EURATOM SUPPLY AGENCY

Annual Activity Report

2023

Table of Contents

Mission and governance

1. MANDATE AND STRATEGIC OBJECTIVES

The Supply Agency of the European Atomic Energy Community, also known as the Euratom Supply Agency (ESA), was established by Article 52 of the Euratom Treaty ([1]). The Agency was set up to take responsibility for the common supply policy for ores, source materials and special fissile materials, with the purpose of ensuring the regular supply of the materials concerned to Community users. The policy is based on the principle of equal access for all Community users to sources of supply.

ESA's strategic objective is the security of supply of nuclear materials, in particular nuclear fuel, for power and non-power uses.

The prerogatives of ESA stem from the Euratom Treaty and its secondary legislation. The Agency has the exclusive right to conclude contracts for the supply of nuclear materials coming from inside or outside the Community, as well as a right of option on nuclear materials produced in the Community. It also monitors transactions for the provision of services in the nuclear fuel cycle, including by acknowledging the notifications that market players must submit to it, giving details of their commitments.

In the interest of its Treaty missions, the Agency's Statutes ([2]) entrust it with a market observatory role to identify market trends that could affect the security of the EU's supply of nuclear materials and services. This mission extends to aspects of the supply of medical radioisotopes in the EU in the light of Council Conclusions on this issue ([3]).

ESA also provides the Community with expertise, information and advice on any subject connected with the operation of the market in nuclear materials and services.

2. GOVERNANCE

The Euratom Treaty has endowed ESA with legal personality and financial autonomy, enabling it to make independent decisions on matters within its remit. The Agency operates under the supervision of the European Commission. The Agency's Statutes set out its governance in more detail.

In line with these Statutes, the Advisory Committee helps the Agency carry out its tasks by giving opinions and providing analyses and information. The Committee also acts as a link between ESA, producers and users in the nuclear industry, as well as Member State governments. ESA provides the Committee and its working groups with a secretariat and logistical support.

([1]) Treaty establishing the European Atomic Energy Community (consolidated version published in the Official Journal of the European Union, 2016/C 203/1).

([2]) Laid down by Council Decision of 12 February 2008 establishing Statutes for the Euratom Supply Agency (2008/114/EC, Euratom).

([3]) 'Towards the secure supply of radioisotopes for medical use in the EU' – 3053rd Employment, Social Policy Health and Consumer Affairs Council meeting, 6 December 2010 and 17453/12, ATO 169/SAN 321, 7 December 2012.

The Supply Agency had an acting Director-General between October 2023 and April 2024. A new Director-General was appointed by the Commission, and started in his functions on 1 May 2024.

3. ADVISORY COMMITTEE

At its in-person meeting in April 2023, the Advisory Committee delivered its opinion on ESA's 2022 draft annual report and examined the short- to long-term security of the supply situation as presented by the Agency and the Commission. ESA provided an update on the security of supply of medical radioisotopes in the EU, presented its line on contracts with unreliable suppliers and announced that it had started preparing a first draft of its own specific provisions on access to Agency documents.

At its June online meeting, the newly nominated Committee for 2023-2026 elected its chairperson and the two vice-chairpersons.

At its December in-person meeting, the Committee discussed the short-and long-term security of supply of nuclear materials and the possibility of re-establishing a Working Group on Prices and Security of Supply. This was approved for the period of the next term of the Committee. The working group mandate has been agreed and members were proposed by written procedure.

Furthermore, the Committee gave a positive opinion on ESA's 2024 work programme and draft 2025 budget.

The Committee also examined the results of the survey on the effectiveness and efficiency of the arrangements for Advisory Committee meetings, as presented by ESA.

Key achievements

Since 2022, the functioning of the nuclear market has been profoundly affected by the major geopolitical developments that have occurred in Europe. The Russian invasion of Ukraine has significantly impacted the European Union's energy security, and severely disrupted the global supply system for all sources of energy, and intensified concerns about the EU's reliance on Russian resources and supplies. The conflict has also raised concerns about the EU's security of supply for nuclear materials and services and aggravated dependence issues.

Consequently, the EU is actively exploring alternative energy sources and further diversifying its energy imports to reduce its dependence on Russia, including in nuclear fuel supplies, in order to strengthen long-term energy security. ESA is supporting this process.

According to the measures put forward in the REPowerEU Plan ([4]) of 2022, diversification is of particular importance for Member States dependent on Russia for nuclear fuel for their reactors serving either power generation or non-power uses. The Plan underlined the need to work together with global partners in order to secure alternative sources of uranium and boost the conversion, enrichment and fuel fabrication capacities.

Furthermore, in addition to the increased focus on energy security, there is a renewed interest in nuclear energy as a low-carbon alternative to fossil fuels, both in the European Union and around the world. Nuclear energy is seen by some Euratom Member States as a means complementary to renewable sources to achieve the climate objectives and strengthen energy security amidst geopolitical tensions and the need to reduce dependence on fossil fuel imports from unstable or unreliable sources. Emerging technologies, like small and advanced modular reactors (SAMRs), are making some progress in research and development and could play a role in integrated energy systems.

In 2023 ESA carried out its various activities bearing in mind this particular context and the related risks.

4. PRINCIPAL ACTIVITIES

4.1. Contract management

ESA concludes contracts for the supply of nuclear materials and fuel, as per Article 52 of the Euratom Treaty, and acknowledges notifications of contracts for small amounts of nuclear materials ([5]) and transactions for services in the nuclear fuel cycle, as per Article 74 and Article 75 of the Euratom Treaty respectively.

- *Each submitted contract is checked for completeness of information as required under the Agency Rules ([6]).*

([4]) REPowerEU Plan: Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of Regions, adopted on 18.05.2022 – COM(2022) 230 final.

([5]) Commission Regulation (Euratom) No 66/2006 provides details of how transactions involving small quantities of nuclear materials are handled.

([6]) Agency Rules determining the manner in which demand is to be balanced against the supply of ores, source materials and special fissile materials (O.J. L 218, 18.6.2021)

- *For supply contracts, once all information is available, the case handlers analyse the contract to check whether the economic and commercial conditions and legal clauses are aligned with the Euratom Treaty and with the objective of security of supply.*
- *After analysis, the Euratom Supply Agency either concludes the supply contract, by providing a signature of an authorised official on the original copies received and assigning a registration number, or it informs the parties about the conditions under which the contract may be concluded.*
- *The Agency may refuse to conclude the supply contract, providing the parties concerned with a reasoned decision.*

- *The contracts that have been notified under Articles 74 and 75 of the Treaty are acknowledged and a registration reference is issued.*

In 2023, 228 files were registered. 75% of them concerned requests under Chapter 6 of the Euratom Treaty and its secondary legislation on the supply, processing, conversion, shaping, transfer, import or export of ores, source materials or special fissile materials, including of small quantities.

