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COVER NOTE

Subject:	Legacy messages of the STC (Scientific and Technical Committee of Euratom) - Powerpoint presentation (Research (Atomic Questions) WP meeting 12.06.2024)

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Legacy Messages of the STC

—Scientific and Technical Committee of Euratom—

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KEY MESSAGES FOR POLICY- & DECISION-MAKERS

Strategic Autonomy – The Issue

New geopolitical & energy realities:

- Russia-Ukraine, Middle East, China, USA, …
- Energy & commodity prices, uncertain supply chains (NG, minerals, critical equipment, …), climate urgency…

➡ Need for ***strategic autonomy in the EU***

* for different energy technologies

* for non-energy related applications using ionizing radiation

Nuclear leadership in the EU is crucial

- for **worldwide influe**nce on nuclear matters
- to maintain EU position as **intl reference** for nuclear safety and radiation protection standards

Strategic Autonomy – Education & Training

Strategic Autonomy requires:

- **Close EU collaboration** to increase E&T to **reinforce competence** in nuclear
- Sustained effort for **continued safe operation** of infrastructures
  - ❖fission reactors, fusion experiments, medical equipment

- That E&T be treated **holistically** (fission, fusion, medical, space, industry)
  - ➢Towards a comprehensive **European Nuclear Competence Area**

Strategic Autonomy – Nuclear Fuel Autonomy

Nuclear fuel **independence from Russia** !

Euratom / Commission to investigate the merits of own 'fuel production':

- ❖ short-term & long-term
- ❖ U resources (mines); Li resources (for T-breeding) – diversified supply
- ❖ manufacturing capabilities of fuel assemblies / pellets
- ❖ for standard fuels & innovative fuel concepts
- ❖ for fission & fusion

Safety in Nuclear Fission Facilities

- **Safety** of existing and future nuclear systems is **key**
- Broad range of **Euratom-funded safety research necessary**
  - ❖ continued operation (LTO) existing reactors
  - ❖ decommissioning of shut-down reactors
  - ❖ licensing of new reactors

- **R&D support** especially for
  - ❖ ageing processes & material integrity
  - ❖ accident-tolerant fuel
  - ❖ safety-related modelling

Safety in Nuclear Fission Facilities

- More attention needed for **Small Modular Reactors (SMRs)**

  - ❖ Priority to European designs (cfr 'strategic autonomy')
  - ❖ Focus on
    - ➢ scientific basis for safety assessments
    - ➢ alignment of regulator's views on safety & radiation-protection standards
    - ➢ timely initiative for education regulators on innovative nuclear systems

Nuclear Fusion

- The current **EU fusion roadmap** must urgently be **accelerated**!

  ❖To consider <u>various</u> paths with <u>differentiated risks</u> to develop fusion energy

  ❖Stronger involvement of **industry**
  - ➢ for <u>design</u> and <u>safety & licensing</u>
  - ➢ practical <u>organisation & management</u> of construction
  - ➢ help to resolving <u>critical issues</u> and <u>risks</u>
  - ➢ help the fusion community to focus on <u>results</u>, <u>cost</u> & <u>schedule</u>

Nuclear Fusion

- **Public-Private Partnerships (PPP)**
  - ❖ should be embedded in **EUROfusion**'s **holistic** approach
  - ❖ to address **fusion technology** challenges
  - ❖ will imply new **challenges for organisation & governance** of EU fusion pgm
  - ❖ to be investigated **how** this can be realised (by 2026-2027 – 'extension')
- **Intellectual Property (IP)** in fusion
  - ❖ compliant with ITER Agreement shared by *all* partners
  - ❖ **IP** for future **key technologies** to be developed, **protected and held in EU**

Radiation Protection

- **More multidisciplinary and integrative research**
  - ❖ on **basic mechanisms** of biological effects of radiation
  - ❖ to study **DNA damage response & risk evaluation** due to *all* kinds of exposure
    - ➢ genotoxins (ionising radiation and chemicals)
    - ➢ distinct individual response of humans

- **Collaborative research action on cancer and degenerative diseases**
  - ❖ among Euratom Programme and Health Cluster Europe
  - ❖ **EU Mission: Cancer** & **Europe's Beating Cancer Plan**

