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Foreword

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Michael Hübel.jpg]

Nuclear power is gaining in importance – at global level, but also in Europe. As new reactors are being planned and built, the lifetime of reactors extended and new technologies such as Small Modular Reactors are being developed, the supply chains need to follow suit and be ready to reliably face growing demand - starting with Uranium mining, and across fuel services.

In this changing nuclear landscape, the importance of secure supplies is obvious. For Europe, the Euratom Supply Agency, working closely with partners in Member States and industry, has a central role in ensuring the supply of nuclear materials – by using its legal prerogatives, by preparing solid market analysis and by providing advice to market actors.

One key area of attention is diversification. Addressing the remaining dependencies from Russia - in line with the Commission's Roadmap towards ending Russian energy imports - is a key priority in this respect. But the task is more challenging – as nuclear demand grows in Europe there needs to be emphasis on a safe and secure supply chain, enabling nuclear energy to play its role as homegrown energy to the full.

This report sets out the Agency's analysis of key developments in the nuclear market during 2025, showing that Euratom Member States are moving forwards on the path towards diversification. The report again sets out specific recommendations to support preparedness, develop diversification and strengthen supply chains and reports on key developments in the nuclear field across the Euratom Community.

In this changing landscape, pressure on the Agency and its small and dedicated staff remains high. 2025 again saw a rise in contract submissions and other transactions. At the same time, ESA puts great emphasis on supporting market actors, for example by organising a first web-based training seminar on the modalities of submitting contracts and giving advice to stakeholders about the related requirements under the Euratom Treaty.

I would like to thank all our partners – representatives of Member States, supply chain actors, the Advisory Committee and colleagues at the Commission – for our good cooperation towards achieving ESA's objectives in the changing nuclear environment. I look forward to continuing this common work in 2026.

Michael Hübel
Director General

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Executive summary

This report presents the main developments in the European nuclear fuel market and the key activities undertaken by the Euratom Supply Agency (ESA) in 2025. Against a backdrop of geopolitical uncertainty, evolving energy policies and growing interest in nuclear energy, ESA continued to fulfil its mandate of ensuring a secure, regular and diversified supply of nuclear materials for the European Union. The year was marked by sustained market resilience, progress in fuel supply diversification, and continued efforts to strengthen the security and competitiveness of the EU nuclear fuel cycle while supporting the Union's energy objectives.

Market analysis and recommendations

The European Union's nuclear sector continued to provide a stable and reliable contribution to electricity generation in support of the Union's energy security, competitiveness and decarbonisation objectives. The operation of the EU nuclear fleet remained broadly stable, with nuclear energy continuing to represent a significant share of both electricity production and consumption. At the same time, increasing interest in nuclear energy worldwide, including plans for lifetime extensions, new-built projects and advanced reactor technologies, continued to shape the outlook for the global nuclear fuel market.

The supply of nuclear fuel to EU utilities remained secure throughout the year. Utilities continued to rely primarily on long-term contractual arrangements while maintaining a diversified portfolio of supply sources across the nuclear fuel cycle. In response to an increasingly complex geopolitical environment, operators pursued strategies aimed at strengthening resilience, including the maintenance of substantial inventories and the reinforcement of procurement arrangements. As a result, the overall security of supply for natural uranium, conversion and enrichment services remained robust.

The use of recycled nuclear materials continued to support the sustainability and efficiency of the fuel cycle. Reprocessed uranium and mixed oxide fuel reduced reliance on primary uranium resources while contributing to greater flexibility and resilience within the European nuclear fuel market. These secondary sources remain an important component of the EU's long-term strategy for securing fuel supply and optimizing the use of available nuclear materials.

The origin of uranium supplied to the European Union remained diversified, although global supply continued to be concentrated among a limited number of producing countries. Geopolitical developments, trade restrictions and the continued reconfiguration of fuel supply chains have reinforced the importance of diversification as a central objective for both utilities and policymakers. Utilities should continue to avoid excessive dependence on individual suppliers, countries of origin or transport routes and should seek to maintain a balanced portfolio of contracts covering all stages of the fuel cycle.

Inventory levels remained strong and continued to provide an important safeguard against potential disruptions in global supply chains. Existing contractual arrangements indicate that utilities are generally well positioned to meet their fuel requirements in the coming years. Nevertheless, the Agency continues to recommend maintaining adequate strategic inventories and taking advantage of market opportunities to strengthen stock levels where appropriate. Robust risk-management frameworks, including regular assessments of supplier, transport, ownership and geopolitical risks, should remain an integral part of utilities' security-of-supply strategies.

The global uranium conversion and enrichment markets continued to operate under conditions of limited spare capacity and heightened demand. In response, significant investments and expansion projects are being implemented across several fuel-cycle facilities. Capacity increases at existing conversion and enrichment plants, particularly in Europe and other like-minded partner countries, are expected to improve the resilience of supply chains over the medium term. However, until these projects are fully commissioned and operating at planned capacity, market participants should continue to monitor potential bottlenecks and secure long-term access to fuel-cycle services through diversified contractual arrangements.

The continued development and expansion of fuel-cycle facilities within the European Union and in trusted partner countries will play a key role in strengthening the resilience of nuclear supply chains. Ongoing investments in uranium conversion, enrichment, fuel fabrication and advanced fuel production capabilities should contribute to reducing

vulnerabilities, supporting diversification objectives and enhancing the strategic autonomy of the European nuclear sector. Timely implementation of these expansion projects will therefore remain an important factor in maintaining a secure and competitive fuel market.

The expected evolution of the existing reactor fleet, including lifetime extensions and licensed new-build projects as well as the growing interest in advanced nuclear technologies are expected to influence future fuel demand patterns. In this context, high-assay low-enriched uranium (HALEU) is emerging as a strategically important material for research applications, medical isotope production and the future deployment of advanced reactors. Continued efforts to establish secure and diversified HALEU supply chains, including investments in production capabilities and supporting infrastructure, will be essential for ensuring long-term security of supply.

Overall, the EU nuclear fuel market demonstrated resilience and adaptability during the year. Continued efforts to diversify supply chains, maintain adequate inventories, support nuclear materials and fuel recycling and prepare for future technological developments will remain essential to safeguarding the secure, sustainable and competitive supply of nuclear materials for the European Union.

Market and nuclear policy developments in the EU and worldwide

In 2025, nuclear energy continued to play an important role in the EU's efforts to achieve its climate, energy security and industrial policy objectives.

Geopolitical developments, particularly Russia's ongoing war against Ukraine, remained a key factor in influencing nuclear policy and market developments. The EU continued efforts to reduce strategic dependencies on Russian nuclear fuel cycle services and materials. For example, in line with the REPowerEU roadmap, significant progress was achieved in diversifying fuel supplies for Russian-designed VVER reactors. By the end of 2025, all EU operators of VVER reactors had secured alternative fuel supply contracts from non-Russian suppliers, strengthening long-term security of supply.

Nuclear market developments were marked by growing interest in advanced technologies, particularly Small Modular Reactors (SMRs). The European Industrial Alliance on SMRs adopted a strategic action plan to support the development and deployment of first projects in Europe during the 2030s. At the same time, the Commission advanced work on a dedicated EU SMR Strategy and published the draft 8th Nuclear Illustrative Programme (PINC), providing an updated assessment of nuclear investment needs and development trends through 2050.

Internationally, the EU remained active in promoting high nuclear safety standards and strengthening cooperation with partner countries and international organisations. At the same time, fusion energy development advanced, with the ITER project progressing slightly ahead of schedule, while Fusion for Energy focused on the timely delivery of Europe's contributions.

Research and innovation remained central to strengthening Europe's nuclear capabilities. The extension of the Euratom Research and Training Programme for 2026–2027 will support nuclear safety, advanced fuels, waste management, fusion energy and skills development. Significant progress was achieved in advanced fuel technologies, including high-assay low-enriched uranium (HALEU), fuel diversification for VVER reactors and the production of medical radionuclides. New initiatives were also launched to address future nuclear skills needs and maintain Europe's expertise.

Progress continued in radioactive waste management and decommissioning. Finland's Onkalo repository moved closer to becoming the world's first operational deep geological repository for spent nuclear fuel, while EU-supported decommissioning programmes in Lithuania, Slovakia and Bulgaria achieved important milestones in reactor dismantling and waste management infrastructure.

Key achievements and management

In 2025, ESA continued to fulfil its Treaty mandate of ensuring the secure, regular and diversified supply of nuclear materials for civilian use across the European Union. Against a backdrop of geopolitical uncertainty, growing interest in nuclear energy, and efforts to reduce dependence on Russian supplies, ESA strengthened its market monitoring, contract management and advisory activities.

The Agency processed 266 supply-related transactions, a 2.7% increase compared with 2024, while providing guidance

and training to new market participants, particularly those involved in SMRs and advanced modular reactors (AMRs). Noteworthy was the shift of market activity in favour of purchasing nuclear materials reflected in the Agency's contractual workload. The number of new contracts submitted for conclusion rose by 94%, while spot-market transactions increased by 181% compared with the previous year. This trend was consistent with developments observed in the uranium market, where spot purchases continued to play an important role alongside long-term contracting. Deliveries under spot transactions accounted for 6% in 2025, highlighting sustained market liquidity and utilities' continued use of the spot market to complement their procurement strategies.

ESA continued to promote supplier diversification, encourage the maintenance of strategic inventories and support the implementation of the REPowerEU objectives, with particular attention to fuel security for Russian-designed reactors and vulnerabilities in conversion, enrichment and fuel fabrication services.

ESA 's market observatory issued analyses, forecasts and publications on nuclear fuel supply, demand and pricing, and contributed to the European Commission's Nuclear Illustrative Programme (PINC). The Agency also monitored the supply of medical radioisotopes through the European Observatory on the Supply of Medical Radioisotopes, aimed to support the secure and sustainable supply across the EU.

ESA operated under sound financial and internal control frameworks, achieved a budget implementation rate of 98.9%, advanced development of its NOEMI information system, and maintained strong stakeholder engagement. Through cooperation with EU institutions, industry and international organisations, ESA worked towards increased resilience and long-term security of the EU nuclear fuel supply chain.

In summary, in 2025, the Euratom Supply Agency continued to fulfil its mandate of ensuring the secure and regular supply of nuclear materials to the European Union. Throughout the year, ESA engaged with multiple stakeholders including EU authorities, utilities and international organisations, to strengthen the security of nuclear material supplies and to diversify supply sources.

Abbreviations

CIS	Commonwealth of Independent States
ESA	Euratom Supply Agency
Euratom	European Atomic Energy Community
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
NEA (OECD)	Nuclear Energy Agency (Organisation for Economic Co-operation and Development)
(US) DoE	United States Department of Energy
(US) NRC	United States Nuclear Regulatory Commission
DU	depleted uranium
EIA	environmental impact assessment
ERU	enriched reprocessed uranium
EUP	enriched uranium product
HALEU	high-assay low-enriched uranium
HEU	high-enriched uranium
lb	pound
LEU	low-enriched uranium
LTO	long-term operation
NatU	natural uranium
MOX	mixed oxide [fuel] (uranium mixed with plutonium oxide)
RET	re-enriched tails
RepU	reprocessed uranium
SWU	separative work unit
tHM	(metric) tonne of heavy metal
tSW	1 000 SWU
tU	(metric) tonne of uranium (1 000 kg)
U_3O_8	triuranium octoxide
DUF_6	depleted uranium hexafluoride
UF_6	uranium hexafluoride
BWR	boiling water reactor
EPR	evolutionary/European pressurised water reactor
LWR	light water reactor
NPP	nuclear power plant
PWR	pressurised water reactor
RBMK	light water graphite-moderated reactor (Russian design)
VVER	pressurised water reactor (Russian design)
kWh	kilowatt-hour
MWh	megawatt-hour (1 000 kWh)
GWh	gigawatt-hour (1 million kWh)
TWh	terawatt-hour (1 billion kWh)
MW/GW	megawatt/gigawatt
MWe/GWe	megawatt/gigawatt (electrical output)

1. Nuclear fuel supply and demand in the EU

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This overview of nuclear fuel supply and demand in the EU is based on information that the utilities or their procurement organisations provided in an annual survey covering:

- acquisition prices for natural uranium;
- amounts of fuel loaded into reactors;
- estimates of future fuel requirements;
- quantities and origins of natural uranium, conversion services and separative work;
- future contracted deliveries; and
- inventory trends.

A total of 101 nuclear power reactors were operating at the beginning of 2025. Three units, all in Belgium, were shut down during the year, resulting in 98 reactors operating in 12 EU Member States at the end of 2025.

In 2025, net electricity generation from the NPPs operating in the EU reached 620.9 TWh, accounting for 23.3% of all electricity production in the EU-27 (617.3 TWh and 23.7% in 2024)1. Nuclear energy accounted for 25.4% of electricity consumption (25.5% in 2024)[2].

Table 1. Nuclear power reactors in the EU-27 in 2025

Country	Reactors in operation (under construction)	Net capacity (MWe) (under construction)
Belgium	2	2 056
Bulgaria	2	2 006
Czechia	6	4 212
Finland	5	4 369
France	57	63 000
Hungary	4	1 916
Netherlands	1	482
Romania	2	1 300
Slovakia (*)	5 (1)	2 302 (471)
Slovenia (**)	1	696
Spain	7	7 123
Sweden	6	7 008
Total EU-27	**98 (1)**	**96 470 (471)**

1 Net electricity generation by type of fuel (Eurostat) – aggregated monthly data extracted on 11 March 2026.

2 Supply, transformation and consumption of electricity (Eurostat) – aggregated monthly data extracted on 11 March 2026.

(*) Mochovce-4 began hot testing in March 2025.

(**) The Croatian power company HEP owns a 50% stake in the Krško NPP in Slovenia.

1.1. Fuel loaded

In 2025, 1 795 tU of fresh fuel was loaded into commercial reactors. It was produced using 11 729 tU of natural uranium and 462 tU of reprocessed uranium as feed, enriched with 9 112 tSW.

In 2025, 1 795 tU of fresh fuel was loaded into commercial reactors.

The fuel loaded into EU reactors had an average enrichment assay of 4.15%, with 86% of such fuel falling between 3.59% and 4.726%. The average tails assay was 0.21%, with over 80% falling between 0.16% and 0.25%.

MOX (mixed oxide) fuel was used in several reactors in France and the Netherlands. MOX fuel loaded into nuclear power plants in the EU contained 8 200 kg of plutonium in 2025, 18% more than in 2024. The use of MOX resulted in estimated savings of 725 tU and 506 tSW, an increase of 20% from 2024 (see Annex 5). MOX fuel is produced by mixing plutonium recovered from spent fuel with depleted uranium obtained from the enrichment process. MOX fuel increases the availability of nuclear material, reduces the need for enrichment services and increases the security of supply.

The amount of natural uranium equivalent included in fuel loaded into reactors in 2025, including natural uranium feed, reprocessed uranium and estimated savings from MOX fuel, totalled 12 916 tU.

The total amount of natural uranium equivalent included in fuel loaded into reactors in 2025 was 12 916 tU.

MOX fuel and reprocessed uranium can be considered as domestic secondary sources that reduce the requirements for natural uranium. In 2025, they were equivalent to 9.2% of the EU's annual natural uranium requirements. It is up to the Member States and their corresponding national policies whether they opt to consider the spent fuel as radioactive waste or as a valuable source of new material after reprocessing. According to European Commission[3] data, 7 out of 27 Member States reprocessed or were planning to reprocess spent fuel, and 2 Member States did not exclude doing so.

Table 2. Natural uranium equivalent included in fuel loaded by source in 2025

Source	Quantities (tU)	% of annual requirement
Uranium originating outside the EU-27 (1)	11 729	90.8
Indigenous sources (2)	1 188	9.2
Total annual requirements	12 916	100

(1) Includes any small quantities of natural uranium resulting from enrichment underfeeding, re-enriched tails, and uranium of EU origin.

(2) May include reprocessed uranium and estimated savings from the usage of MOX fuel.

3 REPORT FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT on progress of implementation of Council Directive 2011/70/EURATOM and an inventory of radioactive waste and spent fuel present in the Community's territory and the future prospects THIRD REPORT

1.2. Future requirements

EU utilities have estimated their gross reactor requirements for natural uranium and enrichment services for the next 20 years. These estimates factor in possible changes to national policies or regulatory requirements that would result in (i) the construction of new units (the estimates only include projects already granted a construction licence); (ii) lifetime extensions; (iii) early retirement of reactors; and (iv) phasing-out or decommissioning. Plans for future new builds including new technologies (e.g. SAMRs) are therefore not included in EU utilities' estimated requirements.

Net requirements are calculated on the basis of gross reactor requirements, minus the savings obtained from planned uranium/plutonium recycling and inventory usage.

Natural uranium – average reactor requirements		
2026-2035	11 835 tU/year (gross)	9 416 tU/year (net)
2036-2045	9 914 tU/year (gross)	7 668 tU/year (net)

Enrichment services – average reactor requirements		
2026-2035	9 881tSW/year (gross)	8 799 tSW/year (net)
2036-2045	8 111 tSW/year (gross)	7 212 tSW/year (net)

Estimates of future reactor requirements for uranium and separative work (SW), based on data supplied by all EU utilities, are shown in Figure 1 (see Annex 1 for numerical values).

