WORK PROGRAMME 2011

Euratom for Nuclear Research and Training Activities[1]

(European Commission C(2010)5704 of 20 August 2010)

[1] In accordance with the Treaty establishing the European Atomic Energy Community and in particular Articles 7 and 10 as contextualised in the following decisions: Council Decision 2006/970/Euratom of 18 December 2006 concerning the Seventh Framework Programme of the European Atomic Energy Community (Euratom) for nuclear research and training activities (2007 to 2011) and Council Decision 2006/976/Euratom of 19 December 2006 concerning the Specific Programme Euratom for nuclear research and training activities (2007-2011)

GENERALITIES

Following the adoption of the Euratom Seventh Framework Programme (FP7) and the corresponding Specific Programme for 'Nuclear Research and Training Activities'[2] and 'Rules for Participation'[3], the Commission adopts work programmes with the assistance of the programme committees for fission and fusion. This work programme (WP) constitutes a financing decision for 2011. It defines the technical scope of actions and provides information on the implementation arrangements.

Research and development activities in this work programme comprise two themes: Fusion Energy, and Nuclear Fission and Radiation Protection.

OBJECTIVES

In the priority theme of Fusion Energy, the overall objective is to develop the knowledge base for, and to realise ITER as the major step towards the creation of prototype reactors for nuclear fusion based power stations that are safe, sustainable, environmentally responsible and economically viable.

In the priority theme of Nuclear Fission and Radiation Protection, the overall objective is to establish a sound scientific and technical basis in order to accelerate practical developments for the safe management of long-lived radioactive waste, to enhance the safety performance, resource efficiency and cost-effectiveness of nuclear energy and to ensure a robust and socially acceptable system of protection of man and the environment against the effects of ionising radiation.

Euratom research, both fission and fusion, pays attention to the gender equality issue and participation of women is actively encouraged.

The Euratom FP7 is reaching its 5 year term in 2011 and the Work Programme 2011 will need to dedicate, as in 2010, some resources for ensuring swift transition following the expected two year prolongation for 2012-13 to keep in step with EU-FP7.

[2] Decision 2006/976/Euratom of the Council of 19 December 2006 (Euratom Specific Programme)

[3] Regulation 1908/2006/Euratom of 19 December 2006

I. CONTEXT

I.1 Approach

Nuclear power is the principal low carbon source of base load electricity in the EU, totalling some 135GWe of installed capacity and accounting for one-third of current electricity generation. It therefore plays a key role in limiting the EU's emissions of greenhouse gases, and makes an important contribution to improving the Union's independence, security and diversity of energy supply.

Energy policy is a growing concern at the EU level, as demonstrated by the set of energy-related Communications and Regulations adopted by the Commission in 2007 and 2008. Following a process of extensive consultation and analysis, the European Council adopted in March 2008 conclusions on the proposal of the Commission for the Strategic Energy Technology Plan (SET-Plan)[4]. This plan is intended to accelerate the development of the low carbon technologies to achieve the targets and objectives set out in the EU Energy Policy Package. Nuclear energy technologies are among the options having the greatest potential for substantial contributions in reaching the energy and climate objectives both in the short and the longer term. The SET-Plan proposes changes in the way the energy research and innovation system operates in Europe. This is intrinsically linked to progress towards the construction of a 'European Energy Research Area'.

In the longer term, nuclear fusion offers the prospect of an almost limitless supply of clean energy, with ITER being the crucial next step in the progress towards this ultimate goal. The realisation of the ITER project therefore lies at the heart of the present EU strategy, though it must be accompanied by a strong and focused European R&D programme to prepare for the exploitation of ITER and to develop the technologies and knowledge base that will be needed during its operation and beyond.

The SET-Plan acknowledges that, in the field of nuclear fission, the key EU technology challenges for the next ten years are, in order to help meet the 2020 targets, to maintain the competitiveness in fission technologies together with long-term waste management solutions. In order to achieve the 2050 vision laid out in EU policy, key EU technology challenges for the next ten years include the completion of the preparations for the demonstration of a new generation (Generation-IV) of fission reactors for increased sustainability, and the successful completion of the ITER construction, together with an early involvement of industry in the preparation for demonstration actions. A fusion Demonstration Reactor (DEMO) constitutes a long term strategic goal of the EU fusion programme.

The SET-Plan also proposes the launch of specific 'European Industrial Initiatives', in particular one on 'sustainable nuclear fission' (development of Generation-IV technologies), which this and future Euratom work programmes will take into consideration.

In addition to this R&D on the potential of future systems, research on issues such as safety, waste and radiation protection will continue to figure prominently in the Euratom work programmes, as laid out in the Euratom Framework and Specific Programmes.

The annual work programme is established using a wide range of inputs to ensure that the activities supported maintain direct relevance to the evolving research needs of industry, the research

[4] /* COM/2009/0519 final */

community and EU policies in the nuclear field. Consultations with the two Consultative Committees for the Euratom programme (i.e. Programme Committees), the Euratom Scientific and Technical Committee (STC), the Advisory Group on Energy (AGE), the concerned stakeholders involved in the frame of the preparations for the SET-Plan, as well as exchanges during project meetings, conferences, and the implementation of previous work programmes (especially the coverage following previous calls for proposals and evaluations, including call FP7-Fission-2010, which at the time of writing is still open with evaluation planned for May 2010), provide important input in areas of interest and elements of future topics. Specific forums, such as the European Strategy Forum on Research Infrastructures (ESFRI), may also provide the Commission with timely specific advice on opportunities and priorities with relevance to the Euratom research sector. For the fission part, increasingly important input comes from the Strategic Research Agendas and/or Deployment Strategies (or other prioritisation documents) of the Sustainable Nuclear Energy Technology Platform (SNE-TP, www.snetp.eu), MELODI (Multidisciplinary European Low-Dose Initiative, www.melodi-online.eu), a 'joint programming' initiative in the area of risks of low and protracted doses of radiation launched in 2009, and the Implementing Geological Disposal Technology Platform (IGD-TP, www.igdtp.eu), also launched in 2009. The launch of the SET-Plan industrial initiatives in 2010 will imply further efforts in support to ESNII – the European Sustainable Nuclear Industrial Initiative under the SET-Plan – leading to the possible inclusion of additional actions in WP2011. Support for the JHR – Jules Horowitz Reactor – will be provided through a grant to a named beneficiary.

In the theme of Fusion Energy the priority of the programme is the success of ITER at a reasonable cost and with acceptable risks. In particular, the implementation of ITER will have to be framed by a set of boundary conditions, in particular credible cost assessment, strong policy for cost containment and cost reduction, realistic time table and sound management of the project at all levels[5]. ITER began construction in 2008 and will see in 2011 the implementation of major construction activities. With the decision to site ITER at Cadarache in Southern France, the EU has taken the main responsibility for the project contributing up to about 50% of its cost. In order to discharge the European obligations to the ITER project, a Joint Undertaking has been set up in Barcelona, Spain[6].

This Joint Undertaking will also be responsible for providing the contribution of Euratom to Broader Approach activities with Japan for the rapid realisation of fusion energy and for the implementation of a programme of preparatory activities for the construction of DEMO and related facilities including the International Fusion Materials Irradiation Facility (IFMIF). The Broader Approach activities include contributing to the Engineering Validation, Engineering Design Activities (EVEDA) of IFMIF, to the upgrade of the tokamak JT60SA in Naka (Japan), and to the International Fusion Energy Research Centre (IFERC) in Rokkasho (Japan), which will cover design and R&D activities for a demonstration fusion reactor, fusion computer simulation and ITER remote experimentation.

In accordance with its work programme and in line with the ITER construction schedule, the Joint Undertaking will proceed with the procurement of major components for ITER and the Broader Approach activities. To prepare for the prompt implementation of the ITER experimental programme, the research in the Euratom Associated laboratories is being focused on providing inputs to the preparation of ITER, as well as on essential longer-term activities. The cornerstone of

[5] Conclusions of the EU Council of 16 November 2009 on the next steps in the ITER project. Documents 15815/09 RECH 401 ATO 136

[6] Council Decision 2007/198/Euratom of 27 March 2007

this research programme is the use, under the European Fusion Development Agreement (EFDA), of the JET facilities where a major enhancement should be completed in early 2011. This will allow JET to provide essential data for the ITER programme. EFDA will further strengthen its role in coordinating the activities of the Euratom associated laboratories by way of topical groups, task forces and implementing arrangements. Alternative concepts for fusion devices are being pursued in the programme principally through the construction of the Wendelstein 7-X stellarator in Greifswald, Germany. Construction is on schedule for completion on 2014.

A review of all the facilities in the fusion programme, examining the possibility of phasing out facilities, and considering the need for new devices in parallel with ITER exploitation, was carried out in 2008. Discussions in the programme instances and bilaterally with the Euratom Associated laboratories were held in 2009, and the adaptation of the activities in the programme began in 2010. Further re-orientation of the priorities will take place in 2011, using the review as a basis for reducing support for some experimental devices and for the possible support of existing/new or upgraded devices in order to ensure that the programme maintains a set of fusion facilities necessary to fulfil the overall objectives of the programme.

It is also necessary to maintain and develop the expertise that has put the EU fusion programme at the forefront of international research on fusion energy. Community funding for these efforts will concentrate on education of young researchers and engineers through the Support Action for the European Fusion Education Network, Goal Oriented Training under EFDA, and the Fusion Researcher Fellowship scheme also under EFDA. The Mobility Agreement, which provides an efficient mechanism for researchers from the Euratom Associated laboratories to participate in collective and cooperative activities, will support the EFDA priorities and international cooperation.

In the area of Technology Transfer and Industrial Policy the initiatives started in 2009 and 2010 will be continued. The greater involvement of industry in the programme, exploiting the results of the R&D, will be further developed to enhance technology transfer and innovative areas of the programme with the objective of promoting new products and services to the market and the competitiveness of industry and SMEs. A key aspect of this activity will be the visibility of the IPR generated in the fusion programme through the Euratom knowledge management database developed in 2009 and 2010.

In the theme Nuclear Fission and Radiation Protection, actions will be undertaken in five principal activities (management of radioactive waste, reactor systems, radiation protection, and horizontal aspects such as infrastructures and human resources), as described in the Specific Programme. Where relevant, links are made in the work programme between specific areas/topics and the SET-Plan objectives and the associated Generation-IV European Industrial Initiative. Important cross-cutting links exist throughout the Euratom programme and, to some extent, with other EU programmes.

