



# **Explanatory Meeting on Chapter 25 “Science and Research” Nuclear R&D Acquis**

**Brussels, 11 March 2019**

**DG Research and Innovation**

*These slides accompany the explanation of the acquis to Albania and North Macedonia and can only be used for that purpose. Their content is subject to further development of the acquis and interpretation by the Court of Justice of the European Union.*

# Primary Law: Euratom Treaty (1957)

- Chapter 1 “Promotion of the research”, Art 4-11
  - provisions on nuclear Research and on Framework Programmes
- Chapter 10 “External Relations”, Art 101-106
  - provisions on possibilities that Euratom conclude international agreements with third/non-EU States and International Agreements

# Acquis structure

## ***I. Primary Law***

**Euratom Treaty:** research and extern. Relations relevant provisions, namely

- Chapter 1 "*Promotion of the research*", Art 4-11
- Chapter 10 "*External Relations*", Art 101- 106

## ***II. Secondary Law (in force):***

- **COUNCIL REGULATION (Euratom) 2018/1563 of 15 October 2018 on the Research and Training Programme of the European Atomic Energy Community (2019–2020)** complementing the Horizon 2020 Framework Programme for Research and Innovation, and repealing Regulation (Euratom) No 1314/2013

- **COMMISSION IMPLEMENTING DECISION** of 14.12.2018 on the financing of indirect actions within the framework of Council Regulation (Euratom) No 2018/1563 and **on the adoption of the work programme for 2019-2020**

• **REGULATION (EU)** 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

• **III. International Agreements of Euratom in fission and fusion research; association to the Euratom R&D programmes**

• **IV. Area indirectly linked to Energy fission acquis**

# COUNCIL REGULATION

(currently in force)

**2018/1563 of 15 October 2018**  
**on the Research and Training Programme of the European Atomic Energy**  
**Community (2019-2020) complementing the Horizon 2020 Framework**  
**Programme for Research and Innovation**

## **General Objective of the Euratom Programme:**

- to pursue nuclear research and training activities with an emphasis on **continuous improvement of nuclear safety, security and radiation protection**, notably to potentially contribute to the long-term decarbonisation of the energy system in a safe, efficient and secure way.

## The Euratom indirect actions shall have the following specific objectives:

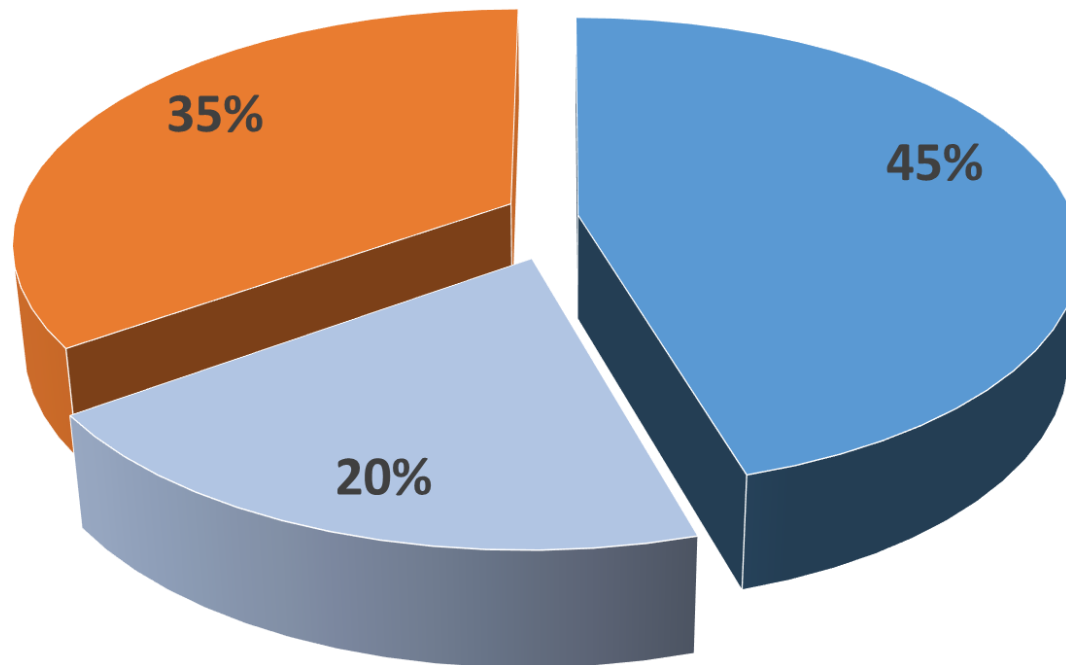
- (a) supporting the **safety** of nuclear systems;
- (b) contributing to the development of safe, longer term solutions for the management of ultimate **nuclear waste**, including final geological disposal as well as partitioning and transmutation;
- (c) supporting the development and sustainability of nuclear **expertise and excellence** in the Union;
- (d) supporting **radiation protection** and development of medical applications of radiation, including, inter alia, the secure and safe supply and use of radioisotopes;
- (e) moving towards **demonstration of feasibility of fusion** as a power source by exploiting existing and future fusion facilities;
- (f) laying the foundations for **future fusion power plants** by developing materials, technologies and conceptual design;
- (g) promoting **innovation** and industrial competitiveness;
- (h) ensuring availability and use of **research infrastructures** of pan-European relevance.

