



EN

Euratom

Work Programme 2018

(European Commission Decision C(2018)6365 of 3 October 2018)



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Introduction

This Work Programme (WP) implements the Euratom Research and Training Programme (2014-18) ('Euratom Programme')¹ for 2018. As laid down by Regulation (Euratom) No 1314/2013, the general objective of the Euratom Programme is to support nuclear research and training activities with an emphasis on continually improving nuclear safety and radiation protection. It will add to the wellbeing of EU citizens by contributing to the development of a safe and low-carbon energy system at European level, in both the short and longer term, whilst also addressing other useful applications of nuclear research in the medical and industrial sectors. This is the last Work Programme for the current Euratom Programme. The Commission presented on 1st December 2017 a proposal for the extension of the Programme for the years 2019-2020².

The Euratom WP 2018 supports, within the mandate of Regulation (Euratom) No 1314/2013, nuclear research, innovation and market-uptake actions linked to the core priorities identified in the Energy Union Strategy. The Commission Communication³ states that "*Nuclear energy presently produces nearly 30% of the EU's electricity. The EU must ensure that Member States and associated countries use the highest standards of safety, security, waste management and non-proliferation. The EU should also ensure that it maintains technological leadership in the nuclear domain, including through ITER, so as not to increase energy and technology dependence.*" The Energy Union priorities are jointly implemented by the stakeholder community, national authorities and the Commission through the 10 key actions of the EU Strategic Energy Technology Plan (SET Plan)⁴. Action No. 10 focuses on '*Maintaining a high level of safety of nuclear reactors and associated fuel cycles during operation and decommissioning, while improving their efficiency*'⁵. It should be recalled that financial support to Action 10 (if any) via the Euratom Programme will continue to be restricted to research addressing safety, waste management, radiation protection as well as education and training, in accordance with the underlying legal framework of Regulation No 1314/2013.

When preparing this Work Programme, the Commission took into consideration the comments received from Member States as well as strategic documents of Euratom collaborative platforms such as the Sustainable Nuclear Energy Technology Platform (SNETP) – composed of the three major pillars: Generation II & III Association (NUGENIA), the European Sustainable Nuclear Industrial Initiative (ESNII) and Nuclear Cogeneration Industrial Initiative (NC2I) – the Implementing Geological Disposal Technology Platform

¹ Council Regulation (Euratom) No 1314/2013 of 16 December 2013 on the Research and Training Programme of the European Atomic Energy Community (2014-2018) complementing the Horizon 2020 Framework Programme for Research and Innovation.

² COM (2017) 698

³ COM (2015) 80.

⁴ C(2015) 6317

⁵ <https://setis.ec.europa.eu/implementing-integrated-set-plan/nuclear-safety-ongoing-work>

(IGD-TP) and the Multidisciplinary European Low-Dose Initiative (MELODI) and other European fora like the European Nuclear Energy Forum (ENEF), the European Nuclear Safety Regulators Group (ENSREG), the European Technical Safety Organisations Network (ETSON), the European Atomic Forum (FORATOM), the European Energy Research Alliance Joint Programme on Nuclear Materials (EERA JPNM), the Generation IV International Forum (GIF), the Heads of the European Radiological Protection Competent Authorities (HERCA) together with dedicated international working groups of the Nuclear Energy Agency (OECD/NEA) and the International Atomic Energy Agency (IAEA) at international level.

Euratom-funded fission research is primarily aimed at enhancing the safety of nuclear energy technology. It also contributes to the development of safe and publicly acceptable solutions for the management of radioactive waste and to the advancement of understanding of the effects of low doses of ionising radiation on humans and the environment. This research continues to be guided by the results of the Interdisciplinary Study *'Benefits and Limitations of Nuclear Fission for a Low Carbon Economy'*⁶, which was presented at the 2013 Symposium of the same name co-organised by the Commission and the European Economic and Social Committee.

In addition to supporting research on nuclear safety, waste management and radiation protection, the Euratom WP 2018 places emphasis on research for decommissioning of nuclear installations, promotion of innovation and education and training. In this context, each Research and Innovation Action in this Work Programme is required to dedicate at least 5% of the total action budget to education and training activities for PhD students, postdoctoral researchers and trainees. This will allow for implementing the Programme's specific objective provided in Article 3(2)c of Regulation 1314/2013 ('supporting the development and sustainability of nuclear expertise and excellence in the Union'). Actions presented in the present Work Programme are in line with and support the implementation of Council Directives 2009/71/Euratom⁷, 2011/70/Euratom⁸ and 2013/59/Euratom⁹.

In fusion research, Euratom WP 2018 aims at supporting preparations for open data access.

International cooperation remains an important element of Euratom activities and continues to be implemented under the various multilateral frameworks (OECD/NEA, IEA, IAEA, GIF, etc.), as well as through the bilateral Euratom cooperation agreements with third countries.

Open research data

⁶ <http://www.eesc.europa.eu/?i=portal.en.events-and-activities-symposium-on-nuclear-fission>

⁷ Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations (OJ L 172, 2.7.2009, p. 18).

⁸ Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste (OJ L 199, 2.8.2011, p. 48).

⁹ Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom (OJ L 13, 17.1.2014, p. 1).

Grant beneficiaries under this work programme part will engage in research data sharing by default, as stipulated under Article 29.3 of the Horizon 2020 Model Grant Agreement¹⁰

(including the creation of a Data Management Plan). Participants may however opt out of these arrangements, both before and after the signature of the grant agreement. More information can be found under General Annex K of the work programme

¹⁰ http://ec.europa.eu/research/participants/data/ref/h2020/mga/gga/h2020-mga-gga-multi_en.pdf

Call - Nuclear Fission, Fusion and Radiation Protection Research

NFRP-2018

The activities funded by the current Work Programme have been developed in accordance with Regulation (Euratom) No 1314/2013. They are organised in seven sections:

- A. Nuclear safety
- B. Decommissioning and environmental remediation
- C. Radioactive waste management
- D. Education and training
- E. Radiation protection
- F. Promote innovation in nuclear safety
- G. Fusion research

Where appropriate, social science and humanities, socio-economic issues and trans-national access to research infrastructures are addressed within each of the seven sections.

In line with the strategy for EU international cooperation in research and innovation¹¹, legal entities established in third countries will be eligible for funding when such funding is explicitly stipulated in the call.

In carrying out the activities proposed in the WP, due attention should be paid to education and training and to dissemination of research results through scientific publications, as well as to the exploitation of research results by the stakeholders concerned.

The use of nuclear technology in the EU has an outstanding nuclear safety record but research is still needed to maintain a high level of safety in operating nuclear facilities, including the treatment and long-term management of associated radioactive waste; and to better understand the risks and hazards associated with the use of radiation in medicine and industry.

A. Nuclear safety

Proposals are invited against the following topic(s):

¹¹ COM(2012)497.

NFRP-2018-1: Safety assessments to improve accident management strategies for Generation II & III reactors

Specific Challenge: EU nuclear plants need to demonstrate compliance with evolving and stringent safety requirements. Moreover, lessons learned from past accidents should be used to update existing accident management strategies. Therefore, the capability of current simulation tools to correctly cover all segments of the safety assessment methods and accident phenomenology should be verified and validated. This action should support further integration of the EU research community in providing reliable calculation results.

Scope: Update and development of simulation tools and their experimental validation to improve safety features (including the performance and reliability of passive systems) and accident management strategies for GEN II, GEN III and GEN III+ reactors. The action should address technology gaps and focus on issues still not yet completely covered by past design-basis and severe accident research for GEN II, GEN III and GEN III+. Further, source term re-assessments should be done with a particular emphasis on innovative accident management strategies aiming at assessing human reliability issues and at guarantying a core heat-sink for all kind of accident sequences. The results should be reflected in the severe accident management guidelines (SAMG) and recommendations should be formulated to improve measures for emergency preparedness and response in order to reduce the burden of the emergency plans and possibly reduce the impact of evacuation plans.

At least 5% of the total action budget must be dedicated to Education and Training activities for PhD students, postdoctoral researchers and trainees supported through the action.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 2.1 and up to a maximum of EUR 3.2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: This action is expected to close remaining design-basis and severe accident open issues in the next decade as well as to support assessments of Nuclear Power Plants' safety based on results of simulation codes, use of experimental data and estimate of risks to increase safety margins of power plants under operation. The results and recommendations for improving emergency response measures will be reflected and integrated into SAMG and accident management strategies. Furthermore, this action is to draw on the unique EU expertise in order to enhance nuclear safety whilst also boosting the EU safety requirements' implementation.

Type of Action: Research and Innovation action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

NFRP-2018-2: Model development and safety assessments for Generation IV reactors

Specific Challenge: The first deployable Generation-IV (GEN IV) reactors are expected to be operational in less than 30 years' time and in the meantime, GEN IV concepts and designs currently under development will need to demonstrate compliance with more stringent safety requirements. In this context, a significant increase in the safety levels compared to current technologies is expected to be demonstrated. Gen IV should exhibit more controlled behaviour in the case of severe accidents. The challenge is to develop new assessment and simulation tools for GEN IV with respect to expected safety features.

Scope: The development and validation of new simulation tools should be performed for GEN IV reactors, aimed at the prevention of severe accidents. The action can cover concepts for barriers to accidents and their modelling for example GEN IV coolants, liquid fuels, fissile and fertile mixtures, fuel for transmutation, innovative automatic control and passive systems, etc. Proposed models for safety demonstrations as well as quantitative risks' estimate should be evaluated and will encompass experiments as well as numerical simulations. Therefore, this action will include the generation of data from experiments aimed at the validation of simulation tools. This activity will also ensure that research and technical expertise on GEN IV reactors' safety is shared effectively at EU level.

