

COMMISSION OF THE EUROPEAN COMMUNITIES

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SERIALS UNIT

PARTICIPATION OF THE COMMISSION ON BEHALF OF THE
COMMUNITY IN ANNEX VI OF THE IEA IMPLEMENTING AGREEMENT
FOR A PROGRAMME OF RESEARCH AND DEVELOPMENT
IN HYDROGEN PRODUCTION FROM WATER

(Communication from the Commission to the Council)

COM(80) 156 final

1

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL

1. On June 24 and on July 6, 1976, an agreement in the form of an exchange of letters was concluded between the European Atomic Energy Community (Euratom) and the European Economic Community on the one hand and the International Energy Agency (IEA) on the other relating to cooperation in the field of Energy Research and Development.

According to the exchange of letters, the European Communities indicated their intention to negotiate, on a case by case basis, their participation in such "Implementing Agreements" prepared within the framework of the IEA as would contribute to the attainment of the research and development objectives of the Community. For its part, the IEA took note of this intention and confirmed that such participation is open to the European Community.

2. In application of this exchange of letters eight Implementing agreements have been concluded which have provided an "umbrella" framework setting forth rules for the execution of a number of R & D "tasks" described in the annexes to each of the said Agreements. Whilst each participant when signing the agreement confirms its intention to participate in one or more tasks, provisions for the development of additional tasks, according to a procedure set out in Article 2(b) of the Implementing Agreement, are also specified.
3. One of these implementing agreements concerns a programme of research and development in the production of hydrogen from water. This contained three "task" annexes and was signed by the Community on 7 October 1977.
4. More recently the Commission on behalf of the Community decided to participate in two additional tasks of the implementing agreement on hydrogen (referred as Annexes IV and V) and after informing the Council (1) confirmed its participation on the 6 March 1979.
5. In the attached document the Council will find an additional task (referred to as Annex VI), the objective of which is :
 - to perform basic and applied research for the production of hydrogen through photocatalytic water electrolysis.
6. The Commission considers a Community participation in Annex VI is justified for the following reasons.

Within the programme of R & D in Hydrogen use and production those aspects dealing with electrolysis are an important element in the Community's search for new energy technologies.

Annex VI is similarly concerned with research in photocatalytic water electrolysis which not only complements that being done in Community's own programme but in the development and subsequent evaluation of basic technological elements such as electrodes and electrolytes, makes available a range of additional research material useful in furthering the research objectives of the Community. Apart from the Community, participants in Annex VI are Belgium which is the lead country, Canada, the Netherlands, Sweden and the US.

7. As concerns those aspects dealing with information and intellectual property, the Commission notes that the provisions agreed for Annex VI are identical to those agreed for Annexes IV and V and are therefore acceptable.

In effect they provide that for information arising from the cooperation envisaged in the annex, nationals from all member states, as a result of the Commission's participation, will be entitled to obtain such licences for inventions and proprietary information. However, as concerns pre-existing information and in order to ensure a balance between benefits and obligations, nationals of non participating member states of the Community will only be able to obtain pre-existing information on the condition that they are also prepared to exchange their own pre-existing information, a condition which has been agreed for all participants to the annex, including those member states of the Community who participate in their own right.

Finally it has been recognized that the Commission's purpose in participating in this annex is undertaken in order to benefit the Community as a whole and is unrelated to any particular benefits acquired by individual member states of the Community who make their own direct contribution to the annex.

8. As concerns the financial aspect the contribution of each participant to Annex VI is in the form of a task, the cost of which is borne by the participants themselves. The Community contribution which is non nuclear will be work included already in the Joint Research Centre's solar energy programme and the level of effort contributed to Annex VI is calculated to be 2 man years per year. In the first phase basic and applied studies will be carried out over a three year period. A second phase of evaluation and laboratory models will be left to decision of the Executive Committee set up under the Agreement at the end of that period.
9. An opinion on Community participation was requested from the Advisory Committee for Programme Management (ACPM) for Hydrogen. A favourable opinion was given with the provision that since the JRC contribution would be through its solar energy programme the ACPM for solar energy was also to be consulted.

This was done and favourable opinion from the solar energy ACPM to Community participation was obtained at its meeting on 13 December 1979.