## **The Euratom direct actions shall have the following specific objectives:**

- (a) improving nuclear safety, including: nuclear reactor and fuel safety, waste management, including final geological disposal as well as partitioning and transmutation; decommissioning, and emergency preparedness;
- (b) improving nuclear security, including: nuclear safeguards, non-proliferation, combating illicit trafficking, and nuclear forensics;
- (c) increasing excellence in the nuclear science base for standardisation;
- (d) fostering knowledge management, education and training;
- (e) supporting the policy of the Union on nuclear safety and security.

## Euratom Research & Training Programme 2019 - 2020

**Total Budget: € 770 million**



■ DG RTD  
Indirect actions  
Fusion R&D Programme  
€ 350 million

■ DG RTD  
Indirect actions  
Nuclear Fission, Safety & Radiation Protection  
€ 152 million

■ DG JRC  
Direct Actions  
Nuclear Safety & Security  
€ 269 million



# Euratom Work Programme 2019-2020

*European Commission Implementing Decision  
C(2018) 8412 Adopted on 14.12.2018*

Published on the 'Funding and Tenders' website:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-search>



# **Call – Nuclear Fission & Radiation Protection Research NFRP 2019-20**

- A. NUCLEAR SAFETY**
- B. DECOMMISSIONING AND ENVIRONMENTAL REMEDIATION**
- C. RADIOACTIVE WASTE MANAGEMENT**
- D. EDUCATION & TRAINING**
- E. RADIATION PROTECTION AND MEDICAL APPLICATIONS**
- F. RESEARCH INFRASTRUCTURE**

# WP 2019-2020 General Annexes

- A. List of **countries eligible** for funding
- B. Standard **admissibility conditions**, page limits and supporting documents
- C. Standard **eligibility conditions**
- D. Types of action: specific provisions and **funding rates**
- E. Model Rules of Contest (RoC) for **prizes** => reference to Participant Portal
- F. Technology Readiness Levels (**TRL**)
- G. **Evaluation rules**
- H. **Budget** flexibility
- I. Actions involving **classified information**
- J. Actions involving financial support to **third parties**
- K. Conditions related to **open access** to research data

## Annex D: 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%

## Research and Innovation Actions (RIA)

Topic	Budgets (EUR million)
<b>Nuclear safety</b> - NFRP-01: Ageing phenomena of components and structures and operational issues	16
<b>Nuclear safety</b> - NFRP-02: Safety assessments for LTO upgrades of Generation II and III reactors	12
<b>Nuclear safety</b> - NFRP-03: Safety margins determination for design basis-exceeding external hazards	8
<b>Nuclear safety</b> - NFRP-05: Support for safety research of Small Modular Reactors	8
<b>Nuclear safety</b> - NFRP-06: Safety Research and Innovation for advanced nuclear systems	7.6
<b>Nuclear safety</b> - NFRP-07: Safety Research and Innovation for Partitioning and/or Transmutation	6

## Research and Innovation Actions (RIA)

Topic	Budgets (EUR million)
<b>Radioactive Waste management</b> - NFRP-10: Developing pre-disposal activities identified in the scope of the European Joint Programme in Radioactive Waste Management	14
<b>Radiation Protection and medical applications</b> - NFRP-12: Further integrating Radiation Protection research in the EU	18
<b>Radiation Protection and medical applications</b> - NFRP-14: Improving low-dose radiation risk appraisal in medicine	6
<b>Research Infrastructure</b> - NFRP-15: Optimised fuels for production of medical radioisotopes	7.5

## **Annex D: 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%

## Coordination and Support Actions (CSA)

Topic	Budgets (EUR million)
<b>Nuclear safety</b> - NFRP-08: Towards joint European effort in area of nuclear materials	1.1
<b>Education and Training</b> - NFRP-11: Advancing nuclear education	5
<b>Radiation Protection and medical applications</b> - NFRP-13: Research roadmap for medical applications of ionising radiation	2
<b>Research Infrastructure</b> - NFRP-16: Roadmap for use of Euratom access rights to JHR experimental capacity	1.1
<b>Research Infrastructure</b> - NFRP 17: Optimised use of European research reactors	1.1

## Annex D: 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.

Projects may include limited research and development activities.