At least 5% of the total action budget must be dedicated to Education and Training activities for PhD students, postdoctoral researchers and trainees supported through the action.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 1.75 and up to a maximum of EUR 3.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: This action is expected to bring new simulation models and tools to the research community, able to support GEN IV reactors safety assessment in the next decades. These simulation codes, validated on the basis of GEN IV-focussed experimental data and determination of risks will lead to increased safety margins for this generation's designs and concepts. Development in GEN IV fission technology must be driven by key safety goals to meet EU nuclear safety standards. It is also expected that progress achieved in GEN IV models could contribute to safety improvements in other nuclear energy systems and components and have an impact on public understanding whilst also boosting the EU technological progress.

Type of Action: Research and Innovation action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

NFRP-2018-3: Research on the safety of Light Water Small Modular Reactors

Specific Challenge: Small Modular Reactors (SMRs) are considered as an interesting option for electricity production, offering a compact size allowing for in-factory assembly and transport on-site and export potential. They are expected to be easier to build and to operate under certain site conditions. The smaller size of the reactor also offers interesting safety features, notably in terms of residual heat removal and size of containment structure. Compliance with the safety objective as established by Article 8a of Directive 2009/71/Euratom may significantly vary depending on the safety options of the proposed design and need to be further investigated. Light Water SMRs are expected to undergo safety demonstrations during next 10 to 15 years in compliance with Article 8a of that Directive.

Scope: This action should investigate improved safety features of Light Water SMRs and provide a set of fundamental technical specifications, against which compliance of SMRs with Directive 2009/71/Euratom could be tested by safety regulators. The research should also propose the methodology for the performance of these tests, including the experimental validation of essential items of the proposed models of safety demonstration as well as their effects on the SMR licensing process under various typical fields of application. Due account should be taken of safety features for the refuelling and spent fuel management of SMRs in the above safety demonstration as well as to decommissioning. To increase the impact of the action, particular attention should be paid to Light Water SMR concepts deployable in the short-term.

At least 5% of the total action budget must be dedicated to Education and Training activities for PhD students, postdoctoral researchers and trainees supported through the action.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 1.75 and up to a maximum of EUR 3.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: This action is expected to allow the EU, within the next decade, to establish a baseline for testing of compliance of Light Water SMR concepts with the requirements of Directive 2009/71/Euratom. The methodology developed by this action and the following safety demonstration might also establish a baseline for SMR's licensing process, and thus lead to licensed and operating Light Water SMR demonstrators in the next 10 to 15 years. Moreover, it will pave the way for robust science-based recommendations to decision makers regarding nuclear safety of Light Water SMRs at EU level. In the longer term, it will reinforce the EU's commercial prospects and competitiveness in this field.

Type of Action: Research and Innovation action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

NFRP-2018-4: Improved nuclear data for energy and non-energy modelling applications.

Specific Challenge: This action should provide reliable nuclear data and IT tools to be used for different nuclear energy and non-energy applications, mainly in the field of fission, radiation protection, safety, sustainability and enhancement of nuclear technologies. It should among others improve and develop related Data Bank services to scientists, assist member countries in benchmarking, testing and evaluating High Priority Nuclear Data sets, support access to key experimental infrastructures that address specific measurement capabilities and methodologies, preserve know-how in computer applications, nuclear data evaluation and validation of models, make available expertise and knowledge transfer by strengthening existing cooperation with international organisations such as OECD/NEA and IAEA nuclear Data sections.

Scope: The combination of advanced simulation models and more accurate nuclear data will allow optimising the use of and need for experimental and demonstration facilities in energy and non-energy applications such as the design improvement, optimisation of waste management and geological disposal, and support to a multidisciplinary approach in radiation protection. A concerted effort including new nuclear data measurements, dedicated benchmarks (i.e. integral experiments) and improved evaluation and modelling is needed in order to achieve the required accuracies. The action should aim among others to obtain high precision nuclear data for the major actinides present in advanced reactor fuels, to reduce uncertainties in new isotopes in closed cycles with waste minimisation, to better assess the uncertainties and correlations in their evaluation.

At least 5% of the total action budget must be dedicated to Education and Training activities for PhD students, postdoctoral researchers and trainees supported through the action.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 1.75 and up to a maximum of EUR 3.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: This action is expected to contribute to the enhancement of safety and competitiveness of European industry in nuclear field, resource efficiency and cost-effectiveness of nuclear energy and non-energy applications. It will also reinforce the responsibility of the research community in formulating robust science-based policy recommendations to decision makers.

Type of Action: Research and Innovation action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

B. Decommissioning and environmental remediation

NFRP-2018-5: Development of a roadmap for decommissioning research aiming at safety improvement, environmental impact minimisation and cost reduction

Specific Challenge: Decommissioning is currently recognised as a fixed part of nuclear facilities lifecycle which cannot be neglected when developing a roadmap to a sustainable energy future. This also reflects the public interest, as well as the contemporary principle of environmental sustainability related to any industrial activity. Though various dismantling techniques are at the level of industrial maturity, there are still specific challenges regarding achievement of high safety level, efficiency and cost-effectiveness of dismantling operations. Public research has a potential role to play in supporting safety of decommissioning and in reducing environmental impact of decommissioning. To this end, the research should provide solutions for dismantling and decontamination processes and techniques and the standardisation of processes (e.g. waste characterisation, material clearance, site release, disposal of any arising waste, etc.).

Scope: The aim of the action is to support decommissioning stakeholders in preparing a roadmap/strategy for decommissioning research in the near future. In particular, the action would include: identification of R&I needs and possible funding schemes; identification of innovative techniques and methods; standardised measures and indicators applied to estimated and actual decommissioning costs; sharing of cost information and benchmarking; knowledge management and exchange of best practices; specific workforce planning for dismantling, decommissioning and environmental remediation; harmonisation of safety standards; education and training, etc. All activities to be performed under this action should aim at safety improvement, cost reduction and environmental impact minimisation of dismantling and decommissioning.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 1.1 and up to a maximum of EUR 1.4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: A roadmap for decommissioning research will provide guidance to stakeholders and the Commission on the steps needed during the next 10-15 years for the development of knowledge on decommissioning and its safety, economic and environmental aspects. It should support future coordination of R&I efforts, which currently tends to be sporadic and overlapping.

Type of Action: Coordination and support action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

C. Radioactive waste management

NFRP-2018-6: European Joint Research Programme in the management and disposal of radioactive waste

Specific Challenge: In Europe, the challenges in the field of radioactive waste management (RWM) include:

- to increase knowledge for the safe start of operation of the world's first geological disposal facilities for high-level and long-lived radioactive waste / spent nuclear fuel in the advanced Member States within the next decade while also advancing all Member States national programmes as rapidly as possible in line with requirements under Directive 2011/70/Euratom and Commission report COM(2017) 236 final¹²;
- to improve, innovate and develop science and technology for the management and disposal of other radioactive waste categories; and to manage and transfer knowledge and competences between generations and across Member States' national programmes.

Scope: In view of the shared goals and clear scope for synergies in this field, the aim is to establish and implement a European Joint Programme (EJP) in the safe management and disposal of radioactive waste, bringing together a broad range of involved parties with scientific and technical responsibilities and a national mandate for research in RWM, and that are willing to pool resources in order to improve critical mass, efficiency and effectiveness in the implementing of solutions across Europe. "*Mandated actors*"¹³, which are nationally mandated for financing and implementing RD&D on radioactive waste management and disposal, shall be eligible for participation, as well as radioactive waste producers. The proposed EJP should follow on from the development work carried out as part of the Euratom JOPRAD project with extensive consultation of the Member States national programmes and the research community. The EJP will be co-funded via the Euratom Programme, with reimbursement based on the total declared eligible costs of the partners. The EJP should be goal-oriented, with clear and agreed high-level milestones in order to enable easy monitoring of progress. The scope of the EJP should include all the scientific and technical areas and all the horizontal activities related to knowledge management covered in the SRA (Strategic Research Agenda) elaborated by JOPRAD. The SRA should enable joint research activities on the domains of management (pre-disposal) and disposal of radioactive waste (RW) defined in Directive 2011/70/Euratom. The SRA should be translated into a deployment strategy, or roadmap, with clear objectives, deliverables and high-level milestones for technical solutions

¹² COM (2017) 236 final: Report from the Commission to the Council and the European Parliament on progress of implementation of Council Directive 2011/70/Euratom and an inventory of radioactive waste and spent fuel present in the Community's territory and the future prospects

¹³ 'Mandated actors' in the field include: (i) Waste Management Organisations (WMOs) whose mission covers the management and disposal of radioactive waste, (ii) Technical Support Organisations (TSOs) carrying out activities aimed at providing the technical and scientific basis for notably supporting the decisions made by a national regulatory body and (iii) nationally funded Research Entities (REs) which are involved in the R&D of radioactive waste management, under the responsibility of Member States.

