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# European Communities

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## EUROPEAN PARLIAMENT

# Working Documents

### 1978 - 1979

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31 October 1978

DOCUMENT 411/78

## Report

drawn up on behalf of the Committee on Energy and Research

on the proposal from the Commission of the European Communities to the Council (Doc. 124/78) for a decision adopting a programme of research for the European Atomic Energy Community on safety in thermal water reactors (indirect nuclear action)

Rapporteur: Mr P. VERONESI

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By letter of 10 May 1978 the Secretary-General of the Council of the European Communities requested the European Parliament to deliver an opinion on the proposal from the Commission of the European Communities to the Council for a decision adopting a programme of research for the European Atomic Energy Community on safety in thermal water reactors (indirect nuclear action).

On 26 May 1978 the President of the European Parliament referred this proposal to the Committee on Energy and Research as the committee responsible and to the Committee on Budgets and the Committee on the Environment, Public Health and Consumer Protection for their opinions.

On 23 June 1978 the Committee on Energy and Research appointed Mr Veronesi rapporteur.

It considered the proposal at its meetings of 23 June 1978, 18 September 1978 and 19 October 1978 and at the last-mentioned meeting unanimously adopted the motion for a resolution and the explanatory statement with two abstentions.

Present: Mrs Walz, chairman and deputy rapporteur; Mr Flämig, vice-chairman; Mr Brown, Mr Fuchs, Mr Holst, Mr Lamberts, Mr Leonardi, Mr Mitchell, Mr Noè and Mr Osborn.

The opinions of the Committee on Budgets and the Committee on the Environment, Public Health and Consumer Protection are attached.

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The Committee on Energy and Research hereby submits to the European Parliament the following motion for a resolution, together with explanatory statement:

MOTION FOR A RESOLUTION

embodying the opinion of the European Parliament on the proposal from the Commission of the European Communities to the Council for a decision adopting a programme of research for the European Atomic Energy Community on safety in thermal water reactors (indirect nuclear action)

The European Parliament,

- having regard to the proposal from the Commission of the European Communities to the Council<sup>1</sup>,
  - having been consulted by the Council (Doc. 124/78),
  - having regard to the report of the Committee on Energy and Research and the opinions of the Committee on Budgets and the Committee on the Environment, Public Health and Consumer Protection (Doc. 411/78),
  - referring to the Council Resolution of 22 July 1975<sup>2</sup> on the technological problems of nuclear safety,
  - recalling its previous resolutions in which it stressed the need for the Community to adopt a policy on research into the safety of nuclear plants and in particular the Report by Mr Willi MÜLLER (Doc. 49/75),
1. Agrees on the enormous political, environmental and economic importance of safety problems in the management of nuclear plant for the production of electrical energy;
  2. Approves the proposed method of implementation through indirect action on the basis of contracts;
  3. Recommends systematic links and close harmonization between the indirect action programme and the direct action programme already under way, to ensure that the programmes are coordinated and complementary;

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<sup>1</sup> OJ No C 146, 21.6.1978, p.2

<sup>2</sup> OJ No C 185, 14.8.1975, p.1

4. Recommends further that the choice and financing of specific research contracts be based on an objective evaluation of priorities, avoiding too broad a spread of support for isolated and unproductive activities;
5. Insists that the closest possible cooperation be maintained between the various centres involved in the research and requests the Commission to explore the possibilities for concerted research and development with other nations known to be supporting work in this field;
6. Calls for the widest possible exchange of information within the Community on the progress and results of research;
7. Welcomes the role conferred by the Commission on the Advisory Committee on Management of the programme on reactor safety, which will allow a more direct link between direct and indirect action;
8. Approves the Commission's proposal subject to the insertion of the following amendment pursuant to the second paragraph of Article 119 of the EAEC Treaty, and calls upon the Council to adopt the programme as soon as possible so that it may get under way by 1979.

Council decision adopting a programme  
of research for the European Atomic  
Energy Community on safety in thermal  
water reactors (indirect nuclear action)

Preamble, recitals and Article 1 unchanged

Article 2

For implementation of this programme,  
the amount of the expenditure  
commitments is estimated to be  
8,800,000 EUA and the Commission staff  
shall be five persons.

Article 2

The upper limit for the expenditure  
necessary for the implementation of  
this programme is estimated at  
8,800,000 EUA, as defined in  
Article 10 of the Financial  
Regulation of 21 December 1977, and  
the number of staff is estimated at  
five. These figures are intended  
simply as guidelines.

Articles 3 and 4 unchanged

<sup>1</sup> For the complete text see OJ No C 146, 21.6.1978, p.2

EXPLANATORY STATEMENTI. Introduction

1. On 24 April 1978, the Commission submitted to the Council two proposals for indirect research actions to be carried out over a five-year period subject to review, if necessary, after an initial two-year period.

These programmes cover safety in thermal water reactors and the decommissioning and dismantling of nuclear power stations.

