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PROPOSAL

From:	Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director
date of receipt:	28 February 2025
To:	Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union
No. Cion doc.:	COM(2025) 60 final - ANNEXES
Subject:	ANNEXES to the Proposal for a COUNCIL REGULATION establishing the Research and Training Programme of the European Atomic Energy Community for the period 2026-2027 complementing Horizon Europe – the Framework Programme for Research and Innovation and repealing Council Regulation (Euratom) 2021/765

Delegations will find attached document COM(2025) 60 final - ANNEXES.

Encl.: COM(2025) 60 final - ANNEXES

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ANNEXES 1 to 2

ANNEXES

to the

Proposal for a COUNCIL REGULATION

establishing the Research and Training Programme of the European Atomic Energy Community for the period 2026-2027 complementing Horizon Europe – the Framework Programme for Research and Innovation and repealing Council Regulation (Euratom) 2021/765

ANNEX I

ACTIVITIES

The specific objectives referred to in Article 3(2) shall be pursued across the Euratom Programme, according to the broad lines of activity described in this Annex. By implementing those specific objectives, the Euratom Programme supports Member States in the implementation of the Euratom legislation[1] and reinforces their research efforts and those of the private sector. Those specific objectives should contribute to maintain and further develop the technological leadership in the nuclear domain.

In order to achieve the specific objectives referred to in Article 3(2), the Euratom Programme will support cross-cutting activities that ensure synergy of research efforts in solving common challenges. Appropriate links and interfaces, such as joint calls with Horizon Europe, will be ensured. Related research and innovation activities may also benefit from financial support provided by the funds under the Common Provisions Regulation for 2021-2027 as far as in line with those funds' objectives and regulations.

Activities listed in this Annex include international cooperation in nuclear research and innovation for peaceful uses, based on shared goals and mutual trust with the aim of providing clear and significant benefits for the Union, its citizens and environment. This includes international cooperation through multilateral frameworks. The JRC as the formally recognised Euratom Implementing Agent for Generation IV International Forum (GIF)[2] will continue facilitating and coordinating the contribution and participation of the Euratom Community in GIF's research and training activities. The contribution to GIF's activities under the scope of the Euratom Programme is focused on safety, radiation protection, safeguards and non-proliferation research and training activities specific to Generation IV systems.

Any new activity assigned to the JRC shall be analysed by the Board of Governors of the JRC to check its consistency with existing activities in the Member States and to avoid duplication of nuclear research and development in the Union.

The Commission may decide, through the relevant work programme under the 2026-2027 Euratom Programme, to continue to fund grants awarded under Council Regulation (Euratom) 2021/765.

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[1] In particular Council Directive 2006/117/Euratom of 20 November 2006 on the supervision and control of shipments of radioactive waste and spent fuel (OJ L 337, 5.12.2006, p. 21); 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); Council Directive 2011/70/Euratom; Council Directive 2013/51/Euratom of 22 October 2013 laying down requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption (OJ L 296, 7.11.2013, p. 12); 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) and Council Regulation (Euratom) 2016/52 of 15 January 2016 laying down maximum permitted levels of radioactive contamination of food and feed following a nuclear accident or any other case of radiological emergency, and repealing Regulation (Euratom) No 3954/87 and Commission Regulations (Euratom) No 944/89 and (Euratom) No 770/90 (OJ L 13, 20.1.2016, p. 2).

[2] In accordance with Article III.2 of the Framework Agreement for International Collaboration on Research and Development of Generation IV Nuclear Energy Systems.

The priorities of the work programmes are to be established by the Commission on the basis of inputs from public authorities, nuclear research stakeholders and any relevant organisation or forum of nuclear stakeholders.

Research and training in the following fields will be eligible for funding from the Euratom Programme:

(a) improve and support nuclear safety, security, safeguards, radiation protection, safe spent fuel and radioactive waste management and decommissioning, including the safe and secure use of nuclear power and of non-power applications of ionizing radiation[3]:

(i) nuclear safety: safety of reactor systems and fuel cycles, in use in the Community or, to the extent necessary, in order to maintain broad nuclear safety expertise in the Community, those reactor types and their whole fuel cycles such as partitioning and transmutation, which may be used in the future;

(ii) safe spent fuel and radioactive waste management: the management and in particular pre-disposal activities and disposal of intermediate, high-level and long-lived radioactive waste and spent nuclear fuel, and of other radioactive waste streams and types for which industrially mature processes currently do not exist or could be improved; radioactive waste minimisation and reducing the radiotoxicity of this waste; the management and transfer of knowledge and competences between generations and across Member States' programmes in radioactive waste and spent fuel management;

(iii) decommissioning: research for the development and evaluation of technologies for decommissioning and environmental remediation of nuclear facilities; support for sharing best practices and knowledge on decommissioning;

(iv) nuclear science and ionizing radiation applications, radiation protection, emergency preparedness:

— applications of nuclear science and ionizing radiation technologies in medical, industrial and other research fields;

— effects and risks from low doses from industrial, medical or environmental exposure;

— emergency preparedness for accidents involving radiation, and research on radioecology;

— secure and safe supply and use of radioisotopes;

— models for radiological dispersion in the environment, and support for data exchange, alert systems and cooperation on measurement techniques[4] (to be implemented by direct actions);

(v) nuclear security, safeguards and non-proliferation (to be implemented by direct actions):

— methods and technology to support and strengthen the Community's and international safeguards;

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[3] Apart from nuclear security, safeguards and non-proliferation, these activities may be implemented through direct and indirect actions.