A small proportion (around 7%) of the requests under Chapter 6 was about transfers, imports or export operations under Article 74 of the Euratom Treaty and the notification of related contracts that meet the criteria of the Commission Regulation on the transfer of 'small quantities' of nuclear materials ([7]).

The remaining 93% are evenly split between notifications under Article 75 of commitments for the processing, conversion and shaping of nuclear materials, and requests to see approved the conclusion or renewal of agreements and contracts under Article 52. In the latter case, the requests are handled in accordance with the rules of 'simplified' procedure, after acknowledgement of the receipt of a complete file with all required originals, including the submission and/or the notification form as appropriate.

4.2. Security and diversification of the nuclear fuel supply chain

In line with its strategic objective and the Commission's policies, the Agency strives to diversify sources of supply in the nuclear fuel cycle for power and non-power uses.

Diversification of supply sources, which also contributes to the viability of the EU's nuclear industry, is a significant way of ensuring secure supplies in the medium and long term.

Diversification of supply sources, while contributing to the viability of the EU nuclear industry, remains an important means of ensuring security of supplies in the medium and long term.

Responding, in collaboration with the Commission departments, to market and geopolitical uncertainties, ESA continued to follow the short-term challenges related to security of supply of nuclear materials and fuel, both from the economic perspective and in terms of inventory robustness. Thanks to the annual survey of market players, this analytical work also extends to

([7]) Commission Regulation (Euratom) No 66/2006 of 16 January 2006 exempting the transfer of small quantities of ores, source materials and special fissile materials from the rules of the chapter on supplies, OJ L 11, 17.1.2006, pp. 6-8.

medium- and long-term supply risks, integrating probable supply scenarios and the forecast reports sporadically released.

Based on its analyses, ESA has constantly adapted its procedures and approaches to strengthen the security of energy supply in the nuclear sector under the current circumstances.

The Agency has continued to advise users to enter long-term commitments where possible, particularly with regard to securely sourced conversion and enrichment services, and to limit exposure to providers headquartered in or controlled by high-risk jurisdictions, or heavily dependent on unreliable supply chains. ESA continued to encourage the diversification of suppliers and the creation of strategic inventories of nuclear supplies, while closely monitoring and discouraging sources of supply deemed to be of high risk.

At the same time, ESA continued to provide input to the Commission in view of possible additional policy and regulatory action or other measures that could be undertaken by the latter.

In collaboration with the Commission's nuclear safeguards department, ESA has been regularly monitoring the operational autonomy of nuclear power plants, taking into account the fuel currently available, as well as the forthcoming deliveries.

ESA and the Commission energy department held regular meetings with the utilities most exposed to high-risk sources of supply. In this respect, the supply chains of nuclear fuels of hexagonal design (as used in Russian VVER reactors) as well as the situation about conversion and enrichment capacity continued to draw particular attention.

In accordance with its strategic objectives, ESA continued to closely monitor market developments and analyse them from an economic and industry viewpoint. The identification of market trends likely to affect the EU's medium- and long-term security of the supply of nuclear materials and services remains a top priority.

In this respect, ESA produced comprehensive statistical reports on nuclear market trends. These were based on data from contracts that the Agency concluded or acknowledged, information obtained from EU utilities through the annual survey at the end of 2022, and on market data from various sources. These findings are supplemented by insights into market developments gathered from specialised media, stakeholders and open sources.

ESA pursued its primary objectives for long-term security of supply. This includes ensuring that EU utilities have diverse sources of supply, avoiding excessive reliance on any single non-EU design or supplier, and sustaining the viability of the EU industry throughout the fuel cycle.

For years, ESA has recommended that utilities secure a substantial portion of their current and future requirements through multiannual contracts with diverse suppliers.

In line with this recommendation, 98% of natural uranium deliveries to the EU in 2022 were made under multiannual contracts, with the remaining 2% being spot contracts.

On mining origin, four major producing countries – Kazakhstan, Niger, Russia and Canada – contributed more than 90% to natural uranium deliveries to the EU, each with varying shares.

Previously identified challenges relating to the transport of nuclear fuel through regions in conflict, or those with increased logistical risks, continue to be present. However, the related difficulties are alleviated as alternative routes have been identified. The continuation of the Russian war of aggression against Ukraine nevertheless remains a source of uncertainty also in that respect.

Within its remit, ESA helped the Commission handle European Parliament questions, petitions and national parliament resolutions, as well as assess international agreements communicated under

Article 103 of the Euratom Treaty. Likewise, the Agency provided input on matters within its remit related to the legislative work of the Commission.

Moreover, ESA received for the first time several requests for information about ESA requirements related to future plans for nuclear power generation. These were submitted by organisations based in Community countries less interested until now in the future of nuclear energy production.

Finally, the Agency received and successfully dealt with several questions from the public about itself in 2023.

4.3. Market monitoring and analysis

The Supply Agency is responsible for monitoring the market to identify trends likely to affect the EU's security of supply of nuclear materials and services.
ESA monitors developments in the nuclear fuel market and in relevant technological fields.
It publishes a market analysis in its annual report.
It provides information in its publications on the European and global nuclear markets.
It shares information and knowledge with other international market analysis organisations.

4.3.1. Market monitoring

Following the Russian war of aggression against Ukraine, ESA continued to monitor the impact of geopolitical developments in the EU and update its analysis of the current and future conversion and enrichment capacity worldwide. In its market analysis, ESA confirmed its previous conclusion that EU utilities' demand for both natural uranium and fuel fabrication and related services faces an increased risk related to Russian supply and the new geopolitical situation. Analysis from the nuclear industry (converters and enrichers) indicated that total open market conversion capacity may not be sufficient. Similarly, the capacity of the same open market sources to supply enrichment would be insufficient if the services from current non-open market players such as Russia were not available. The Agency assessed that replacing the additional conversion and enrichment capacity could take several years. European industry requires adequate signals to build up capacity, especially for conversion, fuel design and fabrication. This is because industrial investments would not be viable without some form of political and contractual commitment for the long term.

4.3.2. Annual Report 2022

In its 2022 annual report, ESA gave an overview of its own activities and developments in the nuclear fuel markets and nuclear energy, both in the EU and worldwide.

As in previous years, ESA conducted a survey of EU nuclear power operators in 2023. The survey provided a detailed analysis of supply and demand for natural uranium and for conversion and enrichment services in the EU in 2022. The Agency published three indices for natural uranium prices with calculated weighted averages of the prices paid by EU utilities under multiannual and spot contracts. Its analysis contained forecasts of future demand for uranium and enrichment services and assessed the security of supply of nuclear fuel to utilities in the EU. ESA provided detailed analyses of future contractual coverage for natural uranium and enrichment services and of diversification of supply. It also made an analysis of EU inventories of nuclear material.