2. The proposal for a decision before the European Parliament is aimed at promoting Community projects on water reactors (essentially for Light Water Reactors (LWR) but possibly also for Heavy Water Pressure Tube Reactors (PTR) used for the production of electricity from nuclear energy.

The programme proposed by the Commission (COM(78) 166 final) concerns this specific type of reactor but much of the work planned will also be valid for other types of nuclear plant.

3. This programme is a response to the Council Resolution of 22 July 1975<sup>1</sup>, on the technological problems of nuclear safety (see report by Mr Willi MÜLLER, Doc. 49/75).

4. The Commission has already taken a number of measures since the beginning of 1973 including the setting up of two Community working groups including representatives of the various national inspection and safety authorities, electricity producer organizations and constructors of nuclear stations.

The work of the first group covered harmonization of methodology and safety criteria and that of the second group research into water reactors.

5. The Council resolution proposed strengthening and intensifying the Commission's action; the Council therefore first of all expressed its agreement to the course of action in stages indicated by the Commission in respect of the progressive harmonization of safety requirements and criteria in order to provide an equivalent and satisfactory degree of protection of the population and of the environment against the risks of radiation resulting from nuclear activities.

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<sup>1</sup> OJ No C 185, 14.8.1975, p.1

6. The Council also agreed to strengthen Community efforts to coordinate applied research programmes in order to make the best possible use of available resources, to avoid as far as possible unnecessary duplication and to stimulate where appropriate the development of Community programmes.

Lastly, it asked the Member States to seek common positions on any problems concerning the harmonization of requirements and criteria and the coordination of research into nuclear safety being dealt with by international organizations.

7. The Council resolution gave further impetus to the work of the two groups mentioned in paragraph 4 above.

## II. The Research Programme

8. The Commission programme before us is based on the work of the second group; it is intended to be complementary to and to improve and increase knowledge deriving from research carried out by the Community in the Joint Research Centre (indirect action), the Member States, and the nuclear advanced countries outside the Community (USA, Japan and Sweden).

9. Thermal water reactors are known to have achieved a satisfactory degree of reliability. Most of the reactors in the world, at present fully operational, are of this kind. Careful design, meticulous construction and attention to every detail of the safety arrangements have built up a vast amount of experience of this kind of reactor and led to an almost total absence of incidents of any importance.

For these reasons one talks of 'proven' reactors meaning that these plants offer safety guarantees based on long and extensive experience.

10. This does not, however, detract from the importance and value of further safety research. This is needed for a number of reasons:

- (a) to satisfy the legitimate demands for greater reassurance for the public, which is seriously concerned about new energy-producing plant, as manifested during public debates on nuclear energy;
- (b) to satisfy a question of principle: no scientific or technological obstacle can be considered insuperable except in a 'static' or unscientific view of technology;

(c) to respect the general rule of all productive activity, the ever present need to seek the best results at the lowest cost.

11. The choice of priority research topics which the Commission has made appears a valid one. These topics are:

- (a) the loss of coolant accident (LOCA) and subsequent correct functioning and effect of the emergency core cooling system (ECCS); this is primarily a thermal and hydraulic study of the core in accident conditions;
- (b) the protection of nuclear installations against gas cloud explosions;
- (c) the escape of radioactive fission products and dispersion in the atmosphere following a reactor accident.

12. The intention of the Commission is that work on these topics can each be carried out, in parallel, with joint financing, at a number of specialized organizations in the Member States which already have the experimental plant necessary and will work in close cooperation.

13. The research on the programme to be carried out in cooperation with the organizations in the Member States of the Community will be organized in the following way:

- (a) an overall contribution by the Community of 8.8 million u.a.;
- (b) the programme to last five years;
- (c) implementation through research contracts (indirect action);
- (d) application to the new programme of the powers of the Advisory Committee on Management of the direct action programme on reactor safety research at present operating at the Joint Research Centre.

### III. Conclusions

14. The research programme proposed by the Commission meets a real technological, political and economic need and falls within the framework of the measures taken by the Community to improve understanding of phenomena affecting the safety of plants, a subject of vital importance to the future role of nuclear energy.

15. This is particularly true in that it is generally recognized that there are no medium- or long-term substitutes for nuclear energy.

16. Our committee therefore recommends approval of the research programme and the Commission's proposal for a decision on the adoption of the programme.

OPINION OF THE COMMITTEE ON BUDGETS

Letter from the chairman of the committee to Mrs WALZ, chairman of the Committee on Energy and Research

26 September 1978

Dear Mrs Walz,

At its meeting of 20/21 September 1978 the Committee on Budgets adopted an opinion on this Commission proposal. It requests the committee responsible to propose, in the text it is to submit to Parliament, the deletion of Article 2 of the enacting terms, which specifies the necessary expenditure commitments.

The Committee on Budgets bases this request on the view it has consistently held that the inclusion of appropriations in legislative texts such as regulations constitutes a definite infringement of Parliament's powers and that all financial decisions must be taken by the budgetary authority during the procedure for the adoption of the annual budget of the Communities.