Figure 1. Reactor requirements for natural uranium and separative work in the EU (in tonnes NatU or SWU)

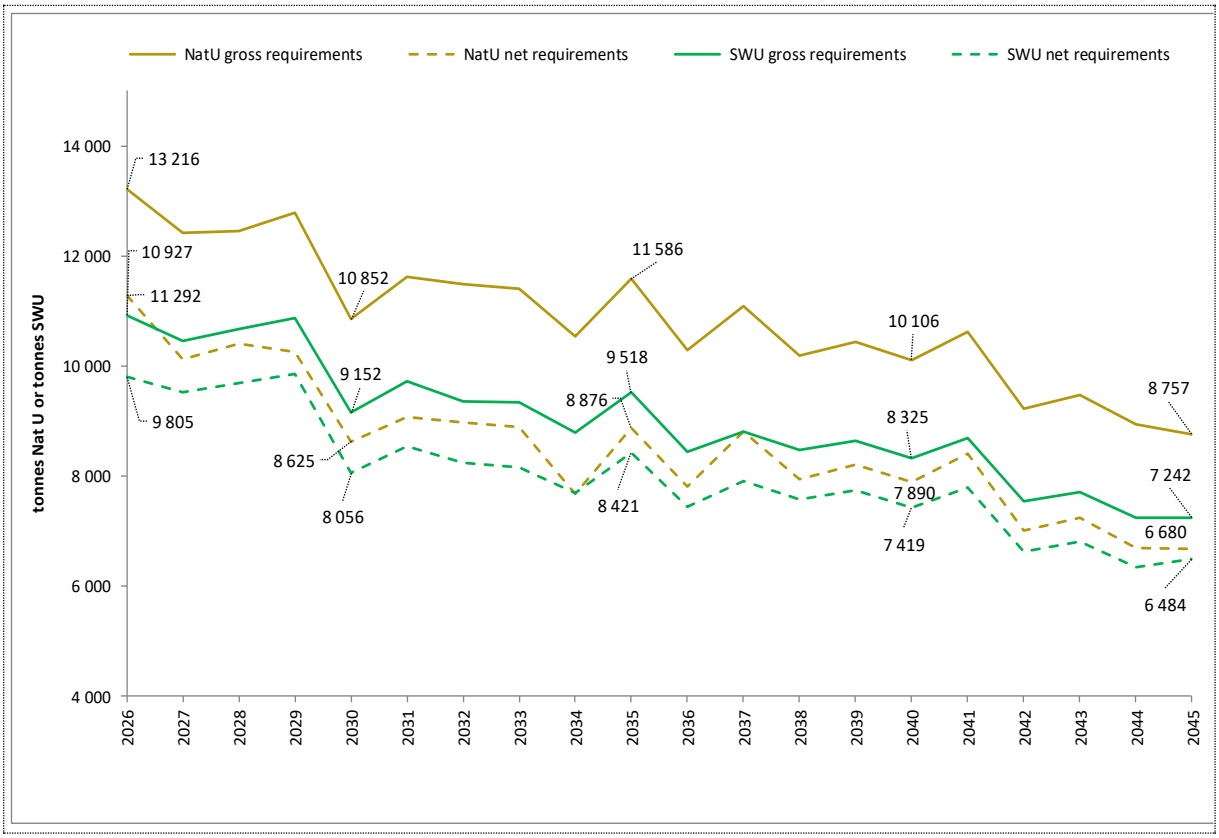
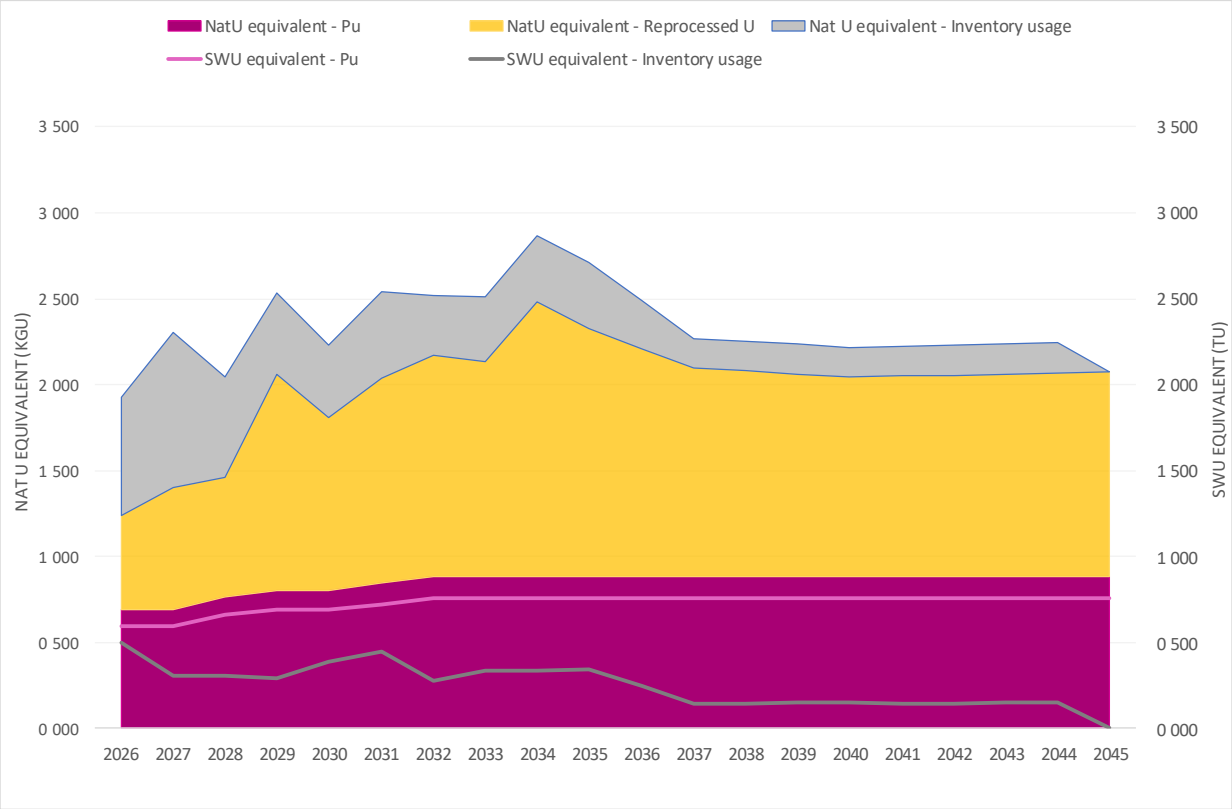


Figure 2. Estimated future use of secondary sources



1.3. Supply of natural uranium

Volume of deliveries

This includes deliveries to EU utilities or their procurement organisations in 2025, excluding research reactors. Where stated, it also includes the natural uranium equivalent contained in enriched uranium purchases.

In 2025, demand for natural uranium in the EU accounted for approximately 20% of global uranium requirements. EU utilities purchased a total of 14 678 tU in 147 deliveries under multiannual and spot contracts.

As in previous years, supplies under multiannual contracts were the main source to meet demand in the EU. Deliveries of natural uranium to EU utilities under multiannual contracts accounted for 13 790 tU (of which 12 999 tU with reported prices). The remaining 889 tU was purchased under spot contracts.

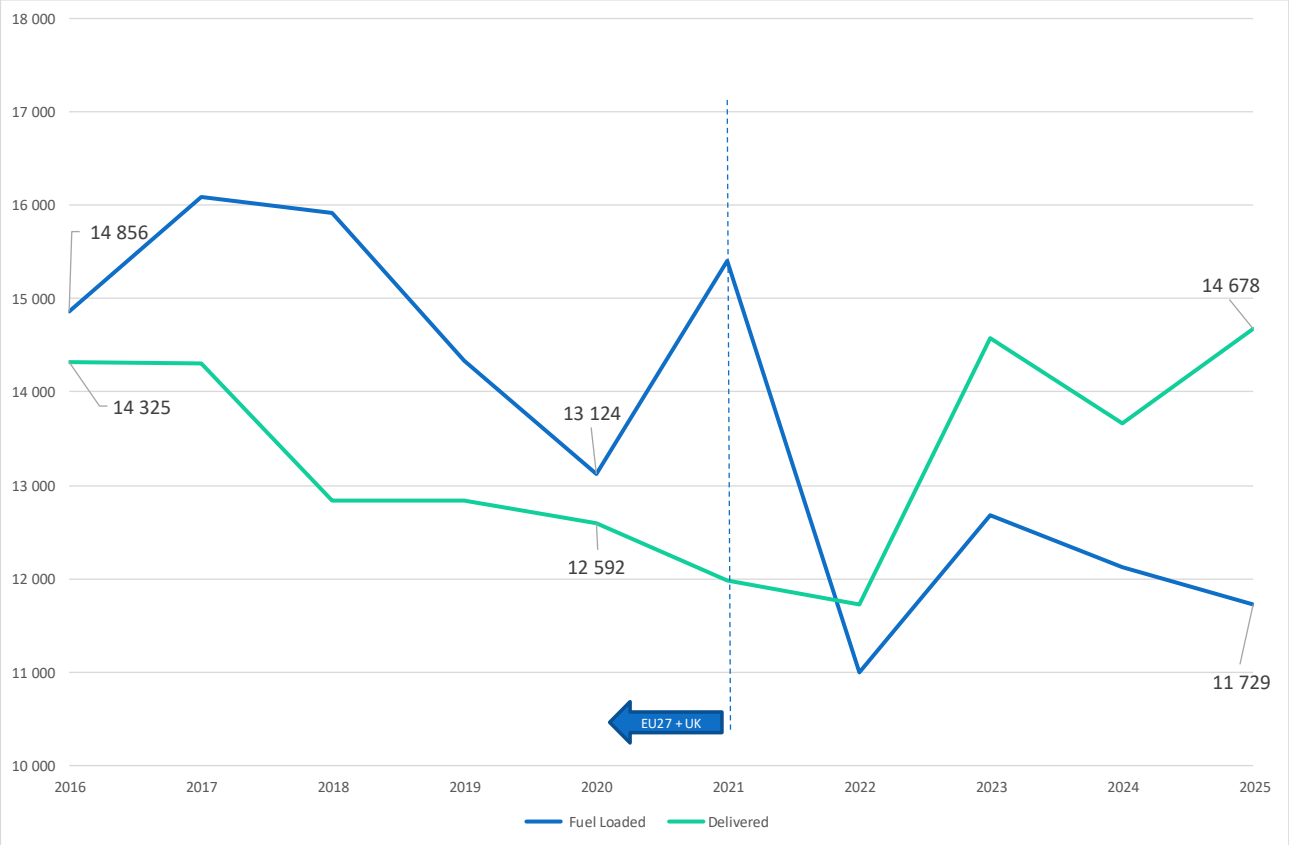
On average, the quantity of natural uranium delivered was 104 tU per delivery under multiannual contracts.

Demand for natural uranium in the EU accounted for approximately 20% of global uranium requirements.

Since the start of Russia's war of aggression against Ukraine, EU utilities have been stockpiling nuclear materials and fuel to mitigate the risk of disruption to supply chains. Therefore, in 2025, they continued loading less material into reactors than they bought. Figure 2 shows the quantities of natural uranium feed contained in fuel loaded into EU reactors and natural uranium delivered to utilities (see Annex 2 for the corresponding table for 1980-2025).

As in the previous year, in 2025 utilities bought more material than they loaded into reactors.

Figure 3. Natural uranium equivalent feed contained in fuel loaded into EU reactors and natural uranium equivalent delivered to utilities under purchasing contracts (tonnes NatU)



Average delivery prices

The ESA's price calculation method converts the currency of the original contract prices, if stated differently, into euro per kilogram of uranium (kgU) in the chemical form U3O8. It uses the average annual exchange rates published by the European Central Bank. The average prices are then calculated after weighting the prices paid by the quantity delivered under each contract. Annex 3 lists the ESA historical prices and European Central Bank exchange rates. Annex 8 sets out the price calculation method in detail.

1. ESA spot U_3O_8 price: the weighted average U_3O_8 price paid by EU utilities for uranium delivered under spot contracts was calculated to be:	
EUR 168.92/kgU contained in U_3O_8	A 28% increase from EUR 132.32/kgU contained in U_3O_8 in 2024
USD 70.33/lb U_3O_8	A 31% increase from USD 53.59/lb U_3O_8 in 2024

The ESA U_3O_8 spot price reflects short-term price developments on the uranium market as it is calculated from contracts for either a single delivery or for several deliveries over a maximum 12-month period.

2. ESA multiannual U_3O_8 price: the weighted average U_3O_8 price paid by EU utilities for uranium delivered under multiannual contracts was calculated to be:	
EUR 131.37/kgU contained in U_3O_8	An 8% decrease from EUR 142.26/kgU contained in U_3O_8 in 2024
USD 54.70/lb U_3O_8	An 8% decrease from USD 59.18/lb U_3O_8 in 2024

3. ESA 'MAC-3' multiannual U_3O_8 price: the weighted average U_3O_8 price paid by EU utilities under multiannual contracts which were concluded or for which the pricing method was amended in the past three years and under which deliveries were made, was calculated to be:	
EUR 165.76/kgU contained in U_3O_8	A 7% increase from EUR 155.50/kgU contained in U_3O_8 in 2024
USD 69.01/lb U_3O_8	A 10% increase from USD 62.98/lb U_3O_8 in 2024

The ESA multiannual U_3O_8 price is not forward-looking. It is based on historical prices contracted under multiannual contracts, which are either fixed or calculated based on formulas indexing mainly uranium spot prices.

Figures 3a and 3b show the ESA average price of natural uranium since 2016. The data are presented in Annex 3.

Figure 3a. Average prices of natural uranium delivered under spot and multiannual contracts, 2016-2025 (EUR/kgU)

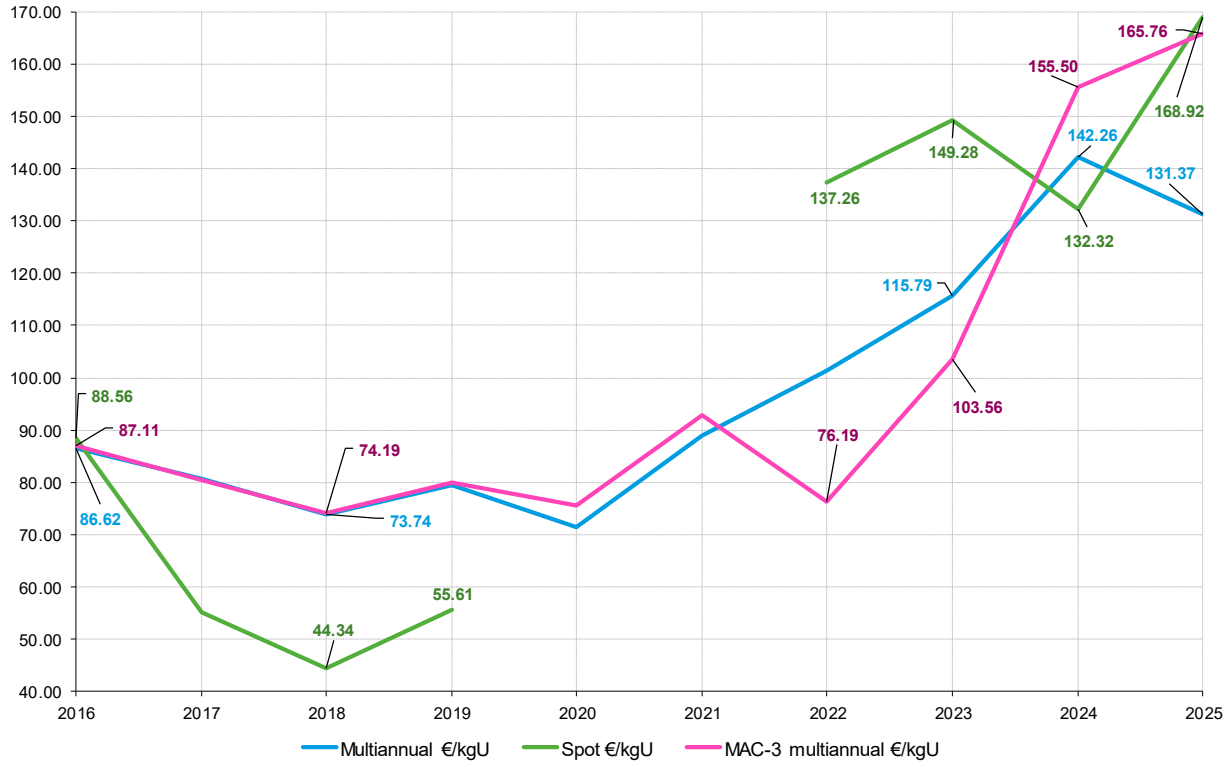
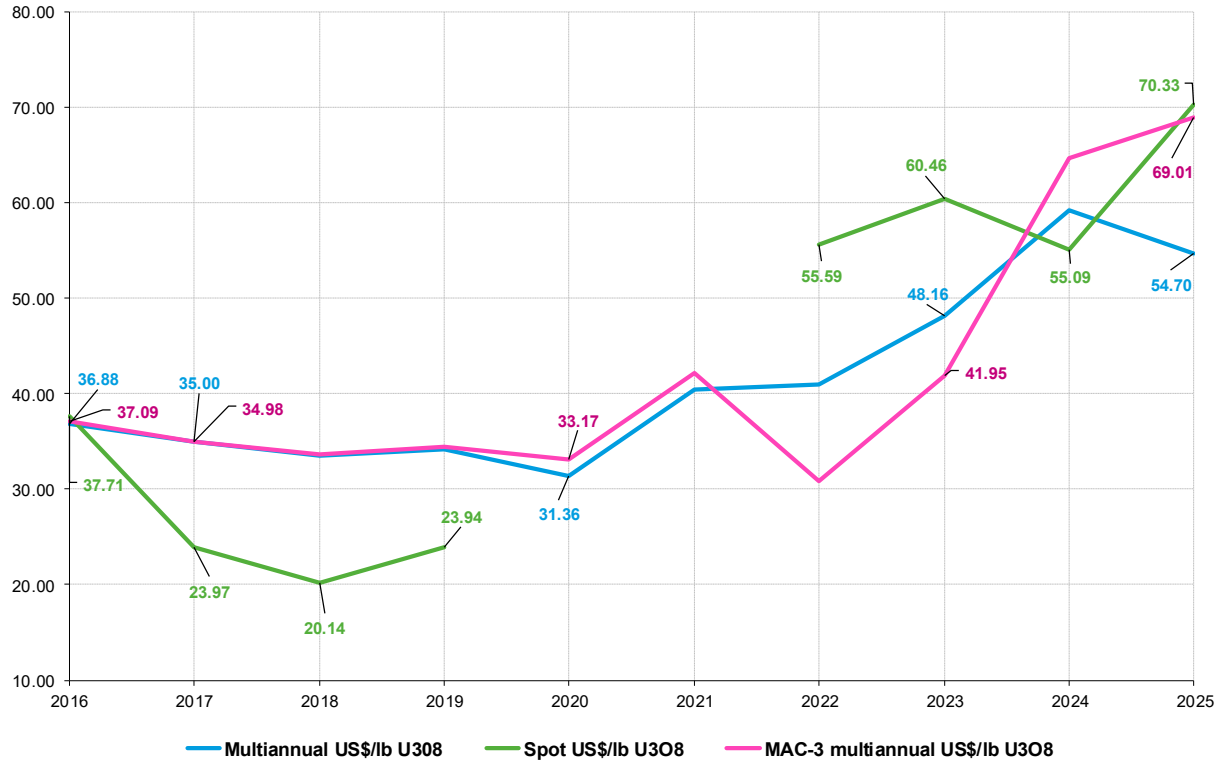


Figure 3b. Average price of natural uranium delivered under spot and multiannual contracts, 2016-2025 (USD/lb U3O8)



Origin of fuel supplies

In 2025, natural uranium supplies to the EU continued to come from a variety of sources. The origin of natural uranium supplied to EU utilities remained similar to 2024, though there were some changes in market share.