The report set out ESA's findings and recommendations on supply and demand for nuclear fuels. It reflected the Agency's diversification policy and work on security of supply, and discussed the security of supply of medical radioisotopes. As the political and economic events in 2021-2022 seriously impacted the global nuclear market, ESA's recommendations became more relevant and urgent than ever.

ESA's recommendations in its 2022 annual report took due account of the developments since the Russian war of aggression against Ukraine. ESA made eight groups of recommendations to boost the security of supply and overcome the current areas of vulnerability. For the first time, the ESA report included a specific group of recommendations on tackling vulnerabilities in the security of supply of medical radioisotopes.

The report was published on ESA's website in October and its print version was made available in January 2024 ([8]). The report was sent to the European Parliament, the Council and the Commission, and was presented to the Council Working Party on Atomic Questions.

4.3.3. Publication and knowledge sharing

ESA regularly publishes reports ([9]) and information on price trends on its website ([10]) to provide transparency in the EU's natural uranium market, reduce uncertainty and help improve security of supply.

In 2023, ESA's nuclear fuel market observatory issued four quarterly uranium market reports (the last one covering two quarters). The reports include general data about natural uranium supply contracts concluded by ESA or notified to it, and the quarterly spot price index for natural uranium ([11]). The 2023 quarterly reports featured overview articles on Commission support to SMRs, ESA quarterly spot prices and VVER nuclear fuel developments. The Agency also issues a weekly nuclear newsletter for Commission staff.

4.4. Supply of medical radioisotopes

In line with its strategic objective, ESA leads the actions towards securing the supply of source materials for the medical radioisotopes.
ESA contributes to the implementation of the Strategic Agenda for Medical Ionising Radiation Applications (SAMIRA).
It is tasked to design and launch a new platform and system for monitoring the supply and long-term forecasts for a broad spectrum of radioisotopes and production methods.
It leads European Observatory on the supply of Medical Radioisotopes.
It facilitates the supply of materials required to produce medical radioisotopes and to fuel research reactors (high enriched uranium HEU and high-assay low-enriched uranium (HALEU).

([8]) ESA Annual reports

([9]) ESA Publications

([10]) Market Observatory

([11]) Provided at least three spot contracts have been concluded.

With the EU being dependent on Russian production of critical stable isotopes and some radioisotopes, security of supply challenges were experienced in the supply chain of medical radioisotopes essential for nuclear medicine.

The supply of precursor material to produce medical radioisotopes remains a particular concern. The EU is dependent on Russia for the enrichment of stable isotopes needed to produce several important medical radioisotopes, in particular Ytterbium-176 (Yb-176) needed to produce Lutetium-177 (Lu-177) ([12]). Enriched isotopes would be also needed in the longer term to develop non-fission alternative production routes for Technetium-99m (Tc-99m), Molybdenum-98 (Mo-98) and Molybdenum-100 (Mo-100), which are sourced partly from Russia at present.

In this respect, ESA continued to provide expertise and analysis of the situation to the appropriate services and forums and to the relevant Commission departments. The Agency regularly updated the Council Atomic Question Working Party ([13]) on the supply situation. ESA actively participated in the Commission's high-level workshop on stable isotopes in April 2023. It also liaised with the industry association Nuclear Medicine Europe (NMEU) to gather relevant information.

In addition, some EU research reactors that produce vital medical radioisotopes are dependent on Russian fuel and materials. In this respect, ESA continued to assess their dependencies on Russian supplies and continued to call for a revised risk assessment to avert security of supply vulnerabilities. Some EU research reactor operators that had already licensed alternative fuel phased out the Russian supply of fuel. Some participate actively in Euratom research projects to develop alternative fuel design and break the Russian monopoly on the supply of fuel to medium-power research reactors of original Soviet design.

4.4.1. SAMIRA

ESA contributes to the implementation of the Strategic Agenda for Medical Ionising Radiation Applications (SAMIRA) ([14]). SAMIRA is the energy sector's contribution to the EU's Beating Cancer Plan, and a response to the Council's conclusions on non-power nuclear and radiological technologies and applications.

The Agency leads activities aimed at securing the supply of source materials for radioisotope production. This means: (i) protecting the supply of high-enriched uranium until the full radioisotope production chain is converted to operate with high-assay low-enriched uranium (HALEU); and (ii) exploring options for the future supply of HALEU to the EU (see below for developments in these areas).

In addition, ESA is tasked with designing and launching a new platform and system for monitoring the supply and long-term forecasts for a broad spectrum of radioisotopes and production methods. ESA contributes to the further development of the European Radioisotopes Valley Initiative (ERVI), which is crucial for ensuring endorsement by a wide group of stakeholders and sufficient resources. The Agency closely cooperated in this area with the Commission.

([12]) The EU is a large supplier of Lu-177, which has seen spectacular growth in recent years.

([13]) Council of the European Union – Working Party on Atomic Questions.

([14]) Commission Staff Working Document on a Strategic Agenda for Medical Ionising Radiation Applications (SAMIRA), SWD(2021) 14 final, 5.2.2021.

4.4.2. European Observatory on the supply of Medical Radioisotopes

In 2023, ESA continued its activities to improve the security of supply of widely used medical radioisotopes, focusing on Molybdenum-99/Technetium-99m (Mo-99/Tc-99m). It co-chaired the European Observatory on the Supply of Medical Radioisotopes with NMEU.

Established in 2012, the Observatory monitors the EU supply chain of Mo-99/Tc-99m and engages on a variety of topics on the EU supply of widely used medical radioisotopes. It is composed of representatives of the Commission, EU Member States, international organisations and industry.

Since its establishment, the Observatory has confirmed its importance. It has become a vehicle for gathering information (through industry participation) on potential shortages and then dispatching information to interested parties, sometimes directly through ESA. It enables industry to reach out promptly to appropriate EU bodies and services on awareness raising and response facilitation at Member State and Commission level.

In 2023, the Observatory continued its close cooperation with the NMEU's Security of Supply Workgroup on the uninterrupted supply of Mo- 99/Tc-99m and Iodine-131 (I-131). Following a Mo-99/I-131 production disruption and outage of several reactors, the Agency ensured a steady flow of information from the NMEU's Emergency Response Team to various stakeholder groups, including the Council Working Party on Atomic Questions and the Health Security Committee.