Following provisions of article 21(1) of the Implementing Rules of the Financial Regulation (Commission Regulation No. 2342/2002) as well as the Impact Assessment Guidelines (SEC(2009) 92), the Commission services will launch an Impact Assessment in view of the preparations for the proposal for the next Euratom Framework Programme. Preparatory studies, in support of the Impact Assessment, may be commissioned to seek external expertise in analysis of the policy options and evaluation of their likely impacts. External experts/consultancies might be also used to support public consultations.

I.2 Scope of Work

This Work Programme, financed from the 2011 budget, contributes to the implementation of the Euratom Specific Programme.

I.3 International Cooperation

International cooperation is a key feature of the fusion research and training programme. The main fusion international cooperation frameworks are clearly the ITER Agreement[7] among the seven parties EU, Japan, Russia, U.S., China, S.Korea and India, and the Broader Approach Agreement between Euratom and Japan.

The European Commission is representing the European Atomic Energy Community (Euratom). Furthermore, the 'European Joint Undertaking for ITER and the Development of Fusion Energy' ('Fusion for Energy – F4E') is the Domestic Agency to provide Euratom's contribution to ITER, as well as the Implementing Agency to provide the contribution of Euratom to the Broader Approach projects. In this regard, F4E discharges the Euratom responsibilities towards the ITER Agreement and the Broader Approach activities.

The collaboration of third States in the integrated European programme can be presented as an extensive network of bilateral and multilateral cooperation activities. The funding of these activities proceeds through the Contracts of Association, EFDA and the Mobility Agreement.

Under the bilateral approach, the cooperation activities concern in particular the Broader Approach Agreement and the various bilateral fusion Cooperation Agreements in force between Euratom and several Third States. These bilateral fusion Cooperation Agreements are mainly aimed at developing cooperation on activities in support to or complementary to ITER. There are presently seven Agreements in force between Euratom and respectively Switzerland[8], Japan, U.S.DOE, Russia, Ukraine, Kazakhstan and S.Korea, while other two similar agreements were signed in 2009 with India and Brazil and are not still in force. An agreement with China is under negotiation. In this context an important issue is the further assessment of possible contributions to the partnership for the operation and exploitation of the Joint European Torus (JET) programme by potentially interested countries, namely Russia, China, Brazil, Japan, US and India. Another target is the deepening of the bilateral cooperation with Russia, U.S. and Japan

There are also various multilateral cooperation frameworks in which Euratom is contributing to fusion related activities, i.e. the OECD International Energy Agency (IEA) frame in which the Fusion Power Coordinating Committee (FPCC) and the various Implementing Agreements are operating; the International Atomic Energy Agency (IAEA) frame with the International Fusion Research Council (IFRC); the International Tokamak Physics Activity (ITPA) under the auspices of ITER International Organisation; and the ISTC & STCU programmes.

In the fission area too, the international and global dimension is becoming increasingly important. Different mechanisms are available to foster this international cooperation – see (i)-(iv) below. The two main ones applicable to the fission programme are the direct participation of third country partners (persons or legal entities) in Euratom FP projects (with

[7] OJ L 90, 30.3.2007, p. 58–72
[8] Switzerland is an associated State to the Seventh Euratom Framework Programme

or without financial contribution from Euratom), and the 'coordinated calls' mechanism, which allows the development and implementation of joint or coordinated projects resulting from a structured dialogue with the third country concerned. Collaborative activities will be encompassed within bilateral fission-related Cooperation Agreements, when appropriate.

(i) Euratom Seventh Framework Programme is open, at the project level and subject to acceptance by the consortia concerned, to the participation of entities from third countries or of an international organisation, in addition to the requisite minimum number of participants from EU Member States and Euratom Associated Countries. The guiding principle for international cooperation is mutual benefit, which leads to sharing the cost of the cooperation. Exceptionally, an international organisation or a legal entity established in a third country may be granted a Euratom financial contribution, but only if at least one of the following conditions is satisfied:

- provision is made to that effect in the Specific Programme or this work programme;
- the participation is essential for carrying out the action;
- such funding is provided for in a bilateral Euratom agreement or any other relevant arrangement between the Community and the country in which the legal entity is established.

Several topics have been specifically highlighted as being research areas which are particularly well suited for international cooperation. For these topics, the active participation of a relevant third country partner or partners should add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken. These aspects will be considered specifically during the evaluation of all topics concerned by international cooperation.

(ii) A structured dialogue may be established to define areas and subjects of mutual interest that could lead to the organisation of coordinated calls. Again, the guiding principle in such cases is the sharing of costs of cooperation. This was considered the most appropriate mechanism to promote enhanced cooperation with Russia and China, and was used by the Euratom-ROSATOM Working Group on cooperation in nuclear fission research to select the subjects of mutual interest for inclusion in the 2009 call, and by Euratom and CAEA to identify areas for closer cooperation included in the 2010 call following the signature of a bilateral Euratom-China nuclear R&D cooperation agreement. This approach may continue to be used also with other third countries in the future.

(iii) International cooperation activities could also cover the twinning of projects or clusters of project or, where appropriate, the invitation of third country representatives, on an ad hoc basis, to some projects meetings, conferences or training actions. This process may suit, in particular, those developing countries having declared an interest in recourse to nuclear power in the future and thereby help them build their science and education base. Limited funding for participation of representatives from these countries may be earmarked in the project budgets during the negotiation phase.

(iv) Cooperation between Euratom and the OECD/NEA and IAEA in nuclear fission research and training should build on the established competences of these international organisations, in particular the accumulated historical knowledge tracking nuclear development over recent decades. The IAEA might also play an important support role in fostering cooperation between Euratom and countries not yet having a fully developed nuclear infrastructure.

I.4 Cross-Cutting Issues

Whenever possible, synergies will be exploited between fission and fusion research within the Euratom programme, as well as between the Euratom and EU Specific Programmes. Interactions between the different activities should be adequately accommodated. In particular, the European Energy Research Alliance (EERA) established under the SET-Plan could be a platform to promote energy-enabling technologies.

I.5 Submitting a Proposal

There are significant differences between the management and funding of the two themes. In the theme Fusion Energy the main funding schemes are the Contracts of Association between Euratom and national research organisations or bodies and multilateral agreements with those organisations. Within these contracts and agreements an annual work programme is agreed and implemented.

The content of the programme is described in §II.1.

For the theme Nuclear Fission and Radiation Protection, the details of the activities and topics are presented in §II.2, and §III.2 provides information on the corresponding call(s) for proposals.

Proposals should be submitted under the terms of a call(s) for proposals set out in §III. In order to submit a proposal, a proposer should consult the following:

- this work programme;
- the relevant call for proposals as published on the relevant Commission websites following the announcement of the publication in the *Official Journal of the European Union;*
- the relevant Guide for Applicants.

These and a number of other useful texts, including the rules for participation, are available on the relevant Website [… …]. The latter should be consulted to ensure that the documents being used are the most recent. Some may be revised during the programme lifetime and even during the time a particular call is open.

Participants will have the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions.

I.6 Evaluation Criteria and Related Issues

The 'Guidelines on Proposal Evaluation and Project Selection Procedures' describe the basic procedures to be followed by all programmes under Seventh Framework Programme. The set of criteria and thresholds applicable to this work programme are given in Annex 1 and is applicable to actions as a result of calls for proposals and grants to identify beneficiaries[9], unless indicated otherwise. Any complementary criteria or thresholds, if applicable, are clearly stated in the relevant part of this work programme at the topic level. Furthermore, the work programme, and consequently its call(s) for proposals, may specify and restrict the

[9] According to Article 12 and Article 13 (a) of Regulation No 1908/2006 or the European Parliament and of the Council of 19 December 2006 laying down the rules for the participation of undertakings, research centres and universities in actions under the Seventh Framework Programme of the European Atomic Energy Community and for the dissemination of research results (2007-2011) OJ L400 of 30.12.2006.

participation of legal entities in order to take into account specific objectives of the Framework Programme.

When evaluating proposals received in response to a call, the Commission may opt to send the proposals to external experts or make proposals available by electronic means, so that experts can carry out their examination at home or their place of work.

For the fission call of this work programme, §III.2 provides indicative budgets for activities defined in the Specific Programme, or for areas or combinations of activities/areas, and explains how the ranked/reserve lists will be constituted.

I.7 Ethical aspects

All research carried out under this work programme must respect fundamental ethical principles, and the requirements set out in the text of the Euratom Specific Programme and Rules for Participation. More information on the procedures for the review, where appropriate, of ethical aspects of submitted proposals is given in the 'Guidelines on Proposal Evaluation and Project Selection Procedures'[10].

[10] Included in the call information package at the following website:
http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=UserSite.FP7CallsPage

II. CONTENT OF PROGRAMME AND CALL(S) IN 2011

II.1 Fusion Energy

The content of the Fusion Energy programme has several facets covering the full range of funding schemes. These are:

- ***European Joint Undertaking for ITER and the Development of Fusion Energy ('Fusion for Energy')*** to discharge the responsibilities of the European Union towards the ITER Agreement and the Broader Approach Agreement;
- ***Contracts of Association*** which are bilateral contracts between research organisations or bodies in all the Member States or Euratom Fully Associated Third States and the Community. Some Contracts of Association will include activities of research institutes in more than one Member State (transnational research Units);
- ***European Fusion Development Agreement*** between all the Associates (signatories of a Contract of Association) to fully exploit the JET Facilities and possibly other fusion devices and coordinate the research activities, including training, carried out under the Contract of Association;
- ***Other multi-lateral agreements,*** such as the Mobility Agreement, that promote the collaboration and mobility of researchers between the different research organisation and facilities;
- ***Human resources, education and training*** which are supported through training and career development fellowships via EFDA through the Contracts of Association.
- ***Coordination and Support Actions*** aimed at strengthening the interfaces of the fusion community with related scientific and industrial communities.
- ***International agreements*** including those covering the construction and exploitation of ITER and the implementation of Broader Approach Activities;

The Commission pursues the programmatic objectives of the European fusion programme through the Euratom participation in the various governance bodies of the above agreements and organisations.

II.1.1 Activity: ITER International Organisation

The ITER Agreement was signed by the Parties in Paris on 21 November 2006, together with the agreement on its provisional application, and entered into force on 24 October 2007. The resources for the construction phase will be provided predominantly by contributions in kind. The procurement of the components to be provided in kind will be under the responsibility of the Member of the Organization providing that component, acting through its Domestic Agency (see §II.1.3). The ITER Organization will also receive contributions in cash from its Members. The ITER Agreement contains specific provisions for the Host Party EURATOM to make available or cause to be made available to the ITER Organization the site in defined initial conditions and the support required for the implementation of the ITER Project.