Table 3. Origin of uranium delivered to EU utilities in 2025 (tU)

Origin	Quantity	Share (%)	Change in quantity 2024/2025 (%)
Canada	5 384	36.68%	13.56%
Kazakhstan	2 981	20.31%	-12.11%
Russia	2 346	15.98%	7.37%
Uzbekistan	1 522	10.37%	511.83%
Australia	1 379	9.39%	-6.46%
Namibia	842	5.74%	476.33%
Niger	33	0.23%	-97.14%
Malawi	28	0.19%	844.57%
South Africa	26	0.18%	100%
Kyrgyzstan	22	0.15%	100%
China	0	0%	-100%
EU	0	0%	0%
Re-enriched tails	0	0%	0%
Other (1)	115	0.79%	100%
Total	**14 678**	**100**	**4.94%**

Due to rounding, the totals may not add up.

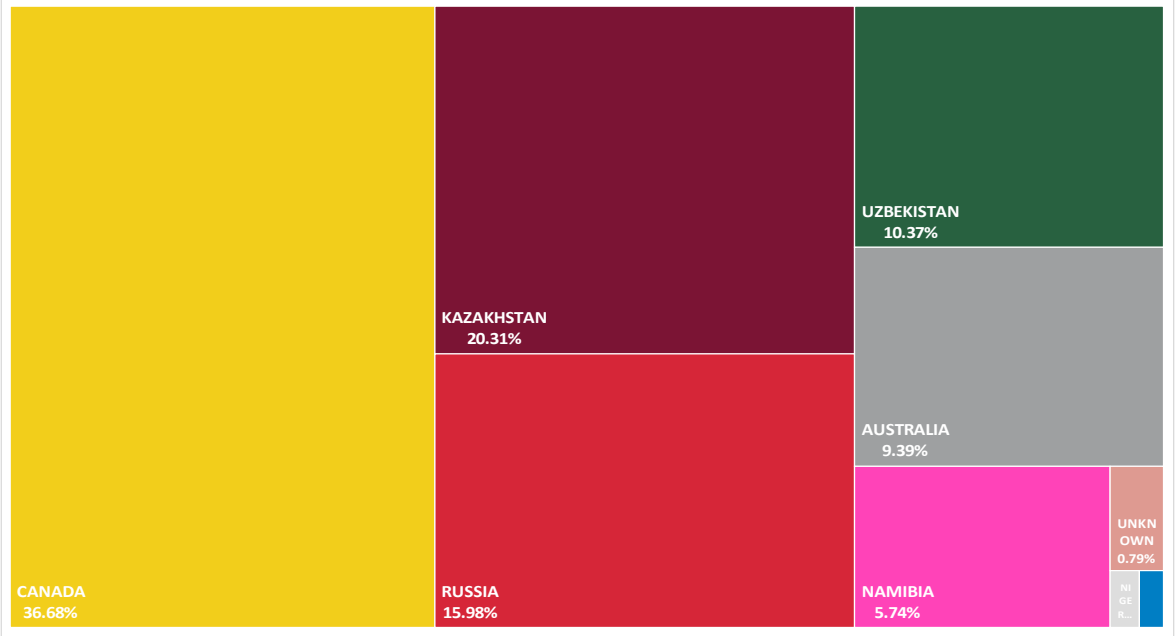
(1) Material saved through underfeeding, mixed origin and unknown.

Most uranium deliveries to the EU originate from a limited number of countries. In 2025, 4 countries provided over 83% of all deliveries (a similar share to 2024), while 6 countries provided over 98% of all-natural uranium supplied to the EU.

In 2025, a slight increase in total deliveries was recorded.

Over 98% of natural uranium supplied to the EU came from six producing countries.

Figure 4. Origin of uranium delivered to EU utilities in 2025 (% share)



Natural uranium produced in Commonwealth of Independent States (CIS) countries accounted for 46.81% of all-natural uranium delivered to EU utilities. CIS deliveries in 2025 amounted to 6 871 tU, compared with 5 825 tU in 2024. Natural uranium originating in non-CIS countries accounted for 7 807 tU, a decrease from 8 012 tU imported in 2024.

Figure 5. Origin of uranium delivered to EU utilities in 2025 by geographical region (tU)

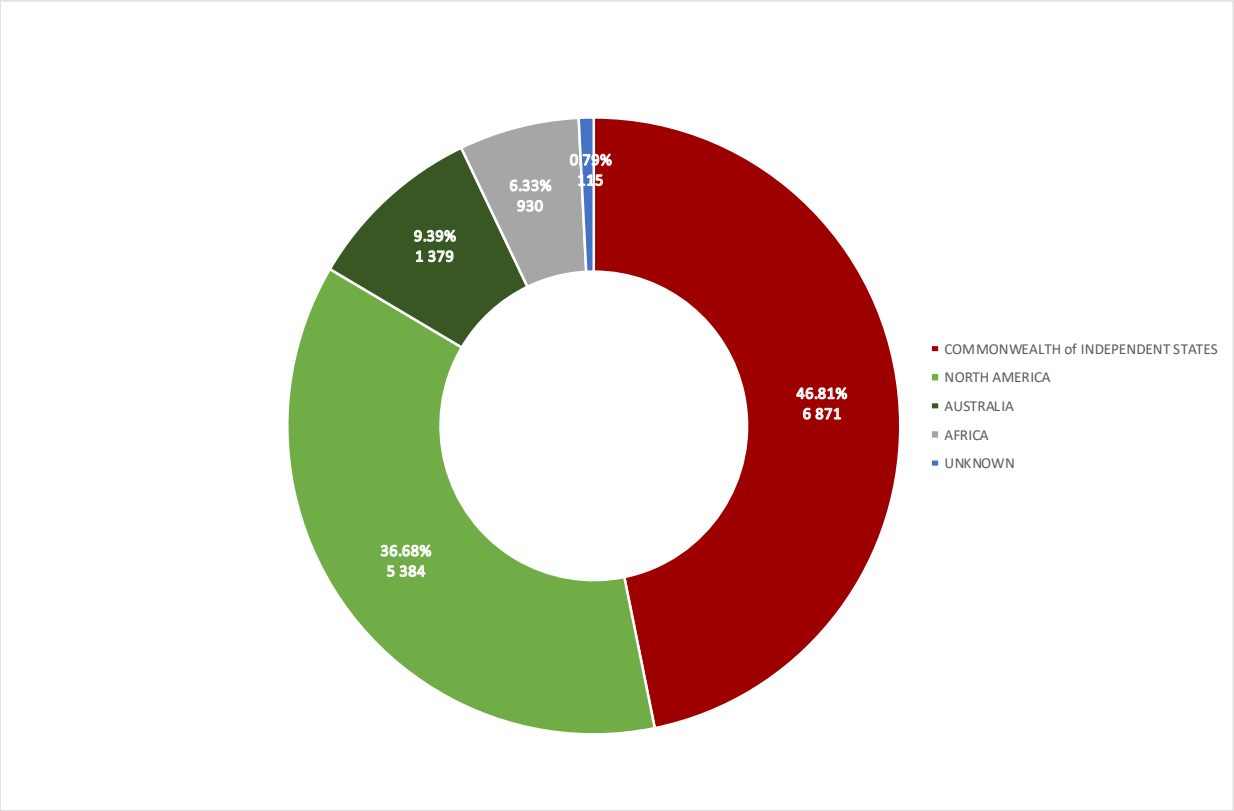
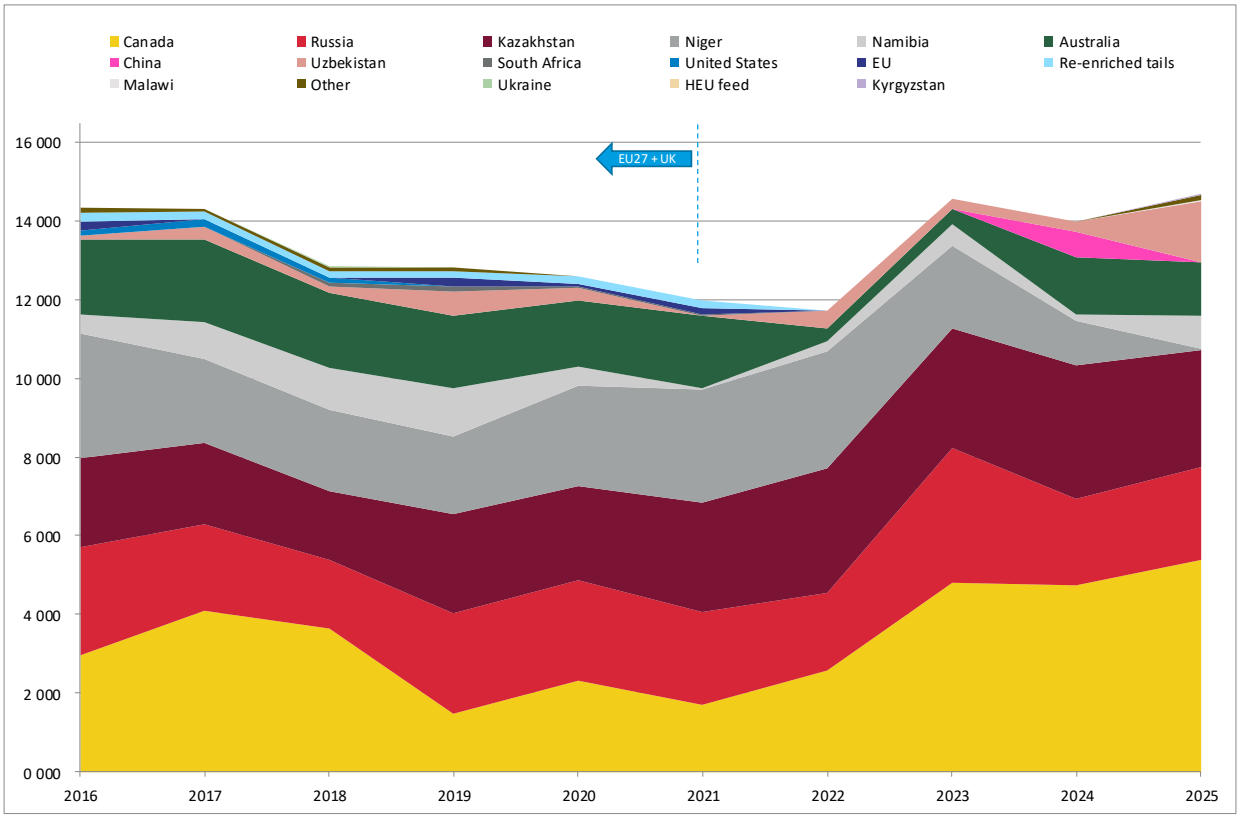


Figure 6. Purchases of natural uranium by EU utilities, by origin, 2016-2025 (tU)



Conversion services

Under separate conversion contracts, 7 908 tU was converted, accounting for 60% of all service deliveries to EU utilities. The remaining 40%, or 5 340 tU, was delivered under other types of contract (purchases of natural UF6, EUP, bundled contracts for fuel assemblies).

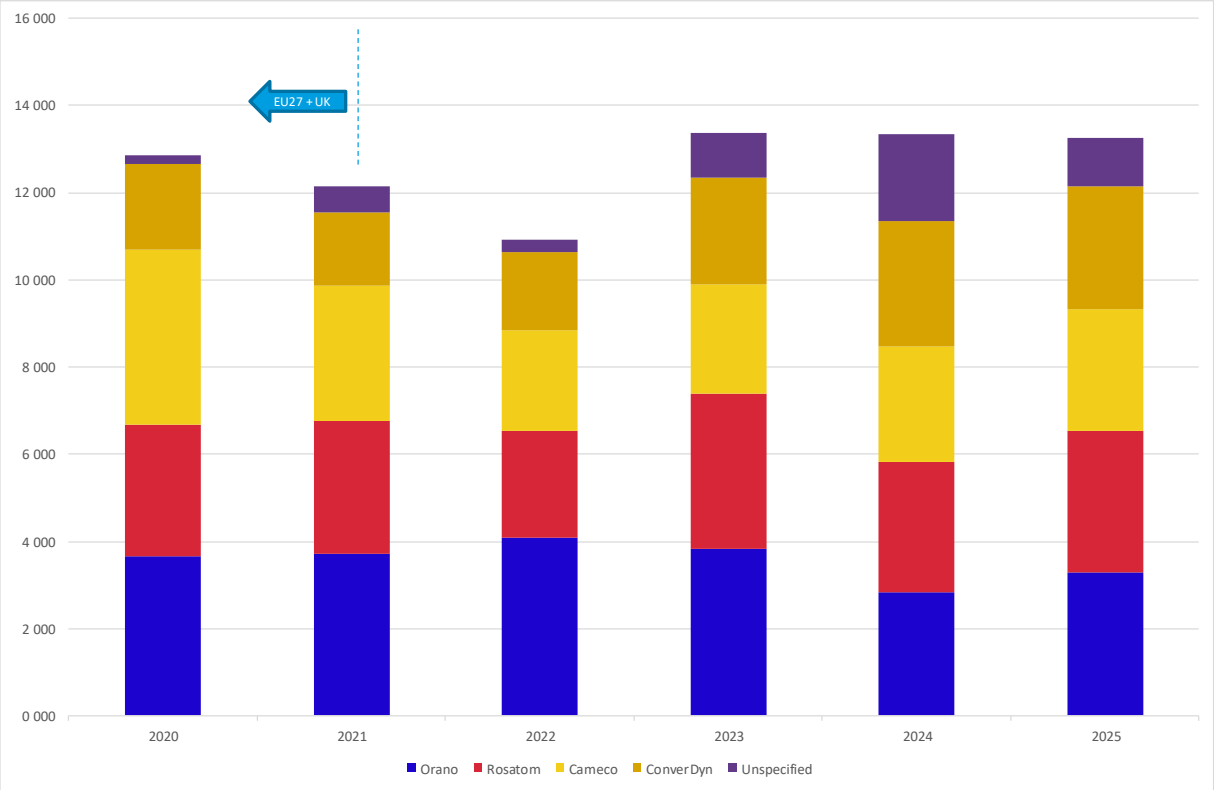
Conversion service deliveries to EU utilities were at the same level in 2024.

Table 4. Provision of conversion services to EU utilities

Converter	Quantity in 2025 (tU)	Share in 2025 (%)	Quantity in 2024 (tU)	Share in 2024 (%)	Change in quantity 2024/2025 (%)
Orano (EU)	3 292	24.85	2 840	21.34	15.91
Rosatom (Russia)	3 233	24.40	2 977	22.37	8.60
ConverDyn (US)	2 825	21.32	2 898	21.78	-2.51
Cameco (Canada)	2 791	21.07	2 643	19.86	5.61
Unspecified	1 107	8.36	1 949	14.65	-43.18
Total	**13 248**	**100**	**13 306**	**100**	**-0.44**

Due to rounding, the totals may not add up.