Furthermore, it goes without saying that the analysis of the financial implications annexed to the proposal can be no more than a rough guide.

Yours sincerely,

(sgd) Erwin LANGE

Present: Mr Lange, chairman; Mr Aigner, vice-chairman; Mr Alber, Lord Bessborough, Mr Dalyell, Mr Müller, Mr Nielsen (deputizing for Mr Caillavet), Mr Notenboom, Mr Schreiber, Mr Shaw, Mr Spinelli and Mr Würtz

OPINION OF THE COMMITTEE ON THE ENVIRONMENT,  
PUBLIC HEALTH AND CONSUMER PROTECTION

Draftsman: Mr R.W. BROWN

On 22 May 1978 the Committee on the Environment, Public Health and Consumer Protection appointed Mr R.W. Brown draftsman.

At its meeting of 19 October 1978 the committee considered and unanimously adopted the draft opinion.

Present: Mrs Krouwel-Vlam, chairman; Mr Jahn, vice-chairman; Mr Brown, draftsman; Mr Adams, Mr Andersen, Mr Granet, Mr Lamberts, Mr Ney and Mrs Squarcialupi.

## I. INTRODUCTION

1. The Community's current reactor safety programme is set out in the pluriannual programme of the Joint Research Centre (JRC) for 1977-1980. It includes work on Light Water Reactors (LWR) and Liquid Metal Fast Breeder Reactors (LMFBR). This work is being carried out in direct action by the JRC in Ispra.
2. The supplementary programme proposed here is intended to supplement the research in Light Water Reactors which is being carried out at Ispra. This supplementary research should be carried out in indirect action in the countries of the Community. The projects are to be carried out with the financial participation of the Community.
3. The proposed duration of the programme is 5 years. The Community's contribution to the cost of the project will be 7,005,000 EUA, and the staff costs and administrative expenses are estimated at 1,795,000 EUA.

## II. The aims and emphasis of the research programme

4. The research programme aims to make nuclear reactors safer. By way of comment on this general aim, the Committee on the Environment can only repeat what it has always stressed, namely that it welcomes in general any programme and action, on a national or Community basis, which improves reactor safety and keeps exposure to radiation of personnel and the public as a whole within closely defined and controlled limits. This point was made in the Committee's Report of 21 April 1975 on technical problems of nuclear safety (Doc. 49/75).
5. The programme will concentrate on Light Water Reactors, but findings will be relevant to Heavy Water Pressure Tube Reactors. Such an emphasis seems necessary because the Light Water Reactor largely dominates the reactor market at the present time.

## III. Research topics

Topic 1: The loss of coolant accident (LOCA) and subsequent functioning of the emergency core cooling system (ECCS)

6. The first part of this topic (blowdown) is related to the 1977-1980 direct action programme of the JRC. The Commission's justification for a supplementary project is that a number of phenomena are still to be analysed and specified during the subsequent stages of a LOCA (functioning and effect of the emergency cooling system).

7. It is right that this should be the main topic of the research programme. One of the most serious types of accident that could occur in Light Water Reactors would seem to result from a sudden loss of coolant to the reactor core, particularly in Pressurised Water Reactors (PWR's). Hitherto, the acceptance of safety in regard to a LOCA has relied upon theoretical mathematical models but clearly, in the light of subsequent experimental investigations, practical tests have to be made.

Topic 2: The protection of nuclear installations against gas cloud explosions.

8. In 1975 there were 156 nuclear power stations in commission throughout the world. A further 358 were under construction or on order. The protection of the exterior of nuclear power stations is becoming increasingly important. The risks to nuclear power stations from an outside explosion resulting from a disaster in the vicinity of a nuclear plant must be reduced and the damage should be calculable.

Topic 3: The escape of radioactive fission products and dispersion in the atmosphere following a reactor accident

9. The suggested programme consists of initial theoretical and subsequent experimental work on the escape of radioactive fission products and dispersion in the atmosphere following a reactor accident. In view of the highly controversial discussion about the dimension and the quality of danger in case of a reactor accident, the approach of the Commission seems more than justified. The extent to which opinions on this differ, even among experts, has been shown by Professor Norman Rasmussen's 'Reactor Safety Study' which has been held up by nuclear power plant manufacturers as a standard work and seen by its opponents as the centrepiece of a large-scale campaign of appeasement. Your Draftsman has been a constant critic of Rasmussen's evaluation and the Commission must be asked to give its latest opinion of the validity of Rasmussen.

#### IV CONCLUSIONS

10. In the opinion of the committee, the Commission has selected three of the most important topics for further investigation into LWR safety and has correctly put the major emphasis on loss of coolant accidents (LOCA). It seems strange, however, that a decision was taken to give safety clearance for LWR's before this major piece of research was undertaken in a practical, rather than in a theoretical, manner

11. The committee approves the proposed research programme. It urges the Committee on Energy to vigilantly monitor the implementation of the programme since clearly this has very serious implications, particularly in the Federal Republic, France and Belgium, which have already embarked upon a massive programme of PWR construction.