EUROPEAN
COMMISSION

Brussels, 19.1.2016
COM(2016) 5 final

ANNEX 1

ANNEX

Specific Recommendations of the Indirect Actions of Euratom FP7 and the Commission's Response

to the

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF REGIONS

On the Response to the Report of the High Level Expert Group on the Ex-Post Evaluation of the Seventh Framework Programme

{SWD(2016) 1 final}
{SWD(2016) 2 final}

SPECIFIC RECOMMENDATIONS ON THE INDIRECT ACTIONS OF EURATOM FP7 AND THE COMMISSION'S RESPONSE[1]

Recommendations concerning rationale: *Synergies should be identified between fission and fusion research, and continuity should be ensured between short-term objectives and long-term nuclear research goals. The Commission should focus research on the most promising advanced nuclear technologies.*

The Commission agrees that synergies between fusion and fission research are increasing as fusion makes progress towards its ultimate aim of electricity generation. Important synergies exist in the fields of safety, materials, heat removal, and remote handling and modelling software, and further progress in these fields is needed on ITER and future demonstrators of fusion and fission technologies.

The Commission emphasises that bi-annual Euratom Work Programmes focus on implementing objectives set by the Council in the Euratom Research and Training Programme 2014-18, i.e. to improve nuclear safety, security and radiation protection, and to potentially contribute to the long-term decarbonisation of the energy system.

The Commission underlines that, in line with Council Regulation 1314/2013 establishing the Euratom Research and Training Programme 2014-2018, fission research must support the safe operation of existing and future reactor systems and fuel cycle facilities. This will help ensure that Member States maintain the highest standards of safety, security, waste management and non-proliferation. It will also help the EU maintain technological leadership in the nuclear domain, including through ITER, in order to ensure EU energy and technology independence.

In line with the recommendations concerning rationale, the Commission has already, in the Euratom Work Programme 2016-17, launched cross-cutting research topics in the fields of materials and tritium management.
Furthermore, the Commission will:
- Propose to expand this cross-cutting approach in subsequent Work Programmes, and encourage fission and fusion scientific communities to coordinate their research objectives and to produce research roadmaps for areas of common interest;
- Continue to encourage Member States and fission technology platforms to further develop their roadmaps and initiatives on European joint programmes, which will serve as important input into the definition of future Euratom priorities and thereby ensure progression between short-term objectives and long-term nuclear research goals;
- Continue supporting research on future generations of nuclear technologies in order to maintain nuclear safety expertise and related technological leadership.

Recommendations on implementation: *JET operation is considered one of the main Euratom contributions to ITER. Euratom should continue support for fission Technology Platforms, develop collaborations between nuclear and non-nuclear research and ensure regular updating of research roadmaps. Balance should be achieved between newcomers and established research stakeholders, and project application bureaucracy needs to be reduced.*

The Commission recognises that the JET facility is making a significant contribution to the success of ITER and therefore to attaining the ultimate goal of fusion electricity. Financing the operation and exploitation of JET is a major part of the Euratom Research and Training Programme 2014-2018. The possible financing of JET for the years 2019-2020 needs to be

[1] For a full list of 32 recommendations please refer to the Euratom High Level Panel report.

considered in the context of the Council Decision on the future Euratom research programme for these two years.

The Commission acknowledges that fission technology platforms play an indispensable role in attaining long-term research objectives and the development of European joint programming initiatives.

The Commission remains committed to maintaining scientific excellence as a key factor for granting support from the Euratom Programme. However, the Commission also observes disparities in the level of participation of Member States in the project proposals in the fission programme.

Joint research programmes should also support the transfer and dissemination of expertise. Such efforts reinforce EU excellence in fission-relevant applications, particularly in nuclear safety and radioactive waste management, while seeking new insights, for example from social science and humanities. Furthermore, research needs of new Member States are also addressed through specific research such as, for example, the safety of fuel diversification for VVER reactors.

