided in Article 6 hereof;
- (3) Carry out the other functions conferred upon it by this Agreement and the Annexes hereto; and
- (4) Consider any matters submitted to it by any of the Operating Agents or by any Contracting Party.

(d) *Procedure.* 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 its proper functioning. A representative of the Agency and a representative of each Operating Agent (in its capacity as such) may attend meetings of the Executive Committee and its subsidiary bodies in an advisory capacity;
- (3) The Executive Committee shall meet in regular session twice each year; a special meeting shall be convened upon the request of any 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; notice need not be given to any person or entity otherwise entitled thereto if notice is waived 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 this 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. If a government has designated more than one Contracting Party to this Agreement, those Contracting Parties may cast only one vote under this paragraph;
- (3) The decisions and recommendations referred to in 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 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 paragraph.

(f) *Reports.* The Executive Committee shall, at least annually, provide the Agency with periodic reports on the progress of the Programme.

Article 4

THE OPERATING AGENTS

(a) *Designation.* Participants shall designate in the relevant Annex an Operating Agent for each Task. 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 Article 7 hereof and to 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) The Operating Agent shall hold, 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 of the Operating Agent.

(c) *Reimbursements of Costs.* The Executive Committee may 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 6 hereof.

(d) *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.

(e) *Resignation.* An Operating Agent shall have the right to resign at any time, by giving six months written notice to that effect to the Executive Committee, provided that:

- (1) 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 other Participants to that effect, in writing, not less than three months in advance of the effective date of such resignation; and
- (2) Such Participant or entity is approved by the Executive Committee, acting by unanimity.

(f) *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.

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

Article 5

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 Task Annex, and the decisions of the Executive Committee.

(b) *Information and Reports.* Each Operating Agent shall furnish to the Executive Committee such information concerning the Task as the Committee may request and shall each year submit, not later than two months after the end of the financial year, a report on the status of the Task.

(c) *Staff.* It shall be the responsibility of the Operating Agent 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 also, as required, utilise the services of personnel employed by other Participants (or organisations or other entities designated by Contracting Parties) 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 Contracting Parties shall be entitled 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 6 (f) (6) hereof.

Article 6

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 Tasks, unless provision is made for such costs to be reimbursed from common funds as provided in paragraph (g) below.

(b) *Common Financial Obligations.* Participants wishing to share the costs of a particular Task shall agree in the appropriate Task Annex to do so. The apportionment of contributions to such costs (whether in the form of cash, services rendered, intellectual property pursuant to Article 7 (f) hereof or the supply of materials) and the use of such contributions shall be governed by the regulations and decisions made pursuant to this Article by the Executive Committee.

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

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

In placing external contracts providing for the expenditure of common funds, the Operating Agent shall take into account the necessity of ensuring a fair distribution of contracts in the Participants' countries, where this is fully compatible with the most efficient technical and financial management of the Task.

(d) *Crediting of Income to Budget.* Any income which accrues from a Task shall be credited to the Budget of that Task.

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

(f) *Programme of Work and Budget, Keeping of Accounts.* Should Participants agree to maintain common funds for the payment of obligations under a Programme of Work and Budget of the Task, accounts shall be maintained as follows unless otherwise decided by the Executive Committee, acting by unanimity:

- (1) The financial year of the Task shall correspond to the financial year of the Operating Agent;
- (2) The Operating Agent shall each year prepare and submit to the Executive Committee for approval a draft Programme of Work and Budget, together with an indicative programme of work and budget for the following two years, not later than three months before the beginning of each financial year;
- (3) The Operating Agent shall maintain complete, separate financial records which shall clearly account for all funds and property coming into the custody or possession of the Operating Agent in connection with the Task;
- (4) Not later than three months after the close of each financial year the Operating Agent shall submit to auditors selected by the Executive Committee for audit the annual accounts maintained for the Task; upon completion of the annual audit, the Operating Agent 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 Operating Agent shall be preserved for at least three years from the date of termination of the Task;

(6) Where provided in the relevant Annex, a Participant supplying services, materials or intellectual property to the Task pursuant to Article 7 (f) hereof 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 exceeds the amount of the Participant's contribution); such credits for services of staff shall be calculated on an agreed scale approved by the Executive Committee and include all payroll-related costs.