The 19th plenary meeting of the Observatory which was held in Prague in March 2023, saw the participation of around 40 members (from industry, international organisations and Member State administrations). The meeting was largely devoted to presentations and discussions on the current EU programmes that support research on safe use and a reliable supply of medical radionuclides, i.e. the TOURR, SECURE and PRISMAP projects. The Commission's Directorate-General for Research and Innovation presented the Euratom research programmes that support projects developing HALEU fuels for the production of medical radioisotopes, including new research calls announced under the Euratom Research and Training Work Programme 2023-2025. The Commission's Joint Research Centre (JRC) presented its activities on the supply of medical radioisotopes, namely the recent and planned expert & stakeholder workshops, the EC Knowledge Centre on Cancer launched in 2021 and targeted alpha therapy drug developments at JRC Karlsruhe, Germany. The European Medicines Agency (EMA) presented the subject of crisis preparedness and management of shortages for medicinal products and medical devices, namely Regulation (EU) 2022/123 in force since March 2022. It provides a framework for activities established by EMA to monitor and mitigate potential and actual shortages of medicinal products, including medical radioisotopes. In addition to those points, ESA, NMEU, the European Association of Nuclear Medicine (EANM) and the International Atomic Energy Agency (IAEA) gave updates on their activities. The Commission's Directorate-General for Energy presented SAMIRA and ERVI, with an invitation to the High-Level Workshop on Security of Supply of Medical Radioisotopes on 27 April 2023. The plenary meeting was followed by a technical visit to the Research Centre Rez and PET Centre.

The 20th plenary meeting of the Observatory was held in the JRC's premises in Karlsruhe in November 2023. NMEU, EANM, EMA, JRC and the Directorate-General for Energy gave updates on their activities. NMEU presented the global research reactor scheduling for the remainder of 2023 and for 2024. The European Nuclear Education Network representative discussed the final report of the 2020-2023 TOURR project (Towards Optimized Use of Research Reactors in Europe) aimed at evaluating the current and future needs for research reactors and neutron sources in Europe. The Nuclear Energy Agency presented its report 'The Security of Supply of Medical Radioisotopes: 2023 Medical Isotope Demand and Capacity Projection for the 2023-2027 Period' and gave an update on its planned future activities. The Technical University of Munich

representative presented the HERACLES Consortium ([15]) activities related to the conversion of the European research reactors and gave an update on the status and future of the FRM-II Mo-99 production facility. ESA presented a new updated Mo-99/Tc-99m supply chart. The plenary meeting was followed by a technical visit to the JRC laboratories that handle nuclear materials (namely the Ac-225 development lab).

ESA presented the Observatory's activities and the results of its 2022 and 2023 meetings to the Council Working Party on Atomic Questions. It outlined the 2023 supply disruptions for medical radioisotopes and the related mitigation measures taken by the Observatory in response to them.

4.4.3. Security of supply of nuclear materials for non-power uses

ESA continued to scrutinise the security of supply of HEU and High-Assay Low-Enriched Uranium (HALEU), which are required to produce medical radioisotopes and to fuel research reactors.

ESA continued to assist users who still need supply of HEU until they convert their research reactors to HALEU, in line with international nuclear security and non-proliferation commitments. In 2023, in cooperation with the US and the Euratom Member States concerned, ESA reviewed progress in implementing the Memorandum of Understanding with the US Department of Energy-National Nuclear Security Administration ([16]) (DoE-NNSA) on the exchange of HEU.

4.5. Cooperation with stakeholders and partners

To further its objectives, ESA pursues outreach activities to the stakeholders and international cooperation.

Throughout 2023, ESA continued contacts with EU authorities, utilities, industry and nuclear organisations to strengthen the security of supply of nuclear materials in light of the Russian war of aggression against Ukraine. It monitored market developments in view of the new market situation and provided advice and follow-up to ensure appropriate application of the common supply policy and mitigation of new risks.

ESA worked closely with the Commission to promote diversification of supply and contributed to the work of the Commission departments in that area. In the context of the REPowerEU initiative, ESA engaged together with the Commission in a multilateral assessment of demand for, and capacity of, front-end nuclear fuel cycle services in like-minded non-EU countries.

The Agency held regular meetings with utilities to discuss risk preparedness and implementation of mitigation measures. It also met with the EU nuclear industry to share information and market outlook.

The Agency has long-standing and well-established relationships on nuclear energy with international organisations, namely IAEA, the Nuclear Energy Agency and nuclear industry associations. In 2023, ESA continued to cooperate with these organisations by participating in

([15]) The HERACLES Consortium

([16]) "Memorandum of Understanding between the Department of Energy/National Nuclear Security Administration (DOE/NNSA) of the United States of America and the Euratom Supply Agency concerning the Exchange of Highly Enriched Uranium Needed for Supply of European Research Reactors and Isotope Production Facilities", originally signed in 2014 and renewed for the next 5 years in 2021

working groups, conferences and seminars. It continued to support the IAEA expert group created in July 2021, which produced a technical document on global secondary uranium supplies in November 2023 ([17]). ESA supported the joint Nuclear Energy Agency/IAEA Uranium Group, which is responsible for publishing the 2-yearly report 'Uranium resources, production and demand' ('the Red Book') ([18]), to which ESA contributes its analysis of supply and demand for nuclear fuel in the EU. The report provides up-to-date information on established uranium production centres and mine development plans as well as projections of nuclear generating capacity and reactor-related requirements.

In February 2023, the Agency presented 'Securing the European fuel supply – Risks and Mitigation Measures in the Short and Long Term' at the Energiforsk Annual Nuclear Conference. Nordic companies in the nuclear business, especially from Sweden and Finland, networked and discussed how to build and strengthen the network of international and local suppliers in order to ensure a fast and secure development of new nuclear power.

The Agency's market analysis, nuclear fuel cycle outlook and security of supply policy were presented at the World Nuclear Fuel Cycle forum and the Symposium on Uranium Raw Material for the Nuclear Fuel Cycle (URAM-2023).

At the June conference of Nucleareurope, ESA provided insights into the supply situation and outlook as panellist in the session 'Guaranteeing energy sovereignty'. The Agency presented the information from its 2022 annual report on the current EU supply and how it projects future requirements vs capacity in terms of uranium supplies and conversion & enrichment capacities.

ESA's annual report analysis, conclusions and recommendations were also the subject of the European Nuclear Society event 'Fuelling Europe's Future – Uranium Supply, Conversion and Enrichment' in October. The focus was once again on the challenges of nuclear fuel cycle supplies in the face of the current geopolitical situation.

In September, ESA attended the 2023 World Nuclear Symposium in London. It met nuclear industry, utilities and emerging EU market participants, providing insights into the market situation, learning about market developments and exchanging information on existing and future supply challenges.

In December 2023, ESA attended the conference 'The EU as a Regional International Organisation' organised by the Asser Institute and the Amsterdam Centre for European Studies in The Hague, Netherlands.

ESA moderated the European Nuclear Society's special event 'Beating Cancer – Turning the tide with medical isotopes', organised as part of the European Research Reactor Conference held in April in Antwerp, Belgium. The event gave the audience the opportunity to learn more about the remarkable developments in the field of nuclear medicine and discuss the challenges ahead.

In September, ESA was invited to give a speech about the work of the European Observatory at the EU Policy Symposium on Supply and Shortages of Radiopharmaceuticals at the Annual Congress of the European Association of Nuclear Medicine held in Vienna, Austria.