Figure 7. Supply of conversion services to EU utilities by provider, 2020-2025 (tU)



1.4. Special fissile material

Deliveries of low-enriched uranium

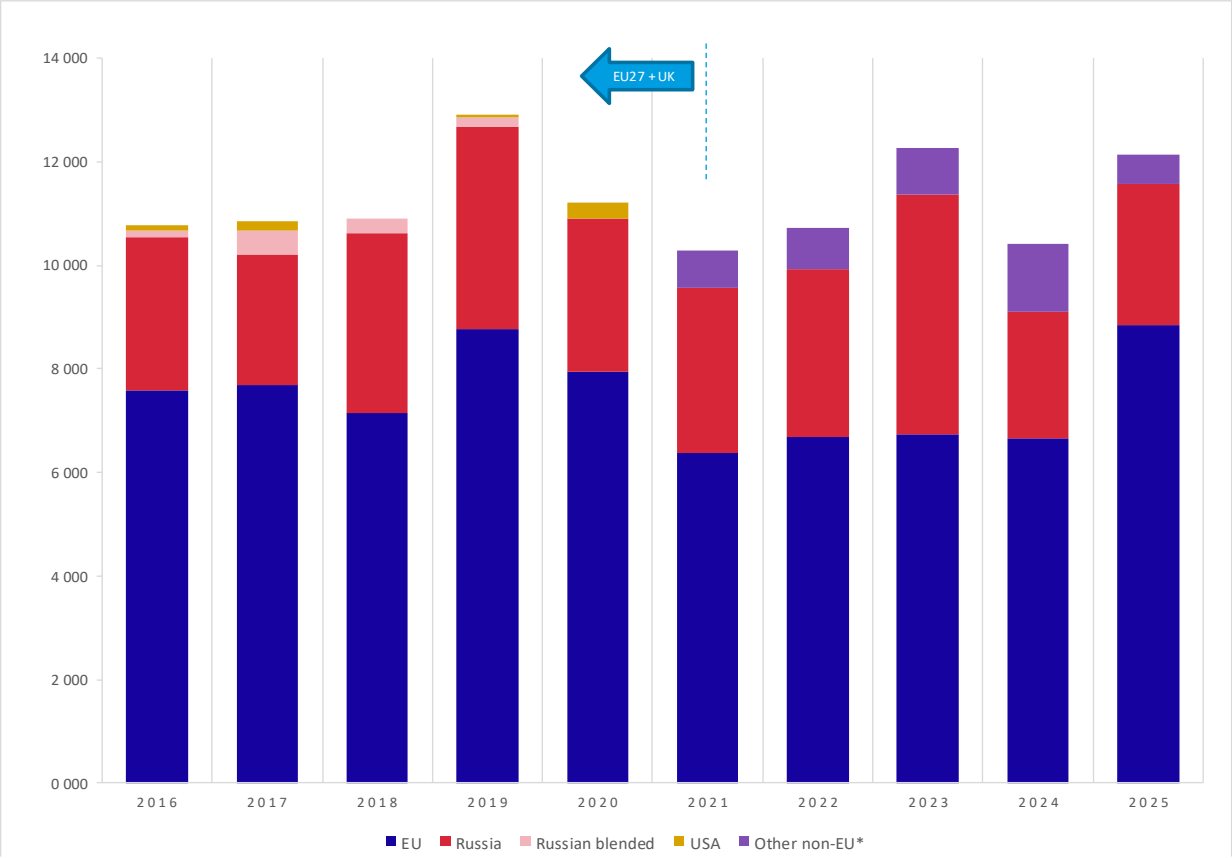
In 2025, enrichment service deliveries to EU utilities were 17% higher than in 2024, with nuclear power plant operators opting for an average enrichment assay of 4.05% and an average tails assay of 0.20%.

Enrichment service deliveries to EU utilities in 2025 were 17% higher than in 2024.

Table 5. Origin of enrichment services to EU utilities

Enrichment origin	EUP tU 2025	Uranium feed 2025 (tU)	Quantity in 2025 (tSW)	SW share in 2025 (%)	Quantity in 2024 (tSW)	SW share in 2024 (%)
EU	1 434	10 587	8 844	72.91	6 654	63.95
Russia	336	2 891	2 735	22.55	2 450	23.55
Other *	93	661	551	4.54	1 301	12.50
TOTAL	**1 863**	**14 139**	**12 130**	**100**	**10 405**	**100**

Figure 8. Supply of enrichment to EU utilities by provider, 2016-2025 (tSW)

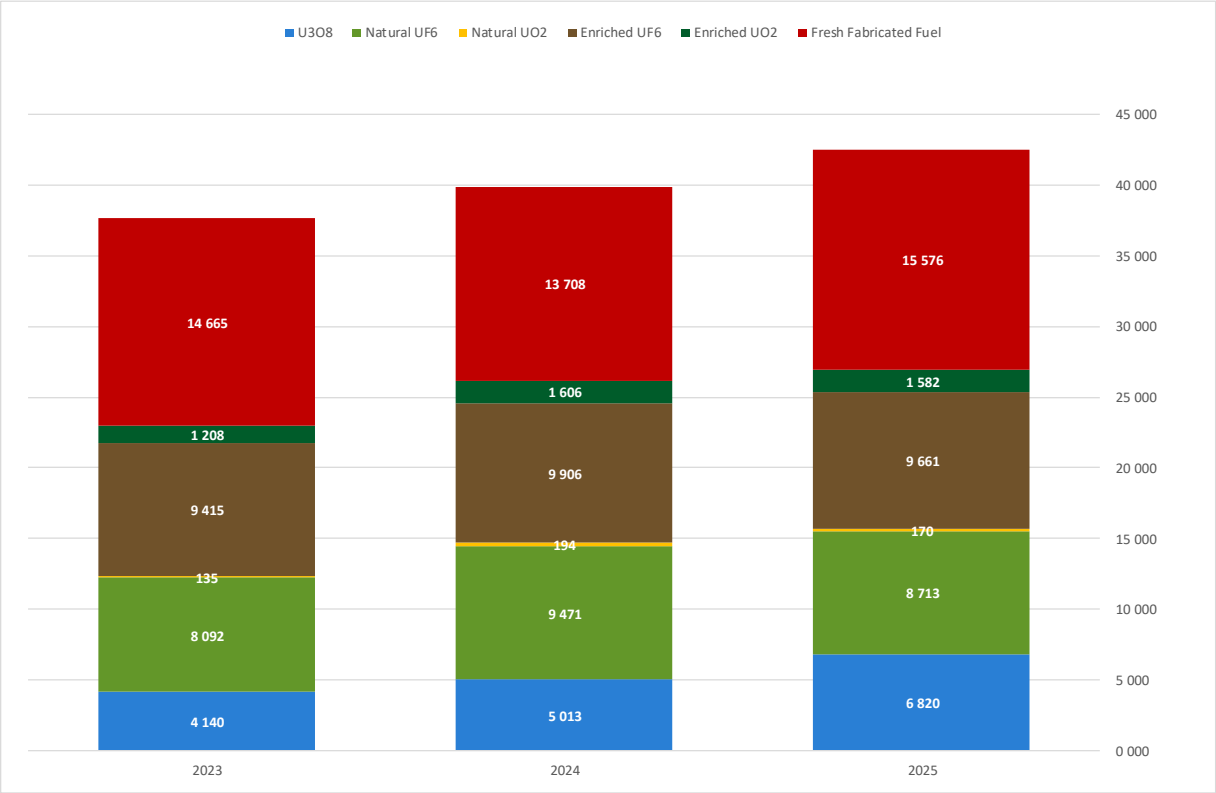


*Other non-EU starting in 2021.

1.5. Inventories

At the end of 2025, the natural uranium equivalent in inventories owned by EU utilities totalled 42 522 tU. The inventories comprised uranium which was at different stages of the nuclear fuel cycle (natural uranium, in-process for conversion, enrichment, fuel fabrication and fresh fuel) and stored at EU or other nuclear facilities.

Figure 9. Total natural uranium equivalent in inventories owned by EU utilities at the end of the year, by chemical form, 2023-2025 (in tonnes)



The changes in the aggregate natural uranium inventories do not necessarily reflect the difference between the total natural uranium equivalent loaded into reactors and uranium delivered to EU utilities. This is because the level of inventories is subject to movements of loaned material, sales of uranium to third parties and one-off national transfers of material.

Based on average annual EU gross uranium reactor requirements (11 835 tU per year), uranium inventories are sufficient to fuel EU utilities' nuclear power reactors for more than three reloads on average. That average conceals a wide range, although all utilities keep a sufficient quantity of inventories for at least one reload.

Uranium inventories can fuel the EU utilities' nuclear power reactors for three reloads on average.

A further analysis of EU utilities' inventories shows that most are located in the EU. However, some are located outside the EU and a small fraction for future delivery is stored at unknown locations.

1.6. Future contractual coverage rate

The EU utilities' aggregate contractual coverage rate for a given year is calculated by dividing the maximum and minimum contracted deliveries in that year – under contracts already signed – by the utilities' estimated future net reactor requirements in the same year. The result is expressed as a percentage. Figures 9 and 10 show the maximum and minimum contractual coverage rate respectively for natural uranium and for SWUs, and Figure 11 shows the maximum and minimum contractual coverage rate for conversion services for EU utilities.

$$\text{Contractual coverage rate of year X} = 100 \times \frac{\text{Maximum/minimum contracted deliveries in year X}}{\text{Net reactor requirements in year X}}$$

For net reactor requirements (the denominator), a distinction is made between demand for natural uranium and demand for enrichment services. Average net reactor requirements for 2026-2035 are estimated at 9 416 tU and 8 799 SW per year (see table in Annex 1). ESA assumes the same quantity of requirements for conversion services as for natural uranium. A distinction is made between demand for conversion services covered under separate conversion contracts, and demand for conversion services covered under other contracts, which include deliveries of natural UF6, EUP or bundled contracts for fuel assemblies.

A quantitative analysis shows that until 2030, EU utilities are well covered under existing contracts with EU and third-country suppliers for natural uranium, conversion and enrichment services. However, when looking at minimum contractual arrangements, the situation is different.

Figure 10. Coverage rate for natural uranium, 2026-2034 (%)

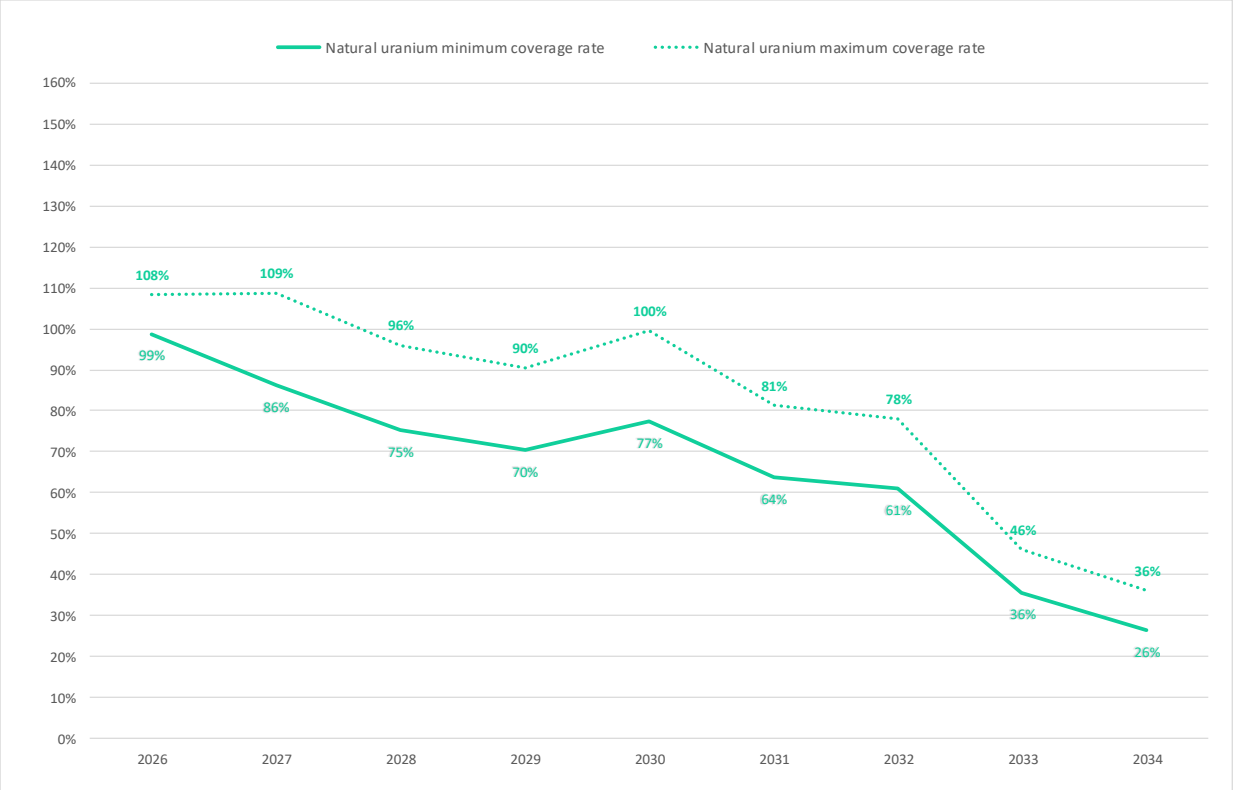


Figure 11. Coverage rate for conversion services, 2026-2034 (%)

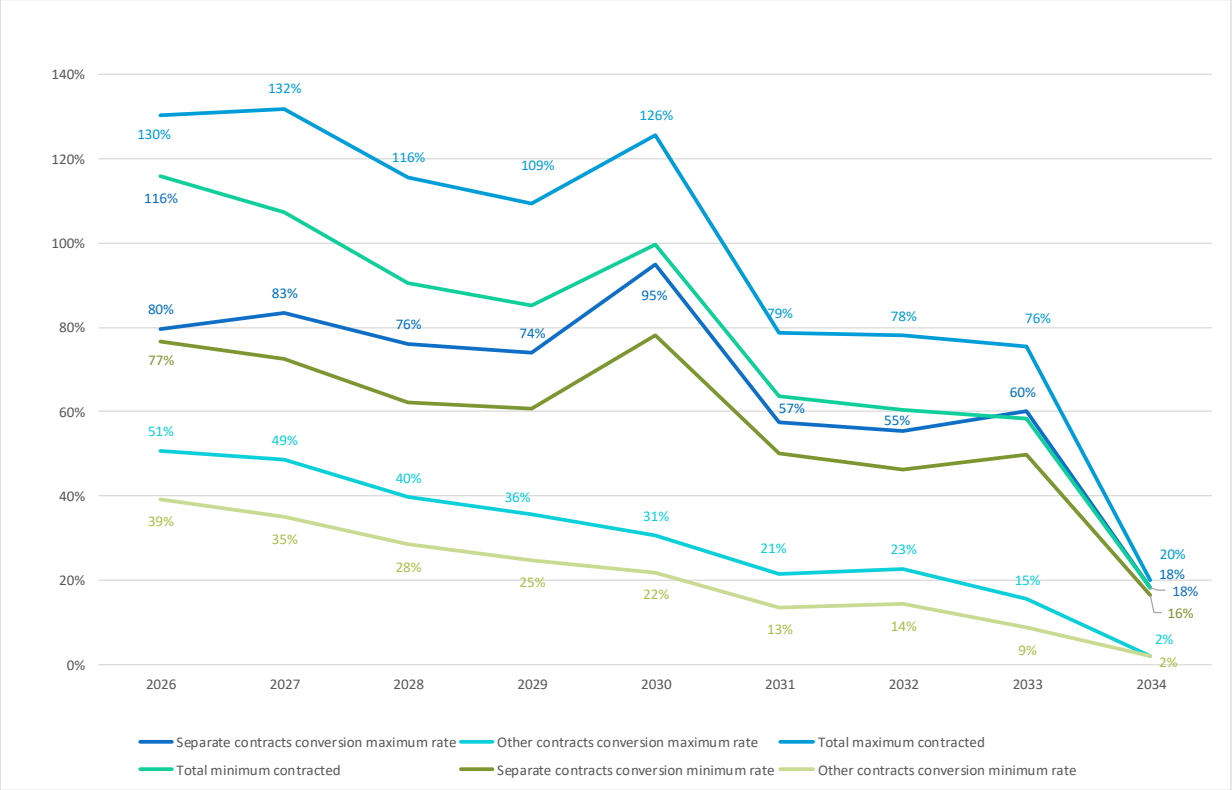


Figure 12. Coverage rate for enrichment services, 2026-2034 (%)

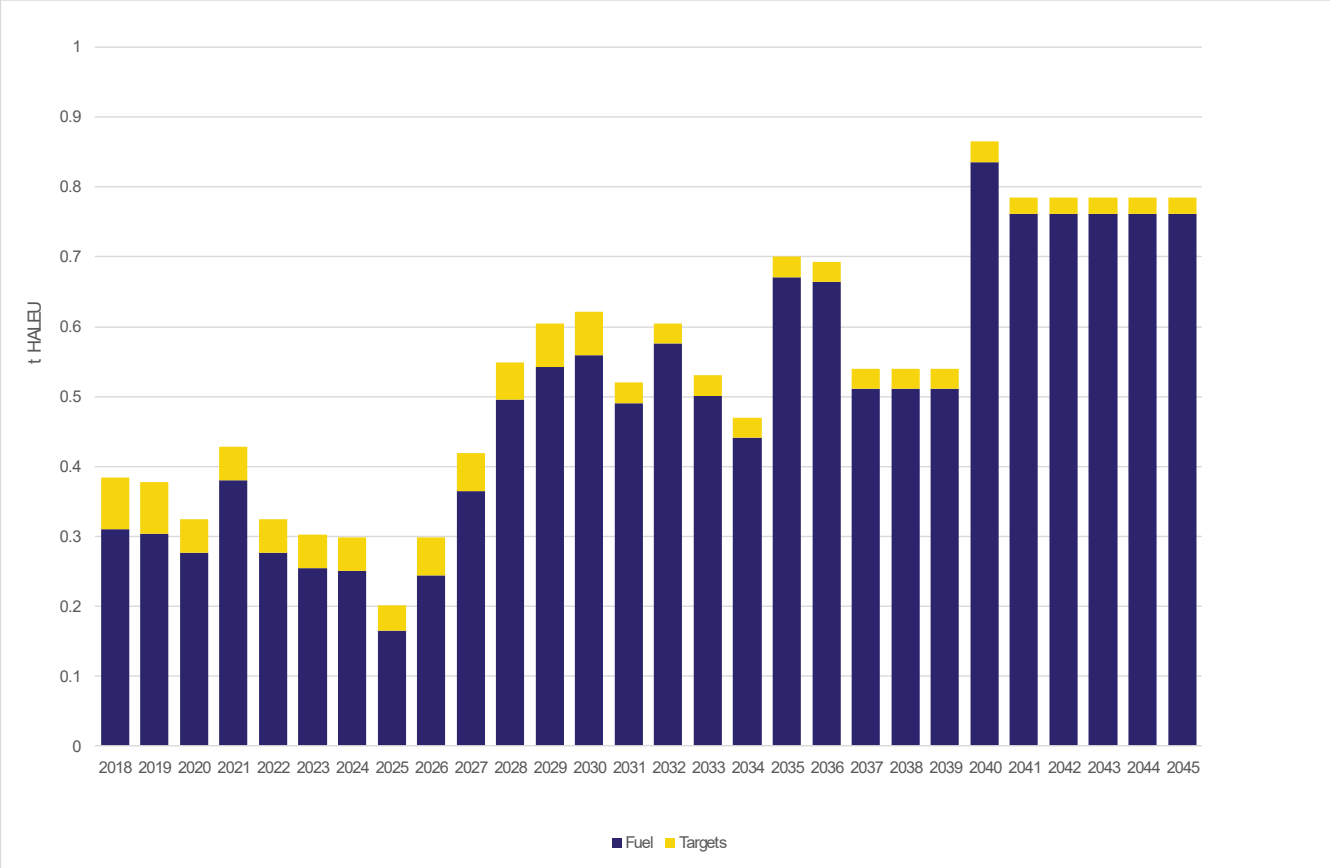
1.7. HALEU: future requirements for Research reactors

With an objective to decrease the risk of nuclear proliferation, EU Member States have been converting research reactors (fuel) and medical radioisotope production facilities (targets) to high-assay low-enriched (19.75%) uranium (HALEU). Most EU research reactors and all radioisotope production facilities have already made the successful transition to HALEU. Next to its use in research reactors as fuel and targets for the production of radioisotopes, HALEU is also an important fuel option for the development of advanced reactors, such as SMRs and GenIV-type reactors, which could have a significant impact on the future demand.