per waste streams and waste types and on knowledge management. The roadmap may extend beyond the duration of the EJP, or the duration of support from the Euratom Programme. A clearly defined roadmap and project-oriented approach to its implementation during the period of the EJP is expected to lead to the breakdown of the scientific and technical activities into work packages with specific projects, to which all involved parties (EJP partners) with the appropriate competences can participate. Projects should cover areas of interest for the small and large, advanced and less-advanced waste management programmes and should allow later inclusion of new partners. The projects should be defined by technical scope and should not be reserved for just one type of participant. An appropriate internal governance should be established through a consortium agreement, and include a 'programme office', to which staff from the partners can be seconded on a full-time basis. The 'programme office' will have a strategic role in ensuring implementation of the EJP as well as managing day-to-day activities. An appropriate means of allocation of project tasks and funding amongst the partners will need to be established on a yearly basis and take into account emerging Science and Technology (S/T) as well as Euratom research priorities. This action aims at the establishment of the European Joint Programme and open calls for proposals for third party grants are not necessary. The EJP should cover all related activities: common research and strategic studies, sharing of facilities, knowledge management, mobility and training of researchers. The involvement of external stakeholder groups should be designed into the governance mechanism, e.g. to enable Civil Society Organisations (CSOs) to advise and comment on activities. To maximise knowledge management and especially the impact on the smaller and less advanced national programmes, horizontal activities should be prioritised, including i) the development of State-of-the-art documentation (e.g. text books), guidance documents for planning and implementing research, ii) training courses organised, as appropriate, with European forums and activities on education and international organisations, and iii) hands-on-training via mobility measures. In addition, the EJP should be open to international R&D cooperation and the EJP managers would be expected to represent the EJP in areas of competence in international events and forums.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 26 and a maximum of EUR 32.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: In line with the objectives of Directive 2011/70/Euratom, this action should lead, within the next decade and across Europe, to the safe start of operation of the world's first geological disposal facilities for high-level and long-lived radioactive waste / spent nuclear fuel as well as improvement, innovation and development of science and technology for the management and disposal of other radioactive waste categories, in particular, radioactive waste streams for which industrially mature processes currently do not exist. Implementation of the action should result in greater cross-fertilisation and interaction between national programmes in key areas of general interest, improved knowledge management and transfer between actors. More particularly, EJP is a unique opportunity for

less advanced programmes to benefit from integration process in the area of radioactive waste management.

Type of Action: COFUND (European Joint Programme)

The conditions related to this topic are provided at the end of this call and in the General Annexes.

D. Education and Training

NFRP-2018-7: Availability and use of research infrastructures for education, training and competence building

Specific Challenge: Euratom legislation requires education and training to be available in order to maintain nuclear competences, especially for the staff responsible for nuclear safety, so as to obtain, maintain and broaden expertise and skills. A key concern of policy makers, regulators and industry in the EU is that availability of trained staff could be at risk, especially as a result of the expected high level of retirement and lack of interest among young generation. At the same time, due to high costs, the high quality research and training facilities are spread parsimoniously among countries and unevenly distributed. In this context, a scheme offering access to research and training infrastructures is essential to ensure adequate supply of suitable personnel for many nuclear domain disciplines and for the strengthening of the nuclear safety culture.

Scope: The aim is to develop a scheme for supporting access to equipment and facilities of EU nuclear research laboratories for graduate and post graduate students, researchers and technicians. A key role of nuclear research infrastructures operators is required in this action. Links with different Euratom fission science and technology platforms and networks could be also beneficial and should be used to avoid duplication. Furthermore, international cooperation with organisations such as OECD/NEA, IAEA, GIF is strongly encouraged. Proposals are required to provide quantified information on the expected number of people benefitting from the proposed scheme.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 1 million and up to a maximum of EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: The action is expected to contribute within the next few years to the development of multi-disciplinary nuclear competences and increased availability of suitably qualified researchers, engineers and employees in crucial fields like: nuclear safety, radiation protection, decommissioning, radioactive waste management, etc. The action is expected to provide young scientists, researchers and experts with access to high quality nuclear research and training facilities.

Type of Action: Coordination and support action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

E. Radiation Protection

NFRP-2018-8: Radiation protection research

Specific Challenge: This action should seek close cooperation with and complement actions of CONCERT¹⁴ and MEDIRAD¹⁵ projects, which are already funded under the Euratom Programme strictly avoiding duplication (including projects selected through the CONCERT calls). It aims at pursuing the integrative approach of radiation protection research (of radiation biology, radiation epidemiology, radioecology, medical applications, dosimetry, low-dose risk, emergency preparedness and response, etc.) involving Member States' organisations having a regulatory mandate for research in radiation protection and the wider research community such as universities and small and medium enterprises. It should complement the actions undertaken in response to the two above mentioned projects by providing incremental knowledge on the effects of ionising radiation on living beings, dosimetry and management of radiological and nuclear emergency from the publicly available knowledge these two projects are building on. The main challenge of radiation protection of the public, patients, workers and the environment remains the prediction of risks likely to arise from low dose of radiation. Significant progress has been achieved through previous programmes in refining knowledge on these effects but results indicate the need to confirm some of the observations and delineate mechanisms to be further elucidated for the further understanding of effects on living organisms of radiation beyond the knowledge already established of gene mutation. The many peripheral effects to gene functioning need to be clarified. This action must take into account prioritisation of research in this field reflected in the strategic research agendas of the Radiation Protection Research Platforms (Multidisciplinary European Low-Dose Initiative - MELODI, European Radiation Dosimetry Group - EURADOS, European Platform on Preparedness for Nuclear and Radiological Emergency Response and Recovery - NERIS, European Radioecology Alliance - ALLIANCE, and European Alliance for Medical Radiation Protection Research - EURAMED).

Scope: The pertinence and quality of the gap analysis will be considered during evaluation. The research to be undertaken will have to improve knowledge in the fields of radiation biology epidemiology, dosimetry, emergency preparedness, radioecology, and public engagement. Research on the human health effects of ionising radiation will have to include one or several of the exposure situations occurring in the nuclear industry, the medical sector, from past nuclear accidents, naturally occurring radioactive material whether or not technologically enhanced, and cosmic radiation. The research proposal will also have to clearly demonstrate its complementarity with ongoing research in this field and the quality of the competitive process envisaged for the allocation of tasks between its partners. It is

¹⁴ <http://www.concert-h2020.eu/>

¹⁵ <http://www.eibir.org/>

recommended that this work should be undertaken using the working procedures established by the above-mentioned platforms. In compliance with this practice of openness, a peer review of research results to indicate results which would require further research, new research orientation or inclusion in policy recommendation has to be organised.

At least 5% of the total action budget must be dedicated to Education and Training activities for PhD students, postdoctoral researchers and trainees supported through the action.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 5 and up to a maximum of EUR 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: This action will help consolidate progress achieved in the integration of radiation protection research. It will reinforce the responsibility of the research community in ensuring that scientific evidence is comprehensively translated into policy recommendations, beyond the classical exploitation of scientific publications. In 10 years it is expected that this action will strengthen the EU capability to clarify debates on the radiation risk independently from the origin of radiation, be it cosmic, telluric, natural, artificial and related to electricity generation or medical applications. The better understanding of radiation effects on humans and the environment will ensure a better application of protection principles whilst avoiding to unduly restrict benefits for citizens of the numerous applications of ionising radiation.

Type of Action: Research and Innovation action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

NFRP-2018-9: Strategy for the exploitation of research results funded under Euratom Research and training Programmes in the field of radiation protection

Specific Challenge: Euratom Research and Training Programmes have funded a large number of research projects in the last decades in the field of radiation protection. Those projects have led to significant scientific outcomes used by various stakeholders and end-users (national and European policy makers, regulators, medical institutions, etc.). Some of these research projects contributed to the safe use of industrial applications of ionising radiation and to the development of tools supporting radiation protection of the general public, workers, patients and the environment. Nevertheless, there is a lack of systematic assessment of the use of the results of projects for radiation protection funded by the FP6 and FP7 Euratom Research and Training Programmes.

Scope: The aim of the action is to identify, analyse and monitor how the results achieved by research projects on radiation protection funded by the past Euratom Research and Training Programmes, are used and capitalised on by various stakeholders so that they would serve a double purpose: (a) better use of research results for policy making and (b) better use of research results for implementing the Euratom requirements for radiation protection of the

public, staff and patients Based on those analyses, measures to facilitate future use and dissemination of research results should be identified and proposed under this action. Moreover, this action should analyse scientific contribution of Euratom research to the Euratom directives on safety standards and to other international regulations and recommendations, such as those formulated by the International Atomic Energy Agency, the Committee on Radiological Protection and Public Health of the Nuclear Energy Agency of the Organisation for Economic Cooperation and Development or the International Commission on Radiological Protection, and the findings of the United Nation's Scientific Committee on the effects of Atomic Radiation and their further use for policy making. The action should identify and propose methods and tools to improve exchange of research results among the scientific community, peer review their publication and communicate their ascertained substance to citizens. Special eligibility conditions related to the composition of a consortium apply to this topic.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 0.4 and up to a maximum of EUR 0.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: this action is supposed to provide a systematic assessment of the use of research results from the past Euratom radiation protection projects and to propose recommendations for future research policy in this field. As a result it will facilitate use and dissemination of research results and will reinforce the European integration of radiation protection research while making science in radiation protection more understandable for EU citizens.

Type of Action: Coordination and support action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

F. Innovation in nuclear safety

NFRP-2018-10: Encouraging innovation in nuclear safety for the benefit of European citizen

Specific Challenge: Euratom has been active in the field of nuclear safety for over 50 years. The commitment of Euratom and its Member States to a high level of nuclear safety is reflected in the existing Euratom legislative framework as well as in the relevant Council Resolutions and the Conclusions of the European Council.