As a first action of the newly formed ITER Organization, the ITER Members charged the newly appointed management to carry out a project Design Review ('the Design Review') to confirm or redefine the physics basis and requirements for the project and to confirm or alter the design of the major machine components. The resolutions of a number of unresolved points resulting from the Review (endorsed by the ITER Council at its meeting in Cadarache on 27–28 November

2007) were the subject of intensive work of the ITER Organization and of the Domestic Agencies during 2008 and 2009. This work and its assessment already allowed to approve the Project Specification in June 2008 and is expected to be finalized mid 2010 with the approval by the ITER Council of the ITER Baseline (scope, schedule and costs) including the Project Plan and Resource Estimates.

For the finalisation of the schedule and the costs, the ITER Council agreed that the ITER Parties, the ITER Organization and the Domestic Agencies should carry out further work on the following: the finalisation of the design; the ITER Organization's estimated needs for additional resources; an overall planning for minimising costs and risks for the project implementation; all reasonable measures to improve management of the ITER Organization.

At the same time a re-assessment of the Community contribution for ITER construction (entirely managed through F4E) has indicated a substantial increase of the resources needed. Therefore, additional work is on going to explore all possibilities for reduction and containment of the costs while maintaining the risk at an acceptable level. To ensure the success of the ITER project in general and European participation in it in particular, an in-depth analysis to ensure the European contribution is managed in an efficient, cost increase sensitive, financially sound and transparent manner has been undertaken and the resulting recommendations are being implemented. In 2011 this will involve improving transparent monitoring and reporting of cost evolutions, proactively managing cost containment policies notably addressing value engineering, rationalising allocation of procurement obligations, agreeing standards and exploiting economies of scale.

Following the expected finalisation of the Baseline mid-2010 the realisation of the ITER project should result in the implementation of major construction activities.

The Euratom participation in ITER includes contributions to the construction of equipment and installations, which are within the perimeter of the ITER site and necessary for its exploitation, as well as to the costs associated with the staffing and management of, and the support to be given to, the project during construction including making available human resource to the ITER Organization.

The site preparation activities, such as the site levelling and the construction works of the so-called annex buildings, were launched in 2007 and construction works will continue until the end of 2011. Procurements related to the buildings construction should be ready for engagement by the end of 2011/begin 2012. While implementation work on other major items in the critical path will continue in 2011, all possible risk mitigation, cost reduction and containment measures will be pursued.

The Euratom contributions to the ITER Project will be provided through the European Joint Undertaking for ITER and the Development of Fusion Energy ('Fusion for Energy' – 'F4E') [11]

The Commission promotes and steers the Euratom participation in the ITER Project, in particular through the Euratom representation in the governance bodies of the ITER Organization and of F4E and through close relation with the ITER Host State.

[11] Council Decision No. 2007/198/Euratom of 27 March 2007 establishing the European Joint Undertaking for ITER and the Development of Fusion Energy and conferring advantages upon.

II.1.2 Activity: Broader Approach activities

The Agreement between the European Atomic Energy Community and the Government of Japan for the Joint Implementation of the Broader Approach Activities in the Field of Fusion Energy Research ('the Agreement') was signed on 5 February 2007 in Tokyo[12].

The Agreement entered into force on 1st of June 2007. It comprises three large research projects to be jointly implemented, aiming at supporting the ITER project and at an early realisation of fusion energy as a clean and sustainable source of energy for peaceful purposes, and will be open to participation of other ITER Parties.

The three projects are 1) the Engineering Validation and Engineering Design Activities for the International Fusion Materials Irradiation Facility (IFMIF/EVEDA), 2) the International Fusion Energy Research Centre (IFERC), and 3) the Satellite Tokamak Programme. The first two projects will be carried out at Rokkasho; the third project will be carried out at Naka.

The Euratom contribution to the Broader Approach activities consist mainly of in-kind resources provided voluntarily by Member States (presently France, Italy, Spain, Germany and Belgium) and also by Switzerland (a Euratom Fully Associated Third State) which are coordinated and transferred through the Joint Undertaking. These contributions are made in the form of in-kind equipment, and staff for project teams in Japan. The remaining part is provided through the Joint Undertaking. ('Fusion for Energy' – 'F4E').

The Commission promotes and steers the Euratom participation in the Broader Approach Projects, in particular through the Euratom representation in its governance bodies, and the relation with the Contributing Members.

II.1.3 Activity: Programmes of the Associations

Through the Contracts of Association[13], the Commission and the Associates (Member States and Euratom Fully Associated Third States through their fusion research laboratories and institutes or these entities as entrusted by them) carry out jointly activities within the thematic area 'fusion energy research' within the Community (Euratom) Seventh Framework Programme. Such activities are detailed in the Annual Work Programmes of the Associations, following a multi-annual Work Plan annexed to each Contract. This work focuses on the objectives of Seventh Framework Programme, with an increased emphasis on activities in physics and emerging technology coordinated under EFDA (see §II.1.4). The activities co-ordinated under EFDA which are part of the Annual Work Programmes of the Associations are defined in accordance with the EFDA Work Programme and the corresponding work is executed in accordance with the relevant provisions of the EFDA and its Implementing Agreements. The additional support foreseen in the provisions (Article 8.2 and Article II.4a of the General Conditions) of the Contracts of Association and under EFDA is used to support priority actions which are urgent, which would not otherwise be undertaken, and which increase the level of coordination of the scientific programmes of the Associations. The contribution of the Associations to the EFDA Work Programme includes the joint scientific exploitation of the JET facility, aimed at urgent tasks for ITER, as well as other ITER-relevant R&D. Facility upgrades are eligible for priority support when they contribute to such activities and after recommendation through EFDA. The training and career development of scientific and technical personnel, the dissemination of results and the diffusion of information to the public are

[12] OJ L 246, 21.9.2007, p. 34–46
[13] See Articles 51 and 52 of Chapter IV of the Euratom Rules for Participation.

an integral part of the activities of the Associations. This includes exchange of information through conferences, seminars, workshops, scientific and technical meetings, publications and other actions to promote technology transfer.

The Associations' activities are programmed annually and the content of activities and facilities eligible for funding in 2011 will be re-oriented to the evolving priorities of the programme, as identified in the comprehensive review of facilities carried out in 2008 and the subsequent discussions with the Associations and in the programme instances. This will include priorities with regard to the range of facilities which should continue to be supported.

The process was initiated in 2010 with changes incorporated in revised Work Plans for 2010-2011 in the Contracts of Association, which reflect the need to focus on urgent R&D for ITER, with limited support for activities aimed at the longer term reactor and power plant issues.

II.1.4 Activity: Association Programme within the European Fusion Development Agreement (EFDA)

EFDA is a multilateral framework partnership agreement which coordinates, at European level, the research activities carried out under the bilateral Contracts of Association.

Following the conclusion by the Community of the ITER agreement and the establishment of the European Joint Undertaking for ITER and the Development of Fusion Energy ('Fusion for Energy'), the scope and procedures of EFDA were adapted for the Seventh Framework Programme, as stated in point 2 of the Annex to the Euratom Specific Programme. EFDA covers the following interrelated activities, which will complement those carried out by 'Fusion for Energy':

I. Coordinated activities in physics and emerging technology;
II. The collective use of the JET facilities through the JET Operation contract and the JET orders and notifications;
III. Training and career development fellowships for researchers, promoting links to universities and carrying out support actions for the benefit of the thematic area of research 'fusion energy';
IV. The European contributions to international collaborations, except those within the scope of the 'Fusion for Energy'.

These activities are further described in a multi annual Work Plan which forms part of the Agreement.

The dominant activity for JET in 2011 will be the restart of the machine and launching of the new scientific programme, following the completion of the major enhancements being carried out in 2010. The most important of these enhancements is the installation of an 'ITER-like' inner wall carried out by the JET Operator with contributions from a number of the fusion Associations, all under the supervision of the EFDA Close Support Unit. Planning of the scientific exploitation of the upgraded facility is taking place in 2010.
The funding constraints of the current Euratom Framework Programme necessitate careful examination of all possibilities for cost containment of the JET programme. An agreement has been reached with the JET Operator and all the fusion Associates which will ensure sufficient, although strictly controlled, funding for the exploitation of the upgraded JET machine in

2011. Operation of subsidiary systems and facilities which are not essential to the highest programme priorities will be curtailed or suppressed.

The High Performance Computer for Fusion, acquired with the aid of Community priority support, is a significant research infrastructure for the programme. It started operation in 2009, and in 2011 it will continue to be used collectively by the Associations in pursuit of the objectives of the programme, under an Implementing Agreement managed by EFDA. This Agreement provides for access to the facility for all Associations.

Activities I to III are mirrored, as regards their implementation, in specific provisions of the bilateral Contracts of Association. The scope and volume of work on DEMO technologies is expected to be gradually increased.

In 2011, the EFDA Work Programme will identify priority areas where joint training actions should be launched. Projects to train up to 40 trainees (ppy/year) over three years will be launched, subject to the availability of funding. This training will receive up to 40% Community contribution via the Contracts of Association.

Subject to the availability of funding, career development fellowships for the encouragement of excellence in fusion research will be awarded to up to 10 exceptional candidates and research topics per year via the appropriate EFDA procedures. The fellows will be eligible for Community support as defined in §III.1 via the Contracts of Association for a period of 2 years per researcher.

The Support Action under EFDA for the provision of essential services relating to the 'Fusion Expo', an itinerant exhibition presenting various aspects of fusion research, was renewed in 2010 and will continue in 2011, as will the Support Action under EFDA for the provision of essential services to the Integrated Tokamak Modelling task force (ITM-TF).

The activities supported under EFDA during 2011 are further defined in the EFDA Work Programme.

II.1.5 Activity: Mobility of researchers

The Mobility Agreement sets the framework for supporting the mobility of the researchers and trainees from the organisations participating in the programme, in order to promote enhanced coordination and integration of the programme, and to foster international cooperation. Synergy and complementarity with other themes will be highlighted. The Mobility Agreement will be used to support:

- cooperative work of the Associations;
- participation in EFDA coordinated activities;
- participation in activities in support of ITER and the Broader Approach projects;
- promotion of European contributions to international cooperation.

II.1.6 Activity: Training and career development fellowships and support actions

These activities are included in the Work Programmes of the Associations as activities to be carried out under EFDA (§ II.1.4 above).

II.1.7 Activity: Other activities

In the area of Technology Transfer and Industrial Policy the initiatives started in 2009 and 2010 will be continued. The greater involvement of industry in the programme, exploiting the results of the R&D, will be further developed to enhance technology transfer and innovative areas of the programme with the objective of promoting new products and services to the market and the competitiveness of industry and SMEs. A key aspect of this activity will be the visibility of the IPR generated in the fusion programme through the Euratom knowledge management database developed in 2009 and 2010.