[4] Art. 35, 36, 38 Euratom Treaty; Council Decision 87/600/Euratom of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency (OJ L 371, 30.12.1987, p. 76).

— operational support and training to the Euratom safeguards system;

— technical support to the implementation of the Non-Proliferation Treaty in the field of nuclear safeguards including support to strengthen Union export control regime;

— research and support for enhancing nuclear and radiological safety and security in the context of the global CBRN (Chemical, Biological, Radiological, Nuclear) framework and related Union strategies;

— methods and technology for the detection of nuclear and radioactive materials outside regulatory control and the prevention of and responses to incidents involving such materials, including nuclear forensics;

— support for the capacity building on nuclear security using the European Nuclear Security Training Centre;

(b) maintain and further develop expertise and competence in the nuclear field within the Community:

(i) education, training and mobility, including education and training schemes such as Marie Skłodowska-Curie Actions (MSCA);

(ii) promotion of innovation, knowledge management, dissemination and exploitation of nuclear science and technology, in particular for nuclear safety, security, safeguards and radiation protection;

(iii) support for technology transfer from the research to industry;

(iv) support for the preparation and development of a competitive European fusion industrial capacity;

(v) support for the provision, availability and appropriate access of European and international research infrastructures, including JRC's infrastructures[5];

(vi) for fostering nuclear science as a base to support standardisation, direct actions will provide state-of-the-art reference data, materials and measurements related to nuclear safety, safeguards and security, as well as other applications such as nuclear medicine;

(c) foster the development of fusion energy and contribute to the implementation of the European fusion roadmap:

a Co-funded European Partnership in fusion research will implement the roadmap towards the goal of fusion electricity production by the second half of this century. This may include *inter alia*:

(i) exploiting existing and future fusion facilities, including the allocation of operating grants to fusion research infrastructures when appropriate;

(ii) preparation for future fusion power plants by developing all relevant aspects including materials, technologies and designs;

(iii) implementing a focused education and training programme in addition to activities under (b)(i);

(iv) coordination of common activities with the Joint Undertaking Fusion for Energy;

[5] On the basis of the rolling investment plan for the JRC's infrastructures.

(v) collaboration with the ITER Organisation;

(vi) scientific collaboration in the framework of the Euratom international agreements;

the Co-funded European Partnership in fusion will be implemented through a grant to be awarded to the legal entities established or designated by the Member States and any third country associated to the Euratom Programme. The grant may include resources in kind from the Community, or the secondment of Commission staff;

Additional funding for fusion research and innovation may be provided through calls for proposals.

(d) support the policy of the Union and its Member States on nuclear safety, safeguards and security:

the direct actions will support the policy on nuclear safety, safeguards and security and implementation of the relevant legislation by providing independent scientific and technical evidence and expertise.

ANNEX II

Impact pathways, and related key impact pathway indicators, shall structure the monitoring of the Euratom Programme's performance towards its specific objectives as referred to in Article 3(2). The impact pathways shall be time-sensitive: they distinguish between the short, medium and long term. Impact pathway indicators serve as proxies to report on the progress made towards achievement of specific objectives. The micro-data behind the key impact pathway indicators, which are shared with the Horizon Europe, are collected in a centrally managed and harmonised way, with minimal reporting burden on the beneficiaries.

Scientific impact pathways indicators

The Euratom Programme is expected to make progress as regards knowledge for reinforcing nuclear safety and security; safe applications of ionising radiation; spent fuel and radioactive waste management; radiation protection; and the development of fusion energy. Progress in this area will be measured by indicators concerning scientific publications, progress in the implementation of the fusion roadmap, development of expertise and skills, and access to research infrastructures.