When looking into solely the needs of the fleet of EU research reactors, including the ongoing projects, HALEU needs for both fuel as well as targets for the production of medical radioisotopes show an increase from the current 200-300 kg annual needs to around 800 kg from 2040 onwards. It should be noted that these figures are based on a conservative scenario and depend on various events such as research reactors lifetime extensions and technical modifications (e.g. conversion from HEU to HALEU) as well as new builds.

The importance of well-timed and sustainable supply of this material is addressed in chapter 2.1.5 of this report.

Figure 13. EU Research Reactors' HALEU needs (tons)



2. Security of supply

[Please insert pictures #4, #5 and #6 into the chapter]

2.1. Analysis of EU market

Ensuring the security of supply of nuclear materials and fuel is essential for the European Union, as nuclear energy plays a significant role in meeting the region's electricity needs. This chapter provides an in-depth analysis of market trends, based on the data from EU utilities presented in the previous chapter and the Agency's ongoing monitoring of the EU nuclear fuel market. It examines recent market developments, assesses their potential impact on the security of supply and offers key recommendations to strengthen the reliable provision of nuclear materials and related services.

The EU's nuclear fuel supply chain is heavily dependent on imports of uranium. In contrast, other parts of the nuclear fuel cycle are more diversified, with enrichment, conversion and fuel fabrication capacities secured to a greater extent within the EU, even though external dependencies remain. Recent global events have underscored the vulnerabilities of the supply chain. Geopolitical tensions have had a significant impact on the security of supply of nuclear materials and services to EU users, with a substantial proportion of these supplies originating from countries with uncertain or unstable political environments. The EU's security of supply environment for nuclear materials and services has changed fundamentally since Russia's invasion of Ukraine and is gradually transitioning to diverse traditional suppliers and renewed stability. The polarisation of markets, driven by a range of restrictive measures, raises concerns that these markets could further tighten and become more constrained, thereby challenging the security of supply of the nuclear sector. In addition, the market must serve the growing global interest in nuclear energy, resulting in increased demand.

Preparedness at EU and Member State level
Euratom should strengthen policies and measures for crisis preparedness and management and consider similar measures to those developed for other sources of energy. Such policies and measures would ensure a coordinated response to supply-chain disruptions and further minimise their impact on EU utilities and users. This could include reserving EU industry capacity and essential services for EU users, building common strategic stocks and considering how to make use of the provisions of the Euratom Treaty for common purchase and distribution mechanisms. The approach should give due consideration to securing adequate amounts of material at different stages of the fuel cycle (e.g. natural uranium, converted uranium, enriched uranium products and fuel assemblies).

The EU's dependence on Russian energy imports continues to pose significant security of supply risks. The nuclear sector is no exception. While significant progress has been made, five Member States with Russian-designed reactors still rely to varying degrees on Russia for fuel, spare parts and maintenance services. Certain other countries still depend on Russian nuclear materials and fuel-cycle services. The EU's non-power industry has also faced challenges in terms of the availability of certain fuels and radioisotopes, which are essential for fuel research reactors or medical treatments and other applications.

At the same time, the EU has taken steps to reduce its reliance on Russian supplies.

The REPowerEU action plan[4], launched in 2022, has provided a framework to reduce the EU's dependence on nuclear imports from Russia, including the development of alternative fuel sources and suppliers, in collaboration with like-minded countries. The European Commission, some Member States and EU industry have launched initiatives aimed at diversifying the EU's nuclear supplies and expanding production capacity. Over three years into Russia's war of aggression against Ukraine, the EU has increased its resilience and level of strategic autonomy.

The EU and like-minded countries have also adopted far-reaching restrictive measures towards Russia in various areas. These measures target organisations, individuals and specific activities and affect transport and trade. The United States has enacted a ban on uranium imports from Russia, with waivers possible until the end of 2027.

While nuclear fuel and services have been exempted until now from direct EU restrictions, a complete phase-out of supplies from Russia remains a political and strategic objective. On 6 May 2025, the Commission adopted the communication *Roadmap towards ending Russian energy imports*[5], setting out a coordinated, secure and gradual phase-out of Russian gas, oil and nuclear energy imports. The communication sets out a number of possible measures to phase out Russian imports of uranium, enriched uranium and other nuclear materials, including restricting new supply contracts with Russian suppliers. It also calls for Member States to develop national plans to phase out Russian nuclear

4 COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS REPowerEU Plan, COM/2022/230 final, 18.5.2022

5 COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Roadmap towards ending Russian energy imports, COM(2025) 440

supplies and increase transparency on dependencies. The goal of these measures is to reduce the EU's dependence on Russia and to increase the security of supply of nuclear materials and services. The roadmap also emphasises the need to replace Russian nuclear fuels with alternative fuels by accelerating the contracting and licensing of such fuels and further developing European alternatives. In addition, it encourages political and business decisions in the relevant Member States to accelerate investment and capacity-building, develop an EU value chain and diversify away from Russia in a gradual manner, while allowing for supplies from other international partners.

Existing challenges affecting transport routes – in particular nuclear fuel logistics – persist. There are also continued risks associated with executing financial transactions with certain countries.

The divergence of markets with different forms – and an increasing number – of restrictive measures in place, together with growing interest in nuclear energy, raises concerns that markets may further tighten, posing challenges to the security of supply of nuclear materials and services.

As in other energy sectors, the nuclear industry and power operators should take measures to guarantee regular and sufficient supplies, irrespective of the structure of the market.

Various measures are available to reduce the risk of interruptions to supply or to limit their effects. These measures need to be underpinned by a robust risk-management framework, which identifies, assesses, monitors and mitigates potential risks to the supply chain.

Risk management

Energy regulators, safety regulators, grid operators and electricity holdings should factor nuclear supply risks into their risk assessment and preparedness.

Nuclear utilities and fuel-cycle actors should implement a robust risk-management framework to minimise the risk of supply-chain disruptions, ensure a stable and reliable supply of nuclear fuel and support the continuous operation of nuclear power plants.

They should specify the acceptable level of exposure with respect to high-risk profile partners or operations/transactions and be mindful of possible interrelationships across energy products and interdependencies of supply chains (e.g. the risks associated with storage and transport, the origin of components, and source material for components and parts). The risk factors to be considered in relation to security of supply include:

- changing Community and national decisions, regulatory frameworks;
- legal and economic ownership of suppliers;
- physical location and control of nuclear materials;
- geographical origin of supplies, considering the potential risks associated with different regions;
- risk profile of transactions or commercial partners and suppliers;
- supply logistics.

All market parties concerned should draw up and implement plans to mitigate the risks identified. They should cooperate to strengthen mechanisms for sharing data and information on the evolution of factors affecting the supply of nuclear fuels and relevant products.

The security of energy supply should be monitored at different levels: at EU/Euratom, national, industry and utility level. It should be a coordinated effort to include all viewpoints and interests.

Market players should continue monitoring the market, taking into account origin and transit risks and carrying out contractual due diligence to manage their exposure to a changing market and avert security of supply vulnerabilities.

2.1.1. Inventories

ESA has long recommended that EU utilities maintain sufficient strategic inventories and utilise market opportunities to increase their stocks, depending on their individual circumstances.

Recent trends. Since 2022, the overall EU inventory level has been growing, in contrast to previous years. As advised by the Agency, utilities have increased their stocks to manage the unstable market conditions following Russia's war of aggression against Ukraine. The overall EU inventory level continued the upward trend seen in 2024, rising by 7.3% in 2025 compared with 2024.

In 2024 the overall EU inventory level increased by 7.3 %.

Ensuring adequate inventories

Utilities should continue to maintain adequate inventories of nuclear materials and fuels in the EU and other low-risk locations to avoid disruptions to the nuclear fuel supply chain and cover future requirements.

When building inventories, due care must be taken to determine the appropriate chemical-physical specifications and amounts, given the lead times in the fuel-cycle steps. Stocks should include fresh fuel in quantities that can respond to supply-chain delays or interruptions. National reserves or inventories of utilities dependent on non-EU designs and suppliers should also include a number of reloads to tide them over until alternative fuel is available in the event of fuel-supply interruptions.

While some EU Member States already have stockpiling requirements in place, Euratom would benefit from a common approach to strategic stockpiling for emergency situations, considering the financial and technical efforts involved.

Fuel and enriched uranium. Despite the 7.3% increase in the overall level of EU fresh fuel stocks in 2025, the total amount of enriched uranium in all chemical and physical forms (fuel, UO_2, UF_6) was unchanged compared with the end of the previous year. Notably, more than 60% of the inventory is held in the form of enriched uranium or fresh fuel.

Natural uranium. The EU's overall natural uranium inventory also increased by 7%. This expansion is being driven by uncertainty in the uranium supply market, fuelled by various geopolitical events. Holdings of natural uranium in the form of U_3O_8 increased by 36% in 2025 compared with the previous year, while the level of natural UO_2 and UF_6 decreased by 8% and 12%, respectively.

Utilities profile. All utilities have nuclear material in their inventory to cover between one and more than three reloads each, with the vast majority covered for more than two reloads. The sufficiency of the inventory level for a particular utility depends on its profile and risk factors. At least 94% of the nuclear materials and 100% of the fresh fabricated fuel held by utilities are physically located within the EU.

ESA considers that most utilities' inventories remained at a healthy level in 2025.

2.1.2. Demand

In 2025, the amount of fuel loaded into commercial reactors remained stable compared to the previous year.

Fuel loaded. In 2025, the total amount of fuel loaded into commercial reactors remained stable (1 795 tU) compared with the previous year. The total amount of natural uranium contained in the fuel loaded into reactors in 2025 was 11 729 tU.

Deliveries. EU utilities received 14 678 tU of uranium in 2025, purchasing almost 25% more material than they loaded into reactors.

Estimates of future reactor requirements remained largely unchanged from the previous year. In the first decade of

the analysis, estimates of gross requirements for uranium and enrichment services recorded an increase of around 1% and a decrease of around -1%, respectively, while for net requirements there was an increase of 2% and 12%, respectively.

Secondary sources (domestic sources of supply), such as MOX fuel, increased by 18% compared with 2024 and are expected to provide stable sources of nuclear fuel falling into the range of 700 t and 900 t of uranium equivalent over the entire period of analysis until 2045. Reprocessed uranium usage was much higher than in 2024, amounting to 463 tU (10 tU in 2024). It is expected to grow steadily before stabilising after 2028 at levels of 1 200-1 400 tU per year.

2.1.3. Supply diversification

Bundling supplies and/or relying on a single supplier at any stage of the nuclear fuel cycle hamper market functioning and transparency, lead to excessive dependence and make a utility vulnerable to adverse events.

Minimising dependence on individual countries, suppliers and locations
Diversification is key to securing future deliveries and to minimising dependence on individual suppliers. Ideally, the security of supply should encompass: • at least two different suppliers from like-minded countries, where possible at least one EU-based; • different suppliers at each stage of the fuel cycle, considering legal and economic ownership; • diverse geographical origin of supplies and physical location of nuclear materials; • alternative routes and modes of transport to minimise reliance on single transport routes or modes. In cooperation with the ESA, the Commission and national authorities should continue to jointly monitor the implementation of plans to diversify nuclear supplies, particularly VVER fuel and other dependencies across the fuel supply chain. The focus should be on taking action to eliminate any risks or threats to the timely completion of these plans.

The long-term security of supply relies on diversifying sources for utilities, preventing over-reliance on a single non-EU design or supplier and maintaining the competitiveness of EU industry throughout the fuel cycle. ESA has consistently advised utilities to secure their current and future needs by concluding multi-year contracts with a range of suppliers. The analysis shows a significant change in the supply landscape compared with 2024, changing the number of countries of origin of uranium. However, ongoing efforts to stockpile VVER fuel and the needs for reprocessing-related services have also contributed to the fluctuations in supply levels.

Uranium

Origin. The entire demand for fresh uranium in the EU is covered by imports from third countries and is therefore subject to geopolitical developments and related trade policy implications.

The geographical origin of natural uranium delivered to EU utilities remains diversified. The top four supplier countries in 2024 were Canada, Kazakhstan, Australia and Russia. In 2025, uranium from Uzbekistan became the fourth-largest source, followed by Australia and Namibia, with Namibian deliveries increasing almost fivefold year on year. The top six countries accounted for 98% of total supplies.

Increase diversification of uranium supplies
Given the absence of EU domestic uranium mining, the regional concentration of uranium origin and the fact that a number of utilities have a single non-EU supplier, the Agency stresses the need to source supplies from a wide range of jurisdictions and places of origin.

Deliveries are more widely spread than in previous years: in 2025, six big producing countries supplied more than 98% of the natural uranium delivered to the EU, whereas in previous years supplies were concentrated in only four supplier countries.

The concentration of supply from the CIS countries increased to 46.81% in 2025, up from 41.7% the year before, an increase of 11.65% by weight. At the same time, imports from the rest of the world increased by almost 4.32% compared with the previous year.

The increase in the concentration of supply from the CIS countries is largely due to supplies from Russia, which accounted for 15.98% of total uranium deliveries to EU utilities in 2025, an increase of 19.65% from the previous year. Deliveries from Africa amounted to 6.3%, down by 2.67% compared with 2024. If deliveries from Namibia are excluded, supplies from Africa accounted for just 0.4% of total supplies.

Utility procurement practices. In line with ESA's recommendation, 94% of natural uranium deliveries to the EU in 2025 were made under multi-year contracts, while 6% were purchased through spot contracts. A small number of utilities still rely on a single supplier for their natural uranium needs, which may increase their vulnerability to supply disruptions. ESA's recommendations to diversify supply sources and conclude multi-year contracts with multiple suppliers remain essential for ensuring long-term security of supply.

Conversion

Origin. In 2025, the EU uranium conversion market saw relatively stable supply. The French company Orano was the biggest supplier, delivering 3 292 tU, or 24.85% of the market share (an increase of 27.68% year on year). Russia (Rosatom) was the second largest supplier, increasing its deliveries by 8.60%, to 3 233 tU, accounting for 24.4% of the total market share. Converdyn (United States) dropped by 2.51% in the EU market share, providing 21.32% of the total conversion services delivered in 2025.

However, the analysis of uranium conversion trends is complicated by the fact that a significant proportion of the services reported is of unspecified origin. These services accounted for 8.36% (1 107 tU) of the total market, a 48.6% decrease from 2024.

Utility procurement practices. The proportion of conversion services provided as part of bundled contracts, which include purchases of natural UF_6, EUP and fresh fuel fabrication, accounted for 40% of all service deliveries to the EU. The remaining part was delivered under separate conversion contracts.

Enrichment

In 2025, EU enrichers increased their share to 72.91%, with 8 844 tSWU, from 63.9% with 6 654 tSWU in the previous year – an increase of 32.92%. The total quantity of separative work provided to EU utilities increased by 16.58%. Enrichment services provided by the Russian supplier increased by 11.61% year on year, whereas the services delivered from other sources decreased by 57.65%.

In 2025, the share of uranium enrichment provided by EU industry increased by 32.92% compared with 2024.

On average, utilities opted for a 4.05% enrichment assay, lower than in 2024 (4.19%). The contracted tails assay remained identical and amounted to 0.20%.

Fuel

Most EU utilities have access to at least two alternative fuel fabricators. Despite the progress made, dependence on a single design and supplier of fuel for the Russian-designed VVERs for some utilities remains a significant vulnerability for their security of supply.

Similar challenges exist for research reactors. Some have already transitioned to alternative European fuel designs.

Avoid dependence on a single non-EU fuel design
The utilities and research reactor operators that depend on a single non-EU supplier design for fuel assemblies, components and spare parts should continue developing and implementing actions that cover all aspects of the diversification process. Special attention should be paid to accelerating the development of alternative solutions for fuel designs and components, based on European intellectual property rights and a European supply chain. Cooperation between industry, operators and regulators is vital to reduce the time to design and market alternative VVER nuclear fuel, further improving the security of supply.

By the end of 2025, all VVER utilities had contracts in place for alternative fuel.

2.1.4. Prices

The ESA multiannual price decreased by 8% in 2025 and amounted to EUR 131.37 per kgU. The MAC-3 price increased by 7% and amounted to EUR 165.76 per kgU. The ESA spot price index was 28% higher than in 2024, amounting to EUR 168.92 per kgU. At the same time, the price indices of uranium originating in CIS countries were 13%, 24% and 23% lower, respectively, than the price for uranium of non-CIS origin.

On the global market, the average spot price of UxC natural uranium was down 14% and amounted to USD 72.94 per lb U_3O_8. The UxC average long-term natural uranium price was up almost 5% and amounted to USD 81.50 per lb U_3O_8.

The average price of conversion services was USD 69.83 per KgU in both the EU and North America. This was 3.2% and 3.4%, respectively, above the previous year's average price. Long-term prices also rose in 2025 compared with 2024: the UxC long-term average conversion price rose by 27.6% to almost USD 50.46 per KgU in the EU and by 29% (to USD 51.38 per kgU) in North America.