II.2 Nuclear Fission and Radiation Protection

The activities, areas and topics are presented and described so as to better reflect the strategic orientations of the research to be funded, as defined by the Strategic Research Agendas of SNE-TP (Sustainable Nuclear Energy Technology Platform), MELODI (Multidisciplinary European Low Dose Initiative) and IGD-TP (Implementing Geological Disposal Technology Platform), and the objectives of the SET-Plan and associated European Industrial Initiative in sustainable nuclear fission (ESNII – the European Sustainable Nuclear Industrial Initiative), where these are consistent with, and complement those in, the Euratom Specific Programme.

Depending on the strategic nature of the research, the *expected impact* may be defined at the level of the activity, area or specific topic. Usually a maximum of one project will be considered for funding per topic. Where more than one project per topic may be considered for funding, the *funding scheme(s)* for that topic is/are indicated in the plural. In some specific cases, a larger maximum number of projects to be retained for funding under one topic may also be mentioned.

Note: Limits on the EU financial contribution apply in all topics. These are implemented strictly as formal eligibility criteria. The limits are either specific and indicated at the level of the topic, or generic and mentioned in Annex 1 (see also section III.2, 'Eligibility conditions').

II.2.1 Activity: Management of Radioactive Waste

II.2.1.1: Geological disposal

- ***Expected impact:*** Contribution to the progress towards the implementing of geological disposal in line with the Vision Report and/or Strategic Research Agenda (SRA) of IGD-TP and the 2020 objectives of the SET-Plan, together with significant advances in the treatment and/or understanding of key remaining issues, including those of a regulatory nature. In particular, this should lead to demonstrable improvements in robustness of associated performance and safety analyses, and ultimately to increased confidence in the safety case as it relates to specific scientific/technical fields or physical components of a repository system, and/or foster the joint strategic planning necessary to bring about such advances or any cooperation and harmonisation needed to facilitate regulatory function.

Topic: Fission-2011-1.1.1: Research activities in support of implementation of geological disposal. In line with the requirements of the SET-Plan, the Vision Report and/or Strategic Research Agenda (SRA) of IGD-TP (www.igdtp.eu), support will be provided for activities addressing topics on the critical path for the implementation of geological disposal in Europe (either technical or non-technical – but refer also to Fission-2011-1.1.2 – providing within scope of the Specific Programme). The most advanced national programmes are not the only to be targeted, and proposals are equally welcome that address the needs of less advanced programmes in view of developing their knowledge base in preparation for implementation. Proposals will not be welcome in areas already considered adequately covered by past or on-going research. It is viewed that the active participation of relevant partners from third countries should add to the scientific and/or technological excellence of some projects and/or lead to an increased impact of the research to be undertaken. **Funding scheme:** Small or medium-scale Collaborative Projects and/or Coordination and Support Actions (coordinating or supporting).

Topic: Fission-2011-1.1.2: Support for regulatory functions in the area of geological disposal. Support will be provided for regulatory authorities, and/or duly appointed TSOs, in order

to facilitate development of common understanding and treatment of common issues related to license applications made by implementing organisations in the process of implementation of geological disposal. This action should address the specific needs of regulatory authorities, such as how and whether to assimilate results from (latest) research, harmonisation of applicable criteria and guidance, interpretation of ICRP recommendations, etc. Furthermore, activities should address how regulators can interact in a more structured way with implementers in order to better define regulatory requirements and therefore streamline the whole process. One particular more tangible outcome of the project could be, for example, the establishing of a formal IGD-TP 'mirror group' on regulatory functions as a means of facilitating a more efficient interaction with the platform's activities and at the same time maintaining regulatory independence from the platform's principal vision. Any project should be complementary to, or build on, any current initiatives amongst regulators in this respect, for example under the auspices of the NEA's RWMC. Membership of the consortium would be strictly limited to regulatory authorities and/or duly appointed TSOs. Participation of partners from 3rd countries could also bring important additional competences and experience to the project. Only a coordinating action is proposed since actual R&D activities should come forward under Fission-2011-1.1.1. **Funding scheme:** Maximum one Coordination and Support Action (coordinating action).

II.2.1.2: Partitioning and transmutation

In this work programme, support for research in P&T falls largely within scope of topics under II.2.2.3.

II.2.2 Activity: Reactor Systems

II.2.2.1: Safety and competitiveness of existing and future nuclear installations

In this work programme, actions in this area are within scope of topic Fission-2011-2.3.1.

II.2.2.2: Advanced nuclear systems for increased sustainability

In this work programme, other actions in this area are within scope of topic Fission-2011-2.3.1.

Topic: Fission-2011-2.2.1: Support for ESNII. Still within the context of assessing the potential of advanced nuclear systems, specific support for the European Sustainable Nuclear Industrial Initiative (ESNII), an industrial initiative within the Community's SET-Plan, will be made available in the following areas: (i) necessary R&D work on Codes and Standards for Generation-IV reactors, focusing on the prototype/demonstration reactors foreseen in ESNII; (ii) development and/or benchmarking of European computer codes for ESNII Fast Neutron Reactors, in particular relating to safety performance, leading to establishing a common platform for modelling and simulation; (iii) preliminary design work and/or coordination actions in relation to the principal ESNII infrastructure being promoted within ESFRI (European Strategy Forum for Research Infrastructures); (iv) support for new or refurbished supporting infrastructures needed by ESNII and identified within the ADRIANA project, for example more detailed design or licensing support. In all cases, work needs to be integrated within the ESNII Implementation Plan and be coordinated by the ESNII Task Force (or the eventual corresponding SET-Plan 'EII Team' and/or project level consortia); participation of the ESNII Task Force members and potential host organisations / countries essential. Any duplication with existing projects should be strictly avoided, and where activities risk overlapping with other current work the case for additional funding should be clearly justified

in the proposal, along with how complementarity will be ensured. **Funding scheme:** Maximum of three small or medium-scale Collaborative Projects and/or Coordination and Support Actions (coordinating or supporting).

- ***Expected impact:*** Progress towards realising SET-Plan goals, in particular as they relate to the ESNII Implementation Plan, as agreed and published in the SET-Plan Information System (SETIS), and/or more robust treatment of safety-related issues through the development of common European approaches to modelling and simulation of safety-relevant phenomena for Fast Neutron Reactors

II.2.2.3: Cross-cutting aspects for nuclear systems

Topic: Fission-2011-2.3.1: R&D activities in support of the implementation of the Strategic Research Agenda of SNE-TP[14]. R&D activities to initiate, design and develop ideas, projects or programmes, or to perform supporting research, in line with the Strategic Research Agenda (SRA) and according to the priorities in the Deployment Strategy (DS) of SNE-TP (www.snetp.eu). All subjects within scope of both the SRA/DS and the Specific Programme can be proposed, except those for which a specific topic exists in the current work programme or considered adequately covered in past or on-going Euratom research. In this context, cross-cutting refers either to the nature of the research (i.e. applicable to more than one nuclear system) or to the interest from a broad range of stakeholders and national programmes; in any case, priority will be given to those areas most amenable to a genuine collaborative effort within Europe. Good awareness of and synergies with other relevant initiatives are crucial, e.g. nuclear-related research programmes by EERA (the European Energy Research Alliance under the SET-Plan). Significant participation of national and/or industrial stakeholders is expected. It is viewed that the active participation of relevant partners from third countries should add to the scientific and/or technological excellence of some projects and/or lead to an increased impact of the research to be undertaken. **Funding scheme:** Small or medium-scale Collaborative Projects and/or Coordination and Support Actions (coordinating or supporting) and a maximum of one large-scale Collaborative project.

- ***Expected impact:*** In line with the Strategic Research Agenda / Deployment Strategy of SNE-TP, demonstrable progress towards improved safety and competitiveness of existing and future nuclear installations, or towards development of advanced nuclear systems for increased sustainability / non-electrical uses of nuclear energy. Actions are also expected to contribute to the competitiveness of European industry in these fields, in particular as part of efforts coordinated under the SET-Plan.

II.2.2.4: Advanced systems for non-electrical uses of nuclear energy

In this work programme, actions in this area are within scope of topic Fission-2011-2.3.1. However, all proposals would also have to be consistent with and build upon outcomes from the EUROPAIRS project

[14] Within the framework of the Generation IV International Forum (GIF), Euratom and the other GIF members are committed to providing scientific contributions to the various GIF Project Arrangements set up under the six selected GIF systems. Euratom FP projects are potential major Euratom contributors to GIF, and projects concerned should therefore identify deliverables that can form part of this contribution. Individual project contributions should be agreed during the negotiation phase and made available to Euratom, through the terms of the Grant Agreement, in order that JRC, the Euratom Implementing Agent for GIF, can fulfil its obligations.

II.2.3 Activity: Radiation Protection

II.2.3.1: Quantification of risks for low and protracted exposures[15]

Topic: Fission-2011-3.1.1: Contribution to low-dose risk research in Europe. In line with the HLEG vision report (www.hleg.de) and/or Strategic Research Agenda (SRA) of MELODI (www.melodi-online.eu), support will be provided for projects addressing identified key issues relating to risk from low and protracted exposure to ionising radiation, for example the shape of dose-response relationships and tissue sensitivity for cancer, individual variability in radiation sensitivity, health effects of different radiation quality types, risks from internal exposure to radiation, and non-cancer effects of radiation. Research should focus on those areas/directions identified and prioritised by MELODI as the most promising in terms of addressing/resolving key issues in the vision / SRA. A multi-disciplinary approach will be required aiming to assess health effects through integration of radiobiological research and epidemiological studies of groups exposed to low doses in order to better substantiate conceptual/computational modelling assumptions. It is essential to include interfaces with the broader (i.e. non-radiation) biological and epidemiological communities that can bring new ideas or methodologies to radiation protection research. Any successful proposal will strictly avoid duplication of past and on-going research. It is viewed that the active participation of relevant partners from third countries should add to the scientific and/or technological excellence of some projects and/or lead to an increased impact of the research to be undertaken. **Funding scheme:** Small or medium-scale Collaborative Projects and/or Coordination and Support Actions (coordinating or supporting).

Expected impact: Significant optimisation of the protection afforded to the workforce and public as a result of improvements to regulatory regimes following the resolution of one or more key identified issues in radiation protection research.

II.2.3.2: Medical uses of radiation

In this work programme, research in this area will only be supported if submitted under topic Fission-2011-3.1.1.

II.2.3.3: Emergency management and rehabilitation

No topics in 2011 call.