(g) *Contribution to Common Funds.* Should Participants agree to establish common funds under the annual Programme of Work and Budget for a Task, any financial contributions due from Participants in a Task shall be paid to the Operating Agent in the currency of the country of the Operating Agent 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 Operating Agent shall be used solely in accordance with the Programme of Work and Budget for the Task;

(2) The Operating Agent shall be under no obligation to carry out any work on the Task until contributions amounting to at least fifty per cent (in cash terms) of the total due at any one time have been received.

(h) *Ancillary Services.* Ancillary services may, as agreed between the Executive Committee and the Operating Agent, be provided by that Operating Agent for the operation of a Task and the costs of such services, including overheads connected therewith, may be met from budgeted funds of that Task.

(i) *Taxes.* The Operating Agent 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 a Task, as expenditure incurred in the operation of that Task under the Budget; the Operating Agent shall, however, endeavour to obtain all possible exemptions from such taxes.

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

(1) The Operating Agent shall provide the other Participants with an opportunity to participate in such audits on a cost-shared basis;

(2) Accounts and records relating to activities of the Operating Agent other than those conducted for the Task shall be excluded from such audit.

but if the Participant concerned requires verification of charges to the Budget representing services rendered to the Task by the Operating Agent, it may at its own cost request and obtain an audit certificate in this respect from the auditors of the Operating Agent;

- (3) Not more than one such audit shall be required in any financial year;
- (4) Any such audit shall be carried out by not more than three representatives of the Participants.

Article 7

INFORMATION AND INTELLECTUAL PROPERTY

(a) *Executive Committee's Powers.* The publication, distribution, handling, protection and ownership of information and intellectual property arising from activities conducted under this Agreement shall be determined by the Executive Committee, acting by unanimity, in conformity with this Agreement.

(b) *Right to Publish.* Subject only to copyright restrictions, the Participants in any Annex shall have the right to publish all information provided to or arising from that Annex except proprietary information.

(c) *Proprietary Information.* The Participants in any Annex 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 Agreement, proprietary information shall mean 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 is appropriately marked, provided such information:

- (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 Participant 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 appropriately marked.

(d) *Production of Relevant Information by Governments.* The Operating Agent should encourage the governments of all Agency Participating Countries and all Participants 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.

- (e) *Production of Available Information by Participants.* 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 in the Task and which is freely at the disposal of the Participant and the transmission of which is not subject to any contractual and/or legal limitations.
- (f) *Acquisition of Information for the Task.* Each Participant shall inform the Operating Agent of the existence of information that can be of value to a Task, but which is not freely available, and the Participant shall endeavour to make the information available to the Task under reasonable conditions, in which event the Executive Committee may, acting by unanimity, decide to acquire such information.
- (g) *Reports on Work Performed under the Task.* Each Operating Agent shall provide reports of all work performed under each Task and the results thereof (arising information), including proprietary information, to the Task Participants. Reports summarizing the work performed and the results thereof, excluding proprietary information, shall be prepared by the Operating Agent and forwarded to the Executive Committee.
- (h) *Copyright.* The Executive Committee, or any member appointed by it, shall take appropriate measures necessary to protect copyrightable material generated under a Task. Copyrights obtained shall be the property of the Operating Agent; provided, however, that Task Participants may reproduce and distribute such material, but shall not publish it with a view to profit.
- (i) *Authors.* Each Participant will, without prejudice to any rights of authors under its national laws, take necessary steps to provide the co-operation from its authors required to carry out the provisions of this Article. Each Participant will assume the responsibility to pay awards or compensation required to be paid to its employees according to the laws of its country.

Article 8

LEGAL RESPONSIBILITY AND INSURANCE

- (a) *Liability of Operating Agent.* The 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; such costs and expenses arising from other work undertaken for a Task shall be charged to the Budget of that Task if the Task Annex so provides or the Executive Committee, acting by unanimity, so decides.
- (b) *Insurance.* The 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 Contracting Parties.* The Operating Agent shall be liable, in its capacity as such, to indemnify 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 such insurance as it may be required to maintain under paragraph (b) above; or
- (2) Result from the gross negligence or wilful misconduct of any officers or employees of the Operating Agent in carrying out their duties under this Agreement.