The UxC spot average enrichment price rose to USD 187.50 per kgSWU, an almost 9% increase year to year. The UxC long-term average enrichment price rose to USD 169.83 per kgSWU, a 6% increase.

2.1.5. Medical radioisotopes

ESA highlights ongoing foreign dependencies within the medical radioisotope supply chain, posing potential risks to the EU's leading position in the production of medical radioisotopes and the advancing of nuclear medicinal products and procedures. A key factor for the secure supply of medical radioisotopes is having nuclear materials for irradiation targets and research reactor fuel readily available. Presently, high-assay low-enriched uranium (HALEU) is not manufactured in the EU and must be imported from the US or Russia, with US supplies expected to last until 2035-2040 based on current estimates.

Advance alternative fuel for research reactors
Research reactor operators reliant on non-EU suppliers or fuel designs should advance their diversification activity. Efforts should be made to develop EU fuel design and domestic production capacities, which could be based on the Euratom coordinated research projects[6].

HALEU's significance has risen due to its role in fuelling some advanced reactors. In response, the US Department of Energy (DoE), through its HALEU Availability Program, is supporting various initiatives in favour of HALEU production methods, transport and deconversion. The UK is also investing in HALEU initiatives, including a GBP 196 million award to Urenco for a uranium enrichment facility at Capenhurst with an initial output of up to 27 tonnes of HALEU fuel per year and with the potential to double this.

The European Commission is making efforts to explore metallic HALEU supplies within the European Radioisotopes Valley Initiative (ERVI) under the SAMIRA action plan. Additionally, the Euratom research project 'Preparatory phase for a European production capability to secure a supply of HALEU fuel'[7], launched in 2024, aims to stimulate collaboration among stakeholders to achieve the necessary maturity for EU HALEU production capabilities. Despite retaining the technical expertise for uranium metallisation, this process has been inactive on an industrial scale in the EU for over a decade.

Address HALEU vulnerability
Clear political actions are essential at EU and Member State level to mitigate HALEU supply risks. Efforts must focus on achieving EU self-sufficiency through all possible avenues, including the ERVI initiative under SAMIRA. Consideration should be given to fostering EU production by capitalising on EU industry and technology, particularly in preserving metallisation knowledge. Efforts should be continued to develop transport packaging solutions and have them licensed across relevant markets.

A particular concern is the EU's **reliance on Russia for enriching stable isotopes.** These are critical for developing new medical radioisotopes, which in turn are essential for creating new cancer treatments. Enhancing the EU's enrichment capacity for source materials and stable isotopes requires significant investment and addressing the lack of domestic electromagnetic or suitable enrichment facilities. Building infrastructure for recycling costly enriched materials could reduce waste and enhance competitiveness. This calls for new, dedicated installations.

It is crucial to maintain and expand EU capabilities for stable isotope enrichment via centrifugation – potentially combined with other methods – and to bolster cyclotron-based radionuclide production.

Enhance the security of supply of source materials and stable isotopes
The EU, Member States, and industry should address security of supply and develop European strategic autonomy by: • diversifying supply sources; • recycling/reusing enriched materials; and • building EU capacity for source materials and stable isotopes enrichment.

6 Euratom research and training programme (europa.eu).

7 Preparatory phase for a European production capability to secure a supply of HALEU fuel, EU research programme.

Finally, **establishing a system to monitor supply and generate long-term forecasts** is vital for maintaining an uninterrupted flow of medical radioisotopes. This system should encompass a diverse range of radioisotopes and production techniques, drawing on the experience of the European Observatory on the Supply of Medical Radioisotopes, which tracks Molybdenum-99/Technetium-99m supply. Such a system would provide decision-makers and stakeholders with the necessary facts and insights to guide strategy, inform policy development and support investment decisions within the supply chain.

Develop a forecast and monitoring system
The EU, Member States, industry and nuclear medicine stakeholders should join forces to develop a forecast and monitoring system to oversee the security of supply for essential medical radioisotopes, underpinning the overall ERVI coordination.

2.2. Future outlook

2.2.1. Contractual coverage

Uranium. Under existing contracts, the supply of natural uranium is largely secured until 2030. Until 2032, coverage oscillates around 80% of requirements and then drops to 46% in 2033 and 36% in the last year of analysis. The uranium minimum contractual coverage rate follows a similar pattern, falling to 26% in 2034.

Conversion. A quantitative analysis of conversion services shows that EU utilities' net reactor requirements are well covered under existing contracts. The maximum contractual coverage rate is above 100% until 2030. The minimum contracted supply of conversion services is around or above 90% until 2030. It then hovers around 60% until 2033.

Enrichment services under the maximum contractual coverage rate are above 100% and are well secured until 2032. The rate then drops to 56% in 2033 and ends at 44% in 2034, which is the last year of analysis. The minimum contracted supply of enrichment services ranges between 111% in 2026 and approximately 80% until 2032, dropping to 42% in 2033. It ends at 34% in 2034.

Long-term contracting
Utilities should consider concluding multiannual contracts to cover most of their requirements for uranium and services. Long-term contracts add stability and predictability for the nuclear industry and electricity production. They help give a clear understanding of future demand and can foster industry investment in production capacity. To cover residual short-term requirements, given the lack of reliable supplies in this timeframe, utilities are recommended to consider concluding short-term or spot contracts, while being mindful of the potential risks. It is essential to conduct thorough due diligence to ascertain the economic and mining origins – and availability – of the materials in question. This approach enables early detection of vulnerabilities in the supply chain, allows for a more accurate assessment of risks associated with potentially unreliable sources and helps mitigate those risks.

2.2.2. Fuel cycle market

The global uranium conversion and enrichment markets remained under pressure in 2025 due to the expected growing nuclear energy demand and the shift away from Russian supply chains. Limited spare capacity and long lead times continued to make the fuel-cycle market vulnerable to supply shocks, despite expansion efforts in France, the UK and the US. Major developments included US initiatives to rebuild domestic fuel-cycle capabilities, Urenco and Orano capacity expansions, centrifuge refurbishment programmes, and increasing investment in advanced enrichment technologies and HALEU production to support small modular reactors (SMRs) and advanced reactors as well as research reactors.

At the same time, governments and industry intensified efforts and investments to strengthen secure domestic nuclear

fuel supply chains. Interest in HALEU and advanced reactor fuels increased significantly, particularly in the US and UK. Market prices for enrichment services continued their gradual upward trend, back to pre-Fukushima levels (adjusted for inflation), while conversion spot prices became more volatile after peaking at the end of 2024.

The ESA 2024 annual report[8] included a detailed overview of the outlook for conversion and enrichment services, which essentially remained unchanged.

Enable additional conversion and enrichment capacity
Long-term commitments by utilities are required to trigger investments that can enable increased conversion and enrichment capacity in the EU and/or OECD countries. Supply contracts concluded for longer than 10 years are possible with additional authorisations. In addition, political commitment is needed to trigger industry investment, particularly in enrichment and conversion capacities. Furthermore, action is needed to boost capacity in certain fuel-cycle technologies for reprocessing and uranium and plutonium recycling, and to tackle dependence. At the same time, industry should bear in mind that excessively high prices could incentivise users to explore other supply options, defer the signing of long-term contracts or optimise the size of their inventories.

2.2.3. Enable nuclear expansion and developments

Building on the increased focus on energy security and decarbonisation, there is renewed global emphasis on nuclear energy as a reliable, low-carbon source of electricity. This political momentum has strengthened the case for preserving existing nuclear capacity, extending reactor lifetimes, developing new large-scale projects and accelerating advanced nuclear technologies, including SMRs.

The International Atomic Energy Agency (IAEA), in its 2025 edition of Energy, Electricity and Nuclear Power Estimates for the Period up to 2050[9], highlighted a significant upward revision in projected nuclear capacity. In the high-case projection it estimated that by 2050 there would be a 2.5-fold increase in global nuclear electricity generation compared with 2024. Heads of State and government participating in the Nuclear Energy Summit in Brussels, Belgium, in March 2024, had already emphasized the importance of using nuclear energy to reconcile decarbonisation, industrial competitiveness and security of electricity supply in increasingly electrified economies[10].

Interest in nuclear energy is also growing within the European Union, including among Member States that had previously not relied on nuclear energy or had adopted nuclear phase-out policies. Countries opting for this energy source see nuclear energy as complementary to renewable sources in a decarbonised energy mix, contributing both to the transition to a decarbonised economy and to the security of electricity supply, particularly in a context marked by geopolitical tensions, industrial electrification and the need to reduce dependence on imported fossil fuels.

Several EU Member States have put forward initiatives to extend the operations of their power plants, to expand their capacity or to build new power plants. At the same time, growing interest in nuclear energy is also being fuelled by emerging technologies, notably small and advanced modular reactors, for which research, demonstration and early deployment efforts continued to progress in 2025. These technologies are seen as a possible contribution to more flexible and integrated energy systems, including through industrial heat applications, hydrogen production and regional power supply. However, the scope, timing and specific technologies ultimately deployed remain uncertain, and many projects still depend on licensing progress, supply-chain readiness and access to financing.

Further efforts are also required by interested Member States to maintain and develop reliable and diversified supply chains covering the existing needs and capable of supporting the expected growth in nuclear generation and new nuclear technologies. This includes front-end fuel-cycle capacities, engineering capability, skilled labour, financing

8 Euratom Supply Agency, Annual Report 2024 - Euratom Supply Agency, corrected edition, September 2025.

9 Energy, Electricity and Nuclear Power Estimates for the Period up to 2050, Vienna, printed in September 2025.

10 Declaration on nuclear energy, Nuclear Energy Summit, Brussels, 2024.

structures and industrial standards designed to reduce costs and dependence on any single external supplier.

A clear strategy needed

In alignment with national objectives for energy security and energy mix choices, Member States that opt for nuclear energy generation should foster a stable environment that enables utilities and industry to make informed strategic and operational decisions. To achieve this, they should clearly specify:

- national objectives: setting explicit national nuclear energy goals and targets in the energy mix;
- technology and fleet development: providing a clear roadmap for long-term operation, new builds and the development of new nuclear technologies, including investments and deployment strategies; and
- security of supply: specifying the conditions that nuclear utilities must meet to ensure a reliable and secure supply of energy.

This clarity will enable the nuclear industry to make informed decisions, driving investment, innovation and growth in the sector.

As the nuclear market expands, and as fuel-cycle services become more strategically important, it will become increasingly necessary to reduce dependence on uranium imports by increasing the use of domestic sources as much as possible and working towards a more circular nuclear economy based on recycling and a more efficient use of resources.

Increase indigenous sources of supply

Relevant Member States and market actors should:

- consider prospecting for and exploiting mineral deposits domestically, in a sustainable manner;
- consider the possibility of closing the nuclear fuel cycle, which may boost resource efficiency and reduce waste generation;
- pursue a diversified range of solutions to enable the production and use of alternative and recycled uranium and plutonium products; and
- invest in EU-based technologies such as reprocessing, uranium and plutonium recycling, and re-enrichment, including of depleted material (e.g. tails), as well as in advanced reactors, including fast-breeder and new-generation reactors.

Particular attention should be paid when developing new nuclear power plants based on non-EU designs. To avoid long-term strategic dependence on a single non-EU supplier, any such investment should be conditional on the possibility of diversifying fuel design and securing alternative fuel qualification pathways over time. This is increasingly important in a context where energy sovereignty, resilience and industrial autonomy are becoming central policy objectives alongside climate neutrality.

Diversify fuel design from the start

To ensure that these plants are not dependent exclusively on a single non-EU supplier of nuclear fuel, any such investment must be conditional on being able to diversify the fuel design.

3. Overview of EU developments[11]

[Please insert pictures #7, #8, #9, #10, #11, #12, #13 and #14 into the chapter]

3.1. Euratom

3.1.1. EU nuclear energy in the wider context of EU energy policy and geopolitical challenges

The European Commission's role in nuclear energy, as defined in the Euratom Treaty, is to ensure the safe use of nuclear energy for peaceful purposes in EU Member States that choose to use it. This involves continually improving nuclear safety, security and radiation protection. Within the EU's energy policy, the Commission views nuclear as a low-carbon source of energy, contributing to the long-term decarbonisation of the energy system in a safe, efficient and secure way. Nuclear energy, together with renewables, can provide baseload capacity for a balanced and resilient energy ecosystem while also reducing overall system costs. Therefore, the Commission remains committed to technological neutrality.

In 2025, the Commission continued its work to ensure that the Euratom legal framework on nuclear safety, radioactive waste management and radiation protection is correctly and effectively transposed and implemented in the EU Member States.

The Commission continued carrying out conformity checks under the Basic Safety Standards Directive (Council Directive 2013/59/Euratom). These checks are almost complete. The Commission also followed up the implementation of the amended Nuclear Safety Directive (Council Directive/2014/87/Euratom), focusing on implementation practices in selected areas of that Directive. In addition, the Commission supported European nuclear safety regulators in the second topical peer review on fire protection at nuclear installations, which was finalised with the publication of the summary report and 22 country review reports. The Commission also worked on its fifth report on implementing the Shipment Directive (Council Directive/2006/116/Euratom) and fourth report on implementing the Radioactive Waste Directive (Council Directive/2011/70/Euratom), which were being prepared for adoption in early 2026. A common evaluation of both directives was started in 2025.

In the context of Russia's ongoing war of aggression against Ukraine, the Commission continued to work closely with other stakeholders to monitor the situation in Ukraine's nuclear facilities, in particular the Zaporizhzhia nuclear power plant (ZNPP). The Commission continued to monitor and assess nuclear-related risks, and to ensure the EU's emergency preparedness and response in case of radiological/nuclear events. In 2025, significant progress was made in integrating Ukraine into the EU's system for exchanging urgent information in case of radiological emergencies (ECURIE). Additional radiation monitoring stations were also made available via the European Union Radiological Data Exchange Platform (EURDEP) to indicate the radiological situation in the Chornobyl Exclusion Zone. The Commission coordinated with Ukraine's Nuclear Safety Regulatory Authority (SNRIU) to actively support Ukraine at international level, notably at the International Review Meeting of the Joint Convention in Vienna in March 2025 and at the International Atomic Energy Agency (IAEA) General Conference in September 2025. The Commission involved the European Nuclear Safety Regulators Group (ENSREG) when receiving regular updates from SNRIU and supported ENSREG in launching a reflection on the national means available to prepare and maintain nuclear safety during an armed conflict. In all multilateral forums, the Commission countered numerous attempts by Russia to assert its ownership of the ZNPP and connect it to Russia's electricity grid. Commission services coordinated a common response to Russia's illegal reporting on Ukraine's ZNPP during the 8th Joint Convention Review Meeting and continued by coordinating Euratom's response at the upcoming Convention on Nuclear Safety (CNS) Review Meeting.

Given the geopolitical situation and heightened energy security risk, security of supply in the nuclear fuel cycle

11 The Euratom Supply Agency thanks the European Commission services and the Member State representatives for their contribution on which this chapter is based.

continued to be a key issue. The roadmap towards ending EU energy imports from Russia sets the EU's strategy to eliminate dependence on Russia for gas, oil and nuclear. The REPowerEU roadmap towards ending energy imports from Russia, presented in May 2025, encompassed nuclear fuel and uranium supplies, as well as spare parts for the nuclear industry. The Commission, together with ESA, continued advocating for the fuel diversification of VVERs away from Russia. In this context, the Commission and ESA held a series of discussions with uranium conversion and enrichment service providers and nuclear fuel manufacturers and continued to support the development and contracting of fuels for Russian-designed VVER reactors from alternative (non-Russian) suppliers. All EU utilities operating VVER reactors had signed alternative fuel supply contracts by end-2025.

The Commission made significant progress in the field of non-power applications of nuclear and radiation technology. The implementation of the Strategic Agenda for Medical Ionising Radiation Applications (SAMIRA) Action Plan continued. Under the security of supply strand of that plan, a feasibility study of the European Radioisotope Valley Initiative (ERVI) was completed and an ERVI Stakeholder Forum meeting was organised to discuss the need for further action with Member States, industry and other stakeholders.

In June 2025, the Commission published the 8th Nuclear illustrative Programme (PINC) for the opinion of the European Economic and Social Committee (EESC). The document provides an EU-wide and fact-based overview of nuclear development trends and investment needs until 2050, prepared in accordance with Article 40 of the Euratom Treaty. Following the EESC opinion adopted in early December, the final 8th PINC was prepared for adoption in early 2026.

Ten new investment projects in nuclear activities from across the EU were submitted to the Commission in accordance with Article 41 of the Euratom Treaty. The Commission assessed these notifications and prepared points of view on six investment projects.

The Commission advanced the implementation the European Industrial Alliance on Small Modular Reactors (SMRs), which held its second general assembly in September. The assembly brought together the 350 members of the Alliance, who endorsed its strategic action plan for 2025-2029. The plan identifies priority actions to help develop, demonstrate and deploy the first SMR projects in Europe in the 2030s. The Commission is developing an EU SMR strategy for adoption in early 2026. The strategy will outline the policy actions needed to accelerate the development and deployment of SMRs in Europe.

3.1.2. Radioactive waste management and nuclear decommissioning

Work continued to ensure that the Euratom legal framework on radioactive waste management is correctly and effectively transposed and implemented in the EU Member States.

Progress has been made on safely disposing of very-low-level and low-level waste in the EU, and significant progress has been made on constructing a deep geological repository (DGR) for spent fuel in Onkalo, Finland, where disposal operations are scheduled to start in 2026.

The third report on the implementation of the Radioactive Waste Directive was published in May 2024. In line with that report's conclusions, an evaluation of the Radioactive Waste and Shipment directives was initiated.

In 2025, the Nuclear Decommissioning Assistance Programmes (NDAPs) continued to reduce nuclear and radiation safety risks for the shut-down reactors concerned in Ignalina (Lithuania), Bohunice (Slovakia) and Kozloduy (Bulgaria). In Ignalina, the programme delivered key optioneering studies and conceptual designs for dismantling the reactor cores (first-of-a-kind challenge). Furthermore, the dismantling of both the top and bottom parts of the reactors progressed at a satisfactory pace. Substantial progress was also achieved in Bohunice, where operations to dismantle the reactors were completed and the works to demolish the reactor buildings started, representing the final stage of the programme. In Kozloduy, the dismantling of the main reactors' components progressed at a good pace and the national disposal facility for low- and intermediate-level waste was finalised and ready for the start of commissioning operations.