In November, ESA chaired a session on 'Landscape and challenges for medical radionuclide supply and research in the EU' at the workshop on 'Research and Innovation for Sustainable Medical Radionuclide Supply in the EU' organised by the JRC in Karlsruhe. The event gathered

([17]) INTERNATIONAL ATOMIC ENERGY AGENCY, Global Inventories of Secondary Uranium Supplies, IAEA-TECDOC-2030, IAEA, Vienna (2023)

([18]) NEA (2023), Uranium 2022: Resources, Production and Demand, OECD Publishing, Paris

key stakeholders from academia, industry, research and health policymakers to discuss synergies that can keep the EU at the forefront of research and innovation, ensuring secure radionuclide supply and expediting the process from R&D of radiopharmaceuticals to clinical trials.

Management

5. LEGAL STATUS

ESA has been granted legal personal and financial autonomy ([19]) under the Euratom Treaty ([20]) with legal personality and financial autonomy. Operating on a non-profit basis, ESA is supervised by the European Commission. Detailed governance and management aspects are outlined in the Agency's Statutes. Since 2004, ESA has been headquartered in Luxembourg, with a seat agreement drawn up between the Grand Duchy of Luxembourg and the European Commission.

6. BUDGETARY AND FINANCIAL MANAGEMENT

The European Commission adopts ESA's budget, and ESA Director General is responsible for its execution, acting as authorising officer.
For its financial operations, the Euratom Supply Agency applies the relevant provisions of its Statutes and of the EU Financial Regulation ([21]) as well as the accounting rules and methods established by the European Commission.
Part of ESA operating costs is covered by its own budget, and another part - directly by the European Commission.

The European Commission is responsible for adopting ESA's budget and ESA's Director-General serves as the authorising officer for executing that budget. For its financial operations, ESA complies with the relevant provisions in its Statutes and the EU Financial Regulation ([22]), along with accounting rules and methods set by the European Commission. ESA covers part of its operational costs through its own budget, while the European Commission directly funds another portion.

6.1. Budget

ESA's budget for the financial year 2023, amounting to EUR 228 000 ([23]) (which comes solely from the EU budget contribution under Section III - Commission, budget item 20 03 14 01

([19]) Article 54 of the Euratom Treaty.

([20]) Treaty establishing the European Atomic Energy Community (OJ L 27 6/12/1958 p534).

([21]) Regulation (EU, Euratom) 2018/1046 on the financial rules applicable to the general budget of the Union; Article 68 of the EU Financial Regulation stipulates its applicability to the implementation of the budget for ESA.

([22]) Regulation (EU, Euratom) 2018/1046 on the financial rules applicable to the general budget of the Union; Article 68 of the EU Financial Regulation stipulates its applicability to the implementation of the budget for ESA.

([23]) Commission Decision C(2022) 9491 of 14.12.2022.

'Euratom contribution for operation of the Supply Agency'), was adopted by the European Commission on 14 December 2022.

Since the departure of its accounting officer in January 2023, and given the inability to find a suitable replacement, ESA's accounting officer role is now shared with the Translation Centre for the Bodies of the European Union. This collaborative arrangement was formalised through a service level agreement in March 2023.

To cover the provision of accounting services to ESA, an amendment ([24]) to ESA's budget for the financial year 2023 was adopted later in the year, increasing its budget by EUR 30 160 to EUR 258 160.

The adopted budget after amendment was almost 55% more than that of 2022. The increase is mainly due to the continued development of the Nuclear Observatory and ESA Management of Information (NOEMI) IT system and the provision of accounting services to the Agency.

ESA's revenue and expenditure were in balance.

6.2. Budget execution

During the year, the Director-General signed two decisions involving internal budget transfers deemed essential -specifically, reallocating funds from one budgetary article to another to address emerging requirements.

On 31 December 2023, ESA's budget execution of 2023 funds was evaluated as high, standing at a total of EUR 254 212.46 (98.47%) in executed commitments.

The payments executed on 2023 commitments amounted to EUR 122 916.67, giving an implementation rate of 47.61% of available appropriations.

The payments executed on commitments made in 2022 amounted to EUR 101 304.31, i.e. 97.74% of the outstanding payment allocations.

The operating costs that ESA covered with its budget included:

– development of the NOEMI nuclear contracts management application and maintenance of a stand-alone computer centre;
– Advisory Committee meetings;
– duty travel;
– participation in conferences;
– subscriptions to nuclear market media and data sources;
– ESA publications and communication activities.

6.3. In-kind contribution from the Commission

A significant proportion of ESA's administrative expenses is covered directly by the European Commission budget, including salaries, premises, infrastructure, training, and some IT services and equipment. In an internal estimate for 2023, the salaries of ESA staff were calculated at EUR 2 087 800 (EUR 1 937 817 in 2022). Other operating costs covered by the Commission included:

- EUR 558 090 – for buildings and digital workplace-related expenses (EUR 467 708 in 2022);
- EUR 92 954 – for hosting the NOEMI IT system (EUR 84 644 in 2022).

([24]) Commission Decision C(2023) 5332 of 9.8.2023.

These off-budget expenditures and the underlying transactions are not acknowledged in ESA's accounts but are included in the Commission section of the EU annual accounts.

6.4. Financial accounts

In 2023, the assets owned by ESA totalled EUR 1 058 925.85 (EUR 932 901.66 in 2022). They were financed by liabilities of EUR 131 218.89 (12.39%) and equity of EUR 927 706.96 (87.61%).

The 2023 provisional accounts, budget outturn and report on budget implementation were submitted to the European Court of Auditors and the Commission's Accounting Officer on 28 February 2024. The final accounts were issued on 7 June 2024. After receiving a positive opinion from the Advisory Committee, they were submitted to the EU institutions on 28 June 2024.

7. HUMAN RESOURCES

ESA staff are European Commission officials.
ESA's establishment plan is incorporated in the global staff numbers of the European Commission.
ESA staff salaries are paid by the European Commission in line with Article 4 of ESA's Statutes and are not charged to the Agency's budget.

7.1. Staff allocation

ESA staff are Commission civil servants (officials) and the number of staff set out in ESA's establishment plan is incorporated into the Commission's overall staff numbers. By the end of 2023, ESA had filled 16 posts: seven administrators (AD); seven assistants (AST); and two assistant/secretarial posts (AST/SC). There were three new recruitments in 2023: one to replace a departing staff member; and two to replace retired staff. One administrator (AD) post - Head of Agency – has been unoccupied since 1 October. ESA received no new posts in 2023.