Simplification measures introduced during Euratom FP7 have reduced the administrative burden for applicants and facilitated access to information in comparison with FP6.

In line with the recommendations concerning implementation, the Commission has already proposed, in 2014, ways to reduce the disparity in participation in the fission programme through the introduction of measures promoting the spreading of excellence and widening participation, based on the exchange of scientific staff, the sharing of equipment and support for the national contact points. Furthermore, the Commission will
- Consider the scientific contribution of JET to the success of ITER when preparing the proposal for the Euratom Programme 2019-20. The interim evaluation of the Euratom Research and Training Programme 2014-2018, carried out with the help of a panel of independent experts in 2016, will provide important input in this respect.
- Continue to cooperate closely with fission technology platforms, though financial support will be provided only on the basis of competitive calls and for specific activities such as the development of roadmaps and supporting collaboration between platforms to address cross-sectoral challenges;
- Further improve time-to-grant and procedures for the benefit of researchers.

Recommendations on achievements*: The Euratom fusion programme should implement the fusion roadmap and have an increased focus on materials research in cooperation with non-nuclear disciplines. Skills retention and development need to be ensured in Euratom research. Euratom fission research should put more emphasis on advanced fuel cycles and partitioning & transmutation in order to reduce the burden on geological disposal facilities. Euratom research in radiation protection should be linked to Horizon 2020 medical research and address benefits and risks of emerging nuclear technologies in medicine. A review of fission infrastructures should be considered in view of current and future priorities.*

The fusion roadmap is one of the key elements of the European strategy to develop fusion as a credible option for commercial carbon-free electricity production by around the middle of the century. In 2014, the Commission signed a 5-year Grant Agreement with the 'European Consortium for the Development of Fusion Energy' (EUROfusion), which is now implementing a joint programme in line with this roadmap. Materials research is fully addressed in the fusion roadmap and forms an integral part of the joint programme.

The Euratom programme also recognises the importance of education and training. In order to be prepared for the exploitation of ITER, and the design and construction of DEMO, the fusion roadmap and joint programme already prioritise the training of a new generation of fusion scientists and engineers. Similarly, in the fission programme, education and training have traditionally been the focus of dedicated actions through calls for proposals as well as being a key ingredient of larger collaborative projects.

Regarding research on advanced fuel cycles and partitioning and transmutation, reducing the life of radioactive waste through these processes improves nuclear safety and thus contributes to the overall objective of Euratom Programme.

Previous actions in the Euratom fission programme have addressed the rapid development and deployment of medical technologies using ionising radiation and the specific challenges these pose as regards radiation protection of patients and medical staff.

Fission research infrastructures such as research reactors and hot labs play a key role in ensuring safe operation of nuclear systems, in the continuous supply of medical radioisotopes, and in maintaining scientific excellence and nuclear competences in Europe. Under the Euratom Programme 2014-18, the Commission launched several actions addressing the most pressing issues concerning fission research infrastructures, such as security of supply of fuel for research reactors and of medical radioisotopes like Molybdenum-99, and the availability of an adequate neutron irradiation capability for materials testing and other applications.

In line with the recommendations on achievements, the Commission has introduced, in the 2015 call for proposals, actions addressing the safety of new approaches to the fuel cycle and radioactive waste management and their European added value. Furthermore, the Commission will

- Monitor implementation of the roadmap for fusion research;

- Work with the EUROfusion consortium to ensure that an appropriate long-term strategy is implemented for the development of human resources for fusion research and for the success of ITER;

- Expand research into innovative radiation protection methods thereby promoting improved protection of patients and staff in everyday medical practices;

- Work with research stakeholders and Member States to exploit synergies between Euratom research in radiation protection and other EU medical research programmes, aiming at the development of joint research actions on radiation protection aspects of medical practices as well as innovative nuclear medicines including as yet unexploited radioisotopes.