Article 9

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 Parties, 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.* Participants in the various Tasks 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 10

ADMISSION AND WITHDRAWAL OF CONTRACTING PARTIES

(a) *Admission of New Contracting Parties: Agency Countries.* Upon the invitation of the Executive Committee, acting by unanimity, the admission to this Agreement shall be open to the government of any Agency Participating Country (or a national agency, public organisation, private corporation, company or other entity designated by such government), which signs or accedes to this Agreement, accepts the rights and obligations of a Contracting Party, and is accepted for participation in at least one Task by the Participants in that Task, acting by unanimity. Such admission of a Contracting Party shall become effective upon the signature of this Agreement by the new Contracting Party or its accession thereto and its giving Notice of Participation in one or more Annexes and the adoption of any consequential amendments thereto.

(b) *Admission of New Contracting Parties: Other OECD Countries.* The government of any Member of the Organisation for Economic Co-operation and Development which does not participate in the Agency may, on the proposal of the Executive Committee, acting by unanimity, be invited by the Governing Board of the Agency to become a Contracting Party to this Agreement (or to designate a national agency, public organisation, private corporation, company or other entity to do so), under the conditions stated in paragraph (a) above.

(c) *Participation by the European Communities.* The European Communities may take part in this Agreement in accordance with Article IV(c) of the Guiding Principles for Co-operation in the Field of Energy Research and Development adopted by the Governing Board of the Agency on 28th July 1975.

(d) *Admission of New Participants in Tasks.* Any Contracting Party may, with the agreement of the Participants in a Task, become a Participant in that Task. Such participation shall become effective upon the Contracting Party's giving Notice of Participation in the appropriate Task Annex and the adoption of consequential amendments thereto.

(e) *Contributions.* The Executive Committee may require, as a condition of admission to participation, that the new 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.

(f) *Replacement of Contracting Parties.* With the agreement of the Executive Committee, acting by unanimity, and upon the request of a government, a Contracting Party 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 procedure provided therein.

(g) *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 hereof. 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 common funds for a Task, their proportionate shares in the Task Budget shall be adjusted to take account of such withdrawal.

(h) *Changes of Status of Contracting Party.* A Contracting Party other than a government or an international organisation 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 Contracting Parties, otherwise agrees:

- (1) That Contracting Party shall be deemed to have withdrawn from the Agreement under paragraph (g) above on a date to be 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; if approved by the Executive Committee, acting by unanimity, such entity shall become a Contracting Party with effect from the date on which it signs this Agreement and gives Notice of Participation in one or more Annexes.

(i) *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 specifying the nature of such failure and invoking this paragraph, may be deemed by the Executive Committee, acting by unanimity, to have withdrawn from this Agreement.

Article 11

FINAL PROVISIONS

(a) *Term of Agreement.* This Agreement shall remain in force for an initial period of three years from the date hereof, and shall continue in force thereafter unless and until the Contracting Parties unanimously agree on its termination.

(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 Participants have made from the beginning of the operation of the Task, 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 9 (d) hereof, for which purpose a former Contracting Party shall be regarded as a Contracting Party.

(d) *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.

(e) *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. A copy of this Agreement shall be furnished to each Agency Participating Country, to each Member country of the Organisation for Economic Co-operation and Development and to the European Communities.

11

Done in Paris, this day of December, 1976.

For the SERVICE DE PROGRAMMATION
DE LA POLITIQUE SCIENTIFIQUE
for and on behalf of the Government
of Belgium:

[DENMARK]

For the KERNFORSCHUNGSANLAGE JÜLICH G.m.b.H.
(designated by the Government of Germany):

For the CONSIGLIO NATIONALE
DELLE RICERCHE
(designated by the Government
of Italy):

[JAPAN]

For the STICHTING ENERGIEONDERZOEK
CENTRUM NEDERLAND
(designated by the Government
of the Netherlands):

[NEW ZEALAND]

For the SWEDISH BUILDING RESEARCH COUNCIL
(designated by the Government of Sweden):

[SWITZERLAND]

[UNITED KINGDOM]

For the ENERGY RESEARCH AND
DEVELOPMENT ADMINISTRATION
for and on behalf of the Government of
the United States of America:

1

Annex I

INVESTIGATION OF THE PERFORMANCE OF SOLAR HEATING AND COOLING SYSTEMS

1. *Objectives of Task*

The objectives of this Task are to establish and organise co-operation between the Participants in this Task (the "Participants") in three aspects of solar heating, cooling and hot water supply systems, in order to optimise the cost-effectiveness of such systems, notably:

- (a) Modelling and simulation of solar heating and cooling systems in order to calculate the thermal performance;
- (b) Measuring and reporting of thermal performance, as well as reporting of information on the durability and cost of solar heating, cooling and hot water supply systems;
- (c) Optimisation of system economics, based on the first two aspects.