Since the dawn of nuclear energy in Europe, extensive in-depth research and development programmes have been implemented in EU Member States and at the Euratom level with the aim to assure the highest levels of the nuclear safety standards in Europe, targeting safety of the nuclear installations, radiation protection of EU population and societally responsible treatment of the nuclear waste produced in the EU countries.

In practice, the highest safety standards in the nuclear domain can be attained by the continuous process of *industrial innovation* in the fields of nuclear safety, radioactive waste management, decommissioning, radiation protection and non-power applications of nuclear and radiation technology.

Scope: The aim of this action is to support technology transfer from the research community to industry, exploiting innovative aspects of previous research funded by the Euratom Programme in the area of safety of nuclear installations, decommissioning, radiation protection and radioactive waste management. This action should focus on closer-to-the-market activities including prototyping, testing, demonstrating, piloting and scaling-up for new or improved products, processes or services. Projects may include *limited* research and development activities. Projects submitted under this topic should clearly demonstrate European added value. Activities are expected to focus on Technology Readiness Levels 5 to 7.

The Commission considers that proposals requesting a contribution from the Euratom Programme of between EUR 2.25 and up to a maximum of EUR 4.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: This action is expected to bring safety and radiation protection solutions closer to the market and to address remaining technological challenges aiming at satisfying the requirements of current legislation in force¹⁶.

Type of Action: Innovation action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

G. Fusion research

NFRP-2018-11: Open data access for fusion research

Specific Challenge: Open access to data produced by projects funded by the Horizon 2020 is a growing priority and in the near future will become a requirement for all Horizon 2020-supported grants, including also the Euratom Programme. In the area of fusion, research data generated either by experimental devices or through computer simulations are fundamental and form the basis for the majority of scientific advances and publications in the domain. However, providing easy and transparent access to data, especially from the many different experimental devices, is a challenge, even for a very technically-minded research community such as in fusion. In order to provide the standardised access methods needed to ensure ease of use and interoperability of data, significant resources are required in terms of planning and development of suitable platforms and tools. The specific challenge to be addressed by this action is therefore to: (i) identify the data that would bring the most added value from greater

¹⁶ Council Directives 2009/71/Euratom, 2011/70/Euratom and 2013/59/Euratom.

accessibility and openness; and (ii) development of the support tools and platforms required to provide easy and standardised access to the identified data.

Scope: The scope covers the comprehensive assessment of open data requirements and issues within the fusion programme, the recommendation of the best technical approaches for providing easy access to data, and the development of support platforms and tools required to implement an open data policy adapted to the needs of the fusion research programme. This could be achieved by pooling the talent and knowledge from other big science programmes and organisations, such as those participating in the EIROforum. The duration of the action will be for 2 years.

The Commission considers that proposals requesting a contribution from Euratom Programme of between EUR 1 and up to a maximum of and EUR 2 million would allow this specific challenge to be addressed adequately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: The successful conclusion of this action would, in addition to developing the tools and platforms needed for an open data approach, raise the profile and awareness of open data within the fusion programme. It would also lay the foundations for implementing an open data policy that is well adapted to the needs of the present and especially the future fusion energy research programme, particularly in the run up to the operation of ITER from the middle of the next decade.

Type of Action: Coordination and support action

The conditions related to this topic are provided at the end of this call and in the General Annexes.

Conditions for the Call - Nuclear Fission, Fusion and Radiation Protection Research

Opening date(s), deadline(s), indicative budget(s):¹⁷

Topics (Type of Action)	Budgets (EUR million)	Deadlines
	2018	
Opening: 15 May 2018		
NFRP-2018-1 (RIA)	6.40	27 Sep 2018
NFRP-2018-10 (IA)	4.50	
NFRP-2018-11 (CSA)	2.00	

¹⁷ The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.

The Director-General responsible may delay the deadline(s) by up to two months.

All deadlines are at 17.00.00 Brussels local time.

NFRP-2018-2 (RIA)	3.50	
NFRP-2018-3 (RIA)	3.50	
NFRP-2018-4 (RIA)	3.50	
NFRP-2018-5 (CSA)	1.40	
NFRP-2018-6 (COFUND-EJP)	32.50	
NFRP-2018-7 (CSA)	4.00	
NFRP-2018-8 (RIA)	7.00	
NFRP-2018-9 (CSA)	0.50	
Overall indicative budget	68.80	

Indicative timetable for evaluation and grant agreement signature:

For single stage procedure:

- Information on the outcome of the evaluation: Maximum 5 months from the final date for submission; and
- Indicative date for the signing of grant agreements: Maximum 8 months from the final date for submission.

Eligibility and admissibility conditions: The conditions are described in General Annexes B and C of the work programme. The following exceptions apply:

NFRP-2018-9	Taking into account the specific conditions under which research results are exploited for defining and implementing radiation protection policies, the participation to this action is limited to Programme Owners or Managers in the Member States and Associated Countries in the field of radiation protection and registered non-profit associations such as the Multidisciplinary European Low Dose Initiative, the European Radiation Dosimetry Group, the European platform on preparedness for nuclear and radiological emergency response and recovery, the Alliance for Radioecology and the European Alliance for Medical Radiation Protection Research.
NFRP-2018-1, NFRP-2018-2, NFRP-2018-3, NFRP-2018-4, NFRP-2018-8	In order to stimulate training and mobility of researchers (as mandated by Regulation (Euratom) No 1314/2013) in these topics, at least 5% of the total action budget must be dedicated to Education and Training activities for PhD students, postdoctoral

	researchers and trainees supported through the action. Proposals must indicate how this condition is met by including in Part B, under "resources to be committed", the total allocation of budget to the related work-package(s) or part(s) of work-package
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Exceptional page limits to proposals/applications:

NFRP-2018-6	No page limit for proposals
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Evaluation criteria, scoring and threshold: The criteria, scoring and threshold are described in General Annex G of the work programme.

Evaluation Procedure: The procedure for setting a priority order for proposals with the same score is given in General Annex G of the work programme.

The full evaluation procedure is described in the relevant [guide](#) published on the Participant Portal.

Grant Conditions:

NFRP-2018-6	As an exception from General Annex D for grants awarded under this topic and type of action, funding rate is 55 % of the eligible costs
NFRP-2018-6, NFRP-2018-7, NFRP-2018-8	For grants awarded under this topic beneficiaries may provide support to third parties as described in part J of the General Annexes of the Work Programme. The support to third parties can only be provided in the form of grants. The respective options of Article 15.1 and Article 15.3 of the Model Grant Agreement will be applied.

Consortium agreement:

NFRP-2018-1, NFRP-2018-10, NFRP-2018-11, NFRP-2018-2, NFRP-2018-3, NFRP-2018-4, NFRP-2018-5, NFRP-2018-6, NFRP-2018-7, NFRP-2018-8, NFRP-2018-9	Members of consortium are required to conclude a consortium agreement, in principle prior to the signature of the grant agreement.
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Other actions

Training and information programme following association of Ukraine in Euratom in 2016

The Association Agreement between Ukraine and Euratom was signed on 27 June 2016 and entered into force on 28 October 2016. Better integration of Ukrainian nuclear research entities into European nuclear research networks could be seen as mutually beneficial for the whole Euratom research community.

Support¹⁸ will be provided for activities of the Ukrainian National Contact Point (NCP) to Euratom leading to the greater involvement and better integration of Ukrainian researchers and young scientists within European nuclear research networks. The action will support: (i) networking activities of research institutes with similar organisations in Member States; (ii) outreach activities enabling such organisations to become more closely involved and integrated in pan-European initiatives relevant to all Euratom research areas. A strong involvement and interaction with appropriate organisations from Euratom Member States is essential as well as interaction with the key EU technical forums i.e. SNETP, IGD-TP, MELODI, etc.

The action should achieve deeper integration and improved participation of Ukrainian researchers and research entities in Euratom research activities with future aim to increase their participation in Euratom projects, thereby enabling a more broad and effective cooperation in the field of research on fission and fusion, and fully exploiting the potential of Ukrainian research entities regarding their infrastructures, capacities and research programmes.

Legal entities:

Euratom National Contact Point to Ukraine, National Science Center Kharkov Institute of Physics and Technology, 1 Akademicheskaya St., Kharkov, 61108, Ukraine

Type of Action: Grant to identified beneficiary - Coordination and support actions

Indicative timetable: 1st Quarter 2018 – 4th Quarter 2018

¹⁸ This grant will be awarded without a call for proposals in line with Article 195(e) of Regulation (EU, Euratom) No 1046/2018 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, and Decision No 541/2014/EU and repealing Regulation (EC, Euratom) No 966/2012, and with Article 11(2) of the Rules for Participation Regulation No 1290/2013 of the European Parliament and of the Council of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006 (OJ L 347, 20.12.2013, p. 81).

Indicative budget: EUR 0.15 million from the 2018 budget

SOFT Innovation Prize

Fusion research encompasses innovation in the domains of physics and technology over a wide variety of specialisations. Fusion researchers are constantly challenging the scientific state-of-the-art and improving the technology thereby creating the conditions for innovation, much of which can be exploited in other science and industrial sectors for the benefit of society. A fundamental basis of Horizon 2020 is the drive and support for innovation across the product development chain from research to market. In this context the researcher plays a critical role.