3.1.3. Emergency preparedness and response

The Commission ensured that the ECURIE system for exchanging urgent information in the event of a radiological emergency (including several tests and exercises) and the EU system for exchanging radiation monitoring data (EURDEP) were operational. In the context of improving the EU's nuclear emergency preparedness and response (EP&R) technical capacities, the Commission implemented a project to migrate the WebECURIE system to a high-availability cloud-based infrastructure. The Commission also continued working towards transferring WebECURIE to a corporate Commission-wide emergency and preparedness platform currently being developed.

3.1.4. External dimension

The Commission continued to engage in the international field. Besides interacting with international partners and like-minded countries in relation to Ukraine and the supply diversification efforts, the Commission continued to actively promote the highest levels of nuclear safety outside the EU.

A final peer review report for the Akkuyu nuclear power plant (NPP) was published in early 2025. This was based on a peer review assessment made by ENSREG experts to follow up on the comprehensive post-Fukushima nuclear safety assessment based on EU/ENSREG specifications (EU stress test) conducted in Türkiye. In November 2025, ENSREG, together with the Commission, conducted a follow-up peer review visit to Armenia to assess the progress made in implementing the recommendations of the EU stress test. ENSREG will issue a comprehensive progress report on the Armenian NPP in Metsamor.

In 2025, the Commission also continued to hold active negotiations on a separate agreement with the United Kingdom on Gibraltar as regards its civil nuclear cooperation chapter. It also held technical negotiations on revised Administrative Arrangements under the Euratom/USA Nuclear Cooperation Agreement.

3.1.5. ITER and fusion energy

In relation to the ITER project, the ITER Organization (IO) accelerated the ITER assembly works in 2025 and is now slightly ahead of schedule. Japan was elected to take over as chair of the ITER Council from January 2026, after the Euratom chairmanship finished in December 2025. Upon the proposal of Euratom, the ITER Council agreed on the principle of a baseline project split into phases, allowing better project control, and adopted the first phase until end-2028. In 2025, the Commission put forward a budget proposal for Euratom's participation in ITER in the next MFF.

As a result of the accelerated delivery of ITER, Fusion for Energy (F4E) is focusing on delivering the European in-kind contributions to the project on time. Anticipating higher pressure in coming years, the F4E governing board asked F4E to prepare a plan to optimise the use of available resources focused on the core activities (ITER, DONES and the Broader Approach). In addition, F4E is implementing a new organisational structure to improve performance. Preparations were ongoing during 2025 to allow Switzerland to rejoin F4E as of 2026.

3.1.6. Euratom safeguards

Euratom safeguards' is the legal and technical term which describes all elements of the nuclear material supervision system under the exclusive competence of the Euratom Community, established by the Euratom Treaty and operated by the Commission on behalf of the Community. The Directorate-General for Energy is the service within the Commission responsible for Euratom safeguards.

Euratom safeguards are implemented through verification activities ensuring that, in the EU, civil nuclear materials are not diverted from their intended peaceful use and that the Community complies with its safeguards obligations assumed under the relevant international agreements. For international suppliers of nuclear material to the EU, Euratom safeguards offer a guarantee that nuclear materials are being managed appropriately and used peacefully in the EU.

In 2025, 99.85% of the more than 550 000 tonnes of civil nuclear material in the EU was subject to both accountancy and on-site physical verifications. The Commission continued to work in close cooperation with the IAEA under the framework of the two multilateral safeguards agreements and their respective additional protocols.

The Euratom safeguards applied in the framework of the Euratom Treaty found no evidence to suggest that nuclear materials were diverted from their intended uses in the EU. The Euratom Community complied with its safeguards obligations assumed under multilateral safeguards agreements with the IAEA and under bilateral agreements with non-EU countries.

Finally, the legal framework applicable to nuclear safeguards at EU level was updated with the entry into force of Commission Regulation (Euratom) 2025/974 on the application of Euratom safeguards on 6 July 2025[12]. The Regulation was formally adopted by the Commission on 26 May 2025 following the Council approval of 18 February 2025.

12 Regulation 2025/974 updates and thus supersedes Commission Regulation (Euratom) No 302/2005 of 8 February 2005 on the application of Euratom safeguards.

3.1.7. European Commission research and innovation programmes

In 2025, actions led by the Commission under the Euratom research and training (R&T) programme played a key role in strengthening Europe's expertise in nuclear research and innovation. The programme supported Member States in maintaining the highest safety standards for both existing and future nuclear installations – critical for countries that include nuclear energy in their energy mix. Beyond the energy sector, Euratom-funded research also delivers tangible benefits to people in the EU through the broader application of ionising radiation, especially in nuclear medicine.

Following the Commission's proposal to extend the 2021-2025 Euratom R&T programme by two years, the Council adopted the Regulation[13] establishing the programme on 23 June 2025. With a budget of EUR 598 million, including JRC direct actions, the 2026-2027 programme will support fusion and fission research, reinforce nuclear safety, advance the EU's work on SMRs and strengthen Europe's nuclear expertise. Additional funding will provide targeted top-ups for the co-funded partnerships in the areas of fusion, waste management, radiation protection and nuclear materials (EUROfusion, EURAD-2, PIANOFORTE and CONNECT-NM).

Euratom-funded projects have made a significant contribution to developing high-assay low-enriched uranium (HALEU) fuels for research and test reactors, advancing research and laying the groundwork for future progress in this field. The achievements include substantial advances in uranium-molybdenum fuels and high-density uranium silicide fuels. These efforts have significantly increased fabrication expertise and deepened understanding of fuel performance for the fuel systems studied. While the ongoing EU-Qualify[14] and EU-Conversion[15] projects are generating the data needed for the fuel qualification of the selected fuel types, the PreP-HALEU[16] project represents a first step towards developing European capability to produce HALEU.

The Euratom project SECURE[17], concluded in September 2025, delivered valuable insights into the European supply chain for alpha- and beta-emitting medical radionuclides. SECURE made a significant contribution to strengthening the sustainability of medical isotope production and their safe use across Europe.

The APIS project[18], which ran until the end of 2025, successfully strengthened fuel supply security for Soviet-designed VVER reactors in the EU and Ukraine. It delivered the design and licensing of VVER-440 fuel, ensuring compliance with nuclear safety standards and restoring EU manufacturing capabilities. This demonstrates Europe's capacity to supply this fuel independently, reducing reliance on Russian sources and increasing energy security. The project's technical results support the safe long-term operation and lifetime extension of VVER reactors, strengthening the EU's autonomy in nuclear energy. In parallel, the ongoing SAVE[19] project continues efforts to diversify nuclear fuel supply for Soviet-designed VVER reactors in the EU and Ukraine.

In the field of radiation protection, the European partnership PIANOFORTE launched its third call[20] with the aim of strengthening the knowledge base and fostering innovation.

The European partnership EURAD-2[21] for radioactive waste management continued to support Member States in designing and implementing their national waste management programmes, as required by the Euratom Directive. EURAD-2 plays a strategic role in advancing knowledge management and facilitating knowledge transfer across Member States and generations.

In the field of nuclear materials, the European partnership CONNECT-NM launched its first call[22] to address key challenges in developing innovative materials.

Following a call for the European nuclear skills initiative, the project SKILLS4NUCLEAR[23] was launched in March 2025

13 Regulation - Euratom - 2025/1304. The programme is limited by the Treaty to five years. For this reason, it covered the years 2021-2025 and was extended in 2025 by two additional years to be aligned with the MFF 2021-2027.

14 EU-Qualify project.

15 EU-Conversion project.

16 PreP-HALEU project.

17 SECURE project.

18 APIS project.

19 SAVE project.

20 Call 2025 | The European Partnership for Radiation Protection Research.

21 European Partnership on Radioactive Waste Management EURAD-2.

22 Research projects – First Call – CONNECT-NM.

23 SKILLS4NUCLEAR project.

to develop a strategy for identifying and quantifying nuclear skills shortages across the EU.

The Euratom conference[24] FISA/EURADWASTE'25 on fission safety of reactor systems and radioactive waste management, organised by the Polish Presidency of the Council in cooperation with the Commission, was held on 12-16 May 2025 in Warsaw. FISA/EURADWASTE'25 highlighted the progress achieved and key results delivered by Euratom projects since 2022. The conferences also included discussions on the state of play of nuclear research, as well as on current challenges and future opportunities. In addition, the Nuclear Innovation Prize award ceremony took place during the event.

In the field of fusion research, the Fusion Expert Group (FEG), set up to assist the Commission in shaping the future EU Fusion Strategy, published an opinion paper[25]. The report underlines the need for regulatory harmonisation, strengthened international collaboration and an effective EU-level decision-making process to position fusion as a cornerstone of Europe's future energy system.

3.1.8. Activities of the European Commission's Joint Research Centre

In 2025, the JRC continued to implement its work programme covering a wide range of research activities in nuclear safety, security and safeguards, as well as in data radioactivity measurements and standardisation.

This led to the delivery of 107 scientific publications and several other technical outputs such as:

- 90 technical reports;
- 6 reference materials and reference measurements incorporated into international nuclear libraries;
- 4 technical systems aimed at reinforcing nuclear safeguards;
- 1 contribution to international standards.

In 2025, the JRC strongly contributed to nuclear education and training, thus supporting EU policy and strengthening Europe's nuclear expertise. 51 specialised training courses were delivered to 842 beneficiaries, including students, recent graduates, young professionals, national officials, technicians and experts from the EU, international organisations and third-country partners. More specifically, 26 courses on nuclear safeguards and nuclear security directly contributed to advancing the capabilities of 113 nuclear safeguards inspectors and 99 front-line officers, notably via the European Nuclear Security Training Centre (EUSECTRA).

Through the JRC Open Access programme, 69 users from European research organisations were able to access the 11 nuclear research facilities located in Karlsruhe (Germany), Geel (Belgium) and Petter (The Netherlands) to conduct strategic experimental research. This led to greater collaboration and capacity building.

The JRC also continued providing specific technical and scientific expertise to partner DGs to support policy implementation in the areas of nuclear safety, security and safeguards. For instance, under Article 41 of the Euratom Treaty, the JRC analysed eight nuclear projects communicated by EU Member States to the Commission. Under the Euratom Directive on nuclear safety, JRC experts contributed to the topical peer review on fire protection[26] at nuclear installations, coordinated by ENSREG. They also reviewed national reports and national programmes relating to the implementation of the Directive on the safe and responsible management of radioactive waste and spent fuel. JRC experts also supported the European Instrument for International Nuclear Safety Cooperation with preparing and following up projects in partner countries, across all relevant stages of the project lifecycle.

As for safeguards, the JRC continued supporting the Directorate-General for Energy in effectively implementing Euratom safeguards, by analysing samples taken by Euratom inspectors, conducting in-field measurements or providing operational support at the on-site laboratory (LSS) in La Hague (France). Finally, under the chemical, biological, radiological and nuclear (CBRN) Centres of Excellence (CoE) initiative led by the Service for Foreign Policy Instruments (FPI), the JRC provided significant technical assistance to partner countries, which contributed to building

24 FISA-EURADWASTE 2025.

25 FEG Opinion Paper.

26 European Nuclear Safety Regulators Group ENSREG, 2nd Topical Peer Review Summary Report 'Fire Protection', May 2025.

their national capacities against CBRN risks.

Some additional policy support outcomes include contributing to the 8th Nuclear Illustrative Programme (PINC)[27], published in June 2025, forecasting nuclear investment needs in Europe and drafting the inaugural Clean Energy Technology Observatory (CETO) report[28] on nuclear power in the EU.

Another concrete policy support action pertained to assessing radiological and nuclear risk and strengthening emergency preparedness in Ukraine. This included conducting a benchmarking exercise[29] with Ukrainian authorities. The JRC also continued informing the consecutive amendments of Regulation 833/2014[30] concerning restrictive measures targeting the Russian Federation.

In the area of nuclear medical applications, the JRC has been leading a study 'Anticipating the Surge: Limited Treatment Capacities May Challenge Access of Cancer Patients to Radioligand Therapy'. The study estimates the number of eligible patients in need of radioligand therapy (RLT) for cancer over the next 10 years – until 2035. The analysis is based on currently authorised therapies and clinical trials, at least in phase 2. It looks into applications at an earlier stage of the disease. It has been structured using incidence data and prevalence data combined for patients that reach a stage at which they would be eligible for RLT. This work is in collaboration with Novartis and the WifOR Institute.

JRC is regularly invited to take part in events organised by Members of the European Parliament, bringing data-driven science and knowledge to policy-makers:

- Europe's Shared Future in Radiopharmaceuticals: Lessons from Belgium and Next Steps for Policy Action;
- Strategic Autonomy and Health Systems Readiness (advancing RLT in Europe).

The JRC continued its partnerships for research on Ac-225 applications, both with the IAEA (CRP – Coordinated Research Project – on Production and Quality Control of Actinium-225)[31] and with countries beyond the EU like South Africa.

The next International Symposium of Targeted Alpha Therapy (TAT 13) will be held on 14-16 April 2026 in Rio de Janeiro, Brazil.

The JRC joined the Stakeholder and Advisory Board (SAB) of PIANOFORTE, and proposed subjects related to radiation protection in RLT (for patients and caregivers) in the framework of the PIANOFORTE strategic research and innovation agenda (SRIA).

PIANOFORTE is the European partnership for radiation protection research. It contributes to improving the protection of the public, workers, patients and the environment from environmental, occupational and medical exposure to ionising radiation.

The PIANOFORTE SAB is one of the three pillars for external stakeholder engagement in PIANOFORTE and contributes to the objective that the research and innovation activities of PIANOFORTE are to be better aligned with the values, needs and expectations of stakeholders and society.

3.2. Country-specific developments

Austria

The construction and operation of nuclear power installations in Austria continued to be prohibited under the Federal Constitutional Act for a Non-Nuclear Austria.

27 Communication from the Commission: Nuclear Illustrative Programme presented under Article 40 of the Euratom Treaty for the opinion of the European Economic and Social Committee. SWD(2025)160 final, June 2025.

28 CETO reports 2025.

29 Benchmarking exercise on the radiological consequence calculation due to a potential severe accident in Zaporizhzhia Nuclear Power Plant, Nuclear Engineering and Design, Volume 442, October 2025, 114268.

30 Council Regulation (EU) 2025/2033 of 23 October 2025 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine.

31 CRP – Coordinated Research Project: Production and Quality Control of Ac-225 Radiopharmaceuticals, IAEA.

Belgium

In February 2025, Belgium's newly formed coalition government announced a reversal of the country's long-standing nuclear phase-out policy. Amendments to the 2003 phase-out law were approved by the parliamentary energy committee in April, thereby removing the ban on building new nuclear facilities and allowing the operational lifetimes of existing reactors to be extended. The Commission approved State aid in February for the 10-year lifetime extensions of Doel 4 and Tihange 3, both of which had been scheduled to close under the previous phase-out programme. The extensions, which will see the units operate until 2035, were formalised in March through an agreement between the Belgian government and ENGIE, under which liability for nuclear waste was transferred to the State. Regulatory approval for the restart of Tihange 3 was granted by the Federal Agency for Nuclear Control (FANC) in July 2025, followed by approval for Doel 4 in October.

On 14 February, Doel 1, the country's oldest nuclear reactor (445 MWe), was officially retired after 50 years of operation. This was followed by the shutdown of Tihange 1 (962 MWe) in September and Doel 2 in December.

A declaration of intent was signed in July between Belgium's Energy Minister Mathieu Bihet and his French counterpart, Marc Ferracci, to increase collaboration between the two countries' nuclear industries. The agreement covers exchanging information and best practices, and promoting partnerships in areas such as lifetime extensions, new build projects and supply chain development. In November, during the World Nuclear Exhibition in Paris, the Belgian Nuclear Forum and Canada's Ontario Power Generation (OPG) signed a letter of intent to explore cooperation on nuclear new build projects in Belgium, including the potential deployment of SMRs. Additionally, the Nuclear Energy Study Center (SCK-CEN) signed a strategic cooperation agreement with Morocco's National Center for Energy, Science and Nuclear Technology (CNESTEN) to advance the peaceful use of nuclear energy through joint research, knowledge sharing and training initiatives.

The foundation stone for Belgium's first surface repository for low- and intermediate-level short-lived radioactive waste was laid at Dessel on 18 September. Operated by the National Agency for Radioactive Waste and Enriched Fissile Materials (ONDRAF/NIRAS), the facility is designed to receive waste for approximately 50 years before being sealed with natural and artificial layers.

Bulgaria

In 2025, the Bulgarian government approved a formal derogation from certain provisions of Council Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine. This exemption permits Kozloduy NPP to procure specific iron and steel products from Russia under existing maintenance and safety-related contracts, thereby ensuring the continued safe operation of its VVER Units 5 and 6.

In January, Ukraine's parliamentary energy committee approved a draft bill enabling the purchase of two unused VVER reactors from Bulgaria's Belene project for the completion of Units 3 and 4 of the Khmelnitsyi NPP. The Verkhovna Rada formally approved the purchase in February, and in March the corresponding law was signed by the Ukrainian President. The IAEA stated that it had commenced analytical work as part of its safety assessment for the potential use of these components. In April, the Bulgarian government announced that it would suspend the planned sale of two Belene VVER-1000 reactors to Ukraine. No final decision regarding the future of the project equipment had been taken by the Bulgarian Parliament by the end of the year.

In September, Bulgaria signed a joint statement with the United States to expand their intergovernmental agreement on civil nuclear cooperation, with a particular focus on modern nuclear technologies, including SMRs.