Human resources	2023		
Number of officials (or temporary agents)	Authorised ([25])	Actually filled as of 31.12.2023	Effective throughout the year
Administrators (AD)	7	7	7.8
Assistants (AST)	10	7	6.3
Assistants/secretarial (AST/SC)		2	2
Total	**17**	**16**	**16.1**

As in previous years, the recruitment of Contract Agents and Assistants in Luxembourg remained difficult in 2023, due to the discrepancy between salary levels and the high cost of living. Due to the small size of the Agency, it is critical to be able to fill all vacated posts at the shortest possible notice.

([25]) Establishment plan under the EU General Budget 2023 OJ L58, 23.2.2023 p.1156, footnote (5).

7.2. Equal opportunities

ESA staff is gender balanced at all levels and the Agency offers equal career opportunities for all. In 2023, the staff was composed of eight women (50%) and eight men (50%). Equal opportunities irrespective of gender applied to all teams, as well as to the Agency's two managerial positions. Furthermore, at the end of 2023, 12 different EU nationalities were counted among ESA's 16 staff members.

8. INFORMATION MANAGEMENT AND COMMUNICATION

8.1. Noemi

January 2020, the Agency has been developing internally new software to support the management of ESA's core tasks under the Treaty and the Statutes.
The IT system Noemi ("Nuclear Observatory and ESA Management of Information") started operation in December 2021.
Noemi will reinforce ESA's monitoring capabilities of the nuclear materials and fuel market whilst securely hosting sensitive nuclear contracts' data.

NOEMI is the IT system supporting ESA's core operations. It hosts data from contracts related to the supply of nuclear materials and services in the nuclear fuel cycle, as well as regular data provided by ESA's partners (e.g. annual reporting on supply by nuclear utilities companies). It also supports the handling of these data, helps to monitor the nuclear market, and reports on results and trends. The NOEMI system became operational in December 2021.

At the end of 2023, the Commission's Information Technology Cybersecurity Board gave a positive opinion to move forward with Phase 2 of the project.

NOEMI's Phase 2 aims to improve ESA's operational efficiency and effectiveness by expanding the system to cover contracts related to the supply of nuclear materials. Collecting and analysing data from these contracts, as well as notifications on related services, will enable NOEMI to provide ESA with meaningful assessments and conclusions.

The contract information handling process will also be streamlined under Phase 2, as it will seek to: (i) eliminate off-system follow-up, logging and monitoring; (ii) replace manual checks with automated ones; and (iii) provide model reports for common and standard use cases, that can be uploaded onto the corporate document management platform.

NOEMI Phase 2 aims to implement advanced business features, including nuclear supply contracts and services notification follow-up, visualizing and monitoring internal processes, managing and processing events, and monitoring statuses and notifications. It also seeks to enhance document and submission forms integration, bolster security measures, and restrict access based on business and hierarchical roles. Additionally, a key objective is to incorporate reusable solutions and components into the system.

8.2. Information security

To carry out its mission, ESA receives or collects data from nuclear market actors, and processes, analyses, and, if appropriate, publishes them.
It does so in full compliance with confidentiality requirements applicable.

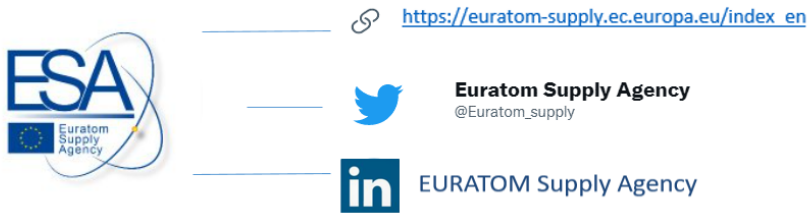
The data and records that have been entrusted to ESA due to its role under Chapter VI of the Treaty contain business secrets and sensitive information and must not be disclosed to other businesses and individuals under any circumstances.

All ESA staff, including external contractors, have undergone security clearance, and only ESA staff have access to the premises, which the Commission provides with high-level security - including regular checks by guards.

The responsibility for hosting ESA's core IT system, NOEMI, has been transferred to the Commission's Digital Services department to align with the Commission IT security strategy and comply with related security requirements. The project follows the ITSRM^{2} [26]. In Q4-2023, ESA launched a study of the IT security plan in collaboration with the Cybersecurity Directorate of the Digital Services department, aimed at: (i) assessing the security risks of the NOEMI system; (ii) assessing the effectiveness of security measures; and (iii) proposing additional cost-effective controls to achieve acceptable risk levels. The study is due to be completed in Q1-2024.

8.3. Communication

Because of the energy challenges, particularly in Europe, and the uncertainty about the nuclear fuel and medical radioisotopes supply chain, ESA gave numerous interviews and spoke at many conferences, not only in Europe, but also in Asia, the US and other regions. The Agency also engaged significantly with its stakeholders.



9. AUDIT AND DISCHARGE

9.1. Audit by the European Court of Auditors

The European Court of Auditors (ECA) audits ESA's financial and budgetary accounts and the related transactions every year, assessing them against globally-recognised public sector auditing standards. ECA is tasked with providing the European Parliament and the Council with an

([26]) European Commission's IT security risk management methodology.

assurance statement on the reliability of the annual accounts and the legality and regularity of the underlying transactions.

ESA acknowledges ECA's observations and implements all necessary corrective measures. It also takes account of any cross-cutting observations accompanying the annual report of the EU Agencies.

ECA has approved the Agency's accounts for the financial year 2022 and issued an unqualified opinion on both the accounts and the legality and regularity of revenue and expenditure transactions ([27]).

However, ECA noted that ESA had systematically awarded contracts below EUR 15 000 (very low value contracts according to the Financial Regulation) without issuing corresponding evaluation reports and award decisions. ESA provided ECA with replies to this observation on 7 July 2023, and committed to provide appropriate guidance to all staff involved in procurement and financial management, including templates, to ensure that the procurement procedures are properly approved and documented.

9.2. Discharge

The European Parliament, acting on a Council Recommendation, is the discharge authority for ESA.

On 10 May 2023, the European Parliament granted ESA's Director-General discharge for the implementation of the budget for the financial year 2021 ([28]).

10. INTERNAL CONTROL AND ASSURANCE

10.1. Internal control and risk management

The Agency has an internal control framework designed to provide reasonable assurance in achieving the five objectives set out in Article 36 of the Financial Regulation.

In 2023, ESA updated its risk assessment to cover all areas of the Agency's work and its operational and administrative processes. Adjustments were introduced to align existing controls with the risks.

10.2. Management assurance

ESA conducted a 'light' self-assessment to assess the effectiveness of its internal controls. This consisted of: (i) an evaluation of the changes introduced to the pre-defined monitoring indicators; (ii) an evaluation of audit results and the state-of-play of new or outstanding recommendations; and (iii) an analysis of cases of non-compliance and exceptions.

The annual assessment for 2023 did not reveal any risks that could lead to a reservation in the annual declaration of assurance.