10. The Commission has now completed its negotiations on Annex VI but before concluding its participation it proposes, as it has done on previous occasions, to inform the Council beforehand.
11. Consequently the Commission informs the Council of its intention to participate in the additional task referred to as Annex VI specified for the Implementing Agreement for a programme of R & D in the production of Hydrogen from water.

PHOTOCATALYTIC WATER ELECTROLYSIS1. OBJECTIVES

The objective of this Task is to perform basic and applied research for the production of hydrogen through photocatalytic water electrolysis, and to develop basic technological elements such as electrodes and electrolytes for such production of hydrogen, and to evaluate the performance of those elements in laboratory scaled models.

2. MEANS

(a) This Task will be carried out in two Phases:

Phase 1

Subtask A: Basic studies on "photo-electrochemistry":

- semi-conductor bulk properties
- semi-conductor - electrolyte interphase
- electrolytes

e.g.: doping, sensitization, coatings, hybrid cells, hetero-junctions

Subtask B: Applied studies

- stability : resistance against photodecomposition
- spectral response and efficiency
- material selection : composition and form
- theoretical models

Phase 2

Subtask C: Assessment

- construction of laboratory scale working models
- technical evaluation

(b) For Phase 1, the level of effort in man years for each Participant is shown in the Table below.

Based upon the results of Phase 1, the Executive Committee, acting by unanimity will decide whether or not to proceed to Phase 2. If a decision is made to proceed to Phase 2, the projected level of effort for each Participant, as shown in the Table below, will be re-assessed by the Executive Committee.

TABLE

COUNTRIES PARTICIPATION IN THE PHOTOCATALYTIC
WATER ELECTROLYSIS PROGRAMME

	<u>Phase 1</u>		<u>Phase 2</u>	Total Net Man Years/ Year
	A	B	C (projected level of effort)	
Belgium				2
Canada				
CEC				3
Netherlands				2
Sweden				1-2
Switzerland				2
U.S.A.				6

(c) Within the first year of the implementation of this Annex, each Participant will provide to the Operating Agent publications in its possession which are relevant to the objectives of this Task.

Each Participant will also provide to the Operating Agent copies of such internal reports and working papers resulting from the work outlined in paragraph 2(a) as may be of interest to the other Participants.

Each Participant will prepare an annual progress report on its work underway and, by 31st December each year, submit its report to the Operating Agent.

(d) The Operating Agent will compile and submit to the Executive Committee a work programme for the first year. The Executive Committee, acting by unanimity, shall approve a work programme for the first year, no later than three months after signature of this Annex. The work programme will outline the respective contributions of each Participant for accomplishing the objectives of the Task.

(e) The Operating Agent will organize a workshop at the beginning of the first year to define the work programme. At the end of the first and second years, a workshop will be held to discuss progress reports and to formulate the next year's detailed work programme. Organization of the workshop shall be the responsibility of the Operating Agent.

(f) Each Participant will designate a person to be available to the Operating Agent as the technical contact point for each of the Subtasks undertaken by the Participants pursuant to paragraph 2(a).

(g) Exchange of researchers between the Participants is anticipated. The initiation of such exchanges will be left to the interested experts of the Participants under detailed arrangements to be agreed upon between the Participants concerned. 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.

3. TIME SCHEDULE

This is envisaged as a five-year programme divided into two Phases, beginning on 1st September, 1979. The duration of Phase 1 will be three years. If the Executive Committee decides to proceed to Phase 2, in accordance with paragraph 2(b), the duration of that Phase will be two years.

4. RESULTS

The results of these co-operative activities will be:

(a) Copies of all publications, internal reports and working papers which have been submitted to the Operating Agent in accordance with paragraph 2(c) will be compiled and distributed by the Operating Agent to all Participants on a regular basis.

- 7-
- (b) At the end of each year and prior to the annual workshop, the Operating Agent will reproduce, collate, and distribute to all Participants, copies of the annual progress reports prepared by each Participant; such reports will then be used as a basis for discussion at the workshops.
 - (c) A final report will be prepared by the Operating Agent.

5. RESPONSIBILITIES OF THE OPERATING AGENT

In addition to the responsibilities described in paragraphs 2 and 4 above, the Operating Agent will be responsible for the overall management of this Task 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 of representatives.
- (b) The cost of meeting organization shall be borne by the host country.

7. OPERATING AGENT

The Katholieke Universiteit Leuven (Belgium)

8. 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 Annex shall be determined by the Executive Committee acting by unanimity, in conformity with this Agreement.