II.2.3.4: Malevolent uses of radiation or radioactive material

No topics in 2011 call.

II.2.3.5: Other topics: national research activities in other areas

Topic: Fission-2011-3.5.1: Networking and coordination in biodosimetry. The action would seek to better coordinate methodological issues in modern molecular biological dosimetry, e.g. harmonisation and standardisation of assays, inter-comparison exercises, etc. All activities should be strictly complementary to those being conducted at part of on-going projects in the EU Security Research Programme, but in any case support should emphasise

[15] This is to be interpreted as exposures typically encountered in the workplace, the environment and in the use of radiation in medicine for diagnostic purposes. Use of radiation in medical therapeutic practices is excluded except where the effect on healthy/normal tissue can also lead to better understanding of low dose risks.

the specific needs of the Euratom programme (i.e. accident and emergency response) rather than security issues. There will need to be a wide consortium involving national institutes having already been consulted as part of the Euratom TENEB project. **Funding scheme:** Maximum one Coordination and Support Action (coordinating action).

- ***Expected impact:*** Improved accident and emergency response capabilities as regards biodosimetry; facilitated cross-border assistance from labs / institutes in other countries in the event of major incidents.

II.2.4 Activity: Infrastructures

II.2.4.1 Area: Supporting infrastructures

No additional specific new topics in 2011 call, though refer to topics Fission-2011-2.2.1 and Fission-2011-6.0.2.

II.2.4.2 Area: Access to infrastructures

Topic: Fission-2011-4.2.1: Transnational access to large infrastructures. Community support will be provided to cover costs of Transnational Access to Large Infrastructures (TALI) for researchers from Member States and Associated States, other than the state where the infrastructure is established, in order to promote access for researchers to infrastructures that provide essential and unique services to the European research community. Access to researchers from 3rd countries could also be envisaged, where such access is part of the promotion of broader international cooperation with the countries concerned. The active participation of major infrastructure operators and potential users will be required to achieve the objectives. **Funding Scheme:** Coordination and Support Actions (supporting).

- ***Expected impact:*** Optimised use of existing nuclear research infrastructures in Europe in all activities of the programme and facilitated access to these infrastructures by researchers throughout Europe and from 3rd countries.

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II.2.5 Activity: Human Resources, Mobility and Training

II.2.5.1: Training & mobility of research workers

A significant part of the support for human resources, mobility and training will be implemented by encouraging the embedding of this support within the Networks of Excellence, Collaborative Projects and, where appropriate, other actions. It is considered that 5% of the total project budget should be dedicated to these activities. Projects in all areas are therefore encouraged to develop a comprehensive 'training and (trans-national) mobility' package. Proposals for Collaborative Projects and Networks of Excellence will in particular foresee a dedicated budget for:

- The development and delivery of training courses in the subject matter of the project. These courses will be widely announced (preferably posted on the ENEN Website) and open also to non-participating organisations, including, where appropriate, from 3rd countries as an element of international cooperation (see section I.3). This might take place in collaboration with the IAEA. A fee may be requested for attendance. A limited budget, however, should be foreseen to support the attendance costs (fee and travel) for participants from developing countries. This will be organised with the help of

Commission services

- The exchange of research workers aiming at improving synergies between private and public research organisations at international level. A part of the research undertaken in the project will be executed by researchers preparing a doctoral thesis or employed on a post-doctoral position. More use should be made of the funding instruments provided by national and international programmes (e.g. Erasmus Mundus of the Education, Audiovisual and Culture Executive Agency EACEA).

In addition to the above embedded training and mobility activities, proposals for dedicated *Euratom Fission Training Schemes* (EFTS) can be submitted under the following topic, in particular in areas where a shortage of skilled professionals is identified. An EFTS is aimed at structuring research training and career development across the EU, targeting research workers at post-graduate or equivalent level, e.g. from doctoral students to senior visiting scientists, and is a long-term and ambitious programme spread over many years.

- ***Expected impact:*** Through effective coordination at Community level, EU added value as a result of: the establishing of public-private partnerships recognised as international scientific references and training schemes and/or doctoral schools spread over many years and many countries; maximising the transfer of higher-level knowledge and information on technology catering for young as well as experienced research workers; increasing the attractiveness of nuclear research careers across the EU and strengthening links with other Community policies and training networks outside the EU.

Topic: Fission-2011-5.1.1: Euratom Fission Training Schemes (EFTS) in nuclear energy and radiation protection. An EFTS should encourage the involvement of young researchers, address life-long learning and career development of experienced researchers, maximise transfer of higher-level knowledge and technology with emphasis on multi-disciplinarity, trans-national and inter-sectoral mobility of trainees as well as trainers (e.g. industry-academia partnerships across the EU), use a systematic approach to higher-level training (e.g. analysis, design, development, implementation and evaluation) and develop best practice guidelines on the basis of the lessons learned. The ENEN approach, relying on the principles of (i) modularity of courses and common qualification criteria, (ii) common mutual recognition system, (iii) facilitation of mobility for trainers and trainees across the EU, and (iv) feedback from the 'future employers' from public or private sectors, should also apply to EFTS. For this purpose, a *European Passport of Professional Competences* should be developed. Proposals for EFTS should be submitted by networks of (host) organisations, consisting of academia and 'future employers'. 'Think tank' activities should be organised (for instance in line with the strategy of SNE-TP, IGD-TP or MELODI) with the aim to anticipate future training needs and to support policies for the creation of an 'internal market' of nuclear research workers. An EFTS should consist of a mix of collective and/or individual courses and internships addressing a variety of profiles as appropriate (from young recruits to top managers). The drafting and co-funding of co-authored textbooks at higher education level should take place under the control of an international review committee. It is viewed that the active participation of relevant partners from third countries or international organisations should add to the scientific and/or technological excellence of the project and/or lead to an increased impact of the research to be undertaken; this will be considered by the evaluators. Any applied or basic science theme within scope of Euratom FP7 (fission and radiation protection) can be proposed provided it is not already the subject of an EFTS from previous calls. Euratom funding will principally be for the coordination and networking aspects, i.e. scientific secretariat, implementation of joint training programmes, organisation of training events (for example, on the occasion of international conferences), mobility of

trainers and trainees, access to research and training facilities, etc. Other funding sources should be used to pay the grants for individual fellowships (e.g. governmental actions at regional, national and international level, including other Community policy actions). The active participation and contribution of 'future employers', i.e. representatives of system suppliers, energy providers, safety authorities and TSOs, users of ionising radiation in medicine and industry, waste management agencies, etc., is essential. **Funding scheme:** Maximum of three Coordination and Support Actions (coordinating).

II.2.6 Activity: Cross-Cutting Actions

Topic: Fission-2011-6.0.1: Actions supporting programme implementation and other activities. The topic covers the promoting (e.g. innovation and uptake of results) and facilitating of communication and dissemination, contributing to achievement of strategic objectives (e.g. pilot initiatives on benchmarking, mapping, networking, etc.) and preparation of possible future Community actions (e.g. prospective studies, exploratory measures, pilot actions, etc.). Events such as annual workshops and conferences are not covered if they would take place anyway without Commission support and the action does not demonstrably serve strategic objectives. **Funding Scheme:** Coordination and Support Actions (supporting).

- ***Expected impact:*** To help fulfil strategic objectives of the programme (dissemination, ERA, future actions) through support for bottom-up actions.

Topic: Fission-2011-6.0.2: Enhancing involvement of New Member States. Support will be provided for projects that can demonstrably lead to improved participation of New Member States' partners in Euratom Framework Programme actions. Several New Member States have civil nuclear power programmes, and in the Central and East European region in general there is broad and high-level technical expertise in a wide range of nuclear fission-related subjects. Nonetheless, the participation of partners from these countries is often under par in the Euratom fission and radiation protection indirect actions programme. The reasons for this are numerous, complex and often deep rooted, and to be resolved fully may require fundamental action at national level. The precise reasons also vary from country to country. Nonetheless, the greater involvement of these countries in the FP actions will bring benefits for the Community as a whole and not only for the New Member States concerned. For example, as part of the SET-Plan / ESNII / ADRIANA process, or independently through ESFRI, this could lead to more investment in new research infrastructure in these countries. In any event, the actions under this topic are intended to facilitate any process that can lead to increased involvement of these countries in any of the Euratom FP activities. The topic is not to support actual R&D per se, rather to support, for example, (i) networking activities, either of universities and/or research institutes within the region and with similar organisations in the "Old Member States"; (ii) pilot studies to investigate how specific organisations or institutes can better exploit their competences and can integrate more effectively in Community activities, perhaps through a process of internal reorganisation; (iii) outreach activities enabling such organisations to become more closely involved in Community fission-related initiatives or to better exploit their competences; or combinations of these and/or other duly justified actions. Proposals will not be welcome that focus on cooperation in very specific R&D areas, the aim is rather to launch generic projects that can produce results across the board. Nonetheless, synergies may be needed with current projects, such as NUCL-EU on networking of Euratom NCPs, or projects specifically dealing with research infrastructure and/or education & training (e.g. EFTS under II.2.5.1 of this Work Programme). A strong involvement of appropriate organisations from New Member States is of course essential, though projects will often need to include partners from the 'Old MS' as well. All projects

need to be aware of and, where appropriate, interact with the three key 'ERA' initiatives in the fission / radiation protection area, i.e. SNETP, MELODI and IGD-TP. **Funding Scheme:** Coordination and Support Actions (coordinating or supporting).

- ***Expected impact:*** Enhanced involvement of partners from New Member States in Euratom FP projects in the future, thereby enabling a more broad and effective implementation of ERA in the field of nuclear fission, and exploiting the full potential of institutes, universities and other organisation in these countries as regards their infrastructure, human resources and overall competences.

II.2.7 Activity: Cooperation with Third Countries

A structured dialogue has already been established with Russia and China, leading to specific topics in calls 2008 and 2009 respectively. Since then, dialogue has started with other key 3rd countries, e.g. USA (in the context of the EU-US Energy Council) and Ukraine. In both these cases, as with Russia and China, cooperation is being pursued under the umbrella of existing Euratom bilateral agreements.

In any case, where relevant and of mutual interest and benefit, bodies from 3rd countries are encouraged to join (i) proposals / projects as full consortium partners (normally at zero cost to Euratom unless the appropriate case can be made for reimbursement of their costs), or (ii) the end-user groups established within the Euratom projects. In either case, such decisions rest with the Euratom consortia concerned. Topics where international cooperation with 3rd countries is considered to be particularly important are listed below. If bodies from 3rd countries do not wish to, or cannot for legal reasons, sign the Euratom Grant Agreement, alternatively two administratively separate projects (so-called 'coordinated' or 'parallel' projects) could be established, each set up according to the respective rules and procedures, but strongly coupled via a Coordination Agreement (based on the format of a Consortium Agreement) to be signed by all partners engaged in the cooperative action. The European Commission will only reimburse costs of Euratom / Associate Country partners in the Euratom project. The implementation and cooperation will be monitored under the auspices of any existing bilateral agreement between Euratom and the 3rd country concerned.