([27]) Annex 9 and ECA Annual report on EU agencies for the financial year 2022.
([28]) European Parliament Decision of 10 May 2023: P9_TA(2023)0169 - Decision 2022/2114(DEC).

Based on elements of the internal control systems and the assurance they provide - the ‘building blocks of assurance’ - the Director-General was in a position, as the authorising officer, to sign the declaration of assurance which accompanies this report (see Annex A).

11. IMPROVING EFFECTIVENESS AND EFFICIENCY

In recent years, ESA has made significant progress in increasing its effectiveness and efficiency, despite its limited resources and increased workload. It particularly enhanced its monitoring of the nuclear fuel and services market and the management of nuclear fuel cycle contracts. The Agency's unwavering commitment to continuous improvement has enabled it to successfully undertake new tasks while continuing to fulfil its legal obligations.

A pivotal initiative by ESA to boost efficiency is the development of the NOEMI IT system which facilitates digital processing of nuclear supply contracts and market information, in compliance with rules on information protection. The initiation of digitally signed contracts will enable the full electronic handling of procedures, and the ongoing development of the NOEMI IT system is expected to yield further efficiency gains in its upcoming Phases 2 and 3. This includes the introduction of an internal workflow to streamline the handling of contract information, as well as the creation of a portal for market participants to digitally exchange contracts and data with the Agency, thereby enhancing processes and providing benefits for utilities companies and industry.

Furthermore, ESA has improved the effectiveness of its accounting and financial obligations by sharing the accounting officer role with the Translation Centre for the Bodies of the European Union. The Agency has also identified potential efficiency gains by collaborating more closely with the Commission and benefiting from its specialised support functions and corporate tools to enhance the efficiency of administrative operations, such as work-related travel, treasury and security. This will enable ESA to carry out the increasing number of tasks effectively and respond to stakeholders’ expectations.

***

Annex A Declaration of assurance for 2023

EURATOM SUPPLY AGENCY

The Director General

Luxembourg,
ENER.AAE/MH

DECLARATION OF ASSURANCE
AAR 2023

I, the undersigned, Michael HÜBEL, Director General of the Euratom Supply Agency since 1 May 2024,

In my capacity as authorising officer,

- Declare that the information contained in the Annual Activity Report, forming part II of the Annual Report, gives a true and fair view ([1]);
- State that I have reasonable assurance that the resources assigned to the activities described in this report have been used for their intended purpose and in accordance with the principles of sound financial management, and that the control procedures put in place give the necessary guarantees on the legality and regularity of the underlying transactions.

This reasonable assurance is based on the declaration of assurance provided by the Director General who was in function until 30 September 2023, and the Acting Director General who was in function from 1 October 2023 to 30 April 2024 (see Annex I) and on my own judgment which is limited by the time of my appointment on 1 May 2024.

Based on the above confirm that I am not aware of anything not reported here which could harm the interests of the Euratom Supply Agency.

Electronically signed

Michael Hübel
ESA Director General

([1]) True and fair in this context means a reliable, complete and correct view on the state of affairs in the Agency

Euratom Supply Agency, 2920 Luxembourg, LUXEMBOURG – Tel. +352 43011

WebAddress
Michael.Huebel@ec.europa.eu

Electronically signed on 27/06/2024 10:11 (UTC+02) in accordance with Article 11 of Commission Decision (EU) 2021/2121

Annex I

Euratom Supply Agency

DECLARATION OF ASSURANCE

I, the undersigned, Agnieszka Ewa Kaźmierczak

In my capacity as Director-General and authorising officer of the Euratom Supply Agency between 1 January and 30 September 2023

state that I have reasonable assurance that the resources for which I was accountable in that period have been used for their intended purpose and in accordance with the principles of sound financial management, and that the control procedures put in place give the necessary guarantees on the legality and regularity of the underlying transactions.

This reasonable assurance is based on my own judgement and on the information at my disposal, such as the results of the self-assessment and the lessons learned from the reports of the Court of Auditors for several years prior to the year of this declaration.

I confirm that I am not aware of anything not reported in Chapters 5 and 6 of the Annual Report of ESA for 2023 which could harm the interests of the Euratom Supply Agency.

Agnieszka Ewa Kaźmierczak

Electronically signed on 26/06/2024 18:09 (UTC+02) in accordance with Article 11 of Commission Decision (EU) 2021/2121

EURATOM SUPPLY AGENCY

Luxembourg, 25 June 2024
ENER.AAE.1/SC

DECLARATION OF ASSURANCE
AAR 2023

I, the undersigned, Stefano CICCARELLO, Acting Director-General of the Euratom Supply Agency from 1 October 2023 to 30 April 2024.

In my capacity as authorising officer during the period mentioned above

- Declare that the information contained in the Annual Activity Report, forming part II of the Annual Report, gives a true and fair view ([1]);

- State that I have reasonable assurance that the resources assigned to the activities described in this report have been used for their intended purpose and in accordance with the principles of sound financial management, and that the control procedures put in place give the necessary guarantees on the legality and regularity of the underlying transactions.

This reasonable assurance is based on my own judgement and on the information at my disposal, such as the results of the self-assessment and the lessons learned from the reports of the Court of Auditors for several years prior to the year of this declaration.

I confirm that I am not aware of anything not reported here which could harm the interests of the Euratom Supply Agency.

Electronically signed

Stefano CICCARELLO

([1]) True and fair in this context means a reliable, complete and correct view on the state of affairs in the Agency