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



## Innovation Actions (IA)

Topic	Budgets (EUR million)
<b>Nuclear safety</b> - NFRP-04: Innovation for Generation II and III reactors	12
<b>Decommissioning and environmental remediation</b> - NFRP-09: Fostering innovation in decommissioning of nuclear facilities	8.5

# WP 2019-2020 Calendar

<b>WP Adoption:</b>	<i>14 December 2018</i>
<b>Call Open:</b>	<i>15 May 2019</i>
<b>Submission deadline:</b>	<i>25 September 2019, 17.00.00 Brussels local time</i>
<b>Evaluation:</b>	<i>November 2019</i>
<b>Info to the applicants:</b>	<i>January–February 2020</i>
<b>Signature of GAs:</b>	<i>May 2020</i>

Commission proposal for  
**Horizon Europe**

THE NEXT EU RESEARCH & INNOVATION  
PROGRAMME (2021 – 2027)

#HorizonEU



# Horizon Europe Research and Innovation programme

- The Commission has published in June 2018 its proposal for Horizon Europe, an ambitious €100 billion research and innovation programme that will succeed Horizon 2020.
- Several building blocks, among which Euratom Regulation
- Links to how the Horizon Europe is designed, legal frameworks, factsheets, reports :
- [https://ec.europa.eu/info/designing-next-research-and-innovation-framework-programme/what-shapes-next-framework-programme\\_en](https://ec.europa.eu/info/designing-next-research-and-innovation-framework-programme/what-shapes-next-framework-programme_en)

# The HE Euratom Regulation (2021-2025)

- Proposal for a COUNCIL REGULATION establishing the Research and Training Programme of the European Atomic Energy Community for the period **2021-2025** complementing Horizon Europe – the Framework Programme for Research and Innovation
- COM/2018/437 final - <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1540388338852&uri=CELEX%3A52018PC0437>

# Euratom Research and Training Programme (2021-2025)

The indicative budget for 5 years 1,68 bln €

- 725 mln € for fusion research and development
- 331 mln € for nuclear fission, safety and radiation protection
- 620 mln € for direct actions undertaken by the Joint Research Centre

# The Euratom Cooperation Agreement (specific fusion and fission research related)

Table 1: Bilateral Euratom research Cooperation Agreements (CAs).

	<b>Fusion research Cooperation Agreements</b>	<b>Fission research Cooperation Agreements</b>
Argentina		1997 Peaceful Uses of Nuclear Energy*
Brazil	2013	
Canada	(1995 - expired in 2005)	1998 Nuclear Research
China	2008 R&D Cooperation in Peaceful Uses of Nuclear Energy	
India	2010	Under negotiation **
Japan	1988, 2007 (Broader Approach)	
Kazakhstan	2004	2003 Nuclear Safety
Russia	2002	2002 Nuclear Safety
South Korea	2006	
Switzerland	(1979 + amended in 1982, suspended in 2014)	
Ukraine	2002	2002 Nuclear Safety
US DOE	2001	2003 Nuclear technology R&D***
US NRC		2009 Nuclear safety research***

*Year of signature or entry into force of the agreement.*

(\*) In substance R&D agreement.

(\*\*) R&D Cooperation in Peaceful Uses of Nuclear Energy, under negotiation.

(\*\*\*) Technical Exchange and Cooperation Agreements.

# Association Agreements: Euratom R&T Programme 2019-2020 Switzerland and Ukraine

## Article 5

### *Association of third countries*

1. The 2019–2020 Programme shall be open to the association of:

- (a) acceding countries, **candidate countries** and potential candidates, in accordance with the general principles and general terms and conditions for the participation of those countries in Union programmes established in the respective framework agreements and decisions of association councils or similar agreements;
- (b) European Free Trade Association (EFTA) members, or countries or territories covered by the European Neighbourhood Policy, that fulfil all of the following criteria:
  - (i) a good capacity in science, technology and innovation;
  - (ii) a good track record of participation in Union research and innovation programmes;
  - (iii) fair and equitable dealing with intellectual property rights;
- (c) countries or territories associated with the Seventh Euratom Framework Programme or the Euratom Research and Training Programme 2014–2018.

2. Specific terms and conditions regarding the participation of associated countries in the 2019–2020 Programme, including the financial contribution, based on the gross domestic product of the associated country, shall be determined by international agreements between the Union and the associated countries.



# FISA AND EURADWASTE CONFERENCES (Pitesti, Romania, June 2019)



**Meeting the most important European and some international stakeholders in nuclear safety and waste management research and training**

***European Consortium for the Development of Fusion Energy***

[\*https://www.euro-fusion.org/\*](https://www.euro-fusion.org/)

***Sustainable Nuclear Energy Technology Platform***

[\*http://www.snetp.eu/\*](http://www.snetp.eu/)

***NUGENIA association (Gen II&III)***

[\*http://www.nugenia.org/\*](http://www.nugenia.org/)

***Strategic Energy Technology Plan***

[\*http://ec.europa.eu/energy/technology/set\\_plan/set\\_plan\\_en.htm\*](http://ec.europa.eu/energy/technology/set_plan/set_plan_en.htm)

***European Energy Research Alliance***

[\*http://www.eera-set.eu/\*](http://www.eera-set.eu/)

### ***Implementing Geological Disposal of Radioactive Waste Technology Platform***

<http://www.igdtp.eu/>

### ***Multidisciplinary European Low-Dose Initiative - MELODI***

<http://www.melodi-online.eu/>

### ***EERA: Joint Programme on Nuclear Materials:***

<http://www.eera-jpnm.eu/>

### ***European Nuclear Education Network***

<http://www.enen-assoc.org/>

### ***Strategic Energy Technologies Information System***

<https://setis.ec.europa.eu>

*THANK YOU FOR YOUR ATTENTION !*