2. *Means.*

The following steps will be undertaken in order to accomplish the foregoing objectives:

(a) *Modelling and Simulation*

A common understanding and basis for the modelling and simulation of solar heating and cooling systems will be established.

A reporting format for system simulation programmes will be established and distributed by the Operating Agent on the basis of recommendations from the Participants. The Participants will provide to the Operating Agent information on their programmes, according to the format, which will then be distributed to the Participants. The Operating Agent will organise an expert panel to specify the characteristics of two solar heating systems—a liquid system and an air system which will be used for performance prediction comparisons. Detailed information on these two systems will be distributed by the Operating Agent to all Participants.

Weather records from Denmark (Copenhagen), Germany (Hamburg), Japan (Tokyo) and the United States (Madison and Santa Maria) will be used initially. These weather records will be put on magnetic tape according to an agreed format. The magnetic tapes will be prepared by the Danish, German, Japanese and United States Participants respectively and will be sent to the United States Participant.

The United States Participant will determine hourly loads using the NBSLD-programme¹ and the five weather records for a particular single family house. Initially that house will be the NBS Solar House.² The calculated loads will be put on magnetic tape

1. NBSIR 74-574, NBSLD, Computer Program for Heating and Cooling Loads in Buildings.
2. ISES Congress 1975, Paper 41/9.

with the weather data by the United States Participant and distributed to all Participants. The Participants will use their own system simulation programmes with the four weather and load records to predict the performance of the two solar heating systems. The output data and monthly system performance will be distributed to the Participants. The description of the computer programmes will be included. A meeting or meetings will be held to evaluate the results of these systems performance calculations and discrepancies will be resolved. A summary report will be prepared by the Operating Agent and distributed to all Participants. A subsequent meeting will be held to evaluate the results of additional system performance simulation made in accordance with agreed-to changes in the above details.

(b) System Measurement Procedures

Recommendations for procedures for measuring the thermal performance of solar heating and cooling systems will be made by the Participants, based on an evaluation of the measurement procedures used in Participants' countries. These recommendations will include the definitions of the quantities to be measured, frequency, accuracy and type of physical measurements, as well as methods of data treatment necessary to determine system performance. A meeting will be held to review these evaluations and after Executive Committee review, a report summarizing the recommended measurement procedures will be prepared and distributed to Participants by the Operating Agent or by another Participant by arrangement with the Operating Agent.

(c) Reporting Format

The Participants will set up or adapt a format for reporting thermal performance, durability and cost of system. Such information according to this format will, when available, be distributed to Participants. A complete definition of terminology will be included in the format.

(d) Optimisation

A procedure for designing economical, optimised systems will be developed. Simplified dimensioning methods, based on monthly averages, will be used to design solar heating systems fitting with local weather and load data. This method shall at the same time be compared with the results from the system simulation programmes mentioned in paragraph (a) above.

The costs of the systems will be calculated on the basis of local prices of components and installation. These data and the economic parameters for mortgaging, taxes, costs of auxiliary fuel, escalation of costs and discount rates of future costs will be determined individually by each Participant. Based on these data, the United States Participant will determine the optimum system size in each Participant's country and distribute all results, together with a description of the analysis procedure, to all Participants.

The Participants will review the results and a report summarizing the present economic situation for solar heating systems will be prepared and distributed to the Participants by the Operating Agent, or by another Participant by arrangement with the Operating Agent.

3. *Time Schedule*

Two years (1st January, 1977 to 31st December, 1978). Meetings planned—Spring 1977 and Spring 1978.

4. *Results*

The results of these co-operative activities will be:

- (a) A report on existing computer programmes for calculating thermal performance of systems and containing information on the evaluation of the comparison of the results using these programmes;
- (b) A report on a recommended procedure for measuring the thermal performance of systems;
- (c) A report on the recommended system reporting format, incorporating terminology definitions;
- (d) A report on a simplified procedure for optimising systems on the basis of economics.

Each Participant will be entitled to receive a copy of each of the reports on the results of the co-operative activities in this Task.

5. *Responsibilities of Operating Agent*

In addition to the responsibilities described in paragraph 2 above, the Operating Agent will be responsible for the overall management of this Annex and for implementing actions required by the Executive Committee.

6. *Budget*

- (a) Each Participant will bear its own costs in carrying out the Task, including costs of calculating, reporting and travel expenses of representatives.
- (b) The costs of meeting organisation shall be borne by the host country.
- (c) Participation in this Annex is expected to involve an annual level of effort of 1-2 person years for each Participant.