The Coordination Agreement should deal with issues such as IPR arising between the partners of the two projects, in an analogous way to the functioning of the Consortium Agreement in the case of a normal Euratom project. With the aid of specific legal advice if necessary, the Commission's services will also examine any underlying generic issues.

During the preparation of the Euratom proposals to be submitted under the current call, it is the responsibility of the Euratom proposal coordinators to make contact with the appropriate 3rd country organisations. In the event that coordinated projects are chosen as the most appropriate mechanism, the Euratom partners will work with their 3rd country counterparts to develop the separate Euratom and 3rd country proposals, as well as the coordination mechanism. In such cases, the Euratom proposals should contain information on the scope of work to be carried out in the corresponding 3rd country project and on the coordination mechanism to be used. This information will be taken into consideration by the Euratom experts when evaluating the Euratom proposals, under evaluation criterion 1 (S/T quality – in assessing the scope of the work) and under evaluation criterion 2 (Management – in assessing the effectiveness of the coordination mechanism).

If translations are required, these will be the responsibility of the projects concerned.

- ***Expected impact:*** Added value in terms of better use of resources, a deeper understanding of shared problems, more effective cross-fertilisation, the development of common modes of work and the agreement on common basis approaches to safety and design.

Subjects in which cooperation is welcome

In the following topics, international cooperation is considered particularly appropriate and may be included as an element of the proposals. If such cooperation activities are included, either as part of a single Euratom action (for instance as a separate work package), or as 'coordinated projects' (see above), then due consideration will be taken of the above additional expected impact. Proposals will not be penalised during the evaluation if no such cooperation activities are included.

- Fission-2011-1.1.1: Research activities in support of implementation of geological disposal
- Fission-2011-1.1.2: Support for regulatory functions in the area of geological disposal
- Fission-2011-2.3.1: R&D activities in support of the implementation of the Strategic Research Agenda of SNE-TP
- Fission-2011-3.1.1: Contribution to low-dose risk research in Europe
- Fission-2011-4.2.1: Transnational access to large infrastructures

However, international cooperation is also welcome in all other topics in this work programme on the basis of mutual interest and benefit, except if specifically excluded in the topic text.

III. IMPLEMENTATION OF PROGRAMME AND CALL(S) IN 2011

III.1 Fusion

Activities under the thematic area 'Fusion energy research' will be implemented on the basis of procedures and rules for dissemination and use set out in the following funding schemes with the indicative budget shown in the table 'Euratom Budgetary Overview 2011'.

International agreements

International agreements relate to cooperation with third countries, or any legal entity which may be established by such an agreement, in particular the ITER Agreement.

Contributions to that ITER project and to the Broader Approach projects will be provided by 'Fusion for Energy' as domestic agency for the contribution of Euratom to ITER and as implementing agency for the contribution of Euratom to Broader Approach projects.

International cooperation will also continue for existing bilateral Cooperation Agreements in force between Euratom and Switzerland, Japan, U.S.DOE, Russia, Ukraine, Kazakhstan and South Korea. Further to the collaborative activities of Fusion Associations and EFDA with entities from the aforesaid third States, also other collaborations on specific programmes and projects will be carried out on a bilateral basis, so that the Euratom Cooperation Agreements will integrate all those activities.

In this respect, those Euratom Cooperation Agreements represent the framework encompassing all cooperative activities between Euratom and fusion entities from third States, and will continue to be an important instrument to facilitate the decision-making process at international level.

The focused objective of the Euratom Cooperation Agreements is to develop co-operation on activities in support of or complementary to ITER. In this line, with the Indian ratification of the signed agreement Euratom-India and the conclusion of negotiations with China (both foreseen in 2010), Euratom will have bilateral Co-operation Agreements with all the ITER Parties.

Multilateral cooperation will include participation in the IEA, IAEA and ITPA frameworks, as well as in other frameworks referred in section I.3. The funding of these activities will be through the Contracts of Association, EFDA and the Mobility Agreement.

The European Joint Undertaking for ITER and the Development of Fusion Energy 'Fusion for Energy'

Following the expected finalisation by the mid 2010 of the ITER Base Line, in 2011 the Procurement Arrangements for most of the major components will be finalised and signed between the ITER International Organisation and the Joint Undertaking. This will initiate the process for the related calls for tender for major procurements together with the launching of major R&D activities to finalize design of components on the critical path.

While in 2009 the activities of the Joint Undertaking 'Fusion for Energy' (F4E) were mainly focused on providing support (through specific R&D and design tasks) to the ITER

Organisation for the finalisation of the ITER design and on the launching of the calls for tender for the initial steps to implement the first 3 procurement arrangements signed in 2008 (the Toroidal Field (TF) conductors, the TF Coils, the Poloidal Field (PF) Coil winding building). In 2010 F4E is expected to finalize some major calls for tender (in particular for the fabrication of PF Coils No. 2 to 6; for the Phase 1 of the fabrication of the Vacuum Vessel segments, for the construction of the PF fabrication building and for Architect Engineer Contract for ITER Buildings and Civil Infrastructures) in the critical path.

In 2011 the finalization of calls for tenders for the construction of components will continue with the following major activities:

1) Magnets:

   The expected results on the radial plate prototype for the Toroidal Field Coils should allow the finalisation of the contract for the procurement of all 70 radial plates required for the manufacture of 10 TF coils under EU responsibility,

2) Blanket: signature of the procurement for the first wall prototype;

3) Divertor: finalisation of the call for tender for one full scale cassette body prototype;

4) Building and site

   The construction of the PF Coil Fabrication Building and excavation and drainage of the Tokamak Complex Foundations are expected to be completed by the end of 2011.

   The Architect Engineer is expected to provide the detail design for the Tokamak Complex and adjacent buildings so that the related call for tender for the construction of these buildings can be finalised by the end of 2011.

While implementing work as in any other items of the ITER project, all possible risk mitigation, cost reduction and cost containment actions will be pursued.

Following the signature in 2009 and 2010, by the Joint Undertaking and the Japanese Implementing Agency, for procurement arrangements under the responsibility of the EU, the procurement in Europe of some major components for Broader Approach activities will continue in 2011.

For the JT60SA project 2011 will be a key year as the procurement of the Toroidal Field Magnet will be in place.

For IFMIF the Injector assembly for the Accelerator Prototype will be ready for testing in EU, while for the Test Facilities the neutron irradiation of high flux test modules will be started in BR2 to evaluate heating concepts under radiation conditions. The backplate for the Li Target provided by ENEA will be made available to the Oarai Li test loop for studies of removable target assembly concept.

For IFERC the assembly in Rokkasho of the Super Computer procured in Europe will take place during 2011. Following completion of the DEMO design phase 1 in 2010, real joint work with Japan is scheduled to start with the DEMO design phase 2a while DEMO R&D continues according to plan.

The Commission pursues the fulfilment of the Euratom obligations and of the programmatic objectives of the European fusion programme through the Euratom participation in the various governance bodies of the Joint Undertaking (F4E) and of the international ITER Organization, and actively promotes through those bodies the development and implementation of rigorous cost containment policies and measures.

Contracts of Association

The Contracts of Association renewed under Seventh Framework Programme between the Community and Member States or Euratom Fully Associated Third States or legal entities within Member States or Euratom Fully Associated Third States have an indicative budget that comprises financing of baseline support, with additional support for priority projects, training and career development fellowships and support actions; the total amount for these activities is shown in the table 'Euratom Budgetary Overview 2011'.

For career development fellowships (with a duration of 2 years), the maximum Community contribution will be up to EUR 54 300 per year and per researcher as a living allowance, up to EUR 6000 per year and per researcher for expenses related to the participation to research and training activities (meeting and conference attendance, participation in training actions, research costs, etc), with an additional 3% of the direct costs for management activities and 10% of direct costs as contributions to overheads, excluding costs for subcontracting. The use of the mobility agreement to support mobility of the participants for their training actions, etc will ensure the pan-European nature of the joint training actions. To ensure continuity of employment of the researchers and retention of the best candidates, the start date of the fellowships may be fixed as the date which is the deadline for the Associations to make their proposals.

European Fusion Development Agreement

The European Fusion Development Agreement (EFDA), concluded between the Community and organisations in, or acting for, Member States or Euratom Fully Associated Third States, was renewed under Seventh Framework Programme. The Community support covers research co-ordination activities, training and career development fellowships, support actions, JET S/T Orders implemented under the Contracts of Association, the JET Implementing Agreement (JIA), the JET Operation Contract and the EFDA Host Support Agreement, secondment and assignment of staff.

The global indicative budget for EFDA, (including Host support, JET Operational Contract and JET activities) is shown in the table 'Euratom Budgetary Overview 2011'.

Mobility Agreement and other multilateral agreement

The indicative expenditure for the Mobility Agreement and any other multilateral agreement concluded between the Community and associated organisations is shown in the table 'Euratom Budgetary Overview 2011'.

III.2 Nuclear Fission and Radiation Protection

- **Call Identifier:** FP7-Fission-2011
- **Date of publication:** 20 July 2010[16]
- **Deadline:** 7 April 2011, at 17.00.00, Brussels local time[17]
- **Indicative budget:** EUR 41 000 000 from 2011 budget[18]

The table below provides indicative 2011 budgets for activities defined in the Specific Programme and/or in this work programme (excluding 'other actions' in Section IV):

Group	Activities	Indicative budget repartition (EUR million)
1	Fission-1	7
2	Fission-2	19
3	Fission-3	10
4	Fission-4, 5 & 6	5
	Total	**41**

All budgetary figures in this work programme are indicative under the condition that the appropriations foreseen in the draft budget for 2011 are adopted without modifications by the budgetary authority**.** Following the evaluation of the proposals, the final budget awarded to actions implemented through calls for proposals may vary:

- by up to 10% of the total value of the indicated budget for each call; and
- any repartition of the call budget may also vary by up to 10% of the total value of the indicated call budget.

- **Topics called:**

Usually a maximum of one project will be considered for funding per topic (indicated by a singular under *funding scheme*). Where more than one project per topic could be considered for funding, this is clearly indicated (by a plural) under *funding scheme*. In such cases, the number of possible funded projects may be limited (i.e. a maximum greater than one is specified for that topic).