The SOFT Innovation Prize is being offered to highlight and reward the excellence in innovation that can be found in fusion research as well as the quality of the researchers and industries involved. Following the successful running of this contest in coordination with SOFT 2014 and 2016 (Symposium on Fusion Technology), the European Commission is holding the contest again in coordination with the next SOFT in 2018. There are no specific categories for this prize. Contestants are free to submit an application concerning any physics or technology innovation that has been or is being developed in magnetic confinement fusion research and that has a market potential or has been taken up (or recognised) by industry to be further developed for the market.

The indicative budget for the prize is EUR 0.0875 million from the 2018 budget

The specific rules of the contest will be published in 2018 by the Commission¹⁹, which will directly launch and manage the contest and award the prize based on an evaluation made by independent experts.

Essential award criteria: The prize will be awarded, after closure of the contest, to the contestant(s) who in the opinion of the jury best addresses the following cumulative criteria²⁰:

1. **Originality and replicability**: The extent to which the idea is innovative, original and a first-of-a-kind use of the technology in industry or in the domain of application. The description should be clear, logically presented and well-illustrated.
2. **Technical excellence**: The extent to which the innovation is demonstrably state-of-the-art and based on excellent science and engineering.
3. **Economic impact and exploitation of the innovation**: The extent to which the submission demonstrates understanding and awareness of the relevant innovation aspects, including market potential / needs and business opportunities.

¹⁹ On the [Participant Portal](#) but also actively publicised elsewhere to maximise participation.

²⁰ Further clarification of these criteria might be published in the Rules of Contest.

4. **Plans for potential exploitation and further development of the innovation:** The extent to which the prize would contribute to the successful exploitation and further development of the innovation, as described in the application.

Eligibility criteria: 1. The contest is open to researchers or research teams funded under the Euratom fusion research programme, to researchers or research teams working for a national programme in an ITER partner country or in any third country that has a bilateral fusion cooperation agreement with Euratom, and to industrial participants benefitting from the ITER project. *Example of proof:* The Commission may request substantiating document such as contracts, etc.

2. The researcher, research team or industrial participant must obtain permission from the owner of the Intellectual Property Rights (IPR) to submit an application and provide supporting documentation. The owner of the IPR should comment on the state of the IPR, i.e. free or contractually embedded, and name of possible contractor(s).

3. The complete application for the 'SOFT Innovation Prize' should include:

- a technical description of the innovation;
- a state-of-the-art assessment of the innovation (using a publicly available patent database such as the EPO Espacenet);
- an account, in general terms, of the market potential for the exploitation of the innovation;
- the contribution that the prize could provide for the exploitation of the innovation.

4. For the common Rules of Contest for Prizes please see General Annex E of the work programme.

Expected results: By awarding the 'SOFT Innovation Prize', the Commission will showcase innovations in this research sector giving visibility to the most dynamic, forward-looking and innovative researchers, research teams or industrial contestants. This visibility will provide greater potential for valorisation of the research, and the contest will stimulate the research community globally and in the EU to develop a stronger innovation and entrepreneurial culture in fusion research.

Indicative timetable of contest(s):

Stages	Date and time or indicative period
Opening of the contest	4th Quarter 2017
Deadline for submission of application	1st Quarter 2018
Award of the prize	3rd Quarter 2018

Type of Action: Recognition prize

Indicative timetable: 4th Quarter 2017 - 3rd Quarter 2018

Indicative budget: EUR 0.0875 million from the 2018 budget

Contribution to the Organisation for Economic Co-operation and Development (Nuclear Energy Agency) / Secretariat for the Generation-IV International Forum

The Charter of the Generation-IV International Forum (GIF) was signed by nine countries in 2001 with the purpose of satisfactorily addressing nuclear safety, waste, proliferation and public perception concerns. Euratom signed the Charter on 30 July 2003 following a decision by the Commission pursuant to Article 101(3) of the Euratom Treaty. A Framework Agreement (FA) for collaboration on R&D, setting the framework conditions for subsequent system and project arrangements, was concluded subsequently in 2005. The Charter was originally for a duration of 10 years, and in 2011 the signatories unanimously prolonged its duration indefinitely. The present FA signatories are Canada, China, Euratom, France, Japan, Russia, South Africa, South Korea, Switzerland and U.S. The FA depository is the OECD Secretary General. The Council of the European Union approved the accession of the Euratom to the FA in its Decision (Euratom) No 14121/05 and renewed its commitment in its Decision (Euratom) 2016/2116. Accession brings with it certain obligations, including the co-funding of the GIF technical secretariat activities carried out by the OECD/NEA (Nuclear Energy Agency). The level of this funding from each signatory was established by the GIF Policy Group (PG) at its meeting in Paris, France, 25-26 April 2016.

Type of Action: Subscription

Indicative timetable: 3rd Quarter – 4th Quarter of 2018

Indicative budget: EUR 0.15 million from the 2018 budget

External expertise

This action will support the use of appointed independent experts for the evaluation of the proposals under 2018 call and prize contest. It will also support the use of appointed independent experts for the monitoring of actions (grant agreement, grant decision, procurements, and financial instruments) and where appropriate include ethics checks.

Type of Action: Expert Contracts

Indicative timetable: 1st Quarter – 4th Quarter 2018

Indicative budget: EUR 0.40 million from the 2018 budget

Support to the FISA-EuradWaste Conference on Euratom research and training policies

Support²¹ will be provided for the organisation of the FISA-EuradWaste Conference, a high-level research policy conference on the outcomes and perspectives for the Euratom Programme. It is organised once per programme – the last conference took place in 2013. The conference is supported by the upcoming 2019 Romanian Presidency of the Council of the European Union. The Conference will summarise activities and highlight major achievements of the main pillars of the fission part of the Euratom Programme.

Legal entities:

REGIA AUTONOMA TEHNOLOGII PENTRU ENERGIA NUCLEARA, Mioveni, Cod 115400, Str. Câmpului nr. 1 - POB 78 Pitesti, ROMÂNIA

Type of Action: Grant to identified beneficiary - Coordination and support actions

Indicative timetable: 3rd Quarter – 4th Quarter 2018

Indicative budget: EUR 0.25 million from the 2018 budget

Management and protection of intellectual property

It was recognised in the previous Euratom Work Programmes that the protection of patents and other Intellectual Property Rights (IPR) coming from Euratom-funded projects was an important aspect for the developing of a strong technology transfer programme. In this respect, in 2009 the Commission provided funding for the protection of patents coming from Euratom-funded activities. Funds will be provided to the Commission to maintain the patents that Euratom owns, to further protect the knowledge generated in the programme as and when required and perform an analysis and assessment of IPR potential using the Technology Innovation Monitoring (TIM) tool. This will be done by concluding an Administrative Arrangement with the Joint Research Centre for a period of 3 years.

Type of Action: Provision of technical/scientific services by the Joint Research Centre

Indicative timetable: 1st Quarter 2018

Indicative budget: EUR 0.30 million from the 2018 budget

²¹ This grant will be awarded without a call for proposals in line with Article 195(e) of Regulation (EU, Euratom) No 1046/2018 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, and Decision No 541/2014/EU and repealing Regulation (EC, Euratom) No 966/2012, and with Article 11(2) of the Rules for Participation Regulation No 1290/2013 of the European Parliament and of the Council of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006 (OJ L 347, 20.12.2013, p. 81).

Multiple Framework contract with reopening of competition for the supply of expert industrial competences for the pre-conceptual design activities of the European fusion demonstration reactor

The purpose of the framework contract with reopening of competition is to provide at short notice the contracting authority with highly qualified industrial expertise to support the contracting authority in the design, preparation and proper implementation of the pre-conceptual design activities of the EUROfusion Power Plant Physics and Technology activities. The maximum amount of the Multiple Framework contract will be EUR 10 000 000 for a period of 4 years^{22 23}.

Type of Action: Public Procurement - 1 multiple Framework service contract with reopening of competition

Indicative timetable: Specific contracts will be signed from 2019. Budget will be committed in future years on the basis of specific contracts

Support for the preparatory phase for the DEMO Orientated Early Neutron Source IFMIF/DONES²⁴

The IFMIF/DONES materials test facility is a high priority on the Fusion Roadmap to electricity from fusion in the second half of this century. A proposal has been put forward to include the IFMIF/DONES facility in the 2018 update of the ESFRI roadmap for Research Infrastructures of EU relevance. Subject to the inclusion of IFMIF/DONES in the ESFRI Roadmap (call INFRADEV-02-2019-2020), the project stakeholders will be entitled to Euratom support for the facility's preparatory phase. The preparatory phase aims to bring the project to the level of legal, financial, and, where applicable, technical maturity required for implementing it. This will take into consideration all technical input provided by the activities already ongoing under the Broader Approach (BA).

Expected Impact:

- To achieve a major milestone on the Fusion roadmap;

²² The budget for the period 2019-2020 is conditional on adoption by the Council of the Commission proposal for a Council regulation establishing Euratom Research and Training Programme 2019-2020, COM(2017)698 final.

²³ Specific contracts will be signed from 2019. Budget will be committed in future years on the basis of specific contracts

²⁴ This grant will be awarded without a call for proposals in line with Article 195(e) of Regulation (EU, Euratom) No 1046/2018 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union, amending Regulations (EU) No 1296/2013, (EU) No 1301/2013, (EU) No 1303/2013, (EU) No 1304/2013, (EU) 1309/2013, (EU) No 1316/2013, (EU) No 223/2014, and Decision No 541/2014/EU and repealing Regulation (EC, Euratom) No 966/2012, and with Article 11(2) of the Rules for Participation Regulation No 1290/2013 of the European Parliament and of the Council of 11 December 2013 laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006 (OJ L 347, 20.12.2013, p. 81).