7. *Operating Agent*

(Denmark)

8. *Participants in this Task*

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

Annex II

CO-ORDINATION OF RESEARCH AND DEVELOPMENT ON SOLAR HEATING AND COOLING COMPONENTS

1. *Objective of Task*

The objective of this Task is to increase the effectiveness of the national R & D programmes related to the development of the components of solar heating, cooling and hot water supply systems, including the following key components of the systems:

- (a) Solar heat collectors;
- (b) Solar thermal energy storage;
- (c) Solar air conditioning and cooling;
- (d) Other substantial components, as appropriate.

The scope of the Task will, where relevant, include the results arising from *Annex I*—"Investigation of the Performance of Solar Heating and Cooling Systems" having significant component R & D aspects.

2. *Means*

The following steps will be undertaken in order to accomplish the foregoing objective:

(a) *Summary of Solar Energy R & D Projects*

The Participants in this Task (the "Participants") will exchange information including results of each R & D project funded in whole or in part by the Participant or the government of the Participant and from which the Participant or the government of the Participant is obtaining information, referred to in paragraph 1 (a)-(d) above according to a special format, prepared by the Operating Agent.

Participants will provide the Operating Agent with a compilation of the above project summaries for their country within three months after this Implementing Agreement is signed.

The Operating Agent will prepare a report from these summaries and will promptly distribute this report to the Participants. It is acknowledged that Participants will duplicate and distribute this report to all interested parties within their countries. The Participants will up-date their contributions by providing revised or additional summaries on significant accomplishments or new projects.

(b) *Exchange of Solar Energy Research Personnel, Equipment and Materials*

20

Exchange of solar energy researchers, equipment and materials between the Participants will be undertaken, especially for those projects included under paragraph (a) above. The initiation of such exchanges will be left to the interested experts in the Participating Countries under detailed arrangements to be agreed. The Participants will advise the Operating Agent of all such exchanges, as they occur, and the Operating Agent will compile and distribute to Participants regular reports on such exchanges.

(c) Survey and Review of Existing R & D Plans

Each Participant will send a short summary (English language desired) of their published national R & D plans regarding the components referred to in paragraph 1/(a)-(d) above to the Operating Agent, 2-3 months before each expert meeting. The Operating Agent will review the summaries and subsequently report on the principal features of the activities described at the meeting.

3. Time Schedule

Three years (1st January, 1977 to 31st December, 1979). Meetings planned — Winter 1977-1978, Winter 1978-1979.

4. Results

The results of these co-operative activities will be:

- (a) A report prepared according to a recommended format on the results of R & D programmes on solar heating and cooling systems components in all Participating Countries;
- (b) A report on the results of the exchange of researchers, materials and instruments;
- (c) A report on the principal features of governmental R & D plans on solar heating and cooling components in Participating Countries.

Each Participant will be entitled to receive a copy of each of the reports on the results of the co-operative activities in this Task.

5. Responsibilities of Operating Agent

In addition to the responsibilities described in paragraph 2 above, the Operating Agent will be responsible for the overall management of this Annex and for implementing actions required by the Executive Committee.

6. Budget

- (a) Each Participant will bear its own costs in carrying out the Task including costs of reporting and travel expenses or representatives.
- (b) The cost of meeting organisation shall be borne by the host country.

(c) Participation in this Annex is expected to involve an annual level of effort of about $\frac{1}{2}$ person year for each Participant.

7. *Operating Agent*

(Japan)

8. *Participants in this Task*

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

EE

Annex III

PERFORMANCE TESTING OF SOLAR COLLECTORS

1. *Objectives of Task*

The objectives of this Task are to develop and utilise standard test procedures to rate the performance of a broad class of collectors for use in heating and cooling systems. (These performance test procedures should allow not only for the determination of thermal performance, but also reliability and durability of solar collectors.)

2. *Means*

The following steps will be undertaken in order to accomplish the foregoing objectives:

(a) Standard Test Procedures to Determine Thermal Performance

The Participants in this Task (the "Participants") will develop and use test procedures to determine outdoor thermal performance using the NBS-74-635 standard as initial reference. In this connection, the Participants will specify and procure test collectors for comparative tests of the various methods. Advantageous modifications will be developed and experimentally proven. The Participants will send their results to the Operating Agent, who will compile and distribute these results to the Participants. The Participants will review the compilation and decide on test procedures to be recommended for use in the Participating Countries to determine thermal performance.