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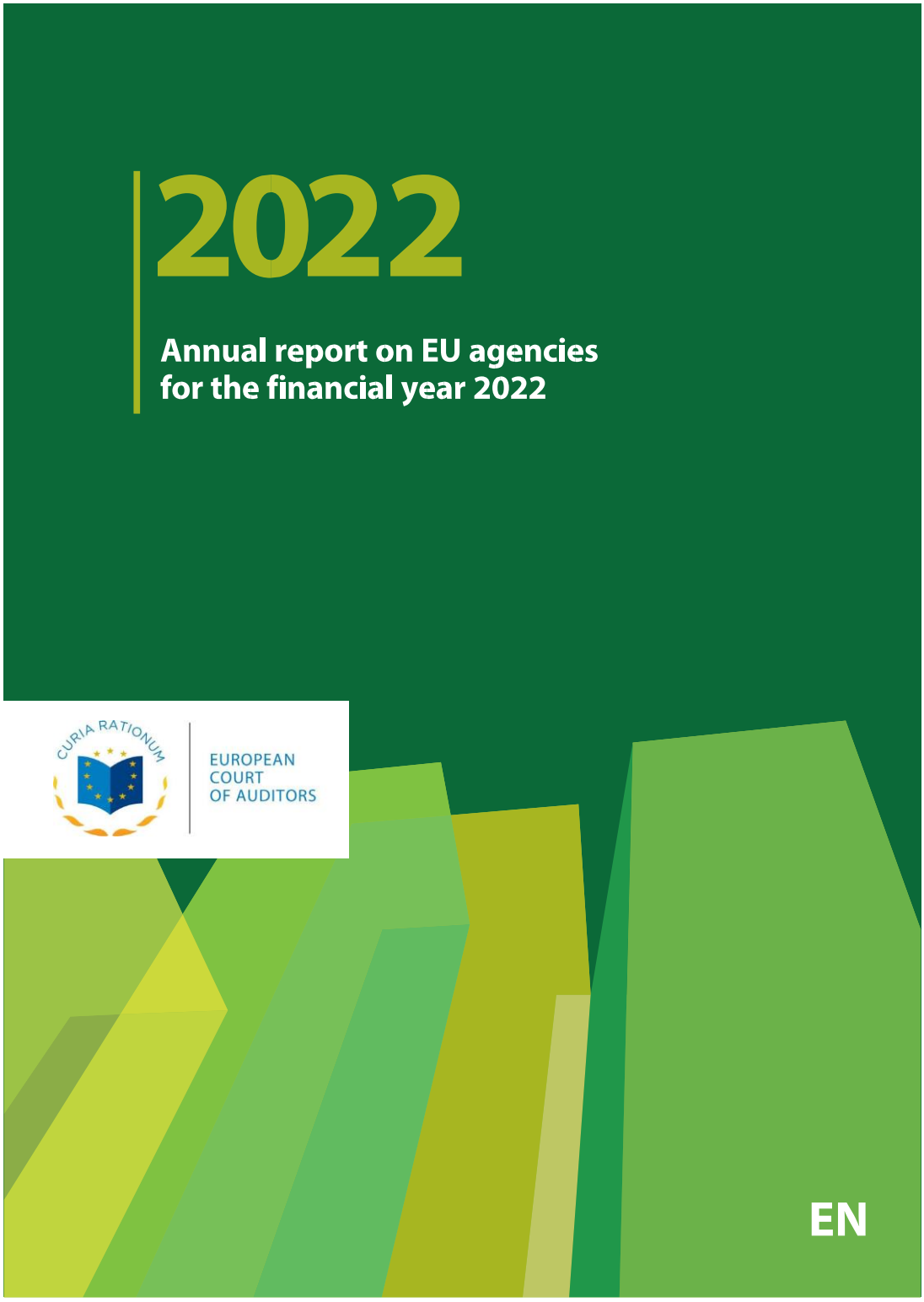
Electronically signed on 25/06/2024 10:19 (UTC+02) in accordance with Article 11 of Commission Decision (EU) 2021/2121

Annex B Report of the Court of Auditors for 2022



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More information on the European Union is available on the internet (http://europa.eu).

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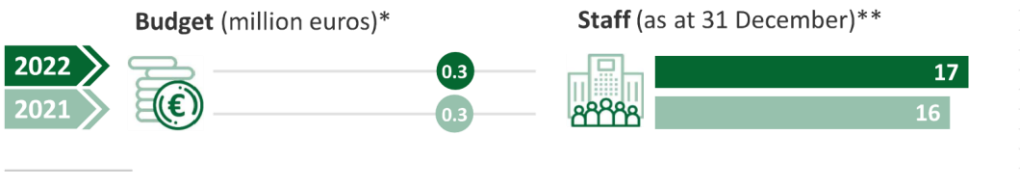
Agencies funded under MFF heading 7 – European Public Administration

3.34. Euratom Supply Agency (ESA)

Introduction

3.34.1. The Euratom Supply Agency ('ESA'), located in Luxembourg, was established in 1958, with the adoption, by the Council of the European Atomic Energy Community, of ESA's statutes, repealed and replaced by Council Decision 2008/114/EC, Euratom. ESA's main task is to ensure that there is a regular supply of nuclear materials, in particular nuclear fuels, to EU users. It does so by managing a common supply policy based on the principle of equal access to sources of supply. ***Figure 3.34.1*** presents key figures for ESA[106].

Figure 3.34.1 – Key figures for ESA



* Budget figures are based on the total payment appropriations available during the financial year.

** 'Staff' includes EU officials, EU temporary agents, EU contract staff and seconded national experts, but excludes interim workers and consultants.

Source: Annual accounts of ESA for the 2021 and 2022 financial years; staff figures provided by ESA.

Information in support of the statement of assurance

3.34.2. Our audit approach, the basis for our opinion, the responsibilities of ESA's management and of those charged with governance, and the auditor's responsibilities for the audit of the accounts and underlying transactions are described in section 3.1. The signature on page 351 forms an integral part of the opinion.

[106] More information on ESA's role and activities is available on its website: http://ec.europa.eu/euratom/index.html.

The ECA's statement of assurance provided to the European Parliament and the Council – Independent auditor's report

Opinion

3.34.3. We have audited:

(a) the accounts of the Euratom Supply Agency ("ESA"), which comprise the financial statements[107] and the reports on the implementation of ESA's budget[108] for the financial year ended 31 December 2022, and

(b) the legality and regularity of the transactions underlying those accounts,

as required by Article 287 of the Treaty on the Functioning of the European Union (TFEU).

Reliability of the accounts

Opinion on the reliability of the accounts

3.34.4. In our opinion, ESA's accounts for the year ended 31 December 2022 present fairly, in all material respects, ESA's financial position at 31 December 2022, the results of its operations, its cash flows, and the changes in net assets for the year then ended, in accordance with its Financial Regulation and with accounting rules adopted by the Commission's accounting officer. These are based on internationally accepted accounting standards for the public sector.

[107] The financial statements comprise the balance sheet, the statement of financial performance, the cash flow statement, the statement of changes in net assets and a summary of significant accounting policies and other explanatory notes.

[108] The reports on the implementation of the budget comprise the reports, which aggregate all budgetary operations, and the explanatory notes.

Legality and regularity of the transactions underlying the accounts

Revenue

Opinion on the legality and regularity of revenue underlying the accounts

3.34.5. In our opinion, the revenue underlying the accounts of ESA for the year ended 31 December 2022 is legal and regular in all material respects.

Payments

Opinion on the legality and regularity of payments underlying the accounts

3.34.6. In our opinion, the payments underlying the accounts of ESA for the year ended 31 December 2022 are legal and regular in all material respects.

3.34.7. The observations which follow do not call the ECA's opinion into question.

Observations on management and control systems

3.34.8. ESA systematically awards low-value contracts (below €15 000) without issuing corresponding evaluation reports and award decisions. This is not in line with points 30.3-30.4 of Annex I to the Financial Regulation.

Euratom Supply Agency (ESA)

ESA's reply

3.34.8. The Euratom Supply Agency agrees to the finding. The agency will provide appropriate guidance to all staff involved in procurement and financial management, including templates, to ensure that the procurement procedures are properly approved and documented.