- To provide first of a kind structural materials data for a fusion demonstration Tokamak;
- To provide a flexible facility that can be upgraded to support materials testing for a commercial fusion power plant;
- To provide a facility with neutron spectrum and flux for materials testing in other sectors such and health and environment.

The European Fusion Roadmap has identified IFMIF/DONES materials test facility as a high priority requirement for the design and construction of a demonstration fusion power plant.

Legal entities:

CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT, Avenida Complutense 40, 28040, MADRID (ES)

Type of Action: Grant to identified beneficiary - Coordination and support actions

Indicative timetable: 4th Quarter 2018

Indicative budget: EUR 4.00 million from the 2018 budget (up to EUR 4.00 million from the 2018 budget, subject to successful proposal evaluation for inclusion of the project in the 2018 ESFRI road map. If the proposal is unsuccessful in the evaluation, this coordination and support action will be cancelled.)

Budget²⁵

	Budget line(s)	2018 Budget (EUR million)
Calls		
NFRP-2018		68.80
	<i>from</i> 08.030102	66.80
	<i>from</i> 08.030101	2.00
Other actions		
Grant to Identified beneficiary		4.40
	<i>from</i> 08.030102	0.40
	<i>from</i> 08.030101	4.00
Prize		0.09
	<i>from</i> 08.030101	0.09
Subscription		0.15
	<i>from</i> 08.030102	0.15
Expert Contracts		0.40
	<i>from</i> 08.030102	0.30
	<i>from</i> 08.030101	0.10
Provision of technical/scientific services by the Joint Research Centre		0.30
	<i>from</i>	0.30

²⁵ The budget figures given in this table are rounded to two decimal places.

	<i>08.030101</i>	
Estimated total budget		74.14

General Annexes to Euratom Work Programme 2018

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A. List of countries eligible for funding

1. Legal entities established in the following countries and territories will be eligible to receive funding through Euratom Research and Training Programme (2014-18) grants:

- The Member States (MS) of the European Atomic Energy Community (Euratom), including the Overseas Countries and Territories (OCT) linked to the Member States²⁶:

Anguilla, Aruba, Bermuda, British Antarctic Territory, British Indian Ocean Territory, British Virgin Islands, Cayman Islands, Falkland Islands, French Polynesia, French Southern and Antarctic Territories, Montserrat, Netherlands Antilles (Bonaire, Curaçao, Saba, Sint Eustatius, Sint Maarten), New Caledonia and Dependencies, Pitcairn, Saint Barthélemy, Saint Helena, Saint Pierre and Miquelon, South Georgia and the South Sandwich Islands, Turks and Caicos Islands, Wallis and Futuna Islands.

- The associated countries (AC): the latest information on which countries are associated, or in the process of association to Euratom Programme can be found in the online manual²⁷.

If in the meantime a country becomes associated to Euratom Programme, it will immediately be shown in the relevant on-line manual mentioned above. Note that entities from associated countries are eligible to participate according to the conditions set out in Annex C.

2. International European interest organisations²⁸ will also be eligible to receive funding from Euratom Programme.

3. Legal entities established in countries not listed above will be eligible for funding when such funding is explicitly foreseen in the call.

4. In addition, legal entities established in countries not listed above and international organisations (IOs) will be eligible for funding:

- When funding for such participants is provided for under a bilateral scientific and technological agreement or any other arrangement between the Euratom and an international organisation or a third country;
- When the Commission deems participation of the entity essential for carrying out the action funded through Euratom Programme;

²⁶ Entities from Overseas Countries and Territories (OCT) are eligible for funding under the same conditions as entities from the Member States to which the OCT in question is linked.

²⁷ http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cp/h2020-hi-list-ac_en.pdf

²⁸ These are international organisations, the majority of whose members are Member States or associated countries, and whose principal objective is to promote scientific and technological cooperation in Europe.

5. For Prizes, unless stated otherwise in the call conditions, any legal entity, regardless of its place of establishment, or international organisation may receive funding²⁹.

²⁹ Provided that natural or legal persons, groups or non-State entities are not covered by the Council sanctions in force.

B. Standard admissibility conditions, page limits and supporting documents

1. For all actions under this Work Programme, proposals/prize applications must comply with the admissibility conditions set out in this Annex, unless they are supplemented or modified in the call conditions or rules of contest.

To be considered **admissible**, a proposal/application must be:

- (a) submitted in the electronic submission system before the deadline given in the call conditions or rules of contest;
- (b) readable, accessible and printable;
- (c) **complete** and include the requested administrative data, the proposal description, and any obligatory supporting documents specified in the call/contest;
- (d) include a **draft plan for the exploitation and dissemination** of the results, unless otherwise specified in the call conditions..

2. In addition to the above admissibility conditions, **page limits** will apply to parts of proposals/applications. The page limits and sections subject to limits, will be clearly shown in the proposal templates in the Participant Portal electronic submission system. Unless stated otherwise in the call conditions, the limit for a full proposal is 70 pages, except for:

Coordination and support actions (CSA) where the limit is 50 pages and European Joint Programme Cofund actions (EJP), where the limit is 100 pages.

For prize applications, any specific limits will be set in the Rules of Contest.

If a proposal/application exceeds the limits, the applicant will receive an automatic warning, and will be advised to re-submit a version that conforms.

After the call deadline, excess pages (in over-long proposals/applications) will be automatically made invisible, and will not be taken into consideration by the experts.

Proposals must be written in a legible font, further guidance on the use of fonts, margins and other page formatting will be included in the proposal templates.

The structure of proposals must correspond to the requirements specified under each section of the proposal template.

3. The following supporting documents will be required to determine the **operational capacity** of each applicant in grant proposals, unless otherwise specified in the call:

- A curriculum vitae or description of the profile of the persons who will be primarily responsible for carrying out the proposed research and/or innovation activities;
- A list of up to five relevant publications, and/or products, services (including widely-used datasets or software), or other achievements relevant to the call content;

- A list of up to five relevant previous projects or activities, connected to the subject of this proposal;
- A description of any significant infrastructure and/or any major items of technical equipment, relevant to the proposed work;
- A description of any third parties that are not represented as project partners, but who will nonetheless be contributing towards the work (e.g. providing facilities, computing resources).

This scrutiny will be carried out by the evaluators during the evaluation process under the selection criteria, in particular the award criterion 'Quality and efficiency of the implementation'. Please refer to General Annex G "Evaluation rules".

C. Standard eligibility conditions

1. All proposals must comply with the eligibility conditions set out in the Rules for Participation, Regulation (EU) No 1290/2013. Furthermore, for actions under this Work Programme proposals/prize applications must comply with the **eligibility conditions** set out in this Annex, unless they are supplemented or modified in the call conditions.

A proposal/application will only be considered **eligible** if:

- (a) its content corresponds, wholly or in part, to the topic/contest description for which it is submitted
- (b) it complies with the eligibility conditions for participation set out in the table below, depending on the type of action:

	Eligibility conditions for participation ^{30,31,32}
Research & innovation actions (RIA)	At least three legal entities. Each of the three must be established in a different EU Member State or Euratom Programme associated country. All three legal entities must be independent of each other.
Innovation actions (IA)	At least three legal entities. Each of the three must be established in a different EU Member State or Euratom Programme associated country. All three legal entities must be independent of each other.
Coordination & support actions (CSA)	At least one legal entity established in an EU Member State or Euratom Programme associated country.
European Joint Programme (EJP) Cofund	At least five legal entities. Each of the five must be established in a different EU Member State or Euratom Programme associated country. All five legal entities must be independent of each other. ³³ Participants in EJP Cofund actions must be legal entities owning managing national research and innovation programmes. ³⁴

³⁰ The eligibility criteria formulated in Commission notice No 2013/C 205/05 ([OJ C 205, 19.7.2013, pp.9](#)) apply for all actions under this Work Programme, including for third parties that receive financial support under the action (in accordance with Article 204 of the Financial Regulation No 1046/2018), notably programme Cofund actions.

³¹ Natural or legal persons, groups or non-State entities covered by the Council sanctions in force are not eligible to participate in Union programmes. Please see the consolidated list of persons, groups and entities subject to EU financial sanctions, available at http://eeas.europa.eu/cfsp/sanctions/consol-list_en.htm.

³² Given that the EU does not recognise the illegal annexation of Crimea and Sevastopol, legal persons established in the Autonomous Republic of Crimea or the city of Sevastopol are not eligible to participate in any capacity. This criterion also applies in cases where the action involves financial support given by grant beneficiaries to third parties established in the Autonomous Republic of Crimea or the city of Sevastopol (in accordance with Article 204 of the Regulation (EU, Euratom) No 1046/2018). Should the illegal annexation of the Autonomous Republic of Crimea and the City of Sevastopol end, this Work Programme will be revised.

³³ EJP Cofund actions support coordinated national research and innovation programmes. In line with the objective of transnational integration through a critical mass of resources, the required minimum number of participants is higher than the one provided in the Rules for Participation, Regulation (EU) No 1290/2013.

actions	
Prizes	See conditions for participation in the Rules of Contest.

