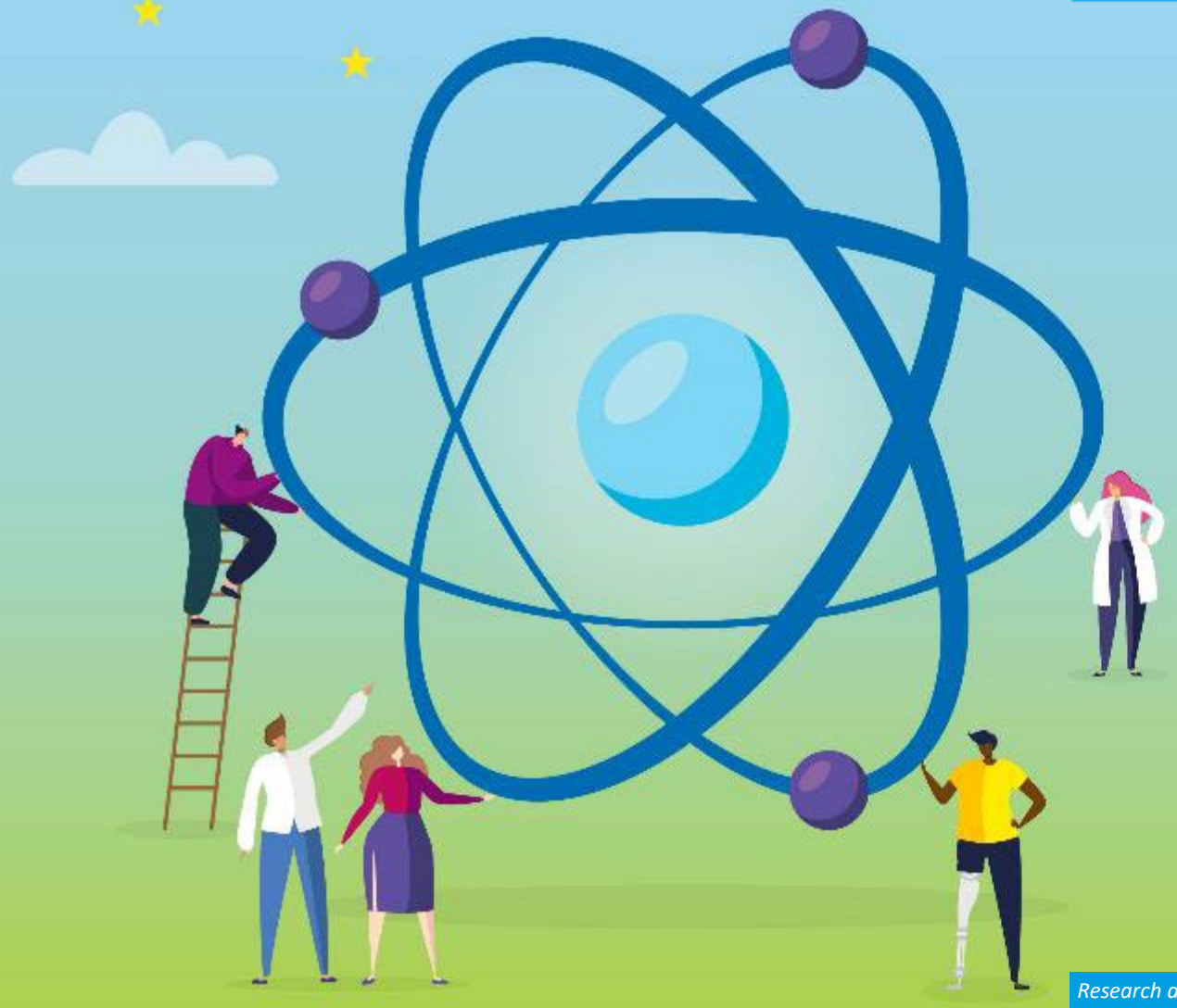


#Euratom

EURATOM Research and Training Programme

2021 – 2025

MUR/APRE Info Day, 23/1/2023

Domenico Rossetti di Valdalbero, PhD
Deputy Head of Unit, EC DG RTD

European Commission

Research and Innovation

Current political context

This is a war on our energy, a war on our economy, a war on our values and a war on our future'