<table>
<tr><th>Towards scientific impacts</th><th>Short-term</th><th>Medium-term</th><th>Longer-term</th></tr>
<tr><td rowspan="2">Improving the safe and secure use of nuclear energy and non-power applications of ionizing radiation, including nuclear safety, security, safeguards, radiation protection, safe spent fuel and radioactive waste management and decommissioning</td><td>Publications – number of Euratom peer-reviewed scientific publications</td><td>Citations – Field-Weighted Citation Index of Euratom peer-reviewed scientific publications</td><td>World-class science – Number and share of peer reviewed publications from Euratom Programme that are core contribution to scientific fields</td></tr>
<tr><td>Shared knowledge – Share of research outputs (open data/publication/software etc.) shared through open knowledge infrastructure</td><td>Knowledge diffusion – Share of open access research outputs actively used/cited</td><td>New collaborations – Share of Euratom beneficiaries having developed new transdisciplinary/trans-sectoral collaborations with users of their open Euratom R&I outputs</td></tr>
<tr><td>Fostering the development of fusion energy</td><td colspan="3">Progress in the implementation of the fusion roadmap – Percentage of the fusion roadmap's milestones established for the period 2021-2027 reached by the Euratom Programme</td></tr>
<tr><td>Maintaining and further developing expertise and</td><td>Skills – Number of researchers having</td><td>Careers – Number and share of upskilled researchers</td><td>Working conditions – Number and share of upskilled researchers</td></tr>
</table>

excellence in the Union	benefitted from upskilling activities of the Euratom Programme (through training, mobility and access to infrastructure)	with more influence in their R&I field	with improved working conditions
	The number of researchers having access to research infrastructure through the Euratom Programme support		
	Reference materials delivered and reference measurements incorporated to a library		Number of international standards modified

Societal impacts pathways indicators

The Euratom Programme helps to address Community policy priorities concerning nuclear safety and security, radiation protection and ionising radiation applications through research and innovation, as shown by the portfolios of projects generating outputs contributing to tackling challenges in these fields. Societal impact is also measured in terms of specific development in the field of nuclear security and safeguards.

Towards societal impacts	**Short-term**	**Medium-term**	**Longer-term**
Improving the safe and secure use of nuclear energy and non-power applications of ionizing radiation, including nuclear safety, security, safeguards, radiation protection, safe spent fuel and radioactive waste management and decommissioning	Outputs – Number and share of outputs aimed at addressing specific policy priorities	Solutions – Number and share of innovations and scientific results addressing specific policy priorities	Benefits – Aggregated estimated effects from use of Euratom-funded results, on tackling specific policy priorities, including contribution to the policy and law-making cycle
	Number of services delivered in support of safeguards	Number of technical systems provided and in use	
	Number of training sessions delivered to front-line officers		
	Co-creation – Number and share of Euratom projects where Union citizens and end-users	Engagement – Number and share of Euratom beneficiary entities with citizen and end-users	Societal R&I uptake Uptake and outreach of Euratom co-created scientific results and

	contribute to the co-creation of R&I content	engagement mechanisms after Euratom project	innovative solutions

Innovation impact pathway indicators

The Euratom Programme is expected to deliver innovation impacts supporting progress towards its specific objectives. Progress in this area will be measured by indicators concerning intellectual property rights (IPR), innovative products, methods and processes and their use, along with job creation.

Towards economic/innovation impact	**Short-term**	**Medium-term**	**Longer-term**
Improving the safe and secure use of nuclear energy and non-power applications of ionizing radiation, including nuclear safety, security, safeguards, radiation protection, safe spent fuel and radioactive waste management and decommissioning Fostering the development of fusion energy Maintaining and further developing expertise and excellence in the Union	Innovative outputs – Number of innovative products, processes or methods from Euratom Programme (by type of innovation) and IPR applications	Innovations – Number of innovations from Euratom projects (by type of innovation) including from awarded IPRs	Economic growth – Creation, growth and market shares of companies having developed Euratom funded innovations
	Supported employment – Number of FTE jobs created and jobs maintained in beneficiary entities for the Euratom project (by type of job)	Sustained employment – Increase of FTE jobs in beneficiary entities following Euratom project (by type of job)	Total employment – Number of direct and indirect jobs created or maintained due to diffusion of Euratom results (by type of job)
	Amount of public and private investment mobilised with the initial Euratom investment	Amount of public and private investment mobilised to exploit or scale up Euratom results	Union progress towards 3 % GDP due to Euratom Programme

Policy impact pathways indicators

The Euratom Programme provides scientific evidence for policy-making. This in particular concerns scientific support for other Commission services, such as the support to Euratom

safeguards, or to the implementation by Member States of Directives related to nuclear and ionising radiation[6].

Towards policy impact	Short-term	Medium-term	Longer-term
Supporting policy on nuclear safety, safeguards and security	Number and share of Euratom projects producing policy-relevant findings	Number of outputs having a demonstrable impact on the policy	Number and share of Euratom projects findings cited in policy/programmatic documents

Targets will be defined for both indirect and direct actions to reflect the expected results for each part of the Euratom Programme.

[6] Commission Regulation (Euratom) No 302/2005 of 8 February 2005 on the application of Euratom safeguards (OJ L 54, 28.2.2005, p. 1); Council Directive 2011/70/Euratom and Council Directive 2014/87/Euratom of 8 July 2014 amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations (OJ L 219, 25.7.2014, p. 42).