Note:

1. *'Sole participants' formed by several legal entities (e.g. European Research Infrastructure Consortia, European Groupings of Territorial Cooperation, central purchasing bodies) are eligible if the above-mentioned minimum conditions are satisfied by the legal entities forming together the sole participant.*

³⁴ It is appropriate that core participation in EJP Cofund actions is limited to entities that can fully participate through their contribution of national and regional programmes: programme owners, typically national ministries/regional authorities responsible for defining, financing or managing programmes carried out at national or regional level or 'programme managers' (such as research councils, funding agencies or governmental research performing organisations) or other entities that implement national or regional research and innovation programmes under the mandate of the programme owners. Beyond the minimum participants, other legal entities may participate if justified by the nature of the action, in particular entities created to coordinate or integrate transnational research efforts, grouping funding from public and private sources.

D. Types of action: specific provisions and funding rates^{35,36}

Research and innovation actions (RIA)

Description: Action primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. For this purpose they may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment.

Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.

Funding rate: 100%

Innovation actions (IA)

Description: Action primarily consisting of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

A ‘demonstration or pilot’ aims to validate the technical and economic viability of a new or improved technology, product, process, service or solution in an operational (or near to operational) environment, whether industrial or otherwise, involving where appropriate a larger scale prototype or demonstrator.

A ‘market replication’ aims to support the first application/deployment in the market of an innovation that has already been demonstrated but not yet applied/deployed in the market due to market failures/barriers to uptake. ‘Market replication’ does not cover multiple applications in the market of an innovation³⁷ that has already been applied successfully once in the market. ‘First’ means new at least to Europe or new at least to the application sector in question. Often such projects involve a validation of technical and economic performance at system level in real life operating conditions provided by the market.

Projects may include limited research and development activities.

Funding rate: 70% (except for non-profit legal entities, where a rate of 100% applies)

³⁵ Eligible costs for all types of action are in accordance with the Regulation (EU, Euratom) No 1046/2018 and the Horizon 2020 Rules for Participation, Regulation (EU) No 1290/2013. In addition, as training researchers on gender issues serves the policy objectives of Horizon 2020 and is necessary for the implementation of R&I actions, applicants may include in their proposal such activity and the following corresponding estimated costs that may be eligible for EU funding:

- (a) Costs of delivering the training (personnel costs if the trainers are employees of the beneficiary or subcontracting if the training is outsourced);
- (b) Accessory direct costs such as travel and subsistence costs, if the training is delivered outside the beneficiary's premises;
- (c) Remuneration costs for the researchers attending the training, in proportion to the actual hours spent on the training (as personnel costs).

³⁶ Participants may ask for a lower rate.

³⁷ A new or improved technology, product, design, process, service or solution.

Coordination and support actions (CSA)

Description: Actions consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure and may also include complementary activities of strategic planning, networking and coordination between programmes in different countries.

Funding rate: 100%

European Joint Programme (EJP) Cofund actions

Description: The European Joint Programme ('EJP') Cofund under Euratom Programme is a programme Cofund action designed to support coordinated national research and innovation programmes. The EJP Cofund aims at attracting and pooling a critical mass of national resources on objectives and challenges of Euratom Programme and at achieving significant economies of scales by adding related Euratom Programme resources to a joint effort.

The EJP Cofund does not promote types of activities or forms of coordination, but relies on modalities and processes agreed by the coordinated national programmes and related actors.

Eligible participants: The minimum number of participants in EJPs is five independent legal entities from different Member States or associated countries. Participating entities are typically research funders or governmental research organisations participating on the basis of their institutional funding. Their participation has to be mandated by the "owner" of the programme, the national/regional authorities in charge.

In addition to the minimum conditions, other legal entities may participate if justified by the nature of the action, in particular entities created to coordinate or integrate transnational research efforts, grouping funding from both national and private sources.

'Sole participants'³⁸ may be eligible if the above-mentioned specific eligibility conditions for EJP Cofund partners are satisfied. A sole participant forming a sole legal entity must explicitly indicate which of its 'members' are either programme owners or programme managers in the proposed action, and indicate for these members the respective national/regional programmes which are at the disposal of the proposed EJP Cofund action.

In line with the objective of transnational integration through a critical mass of resources, the required minimum number of participants is higher than the one provided in the Horizon 2020 Rules for Participation, Regulation (EU) No 1290/2013. In addition, such participants must be established in different Member States or associated countries in order to further establish an appropriate level of cooperation and integration. Finally, EJP Cofund actions support coordination and future integration of national research and innovation programmes. It is appropriate that core participation in these actions is limited to entities that can fully participate through their contribution of national and regional programmes.

³⁸ See Article 196 of the Regulation (EU, Euratom) No 1046/2018.

Funded activities: The main activity of the action is the implementation of a joint programme of activities to attain objectives common to the Euratom Programme, ranging from research to coordination and networking activities, including training activities, demonstration and dissemination activities, support to third parties etc.

The Euratom Programme funding can be used to enhance and expand the activities of existing coordinated programmes or create new ones, provided they aim at attaining the objectives of a European transnational joint-programme established by the EJP Cofund consortium.

The EJP Cofund will identify the objectives, work and the schedules of activities to be carried out in this context. It will be necessary to provide a detailed description of these activities for the initial and each successive twelve-month periods of the EJP Cofund, as the joint programme develops in line with the initial objectives. An ‘annual work programme’, combined with a progress report on previous achievements will be a key deliverable for the implementation of the EJP Cofund action on a rolling basis. It will be submitted and approved by the Commission before the beginning of activities for each reporting period:

- at proposal submission: a description of the overall objectives and schedule of proposed activities, together with the 1st annual work programme;
- before the periodic reports: an update to the annual work programme must be submitted three months before the end of the each reporting period (and – after evaluation and possible revision further to Commission comments – the annual work programme will be agreed before the start of the next reporting period).

The Euratom Programme contribution takes the form of a grant consisting of a reimbursement of the eligible costs related to the action, in accordance with the conditions set out in the grant agreement and relevant Commission decisions, including reimbursement of actually incurred costs, lump sums, unit costs or flat rates. Financial support provided to third parties as part of the joint programme implementation, for example through calls for proposals or under otherwise defined conditions (cascade grants), is also eligible for reimbursement.

In accordance with the Horizon 2020 Rules for Participation, Regulation (EU) No 1290/2013, Article 240(a) of Regulation (EU, Euratom) No 1046/2018 do not apply to financial support provided by the participants in the EJP Cofund actions to third parties, when the financial support to third parties is a primary aim of the action or necessary to achieve its objectives.

Funding rate: The Euratom Programme contribution will be limited to 70% of the total eligible costs of the action, unless otherwise specified in the call conditions, in line with the objective of achieving a balanced funding of the EJP Cofund from the Euratom Programme and participating public programmes.

Prizes

Description: Prizes are financial contributions given as rewards following the publication of a contest. A ‘recognition prize’ is used to recognise past achievements and outstanding work after it has been performed, whereas an ‘inducement prize’ is used to spur investment in a given direction, by specifying a target prior to the performance of the work.

The Rules of Contest lay down the conditions for participation, the award criteria, the amount of the prize and the arrangements for the payment of the prize to the winners after their award. Model Rules of Contest for prizes are published on the Participant Portal³⁹.

Prize amounts: The amount of the prize is specified in the contest. It is not linked to the costs incurred by the winner.

³⁹ http://ec.europa.eu/research/participants/data/ref/h2020/prizes_manual/h2020-prizes-roc_en.pdf

E. Model Rules of Contest (RoC) for prizes

Model Rules of Contest for prizes are published on the Participant Portal⁴⁰.

⁴⁰ http://ec.europa.eu/research/participants/data/ref/h2020/prizes_manual/h2020-prizes-roc_en.pdf

F. Technology readiness levels (TRL)

Where a topic description refers to a TRL, the following definitions apply, unless otherwise specified:

TRL 1 – basic principles observed

- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL 4 – technology validated in lab
- TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 – system prototype demonstration in operational environment
- TRL 8 – system complete and qualified
- TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)

G. Evaluation rules

Selection Criteria

1. *Financial capacity*: In line with the Regulation (EU, Euratom) No 1046/2018 and the Horizon 2020 Rules for Participation, Regulation (EU) No 1290/2013. For grants, coordinators will be invited – at the proposal stage – to complete a self-assessment using an on-line tool.

2. *Operational capacity*: As a distinct operation, carried out during the evaluation of the award criterion ‘Quality and efficiency of the implementation’, experts will indicate whether each individual participant has, or will have in due time, a sufficient operational capacity to successfully carry out its tasks in the proposed work plan. This assessment will be based on the competence and experience of the applicant, including its operational resources (human, technical and other) and, if applicable, exceptionally the concrete measures proposed to obtain it by the time of the implementation of the tasks.

3. For prizes, neither financial capacity nor operational capacity is subject to evaluation.

Award criteria, scores and weighting

1. Grant proposals will be evaluated by experts, on the basis of the **award criteria** ‘excellence’, ‘impact’ and ‘quality and efficiency of the implementation’ (see Article 15 of the Horizon 2020 Rules for Participation, Regulation (EU) No 1290/2013).