Activity/*Area*	Topic	Funding Scheme
Management of Radioactive Waste:	**Fission-1**	
Geological disposal	*Fission-1.1*	

[16] The Director-General responsible for the call may publish it up to one month prior to or after the envisaged date of publication.

[17] The Director-General responsible may delay this deadline by up to two months

[18] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority

	Fission-2011-1.1.1: Research activities in support of implementation of geological disposal	Small or medium-scale Collaborative Projects and/or Coordination and Support Actions (coordinating or supporting)
	Fission-2011-1.1.2: Support for regulatory functions in the area of geological disposal	Maximum one Coordination and Support Action (coordinating)
Partitioning and transmutation	*Fission-1.2 (refer to Fission-2011-2.3.1)*	
Reactor Systems:	**Fission-2**	
Safety and competitiveness of existing and future nuclear installations	*Fission-2.1 (refer to Fission-2011-2.3.1)*	
Advanced nuclear systems for increased sustainability	*Fission-2.2*	
	Fission-2011-2.2.1: Support for ESNII *(for other actions refer to Fission-2011-2.3.1)*	Max. of 3 small or medium-scale Collaborative Projects and/or Coordination and Support Actions (coordinating or supporting)
Cross-cutting aspects for nuclear systems	*Fission-2.3*	
	Fission-2011-2.3.1: R&D activities in support of the implementation of the Strategic Research Agenda of SNE-TP	Small or medium-scale Collaborative Projects and/or Coordination and Support Actions (coordinating or supporting) and a maximum one large-scale Collaborative Project
Advanced systems for non-electrical uses of nuclear energy	*Fission-2.4 (refer to Fission-2011-2.3.1)*	
Radiation Protection:	**Fission-3**	
Quantification of risks for low and protracted exposures	*Fission-3.1*	
	Fission-2011-3.1.1: Contribution to low-dose risk research in Europe	Small or medium-scale Collaborative Projects and/or Coordination and Support Actions (coordinating or supporting)
Medical uses of radiation	*Fission-3.2 (refer to Fission-2011-3.1.1)*	
Emergency management and rehabilitation	*Fission-3.3 (no topics in 2011)*	
Malevolent uses of radiation or radioactive material	*Fission-3.4 (no topics in 2011)*	
Other topics	*Fission-3.5*	
	Fission-2011-3.5.1: Networking and coordination in biodosimetry	Maximum one Coordination and Support Action (coordinating action)
Infrastructures:	**Fission-4**	
Supporting infrastructures	*Fission-4.1 (refer to topics Fission-2011-2.2.1 and 6.0.2)*	

Access to infrastructures	*Fission-4.2*	
	Fission-2011-4.2.1: Transnational access to large infrastructures	Coordination and Support Actions (supporting)
Human Resources, Mobility and Training:	**Fission-5**	
Training & mobility of research workers	*Fission-5.1*	
	Fission-2011-5.1.1: Euratom Fission Training Schemes (EFTS) in nuclear energy and radiation protection	Max. of 3 Coordination and Support Actions (coordinating)
Cross-cutting Actions:	**Fission-6**	
Cross-cutting actions	Fission-2011-6.0.1: Actions supporting programme implementation and other activities	Coordination and Support Actions (supporting)
	Fission-2011-6.0.2: Enhancing involvement of New Member States	Coordination and Support Actions (coordinating or supporting)
Cooperation with Third Countries:	**Fission-7** (actions integrated in above topics)	

- **Eligibility conditions:**

  - The general eligibility criteria are set out in Annex 1 and in the guide for applicants. Please note that the completeness criterion also includes that part B of the proposal shall be readable, accessible and printable.
  - Minimum number of participants[19] as set out in the Rules for Participation:

Funding scheme	**Minimum conditions**
Collaborative project (also applicable for a combination of a CP with another funding scheme) and Network of Excellence	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and support action (coordinating type)	At least 3 independent legal entities, each of which is established in a MS or AC, and no two of which are established in the same MS or AC.
Coordination and support action (supporting type)	At least 1 independent legal entity

  - Eligibility criteria for Euratom contribution limits differing from the generic ones in Annex 1 are given in the call text at the level of individual topics (and in the table under 'Topics called' above) and override the generic limits in Annex 1.
  - Only information provided in part A of the proposal will be used to determine whether the proposal is eligible with respect to budget thresholds and/or minimum number of eligible participants.

Proposals that do not conform to the eligibility criteria will be rejected at the eligibility stage and will not be evaluated by the independent experts.

[19] MS = Euratom (EU) Member State; AC = Associated country. Where the minimum conditions for an indirect action are satisfied by a number of legal entities, which together form one legal entity, the latter may be the sole participant, provided that it is established in a Member State or Associated country

- **Evaluation Procedure:**
  - The evaluation criteria (including any weights and thresholds) and sub-criteria together with the eligibility, selection and award criteria for the different funding schemes are set out in Annex 1 to this work programme.
  - Proposal page limits: Applicants must ensure that proposals conform to the page limits and layout given in the Guide for Applicants, and in the proposal part B template available through the EPSS. The Commission will instruct the experts to disregard any pages exceeding these limits.
  - The evaluation will follow a single stage procedure.
  - Proposals will not be evaluated anonymously.
  - Proposals may be evaluated remotely.
  - At the end of the evaluation process, proposals will be ranked within their indicative budget group (see table above) and funded until the indicative budget for this group is exhausted. The budget repartition in this table is indicative and may be varied. Hence there will be competition between topics in the same indicative budget group, and some topics may end up not being supported if proposals fail to reach a high enough standard (even though proposals in other groups with lower overall scores may be funded) or if this work programme limits the maximum number of proposals that may be funded under one single topic. Proposals scoring above all evaluation thresholds, but for which sufficient funding is not available, will be put on a common reserve list for the whole call, from which proposals will be considered for funding if additional funds become available from any part of the call. In the ranked lists per group and the reserve list, all funding schemes have the same weight, the priority order being determined by total score. To separate tied proposals, the score for criterion 1 may be given priority, followed by that for criterion 3, except if otherwise decided and justified by the evaluation panels. Proposals on the reserve list are not carried over for funding from next year's budget. Depending on the strategic nature of the topic in question, the Commission may, in such cases, decide to reinsert the topic in next year's work programme.

- **Indicative evaluation and contractual timetable:** Evaluation: spring 2011; contract negotiation and signature: autumn 2011.

- **Consortia Agreements:** Required for all projects where there is more than one partner. If coordinated projects, as described in II.2.7, are developed, a Coordination Agreement between the Euratom and 3rd country projects, signed by all partners, will also be required.

- **Particular requirements for participation, evaluation and implementation:** None beyond the standard rules and guidelines. The forms of grant and maximum reimbursement rates which will be offered are specified in Annex 2.

- **Use of flat rates for subsistence costs:**
  In accordance with Annex 2 of this work programme, this call provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. For further information, see the relevant Guides for Applicants for this call. The applicable flat rates are available at the following website: http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'.

IV. OTHER ACTIONS FOR 2011

Named Beneficiary Action in favour of the CEA

The JHR (Jules Horowitz Reactor – a material testing research reactor under construction at Cadarache, with start of operation scheduled in 2014) meets critical needs of EU nuclear industry and research institutes to develop expertise in materials and fuel behaviour under irradiation with a view to optimize safety and performance of existing and future nuclear power plants. This research reactor, which is on the ESFRI roadmap 2008, will offer unique advanced material testing capabilities (e.g. high flux neutron irradiation, on-line instrumentation, specific safety systems) that are consistent with the current state-of-the-art experimental and numerical simulation techniques. JHR will be operated by a consortium of government agencies and industrial partners from several EU Member States (eleven partners as of end of 2008). Following agreement between Euratom and the CEA regarding Community support to the JHR, Euratom will pay up to €12.5M via the programme of Indirect Actions before the end of 2011, ensuring appropriate future access rights for Euratom researchers to this important research infrastructure and therefore enabling Euratom to fulfil its long-term objectives in nuclear safety and nuclear systems research. €1.75M have already been provided through the collaborative project (JHR-CP), which was selected as part of the 2007 Call for Proposals and which has now been successfully completed. The balance of €10.75M will be provided via a 'grant to a named beneficiary' as part of the current Work Programme (Support Action, in accordance with Article 13 of the Euratom Rules for Participation[20]).

Legal entity: COMMISSARIAT A L' ENERGIE ATOMIQUE (CEA), RUE LEBLANC 25, PARIS 15, 75015, France. The Euratom contribution will be EUR 10 750 000. The financing will be via a lump sum payment in accordance with Article 29 of the Euratom Rules for Participation and Article 108a of the Financial Regulations. The rate of financing is maximum 100% (in accordance with Article 32 of the Euratom Rules for Participation for Coordination and Support Actions). The evaluation, selection and award criteria for Support Actions (see Annex 1) will be followed.

- ***Expected impact:*** Increased effectiveness of all Euratom-funded research requiring access to irradiation facilities such as material testing reactors through assured availability of the irradiation facility and access to the neutrons produced, thereby enabling fulfilment of key objectives of Euratom research in areas such as nuclear installation safety and advanced reactor systems.

[20] OJ L 54/4, 22.2.2007, p.32

V. BUDGET

		Year 2011[21]
Calls	Call FP7 Fission	41,000,000
Experts, Evaluators	Evaluation of proposals, Project review	250,000
Other	European JU for ITER	351,760,000
	COA('baseline support, and additional support under EFDA outside JET'')	39,330,000
	EFDA('JOC and JET orders')	pm[22]
	Mobility and other agreements	5,000,000
	Named beneficiary action (JHR) (Fi)	10,750,000
Estimated Total Budget Allocation		**448 090 000**

All budgetary figures in this work programme are indicative and are limited to the draft budget for 2011. The 2011 Work Programme might need updating as soon as the final 2011 Third Party Income is available.

Following the evaluation of the proposals the final budget awarded to actions implemented through calls for proposals may vary:

- by up to 10% of the total value of the indicated budget for each call; and
- any repartition of the call budget may also vary by up to 10% of the total value of the indicated budget

The final budgets for evaluation, monitoring and review may vary by up to 20% of the indicated budgets for these actions. The final budget awarded for actions in the fission theme, not implemented through calls for proposals, may vary by up to 10% of the indicated budgets for these actions.

[21] Under the condition that the draft budget for 2011 is adopted without modifications by the budgetary authority. This indicative budget does not include Contributions of Associated Countries and JET Joint Fund Contributions.