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

(c) *Proprietary Information.* The Annex VI Participants and the Operating Agent shall take all necessary measures in accordance with this paragraph, the laws of their respective countries and international law to protect proprietary information, provided to or arising from the programme. For the purpose of this paragraph 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 treatment) 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 obligations concerning its confidentiality; and
- (3) Is not already in the possession of the recipient Annex VI Participant without obligation concerning its confidentiality.

It shall be the responsibility of each Annex VI Participant supplying proprietary information and of the Operating Agent in respect of the arising proprietary information to identify the information as such and to ensure that it is properly marked.

(d) *Identification of Information by Governments.* The Operating Agent shall encourage the governments of all Agency Participating Countries to make available or identify to the Operating Agent all published or otherwise freely available information known to them that is relevant to the Task.

(e) *Identification of Information by Participants.* The Annex VI Participants shall identify to the Operating Agent all pre-existing information, and information developed independently of their undertakings in Annex VI, known to the Annex VI Participants which is relevant to the Task and which:

- (1) Can be made available to the Task without contractual or legal limitations.
- (2) Will or can only be made available to the Task with contractual or legal limitations.

(f) *Reports on Work Performed under the Task.* The Operating Agent shall provide reports on all work performed under this Task and the results thereof, other than proprietary information, to the Executive Committee.

9

(g) *Arising Inventions.* Inventions made or conceived in the course of or under this Task (arising inventions) shall be owned in all countries by the inventing Annex VI Participant. Information regarding inventions on which patent protection is to be obtained by an Annex VI Participant shall not be published or publicly disclosed by the other Annex VI Participant until a patent application has been filed, provided, however, that this restriction on publication or distribution shall not be extended beyond six months from the date of receipt of such information. It shall be the responsibility of the inventing Annex VI Participant or of the Operating Agent to appropriately mark reports which disclose inventions which have not been appropriately protected by the filing of a patent application.

(h) *License of Proprietary Information and Patents Needed for Task.* Each Annex VI Participant agrees to license all pre-existing proprietary information and pre-existing patents solely owned or controlled by it which are necessary for use in the Task, and all arising proprietary information and inventions covered by patents to any other Annex VI Participant for use in its undertakings in Annex VI only at no cost to the other Participant. If such proprietary information or patents are partially owned or controlled by an Annex VI Participant, then efforts shall be made by the Annex IV Participant to reduce or eliminate as far as possible the benefits that might accrue to it.

(i) *License of Proprietary Information and Patents for Other Reasons.* Each Annex VI Participant agrees to license all pre-existing proprietary information and patents solely owned or controlled by it which are necessary for practising the results of the undertakings in Annex VI and which have been utilized in the Task, and all arising proprietary information and inventions covered by patents to the other Annex VI Participants, their governments and the nationals of their respective countries designated by them on reasonable terms and conditions for use in all countries for hydrogen production.

The Annex VI Participants agree to license all arising proprietary information and inventions covered by patents to all Agency Participating Countries on reasonable terms and conditions for use in their own country in order to meet their energy needs.

(j) *Copyrights.* Each Annex VI Participant may and the Operating Agent shall take appropriate measures necessary to protect copyrightable material generated under the Task. Copyrights obtained shall be the property of the Annex VI Participant or the Operating Agent, provided, however, that other Annex VI Participants may reproduce and distribute such material but shall not publish it with a view to profit.

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

(1) *Determination of "National"*. The Executive Committee may establish guidelines to determine what constitutes a "national" of a Participant. In view of the participation of the Commission of the European Communities, any Member State of the European Communities which is not a Participant under this Annex VI shall be understood to be included as governments and countries in sub-paragraph (i) of this paragraph for purposes of entitlement to a license for arising proprietary information and inventions. Such Member State and its designated nationals who wish to avail themselves of a license for pre-existing proprietary information and patents under sub-paragraph (i) above may elect to do, but must make available at the time of election their proprietary information and patents developed under their programmes which are useful in practicing the Task results under the terms and conditions stated in sub-paragraph (i) above to Annex VI Participants, their governments and the nationals of their respective countries designated by them.

PARTICIPANTS IN THIS ANNEX

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

- /Belgium/
- /Canada/
- /CEC/
- /Netherlands/
- /Sweden/
- /Switzerland/
- /USA/