The aspects to be considered in each case depend on the types of action as set out in the table below, unless stated otherwise in the call conditions:

	Award criteria		
	<p>Excellence</p> <p><i>The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description in the work programme:</i></p>	<p>Impact</p> <p><i>The following aspects will be taken into account:</i></p>	<p>Quality and efficiency of the implementation</p> <p><i>The following aspects will be taken into account*:</i></p>
All types of action	<p>Clarity and pertinence of the objectives;</p> <p>Soundness of the concept, and credibility of the proposed methodology;</p>	<p>The extent to which the outputs of the project would contribute to each of the expected impacts mentioned in the work programme under the relevant topic;</p>	<p>Quality and effectiveness of the work plan, including extent to which the resources assigned to work packages are in line with their objectives and deliverables;</p>

			<p>Appropriateness of the management structures and procedures, including risk and innovation management;</p> <p>Complementarity of the participants and extent to which the consortium as whole brings together the necessary expertise;</p> <p>Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfil that role.</p>
<p>Research and innovation actions (RIA); Innovation actions (IA)</p>	<p>Extent that the proposed work is beyond the state of the art, and demonstrates innovation potential (e.g. ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models)</p> <p>Appropriate consideration of interdisciplinary approaches and, where relevant, use of stakeholder knowledge and gender dimension in research and innovation content.</p>	<p>Any substantial impacts not mentioned in the work programme, that would enhance innovation capacity, create new market opportunities, strengthen competitiveness and growth of companies, address issues related to climate change or the environment, or bring other important benefits for society;</p> <p>Quality of the proposed measures to:</p> <ul style="list-style-type: none"> • Exploit and disseminate the project results (including management of IPR), and to manage research data where relevant. • Communicate the project activities to different target audiences 	
<p>Coordination & support actions (CSA)</p>	<p>Quality of the proposed coordination and/or support measures.</p>	<p>Quality of the proposed measures to:</p> <ul style="list-style-type: none"> • Exploit and disseminate the project results (including management of IPR), and to manage research data where relevant. • Communicate the project activities to 	

		different target audiences	
EJP Cofund actions	Level of ambition in the collaboration and commitment of the participants in the proposed action to pool national resources in terms of budget, number of partners and participating countries and to coordinate their national/regional research programmes.	Contribution to better alignment of national activities and policies. Effectiveness of the proposed measures to exploit and disseminate the programme's results and to communicate the programme.	

* not all aspects are relevant to proposals involving just one beneficiary

2. Scoring and weighting:

Unless otherwise specified in the call conditions:

- Evaluation scores will be awarded for the criteria, and not for the different aspects listed in the above table. For full proposals, each criterion will be scored out of 5. The threshold for individual criteria will be 3. The overall threshold, applying to the sum of the three individual scores, will be 10.
- For Innovation actions to determine the ranking, the score for the criterion 'impact' will be given a weight of 1.5.

3. Priority order for proposals with the same score:

Unless the call conditions indicate otherwise, the following method will be applied

If necessary, the panel will determine a priority order for proposals which have been awarded the same score within a ranked list. Whether or not such a prioritisation is carried out will depend on the available budget or other conditions set out in the call fiche. The following approach will be applied successively for every group of ex aequo proposals requiring prioritisation, starting with the highest scored group, and continuing in descending order:

- Proposals that address topics, or sub-topics, not otherwise covered by more highly-ranked proposals, will be considered to have the highest priority.
- The proposals identified under point (a), if any, will themselves be prioritised according to the scores they have been awarded for the criterion excellence. When these scores are equal, priority will be based on scores for the criterion impact. In the case of Innovation actions this prioritisation will be done first on the basis of the score for impact, and then on that for excellence.

- c) If necessary, any further prioritisation will be based on the following factors, in order: number of participants from non-associated third countries; gender balance among the personnel named in the proposal who will be primarily responsible for carrying out the research and/or innovation activities.
- d) If a distinction still cannot be made, the panel may decide to further prioritise by considering how to enhance the quality of the project portfolio through synergies between projects, or other factors related to the objectives of the call or to the Euratom Programme in general. These factors will be documented in the report of the Panel.
- e) The method described in points (a), (b), (c) and (d) will then be applied to the remaining ex aequo in the group.

4. For prizes, the award criteria, scoring and weighting will be set out in the Rules of contest.

Evaluation procedure

1. Proposals are evaluated by independent experts (see Article 15(7) of Horizon 2020 Rules for Participation, Regulation (EU) No 1290/2013 for exceptional cases).

As part of the evaluation by independent experts, a panel review will recommend one or more ranked lists for the proposals under evaluation, following the scoring systems indicated above. A ranked list will be drawn up for every indicative budget shown in the call conditions.

2. Proposal coordinators receive an Evaluation Summary Report (ESR), showing the results of the evaluation for a given proposal.

3. If special procedures apply, they will be set out in the call conditions.

H. Budget flexibility

The budgets set out in this Work Programme are indicative.

Unless otherwise stated, final budgets may change following evaluation.

The final figures may change by up to 20% compared to those indicated in this Work Programme, for the following budgeted activities:

- total expenditure for calls (up to 20% of the total expenditure for each call);
- repartition of call budgets within a call (up to 20% of the total expenditure of the call);
- evaluation and monitoring (up to 20% of the total expenditure for all these activities);
- other individual actions not implemented through calls for proposals (up to 20% for each one).

The cumulated changes above may not exceed 20% of the maximum Union contribution provided for this Work Programme, as set out in Article 2 of this Implementing Decision

Changes within these limits shall not be considered to be substantial within the meaning of Article 110(5) of Regulation (EU, Euratom) No 1046/2018.

I. Actions involving classified information

In the case of actions involving security-related activities, special provisions for classified information (as defined in the Commission Decision (EU, Euratom) 2015/444⁴¹, and further explained in the [Guidelines for the classification of research results](#)⁴²) will be taken in the grant agreement, as necessary and appropriate.

Proposals should not contain any classified information. However, it is possible that the output of an action ('results') needs to be classified, or that classified inputs ('background') are required. In such cases proposers have to ensure and provide evidence of the adequate clearance of all relevant facilities. Consortia have to clarify issues such as e.g. access to classified information or export or transfer control with the national authorities of their Member States/Euratom Programme associated countries prior to submitting the proposal. Proposals need to provide a draft security classification guide, indicating the expected levels of classification. Appropriate arrangements will have to be included in the consortium agreement.

The Work Programme will indicate which topics are likely to lead to a security scrutiny.

These provisions do not apply to prizes.

⁴¹ Commission Decision (EU, Euratom) 2015/444 of 13 March 2015 on the security rules for protecting EU classified information (OJ L 72, 17.3.2015, p. 53).

⁴² http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/secur/h2020-hi-guide-classif_en.pdf

J. Actions involving financial support to third parties

Where a topic allows for grant proposals which foresee a financial support to third parties (in accordance with Article 204 of Regulation (EU, Euratom) No 1046/2018), the proposal must clearly detail the objectives and the results to be obtained and include at least the following elements:

- a fixed and exhaustive list of the different types of activities for which a third party may receive financial support,
- the definition of the persons or categories of persons which may receive financial support,
- the criteria for awarding financial support
- the criteria for calculating the exact amount of the financial support,
- the maximum amount to be granted to each third party (may not exceed EUR 60 000 for each third party unless it is necessary to achieve the objectives of the action) and the criteria for determining it.

Additionally, the following conditions have to be fulfilled. Projects must publish widely their open calls and adhere to Horizon 2020 standards with respect to transparency, equal treatment, conflict of interest and confidentiality. All calls for third parties must be published on the Horizon 2020 Participants Portal, and on the projects own web site. The calls must remain open for at least two months. If call deadlines are changed this must immediately be published on the call page on the participant's portal and all registered applicants must be informed of the change. Without delay, projects must publish the outcome of the call, including a description of the third party action, the date of the award, duration, and the legal name and country.

The calls must have a clear European dimension.

The financial support may also take the form of a prize awarded following a contest organised by the beneficiary.

In this case, proposals must clearly detail at least the following elements:

- the conditions for participation;
- the award criteria;
- the amount of the prize;
- the payment arrangements.

Further conditions regarding the above-listed elements or other elements may be laid down in the call conditions.

The beneficiary of the EU grant must ensure that the recipients of the financial support allow the Commission, the European Anti-fraud Office (OLAF) and the Court of Auditors to exercise their powers of control on documents, information, even stored on electronic media, or on the final recipient's premises.

K. Conditions related to open access to research data

Participants will engage in research data sharing, according to Article 29.3 of the Horizon 2020 Model Grant Agreement(s). This means that beneficiaries must deposit and take measures to make it possible for third parties to access, mine, exploit, reproduce and disseminate, free of charge for any user: (1) data needed to validate the results presented in scientific publications ('underlying data'); and (2) other data as specified by the beneficiaries in their Data Management Plan (DMP, see below).

Projects can "opt-out" of these provisions before or after the signature of the grant agreement (thereby freeing themselves from the associated obligations) on any of the following grounds:

- a) Incompatibility with the Euratom Programme obligation to protect results that are expected to be commercially or industrially exploited
- b) Incompatibility with the need for confidentiality in connection with security issues
- c) Incompatibility with rules on protecting personal data
- d) Incompatibility with the project's main aim
- e) If the project will not generate / collect any research data,
- f) If there are other legitimate reasons not to provide open access to research data

Any costs related to the implementation of these provisions are eligible for reimbursement during the duration of the grant.

A proposal will not be evaluated more favourably if the consortium agrees to share its research data, nor will it be penalised if it opts-out.

Further information on open access to research data is available on the Participant Portal.

A Data Management Plan (DMP) details what data the project will generate, how it will be exploited and made accessible for verification and re-use, and how it will be curated and preserved. The use of a Data Management Plan is obligatory for all projects that do not opt-out. Projects that opt-out are also strongly encouraged to submit a Data Management Plan if relevant for their planned research. Further information on Data Management Plans is available on the Participant Portal.