(b) Development of Reliability and Durability Test Procedures

The Participants will develop and use test procedures to determine reliability and durability using the proposed ASTM E-21.10 standard as an initial working basis. Advantageous modifications will be developed and experimentally proven. The Participants will send their results to the Operating Agent, who will compile and distribute these results to the Participants. The Participants will review the compilation and decide on test procedures to be recommended for use in the Participating Countries to determine integrity and durability.

(c) Investigation of the Potential of Solar Simulators

Participants whose governments engage in solar simulator work from which they obtain information will perform tests to determine the suitability of their simulator for collector thermal performance evaluation. These tests will include at least the test collectors, and the results of these tests will be compared with data obtained by outdoor measurements. These Participants will send to the Operating Agent the following information:

- (1) Characteristics of the simulator facility;
- (2) Test procedure used;
- (3) Results of these test procedures; and
- (4) Comparison with outdoor results on the same collector.

The Operating Agent will compile and distribute a report.

3. *Time Schedule*

Three years (1st January, 1977 to 31st December, 1979). Meetings planned —Spring 1978, Summer 1979.

4. *Results*

The results of these co-operative activities will be:

- (a) A comprehensive body of performance data on a wide variety of solar collector designs;
- (b) A set of recommended test procedure standards including detailed information on various test methods, definition of terms, nomenclatures and reporting format; and
- (c) An evaluation of solar simulator testing.

Each Participant will be entitled to receive a copy of each of the reports on the results of the co-operative activities in this Task.

5. *Responsibilities of Operating Agent*

In addition to the responsibilities described in paragraph 2 above, the Operating Agent will be responsible for the overall management of this Annex and for implementing actions required by the Executive Committee.

6. *Budget*

- (a) Each Participant will bear its own costs in carrying out the Task, including costs of calculating, reporting and travel expenses of representatives.
- (b) The cost of meeting organisation shall be borne by the host country.
- (c) Participation in this Annex is expected to involve an annual level of about $\frac{1}{2}$ to 3 person years for each Participant, depending on national programmes and availability of solar simulators.

7. *Operating Agent*

Kernforschungsanlage Jülich G.m.b.H., Germany.

8. *Participants in this Task*

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

85.

Annex IV

DEVELOPMENT OF AN INSOLATION (SOLAR RADIATION) HANDBOOK AND INSTRUMENTATION PACKAGE

1. *Objective of Task*

The objective of this Task is to enable Participants in the Task ("Participants") to obtain improved basic information for the design and operation of solar heating and cooling systems through a better understanding of the required insolation (solar radiation) and related weather input data, and through improved standard techniques for the measurement and evaluation of such data.

2. *Means*

The following steps will be undertaken in order to accomplish the foregoing objective:

Insolation Handbook

- (a) The Participants will complete a survey of insolation (solar radiation) and related weather measurement required in their own country, and prepare recommendations for material to be included in the insolation (solar radiation) Handbook, which will include information on:
 - (1) Solar geometry and solar constants;
 - (2) Terrestrial spectrum measurement;
 - (3) Measurement of direct, global, diffuse and incline solar radiation;
 - (4) Duration of sunshine;
 - (5) Measurement of other meteorological data such as humidity, wind velocity and air temperature;
 - (6) Survey of available instruments for the measurement of meteorological data;
 - (7) Examples for the use of meteorological data for design and operation of solar energy facilities.
- (b) The Operating Agent will collate the foregoing material and print the Handbook.

Instrumentation Package

The Participants will each:

- (c) Compile a set of performance specifications for a set or "package" of instruments, to carry out measurements of:
 - (1) Direct radiation;
 - (2) Global radiation;
 - (3) Total of incline radiation;
 - (4) Incoming radiation;
 - (5) Air temperature;
 - (6) Wind speed and direction of wind.
- (d) Endeavour to construct an instrumentation package at a cost of up to \$20,000-\$30,000 and engage with other Participants in a joint programme of testing and evaluation; and
- (e) Propose a recommended design for a standard insolation (solar radiation) measurement package.

3. Time Schedule

Three years (1st January, 1977 to 31st December, 1979). Annual meetings planned for 1977, 1978, 1979.