Ursula von der Leyen, SOTEU, 2022

- **Strengthen unity & solidarity among Europeans to overcome the energy crisis – NextGenEU & RePowerEU & Delegated act on EU Taxonomy**
- **Security of supply of nuclear fuels**
- **Strengthen a sense of belonging and empowerment in the green transition**
- **Demonstrate the connection between the transition to energy independence & EU value (EGD)**
- **Commissioner Simson (ENEF, 10-11/11/22): *The EU will need up to €450 B in investment just to keep the current level of its nuclear power generation capacity***

European Commission

HORIZON EUROPE

EURATOM

SPECIFIC PROGRAMME: EUROPEAN DEFENCE FUND

Exclusive focus on defence research & development

- Research actions
- Development actions

SPECIFIC PROGRAMME IMPLEMENTING HORIZON EUROPE & EIT*

Exclusive focus on civil applications

Pillar I
EXCELLENT SCIENCE

- European Research Council
- Marie Skłodowska-Curie
- Research Infrastructures

Pillar II
GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS

Clusters

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

- Joint Research Centre

Pillar III
INNOVATIVE EUROPE

- European Innovation Council
- European innovation ecosystems
- European Institute of Innovation & Technology*

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

- Widening participation & spreading excellence
- Reforming & Enhancing the European R&I system

EURATOM

- Fusion
- Fission
- Joint Research Center

* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

SET-Plan revamp in 2023

- **Support the EGD policies and strategies and make the SET Plan ‘fit for 55’ and align it with the 2050 decarbonisation goal, as well as embedding the approach of REPowerEU**
- **Contribute to the ERA policy agenda and reinforce synergies with and between Member States;**
- **Increase the participation of all countries in SET-Plan activities and increase the political visibility of the activities (at the moment, 18 MS are active: Austria, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Slovakia, Spain and Sweden)**

European Commission

SET-Plan revamp & cross-cutting issues

In the light of REPowerEU:

- Hydrogen
- Reducing dependence
- Circularity
- Digitalisation
- Energy storage
- Skills
- Empowerment of citizen

Ideas for Nuclear (beyond BAU)

- Nuclear, H2 and EII
- Cross-cutting: AI, robotics, digital, space
- Focus on SMRs

European Commission

Euratom research and training programme (2021-2025)

EU adopted Euratom Research and Training Programme on 12 May 2021

The programme has a budget of €1.38 billion for 5 years (€ 1.98 in MFF)

€583 M for indirect actions in fusion research and development

€266 M for indirect actions in nuclear fission, safety and radiation protection

€532 M for direct actions undertaken by the JRC

Euratom WP2021-22	**New projects launched mid-2022**
Euratom WP2023-25	**Publication mid/end of February (tbc) - Deadline on 8/11/2023**

Synergies with Member States
European co-fund Partnerships in Euratom

- Fusion with EUROfusion
- Radioprotection and medical applications with PIANOFORTE
- Radioactive Waste Management with EURAD
- A new Partnership is planned for the next WP on Nuclear Materials

No ‘Innovation divide’ (East-West, North-South) in Euratom Research!

European Commission

Nuclear Research infrastructures/facilities supported by EU and Member States

In Fusion:

- JET
- ITER
- DONES
- DTT

In Fission:

- MYRRHA
- Jules Horowitz Reactor
- PALLAS

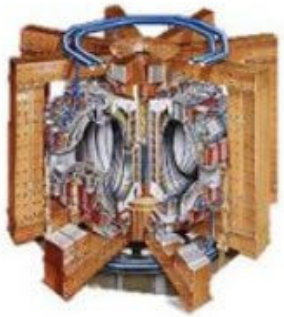
European Commission

EU-Ukraine

- EU-Ukraine Agreements & collaboration in nuclear research before 2016
- Participation of Ukrainian entities in Euratom H2020 programme
- Ukraine is currently the only Associated Country in Euratom 2021-2025 programme