Nuclear Waste

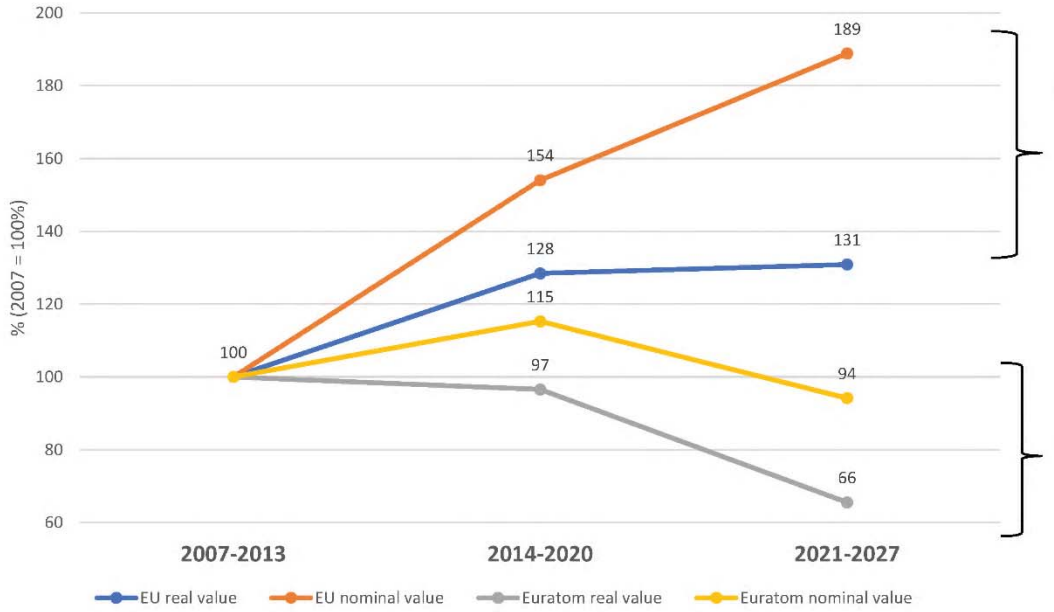
- **Safe management of radioactive waste and spent fuel**
  - ❖ under Euratom Joint Programme **EURAD**
  - ❖ deserves more attention from the next STC

  - ❖ support should be given to MS in **design & implementation of national programmes**
  - ❖ Euratom pgm to offer **research & tools** for **safety** aspects of **deep geological repositories**

- **Value of partitioning & transmutation (P&T)**
  - ❖ to be revisited and re-examined (current state of play)
  - ❖ to alleviate the burden for deep geological disposal

In Conclusion – Budgetary Considerations

Relative change (in %) compared to 2007

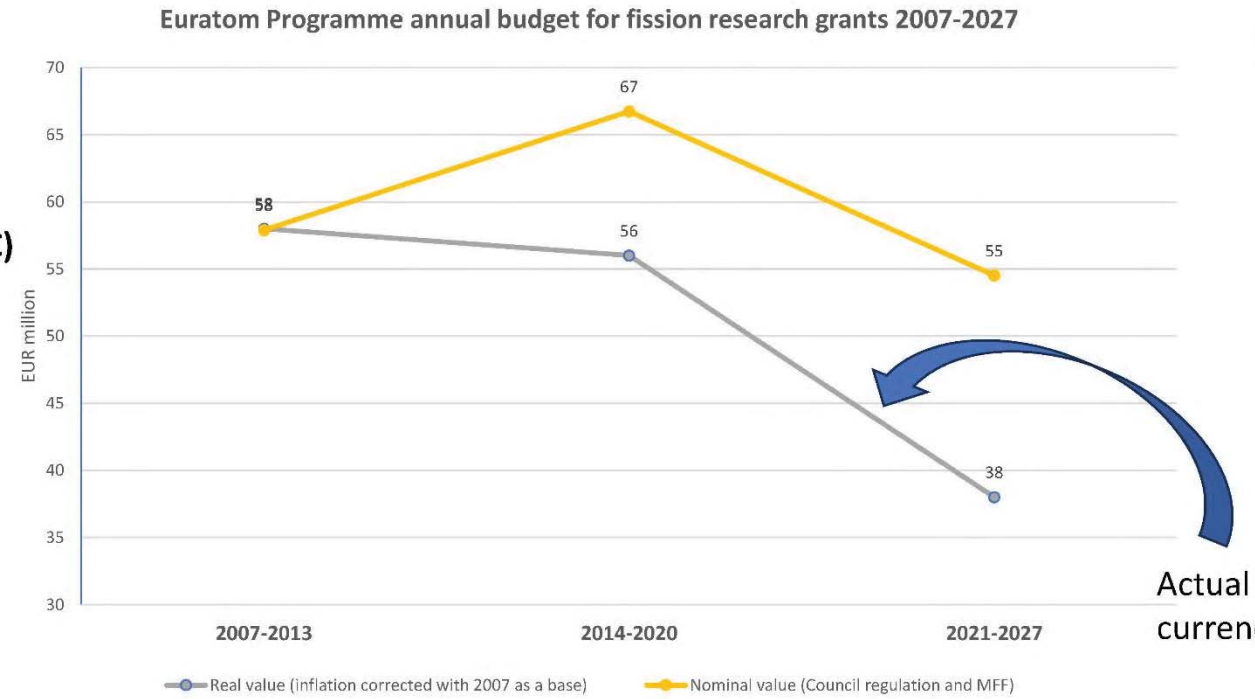


EU-FPs:
* FP7
* FP8 – Horizon 2020
* FP9 – Horizon Europe

Euratom fission grants

In Conclusion – Budgetary Considerations

Absolute change (in M€) compared to 2007



Actual decrease in 'real' currency