4. Results

The results of these co-operative activities will be:

- (a) A Handbook on Insolation (solar radiation) and Related Weather Measurements.
- (b) A report prepared by the Operating Agent containing a set of recommendations pertaining to the design and use of a low-cost insolation and related weather data instrumentation package, to be used for measurement at the site of a solar energy system, both prior and during its operation.

Each Participant will be entitled to receive a copy of the Handbook and the report on the results of the co-operative activities in this Task.

5. Responsibilities of Operating Agent

In addition to the responsibilities described in paragraph 2 above, the Operating Agent will be responsible for the overall management of this Annex and for implementing actions required by the Executive Committee.

6. *Budget*

- (a) Each Participant will bear its own costs in carrying out the Task, including costs of preparing contributions to the Insolation Handbook, time and material related to the design, building, testing and evaluation of the instrumentation packages, and travel expenses of representatives.
- (b) The Operating Agent will bear the cost of printing the Insolation Handbook.
- (c) The cost of meeting organisation shall be borne by the host country.
- (d) Participation in this Annex is expected to involve a level of effort of 1-2 person years.

7. *Operating Agent*

Energy Research and Development Administration, United States of America.

8. *Participants in this Task*

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

28

Annex V.

USE OF EXISTING METEOROLOGICAL INFORMATION
FOR SOLAR ENERGY APPLICATION

1. *Objectives of Task*

The objectives of this Task are to determine the quantitative relationship between measurements of solar radiation and other relevant meteorological parameters, and to develop an internationally uniform system of presentation of solar radiation data, in order to facilitate calculations for utilising solar energy.

2. *Means*

The following steps will be undertaken in order to accomplish the foregoing objectives:

(a) *Phase of Inventory*

The Participants in the Task ("Participants") will compile and submit to the Operating Agent inventories of:

- (1) Information on current measurements of solar radiation and relevant weather data, including number and location of measuring stations and description of measuring programmes;
- (2) Published and unpublished data concerning solar radiation and relevant weather data;
- (3) Current research concerning correlation between solar radiation and other meteorological parameters;
- (4) Applied methods of estimating solar radiation incident upon a horizontal or an inclined surface by means of solar radiation measurements or other relevant meteorological data;
- (5) Information from users on their needs of solar radiation data and relevant weather data (in co-operation with the Operating Agents of *Tasks I, II, III and IV*);
- (6) Information on desired accuracy and format of presentation of meteorological data in order to facilitate planning and design of buildings and equipment, utilising solar energy (in co-operation with the Operating Agents of *Tasks I, II, III and IV*).

(b) *Phase of Evaluation*

The Participants will evaluate and submit to the Operating Agent:

- (1) Solar radiation data and relevant meteorological data in view of the needs of users;
- (2) Methods of estimating solar radiation incident upon a horizontal or an inclined surface by means of solar radiation measurements or other relevant meteorological data.

(c) *Phase of Reporting*

The Participants will:

- (1) Develop and submit to the Operating Agent recommendations of an internationally uniform format for presentation of solar radiation data for users and designers of solar energy systems;
- (2) Collect, catalogue and submit to the Operating Agent sources of solar radiation data and relevant meteorological data for planning and design of buildings and equipment utilising solar energy;
- (3) Prepare and submit to the Operating Agent a report on methods of estimating solar radiation incident upon a horizontal or an inclined surface by means of meteorological data, with special regard to the requirements of the designers and the users of solar energy systems;
- (4) Prepare and submit to the Operating Agent recommendations concerning meteorological observation stations in order to improve their measurements of solar radiation, according to the needs of the users and designers of solar energy systems.

3. *Time Schedule*

Three years (1st January, 1977 to 31st December, 1979). Annual meetings are planned for 1977, 1978, 1979.

4. *Results*

It is intended that the results of these co-operative activities will be:

- (a) Improved availability of existing solar radiation data and relevant meteorological data for solar energy application;
- (b) Improved methods of estimating solar radiation for solar energy application;
- (c) Uniform methods of presentation of meteorological data for solar energy application;
- (d) Enhanced performance of existing meteorological observation stations.

Each Participant will be entitled to receive a copy of each of the reports on the results of the co-operative activities in this Task.

5. *Responsibilities of Operating Agent*

In addition to the responsibilities described in paragraph 2 above, the Operating Agent will be responsible for the overall management of this Annex and for implementing actions required by the Executive Committee.