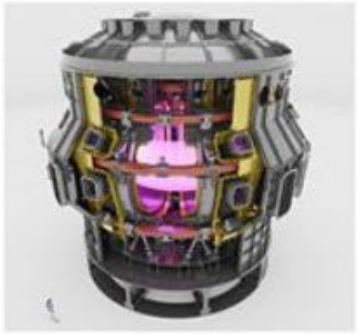
European Commission

Fusion Research (1957 – 2050)



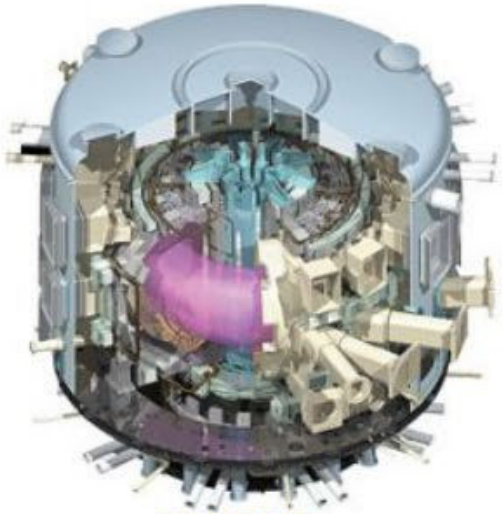
JET

80 m^3



JT-60SA

135 m^3



ITER

800 m^3

(one-third the size of an Olympic swimming pool)

~ 500 MW_{th}

DEMO

~ 1000 – 3500 m^3

(half to one and a half times the size of an Olympic swimming pool)

~ 2000-4000 MW_{th}

European Commission

Euratom R&T policy initiatives

- Support to the three Euratom Directives on nuclear safety, radioactive waste management and radiation protection
- Commissioner Gabriel Nuclear Roundtables on E&T, SMRs, medical applications and the next ones on E&T, medical and Research infrastructures and on Fusion
- FISA-EURADWASTE conference in Lyon, 31/5-3 June 2022
- EUROfusion general assembly, Brussels, 5 July 2022
- SET-Plan conference and ENEF, Prague, 9-11 November 2022
- Euratom Research in Action, Brussels, 4 April 2023

European Commission

Thanks to Euratom, Europe will maintain world leadership in fusion, nuclear safety, radiation protection, waste management and decommissioning, safeguards and security with the highest level of standards.

Mariya Gabriel

Commissioner for Innovation, Research, Culture, Education and Youth

European Commission

Sample of recently launched Euratom R&T initiatives

- EU nuclear competence through advanced E&T - ENEN2plus
- European platform for accessing nuclear R&D facilities - OFFERR
- European Partnership on fusion - EUROfusion
- EP on radiation protection - PIANOFORTE
- Extended lifetime and its influence on the safety operation and construction materials performance - DELISA-LTO -
- Harmonised practices, regulations and standards in waste management and decommissioning - HARPERS
- Nuclear powered hydrogen cogeneration - NPHyCo
- Severe accident research and knowledge management for LWRs - SEAKNOT