[22] The available budget for JET suffers from the ITER requirements. An update of the WP 2011 should be foreseen

VI. INDICATIVE PRIORITIES FOR FUTURE WPs AND CALLS

The 2011 Work Programme is the fifth and final annual programme of Euratom FP7 (2007-2011). The Commission should adopt a new Framework Programme for the years 2012-2013 by early 2012. Unless decided otherwise by the Council the fission & radiation protection calls for proposals are expected to follow the same pattern as in the current framework programme. The fusion part of the work programme will essentially concentrate on the construction of ITER and on its accompanying programme.

LIST OF ANNEXES

1) Eligibility and Evaluation Criteria for Proposals
2) Table for Forms of Grants and Maximum Reimbursement Rates for Projects Funded through the Euratom Work Programme

Annex 1: Eligibility and Evaluation Criteria for Proposals

Eligibility criteria

A proposal will only be considered eligible if it meets all of the following conditions:

- It is received by the Commission before the deadline given in the call text.
- It involves at least the minimum number of participants given in the call text.
- It is complete (i.e. both the requested administrative forms and the proposal description are present)
- The content of the proposal relates to the topic(s) and funding scheme(s), including any special conditions, set out in those parts of the relevant work programme
- Collaborative projects are subdivided into (i) large-scale (i.e. integrating) projects and (ii) small or medium-scale (i.e. focused) research projects. The generic fixed threshold (in terms of the Euratom financial contribution) between the two types of collaborative projects in this Work Programme is EUR 3.0 million. This is an eligibility criterion. In the case of large-scale integrating Collaborative Projects, the Euratom contribution is limited in this work programme to a generic maximum of EUR 6.0 million**.** This is an eligibility criterion.
- The Euratom contribution to Networks of Excellence is limited in this work programme to a generic maximum of EUR 6.0 million. This is an eligibility criterion.
- The Euratom contribution to combinations of Collaborative Project and Coordination Action (Integrated Infrastructure Initiative or I3 scheme) is limited in this work programme to a generic maximum of EUR 3.0 million. This is an eligibility criterion.
- The Euratom contribution to Coordination and Support Actions is limited to a maximum of EUR 1.0 million. This is an eligibility criterion.
- Other eligibility criteria (in terms of Euratom contribution limits) may be given in the work programme at the level of individual topics (see also the table under III.2), in which case they override the generic limits above.

Evaluation criteria

The criteria against which proposals will be evaluated are set out in articles 14 and 15 of the Rules for Participation. For the 'Euratom' specific programme these are:

- scientific and/or technological excellence;
- relevance to the objectives of these specific programmes[23];
- the potential impact through the development, dissemination and use of project results;

[23] **Relevance**: A proposal may be **partially relevant** if it addresses only marginally the topic(s) of the call, or if only part of the proposal addresses them. Such conditions will be reflected in the evaluation of the first criterion ('S/T excellence'). The degree to which a proposal is relevant to the objectives of a call will be reflected in the evaluation of the third criterion ('impact'). Proposals that are clearly not relevant to a call ('out of scope') will be rejected on eligibility grounds before the evaluation.

– the quality and efficiency of the implementation and management.

Within this framework, the work programmes will specify the evaluation and selection criteria and may add additional requirements, weightings and thresholds, or set out further details on the application of the criteria.

The purpose of this annex is to set out such specifications. Unless otherwise indicated in the relevant parts of this work programme, the criteria, weightings and thresholds given here will apply to all calls for proposals.

Proposals will be evaluated in line with the Commission 'Rules on Submission of Proposals and the Related Evaluation, Selection and Award Procedures'.

A proposal which contravenes fundamental ethical principles, fails to comply with the relevant security procedures, or which does not fulfil any other of the conditions set out in the specific programme, the work programme or in the call for proposals shall not be selected. Such a proposal may be excluded from the evaluation, selection and award procedures at any time. Details of the procedure to be followed are given in the Commission rules mentioned above.

The arrangements for a particular call will be set out in the relevant Guide for Applicants.

Evaluation criteria → / Funding scheme ↓		1. Scientific and/or technological excellence (relevant to the topics addressed by the call) (award)	2. Quality and efficiency of the implementation and the management (selection)	3. The potential impact through the development, dissemination and use of project results (award)
All funding schemes		• *Soundness of concept, and quality of objectives*	• Appropriateness of the management structure and procedures • Quality and relevant experience of the individual participants	• *Contribution, at the European [and/or international level], to the expected impacts listed in the work programme under relevant topic/activity*
Collaborative Projects		• *Progress beyond the state-of-the-art* • Quality and effectiveness of the S/T methodology and associated work plan	• Quality of the consortium as a whole (including complementarity, balance) • Appropriateness of the allocation and justification of the resources to be committed (staff, equipment)	• Appropriateness of measures for the dissemination and/or exploitation of project results, and management of intellectual property.
Networks of Excellence		• *Contribution to long-term integration of high quality S/T research* • Quality and effectiveness of the joint programme of activities and associated work plan	• Quality of the consortium as a whole (including ability to tackle fragmentation of the research field, and commitment towards a deep and durable integration) • Adequacy of resources for successfully carrying out the joint programme of activities	• Appropriateness of measures for spreading excellence, exploiting results, and disseminating knowledge, through engagement with stakeholders and the public at large.
Co-ordination & Support Actions	**CA**	• Contribution to the co-ordination of high quality research • Quality and effectiveness of the co-ordination mechanisms, and associated work plan	• Quality of the consortium as a whole (including complementarity, balance) [for SA: only if relevant] • Appropriateness of the allocation and justification of the resources to be committed (staff, equipment)	• Appropriateness of measures for spreading excellence, exploiting results, and dissemination knowledge, through engagement with stakeholders, and the public at large.
	SA	• Quality and effectiveness of the support action mechanisms, and associated work plan		

Notes:

1. Evaluation scores will be awarded for each of the three criteria, and not for the sub-criteria. Each criterion will be scored out of 5. No weightings will apply. The threshold for individual criteria will be 3. The overall threshold, applying to the sum of the three individual scores, will be 10.
2. The second column corresponds to the **selection criteria** in the meaning of the financial regulation[24] (article 115) and its implementing rules[25] (article 176 and 177). They also will be the basis for assessing the 'operational capacity' of participants. The other two criteria correspond to the **award criteria**.
3. For the evaluation of first-stage proposals under a two-stage submission procedure, only the sub-criteria in italics apply.

[24] OJ L248 16.9.2002, p1
[25] OJ L357 31.12.2002, p1

If the topic requires a funding scheme which is a **combination of a Collaborative Project and a Coordination Action** (covering integration, networking, transnational access and joint research, along the lines of the FP6 I3 – Integrated Infrastructures Initiatives), the evaluation criteria, taken from the Specific Programme 'Capacities'[26], are:

Evaluation criteria applicable to **Integrated Infrastructure Initiative project proposals (I3)**		
1. S/T QUALITY **'Scientific and/or technological excellence (relevant to the topics addressed by the call)'**	**2. IMPLEMENTATION** **'Quality and efficiency of the implementation and the management'**	**3. IMPACT** **'Potential impact through the development, dissemination and use of project results'**
• Clarity of the objectives and quality of the concept. • Contribution of the overall project to the provision of integrated services and to the co-ordination of high quality research. • Quality and effectiveness of the Trans-national Access and Services, and associated work plan: The extent to which the activities will offer high quality services, access to state-of-the- art infrastructures, and will enable users to conduct high quality research. • Quality and effectiveness of the Joint Research Activities and associated work plan: The extent to which the activities will contribute to quantitative and qualitative improvements of the services provided by the infrastructures. • Quality and effectiveness of the co-ordination mechanisms and associated work plan: The extent to which the Networking Activities will foster a culture of co-operation between the participants, and enhance the services to the users.	• Appropriateness of the management structure, the management procedures, and the implementation plan to achieve the objectives of the project. Quality and relevant experience of the individual participants and quality of the consortium as a whole (including complementarity, balance, critical mass). • Appropriate allocation and justification of the resources to be committed (, staff, equipment), by task and participant.	• Contribution at the European level of the access and service activities towards an improved access to - and use of - the pool of research infrastructures and new opportunities of access and use for researchers from across the EU. • Contribution at the European level of the Joint Research Activities towards an optimum development of research infrastructures. • Contribution at the European level of the collaborative arrangements put into place and the perspectives for their long-term sustainability, towards a structuring impact on the pool of research infrastructures in Europe. • Appropriateness of measures envisaged for the management of intellectual property and for the dissemination and/or exploitation of project results among operators/users of research infrastructures.

The second column corresponds to the selection criteria in the meaning of article 115 of the financial regulation (see previous table).

[26] Council Decision 2006/974/EC of 19 December 2006 adopting the specific programme "Capacities" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 - 2013) (OJ L 400, 30.12.2006, p.299)

Annex 2: Table for Forms of Grant and Maximum Reimbursement Rates for Projects Funded through the Euratom Work Programme

Forms of Grant

The FP7 'Rules for Participation' propose three potential forms of grant for the Community financial contribution: reimbursement of eligible costs, flat rate financing including scale of unit costs, and lump sum financing. In this work programme, for all funding schemes in the call for proposals, the reimbursement of eligible costs (including the different options for flat rates on indirect costs as established in Article 31 of the Rules for Participation) will be the only form of grant used[27].

In accordance with Article 2 of the Commission Decision of 23 March 2009 under reference C (2009) 1942, the present work programme provides for the possibility to use flat rates to cover subsistence costs incurred by beneficiaries during travel carried out within grants for indirect actions. The applicable flat rates are available at the following website http://cordis.europa.eu/fp7/find-doc_en.html under 'Guidance documents/Flat rates for daily allowances'. Please note this option is only available when stated explicitly in the call fiche.

Maximum Reimbursement Rates

The upper limits foreseen in the Rules for Participation (Article 32) for the Community financial contribution are summarised in the following table.

	Secondary and higher education establishments and SMEs[28]	All other organisations
Research and technological development activities	75%	50%
Demonstration activities	50%	50%
Coordination and support actions and actions for the training and career development of researchers	100%	100%
Management, audit certificates and other activities[29]	100%	100%

[27] This annex does not apply to the funding schemes listed under section III.1 (fusion energy), except where the activities are implemented through calls for proposals.

[28] For the purposes of this call, and in order to maximise the potential of the limited funds of the Euratom Programme in Fission, the upper limit of 75% for RTD activities applies only for educational establishments and SMEs. For other entities mentioned specifically in the Rules for Participation, an upper limit of 50% will be applied.

[29] Including, inter alia training in actions that do not fall under the funding schemes for training and career development of researchers, coordination, networking and dissemination (as set out in Article 32(4) of the Rules for Participation).