6. *Budget*

- (a) Each Participant will bear its own costs in carrying out the Task, including costs of preparing and evaluating contributions to the inventory of information and travel expenses of representatives.
- (b) The cost of meeting organisation shall be borne by the host country.
- (c) Participation in this Annex is expected to involve a level of effort of 1-2 person years for each Participant.

7. *Operating Agent*

Swedish Building Research Council, Sweden.

8. *Participants in this Task*

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

x 31

DRAFT COUNCIL DECISION ISSUING A DIRECTIVE TO THE
COMMISSION ON PARTICIPATION BY THE EAEC IN AN R&D
AGREEMENT IN THE FIELD OF HYDROGEN PRODUCTION PRE-
PARED UNDER THE AUSPICES OF THE INTERNATIONAL
ENERGY AGENCY (OECD)

The Council of the European Communities,

Having regard to the Treaty establishing the European Atomic Energy Community (EAEC), and in particular the second paragraph of Article 101 thereof,

Having regard to the draft prepared by the Commission,

Whereas the International Energy Agency (IEA), established on 15 November 1974 by decision of the OECD Council and forming an autonomous body within that Organization, approved on 25 July 1975, by decision of its Governing Board "Guiding Principles" in the field of energy research and development,

Whereas on the same date, the Governing Board of the IEA approved in particular :

- a programme for co-operation in the field of hydrogen production,

Whereas, pursuant to article 4 (c) of the aforementioned "Guiding Principles", the European Communities may take part in any co-operative R & D programme or project initiated under the auspices of the IEA,

Whereas, an exchange of letters was effected between the EEC and EAEC on the one hand and the IEA on the other, on the 24 June 1976 and 6 July 1976 respectively, stating

- on the one hand, that the EEC and EAEC intend to co-operate with the IEA in research and development when such co-operation is likely to contribute towards the attainment of the research and development objectives of the Community in the field of energy.

This co-operation can be achieved through Community participation in the programmes and projects of the IEA. In particular, the Commission of the European Communities shall negotiate, on a

case by case basis, "Implementing Agreements" in accordance with the provisions of the Treaties establishing the European Communities;

- and on the other, that the IEA notes this intention and confirms that such participation is open to the European Communities,

Whereas, under the auspices of the IEA, a draft Implementing Agreement for a Programme of Research and Development on the Production of Hydrogen from Water, has been prepared;

Whereas, by Council decision on a multiannual Research Programme of the Joint Research Centre 1977-80 which includes projects in the hydrogen field was adopted (direct action) (Official Journal);

HAS DECIDED AS FOLLOWS :

Sole Article

The Commission shall negotiate the participation of the EAEC in the Implementing Agreement for a programme of R & D on the production of hydrogen from water and its participation in the tasks set out in

- Annex I : Chemical engineering evaluations of thermochemical processes
- Annex II : High Temperature Reactor (HTR) - Thermochemical Plant (TCP) Interface.

ANNEX D

DRAFT COUNCIL DECISION APPROVING THE CONCLUSION OF :

the Implementing Agreement for a Programme of Research and Development on the Production of Hydrogen from Water, and Annexes I, II.

The Council of the European Communities,

Having regard to the Treaty establishing the European Atomic Energy Community, and in particular the second paragraph of Article 101 thereof,

Having regard to the draft prepared by the Commission,

Having regard to the exchange of letters between the Commission of the European Communities and the IEA stating the intention of the European Communities to participate in certain research and development agreements prepared under the auspices of the IEA.

Whereas the Commission has negotiated its participation in accordance with the Council's directive of, in the Implementing Agreement for a Programme for Research and Development on the Production of Hydrogen from Water and its participation in the tasks set out in

- Annex I : Chemical engineering evaluations of thermochemical processes
- Annex II: High Temperature Reactor (HTR)-Thermochemical Plant (TCP) Interface,

which have been prepared under the auspices of the International Energy Agency,

Whereas, the EAEC should, when appropriate, establish with third countries, international organizations or nationals of third countries all forms of co-operation likely to avoid unnecessary duplication and to speed up the progress of Community programmes in this field.

Whereas, the conclusion of the Implementing Agreement on a Programme for Research and Development on the Production of Hydrogen from Water should be approved;

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HAS DECIDED AS FOLLOWS :

Sole Article

The conclusion of the Implementing Agreement for a Programme of Research and Development on the Production of Hydrogen from Water including the tasks set out in

- Annex I : Chemical engineering evaluations of thermochemical processes
- Annex II : High Temperature Reactor (HTR)-Thermochemical Plant (TCP) Interface

is approved.