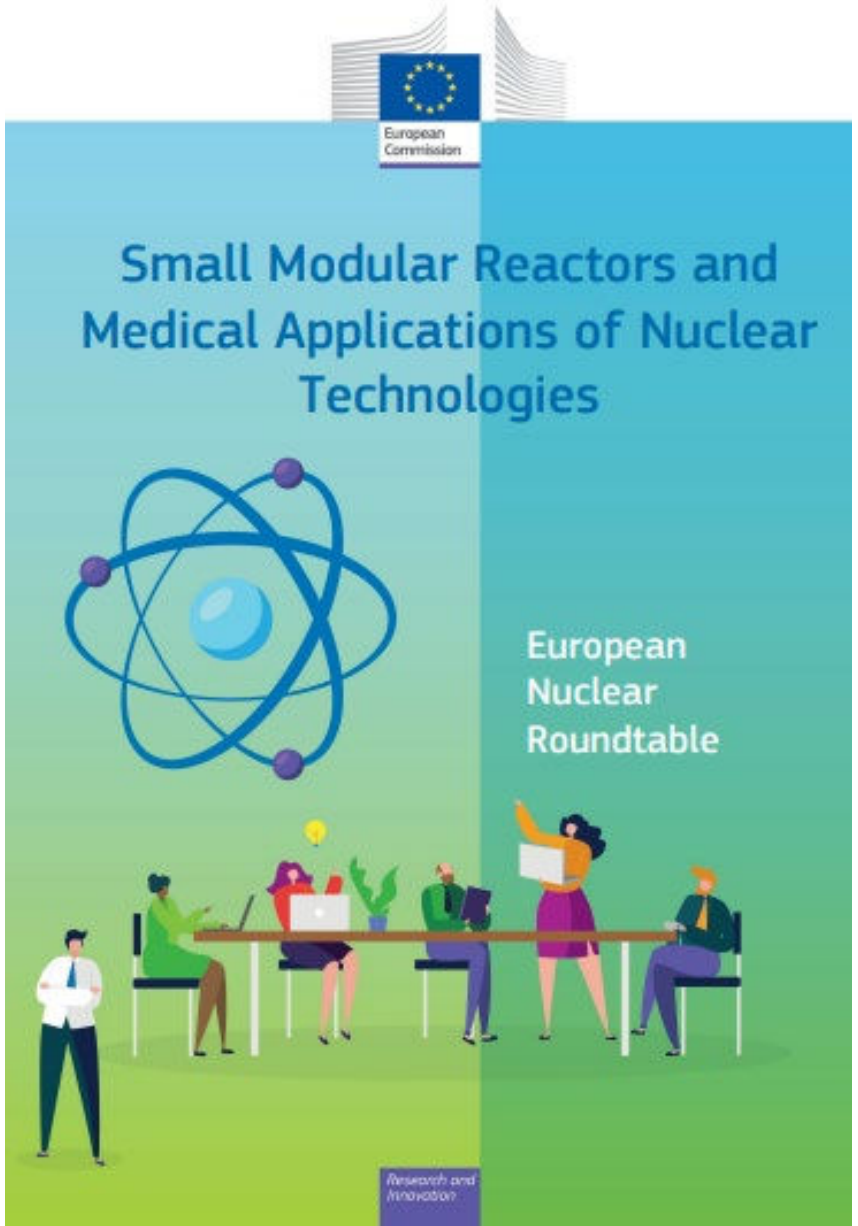
European Commission

Education and Training

- Involve top academics, policy-makers and management
- Closely associate Member States (Ministers, Ministries, Perm Rep, Scientific Attachés)
- Share with key stakeholders
- Report from the FR Council Presidency on Skills, E&T – Council of the EU, 7/6/2022 – 9799/22 – RECH 326 – ATO 38
- 5 MCSA fellowships awarded to nuclear researchers (2 in ENG, 2 in PHY, 1 in ENV) – Same funding (EUR 1M/y) for 2023-24-25

European Commission

High-level Commissioner Gabriel Nuclear Roundtables 12/5/2021 and 15/3/2022



Next Roundtables in 2023 on E&T and on Fusion

European Commission

Euratom R&T in the media

- EC Press release and Factsheets:
  - Euratom R&T Programme 2021-25
  - New Euratom projects
  - Ukraine's association to Euratom
  - Nuclear Innovation Prizes
- EC Publications
- Video on Young professionals in the nuclear field
- Tweets and LinkedIn posts by Commissioner and Euratom Research

European Commission

Future Euratom R&T priorities

- Small and Modular Reactors
- Nuclear safety of current and advanced systems
- European Partnership on radioactive waste management
- EP on Nuclear materials
- Partitioning and Transmutation
- Nuclear data
- Safe decommissioning, AI and digital technologies
- Secure supply of medical radioisotopes
- Radiation techniques for EU strategic autonomy and circular economy
- Cross-sectorial applications and radiation protection
- SOFT, Safety and RWM Prizes and MCSA

Next steps

- Integration of Comments to the WP 2023-25 following the ISC
- Programme Committee written procedure
- WP and Call published mid-end of February (tbc)
- Deadline for the Euratom Call: 8 November 2023