In February 2025, Kozloduy NPP – New Build EAD submitted a package of documents to the Bulgarian Nuclear Regulatory Agency (BNRA) with the aim of obtaining a Site Location Permit for a nuclear facility - a nuclear power unit at a nuclear power plant (Unit 8 at the Kozloduy NPP site). Following a thorough regulatory review on 27 October 2025, the Chairman of the Nuclear Regulatory Agency authorised the Company to carry out site selection activities, thereby initiating the permitting and licensing regime for Unit 8. Bulgaria plans to construct two Westinghouse AP1000 reactors, designated Kozloduy-7 and Kozloduy-8, with technology provided by Westinghouse Electric (US) and construction, delivery and commissioning managed by South Korea's Hyundai Engineering & Construction. A strategic partnership with US bank Citi to secure financing for the construction of Units 7 and 8 was established in July.The bank was appointed as the executive coordinator and lead arranger of export credit financing for the project.

Unit 5 at the Kozloduy NPP completed its first operational cycle in June 2025 using 43 Westinghouse RWFA fuel assemblies, which had been loaded into the reactor core in June 2024. An additional 42 assemblies were loaded in

May 2025. This transition from Russian-supplied fuel (TVEL) to Western fuel aligns with Bulgaria's nuclear diversification programme and follows long-term fuel supply contracts signed with Westinghouse for Unit 5 and Framatome for Unit 6 in December 2022.

Croatia

The Ministry of Economy set up a working group for nuclear energy in 2025 to prepare studies on potential locations for new nuclear build in the country and to develop a legislative framework for nuclear energy. The group comprises representatives from academia, the energy sector and government. Additionally, an initiative was launched to set up and expand educational programmes related to nuclear energy to ensure that knowledge and skills are available for the future nuclear programme.

In September, Croatia's Economy Minister stated that both conventional nuclear reactor designs and SMRs were under consideration for the country's future energy mix. Given Croatia's existing joint operation of the Krško NPP in Slovenia, the construction of a second unit at this site in partnership with Slovenia remains a viable option.

Cyprus

Cyprus currently operates two cyclotron units supplying radioisotopes to two medical centres. In 2025, authorisation was granted for a new medical cyclotron, which is planned to begin operation in 2026.

Czechia

The Czech Atomic Energy Act was amended as Act No 83/2025 Coll., which came into effect on 1 July 2025. The amendment aims to streamline licensing and regulatory processes for new nuclear projects. Additionally, the Czech government acquired an 80% stake in ČEZ subsidiary Elektrárna Dukovany II (EDU II), which is responsible for the Dukovany II new build project, while ČEZ retained a 20% share.

In June 2025, EDU II signed the final contract with Korea Hydro & Nuclear Power (KHNP) to construct two new nuclear units at the existing Dukovany NPP site, with an option for two additional units at the Temelín site. Preparations for SMR construction also continued in 2025, with ČEZ and other potential investors exploring opportunities in this area.

Denmark

In 2025, Denmark initiated a process to consider lifting its 40-year-old ban on nuclear power to improve national energy security. Industry groups formed the Danish Nuclear Power Alliance to promote nuclear energy, advocating for investments in NPPs, particularly SMRs.

In November, Copenhagen Atomics signed a cooperation agreement with US-based DeepGeo, to better understand the fuel needs of company's thorium molten salt reactor.

Estonia

In January 2025, the Estonian government adopted a new energy development plan, setting the objective of achieving a 100% clean energy portfolio by 2050. Nuclear energy was identified as an important component for reaching this target. The first public consultation was completed for the draft Nuclear Energy and Safety Act, which establishes the legal framework for nuclear energy in the country. The government aims to adopt the law in the first half of 2026, with entry into force planned for early 2027. Work continued on developing the regulatory framework, establishing an independent nuclear regulator, conducting site selection through a national spatial planning process and strengthening national competencies and workforce capacity. According to Estonia's approach, the State is to establish the legal and regulatory framework, while private investors will develop and operate NPPs.

In January 2025, the private company Fermi Energia submitted an application to the Ministry of Economic Affairs and Communications to initiate a national spatial planning process for an SMR NPP. The company plans to construct two BWRX-300 units with a total capacity of 600 MWe. In May, the government initiated this process through Government Order No 102. The public procurement process to select a consultant to prepare the spatial plan and conduct the strategic environmental impact assessment was completed, and the bids were under evaluation at the end of 2025.

The proposed NPP could provide around 30% of Estonia's electricity demand by 2035, replacing oil shale-based

generation and supporting the transition to a low-carbon energy system. Public support for nuclear energy remained strong. A survey conducted in December 2025 indicated that 61% of the population supported introducing nuclear energy in Estonia.

Finland

In 2025, nuclear energy production in Finland increased to 31.2 TWh, accounting for approximately 39.6% of the country's electricity production. The Olkiluoto 3 (OL3) NPP unit operated without interruption throughout the year. At Fortum's Loviisa NPP, alternative fuel continued to be introduced, with additional Westinghouse fuel loaded into Unit 2 in August. A significant portion of the fuel load at the Loviisa NPP is now of Western origin, ensuring a reliable alternative to Russian fuel supplies.

In March, Fortum concluded a feasibility study on new nuclear power in Finland and Sweden. The study highlighted that the economic viability of new nuclear projects depends on strong customer demand, strategic partnerships and a positive market outlook. Fortum is now focusing on developing its capabilities to ensure that nuclear power remains a viable long-term solution for the Nordics' growing energy needs.

SMRs became a focal point of Finland's nuclear energy discussion in 2025. Kuopion Energia Oy is planning to build a district heating reactor and is preparing to launch an environmental impact assessment (EIA) process for two potential sites near Kuopio in early 2026. Helen Ltd is planning district heat or combined heat and power (CHP) production using an SMR power plant in the Helsinki metropolitan area and is preparing to initiate EIA processes in the course of 2026 for three potential sites.

Steady Energy, a spin-off from the VTT Technical Research Centre of Finland, is developing a small reactor design specifically for district heating. The Finnish-designed LDR-50 district heating reactor is one of the primary options for both Helen's and Kuopion Energia's projects. In late 2025, Steady Energy began constructing a test facility in Helsinki. The test facility will feature a full-size model of the LDR-50 reactor module, although it will not contain nuclear fuel. Instead, water within the reactor loop will be heated by electrical resistance elements.

Construction of the world's first final repository for spent nuclear fuel was being finalised at the Olkiluoto site. The first operating licence application for the repository was submitted to the government for a decision, which is expected in the next couple of years. Preparations for the start of operations are ongoing.

The Finnish nuclear energy legislation and regulations are being reformed to account for changes in the operating environment, technological developments, changes in the energy market and the renewal of other national and international regulations. The new legislation and regulations are planned to come into force from the beginning of 2027.

France

At the start of 2025, France's Nuclear Safety Authority (Autorité de Sûreté Nucléaire, ASN) and the Radiation Protection Authority (Institut de Radioprotection et de Sûreté Nucléaire, IRSN) were merged into a single independent administrative authority, the Nuclear Safety and Radiation Protection Authority (Autorité de Sûreté Nucléaire et de Radioprotection, ASNR). This new body is responsible for overseeing civil nuclear activities on behalf of the French government.

In January, the National Commission for Public Debate (Commission Nationale du Débat Public, CNDP) initiated a public debate process on the construction of two EPR2 units (Units 6 and 7) at the Bugey NPP. The French nuclear energy industry organisation Gifen published the results of an opinion poll in January, which reflected strong public support for nuclear energy in France. Based on more than 1 100 responses, 75% of participants were in favour of using nuclear energy for electricity production.

On 31 January, Électricité de France (EDF) was authorised by the ASNR to increase the power level of Flamanville Unit 3 to 25% of its nominal capacity, marking a milestone in the reactor's start-up tests. On 8 November, EDF announced that Flamanville 3 had entered its final start-up phase after successful dynamic testing at 60% power. The reactor reached 80% power a few days later and, on 14 December, EDF announced that it had achieved 100% nuclear thermal power for the first time, generating 1 669 MWe (gross). This allowed EDF to conduct equipment testing, performance measurements and system verifications under normal operating conditions.

In February, the French Parliament formally adopted the government's budget for 2025, introducing a new framework

to replace the regulated access to historical nuclear electricity (Accès Régulé à l'Électricité Nucléaire Historique, ARENH) mechanism. The new system imposes a tax on nuclear fuel use when profits from NPPs exceed a set threshold.

French President Emmanuel Macron and Indian Prime Minister Narendra Modi signed a declaration of intent in February to enter into a partnership on advanced modular reactors (AMRs) and SMRs. In parallel, a memorandum of understanding between India's Department of Atomic Energy and France's Commissariat à l'Énergie Atomique et aux Énergies Alternatives (CEA) was renewed. This agreement covers cooperation with the Global Centre for Nuclear Energy Partnership in India and aims to promote international collaboration in nuclear energy research and development, as well as capacity building.

On 12 February, a nuclear fusion machine at the CEA site in Cadarache set a new record for plasma duration by maintaining plasma for more than 22 minutes.

In March, EDF began offering long-term nuclear production allocation contracts (Contrats d'Accès à la Production Nucléaire, CAPN) to companies outside France, providing a Europe-wide auction mechanism. These contracts are available to European companies with annual electricity needs exceeding 7 GWh and the capability to transmit power from France.

France signed a declaration of intent with Belgium for a 'new stage in nuclear energy cooperation' on 22 July. The agreement aims to strengthen exchanges between the two governments in key areas, including lifetime extensions, new builds and SMRs. They will also cooperate on research and innovation, supply chains, and training and skills.

Subsequently, in September, Gifen signed a cooperation agreement with the Belgian Nuclear Forum (BNF) to increase collaboration between the two countries' nuclear industries. The agreement covers improved exchange of information, experience and best practices, as well as promoting partnerships, between French and Belgian companies in the nuclear sector.

Orano secured a EUR 400 million loan from the European Investment Bank (EIB) for its ongoing uranium enrichment capacity expansion project at the Georges Besse II facility. The project will increase enrichment capacity by 30% by adding 2.5 million separative work units (SWU) through four new modules to the existing 14 cascades. Operations are scheduled to begin in 2028, with full capacity expected by 2030.

In May, the ASNR announced new procedures for publishing expert opinions, aiming to increase transparency by making the technical basis of its decisions available to the public on its website. Where regulatory drafts are open to public consultation, expert opinions will be accessible from the start of the consultation period.

France signed a treaty with Poland in May, which includes cooperating in the civil nuclear energy sector and joint activities aimed at leveraging the advantages of nuclear energy to help decarbonise European industry. The two countries also plan to collaborate on strengthening the security of nuclear fuel supply.

The ASNR issued its annual safety report for 2024 in May, stating that the safety level across the French nuclear sector was generally satisfactory. The report highlighted developments such as commissioning works at Flamanville 3 and SMR projects throughout the country.

The fourth China-France Energy Dialogue took place in Paris in May, focusing on advancing energy security and green transformation. The dialogue covered nuclear power, renewable energy, hydrogen, energy storage and green electricity certification, reflecting strong alignment between the two nations on clean energy priorities.

In June, the French SMR developer Newcleo initiated a public debate on two potential sites for future installations: Savigny-en-Véron / Beaumont-en-Véron for its industrial prototype LFR-AS-30, and Pont-sur-Seine / Marnay-sur-Seine for its LFR fuel factory. Newcleo also announced plans to build a manufacturing facility in the Aube department for recycled nuclear fuel to support its Generation IV lead-cooled fast reactors (LFRs). Operations at this facility are planned to commence in 2030.

The French government signed a new strategic contract with the country's nuclear industry in June. It outlined priorities until 2028 to implement President Macron's goal of constructing six EPR2 reactors.

In June, the presidents of France and Argentina announced plans to formalise a strategic alliance to boost collaboration on critical minerals and advance Argentina's nuclear energy programme.

Also in June, EDF and the French government reached a draft agreement to finance the country's nuclear revival programme, which includes constructing six new EPR2 reactors. The agreement provides for a subsidised State loan to cover at least half of the construction costs and a government-backed contract for difference (CfD) mechanism, capping the electricity price at EUR 100 per MWh. The agreement is subject to approval by the Commission.

The French government officially included nuclear energy in its sovereign green bond framework in 2025, allowing funds raised through French green bonds to support the lifetime extensions of existing reactors and new build projects. This revised framework aligns with the EU taxonomy.

In July, the ASNR authorised EDF to operate its 20 1 300 MWe pressurised water reactors (PWRs) beyond their initial 40-year lifetime, subject to extensive safety upgrades. The ASNR will issue reactor-specific safety prescriptions, and EDF will provide annual progress reports, which will be made available to the public.

The French Senate adopted an updated national energy programming bill in July, aiming to accelerate the country's energy transition. The legislation sets a target of at least 27 GWe of new nuclear capacity by 2050, including 14 EPR2 reactors and one SMR by 2030. It makes provision for up to six additional EPR2s depending on reindustrialisation needs. The bill emphasises maintaining a nuclear electricity mix of at least two thirds of France's total by 2030 and a majority share by 2050.

In December, the ASNR issued a favourable opinion on the national radioactive waste management agency Andra's licence application to construct the Cigéo DGR. The licence application had been submitted by Andra in January 2023, and the first waste is currently planned to be received in 2050.

In December, the governments of France and China issued a joint statement reaffirming nuclear energy as a clean, low-carbon baseload power source and a key solution to climate and energy security challenges. The statement highlighted fuel cycle security, equipment manufacturing and waste management as shared priorities, and committed to strengthening nuclear supply chain resilience.

The French government announced the publication of its multiannual energy programme (Programmation Pluriannuelle de l'Énergie, PPE) in December, setting the country's energy policy framework for the next decade. The PPE had been postponed to 2026.

Germany

At the end of 2025, an application for a conversion licence from highly enriched uranium (HEU) to low-enriched uranium (LEU) fuel for the FRM II research reactor in Munich was submitted to the licensing body, with the conversion planned for the early 2030s.

Eckert & Ziegler Radiopharma, in collaboration with the Nuclear Physics Institute of the Czech Academy of Sciences, began delivering Actinium-225 in small quantities in 2025, with increased production expected in 2026.

The radioactive waste resulting from reprocessing spent fuel elements from German NPPs in France was retransferred to Germany in 2024 as agreed. In 2025, seven containers of waste from the Sellafield reprocessing plant in the United Kingdom were retransferred to the storage facility at the shut-down Isar NPP. Retransferring the final seven containers of radioactive waste is expected to be completed in 2026.

All German NPPs have been granted licences for decommissioning and dismantling. Most of these plants no longer have any fuel elements on site.

The procedure to select a site for a DGR for high-level waste continued in 2025. Discussions were held with stakeholders regarding potentially accelerating the upcoming phases of the process. An amendment to the Site Selection Act is being prepared to optimise and expedite the procedure.

Hungary

In 2025, Hungary's Atomic Energy Act was amended to incorporate modern safety standards and allow new reactor technologies to be deployed. The amendments empower the Hungarian Atomic Energy Authority (HAEA) to issue guidance on meeting safety requirements and prepare the regulatory groundwork for SMRs.

In November, MVM signed a strategic agreement with Westinghouse for the supply of VVER-440 nuclear fuel to the Paks NPP starting from 2028. This agreement is supported by a broader nuclear energy cooperation framework with the United States, which includes collaborating on spent fuel storage technologies and SMRs.

Important milestones were reached in the construction of two new VVER-1200 reactors at Paks II in 2025. By the end of the year, over 30 auxiliary buildings had been completed or were under construction at the site, and major components such as reactor pressure vessels and steam generators were being produced in Russia and Western Europe. Although work was temporarily paused in early 2025 due to a pit wall issue, it resumed in June. The project remains on track, with grid connection targeted for the early 2030s.

Hungary advanced its engagement in SMR technologies through regulatory support and international cooperation. The Hungarian Parliament granted in-principle authorisation for the government to conclude SMR-related agreements with international partners. A high-level memorandum between the United States and Hungary signalled intent to cooperate in the civil nuclear sector, including on SMRs. Industry-level initiatives included a letter of intent between Hunatom and Synthos Green Energy regarding GE Hitachi's BWRX-300 SMR, a memorandum of understanding between MVM and Holtec International, and continued dialogue with the United Kingdom on SMR development.

Hungary continued to strengthen its nuclear human resource development through domestic education and international training programmes. Engineers from the Paks II project participated in full-scope reactor simulator training at Russia's Leningrad II NPP under a Rosatom-supported framework. Hungary also hosted an IAEA Integrated Nuclear Infrastructure Review (INIR) School in June 2025, reflecting its ongoing engagement in international knowledge exchange. Additionally, MVM Paks NPP successfully set up a university faculty in electrical engineering in the town of Paks.

Italy

Based on the results of the national platform for sustainable nuclear energy, the Council of Ministers granted preliminary approval in February to the draft delegation law on sustainable nuclear energy proposed by the Ministry of Environment and Energy Security (MASE). The draft, which aims to reintroduce nuclear power in Italy, including modular and advanced technologies, received a positive opinion in July from the State-Regions-Municipalities Unified Conference and was formally approved by the Council of Ministers on 2 October. Parliamentary examination of the draft law began in December.

Once approved by Parliament, the bill will empower the government to adopt a comprehensive legislative framework covering the entire nuclear fuel cycle under a new national programme on sustainable nuclear energy. This includes revising the national nuclear governance system and strengthening the regulatory body, the National Inspectorate for Nuclear Safety and Radiation Protection (ISIN). Following approval, the government will be delegated to adopt the relevant implementing legislative decrees within 12 months.

Regarding industrial developments and new build perspectives, Enel, Ansaldo Energia, and Leonardo created Nuclitalia (with ownership stakes of 51%, 39%, and 10%, respectively) to assess reactor technologies and related market opportunities. The company is initially focusing on water-cooled SMRs, then on AMRs, contributing to industrial positioning and strengthening the national supply chain.

In October, the nuclear research plan under the ENEA-MASE Programme Agreement was launched. Funded through Mission Innovation resources, the plan provides for new experimental facilities and modernising existing infrastructures for the qualification of reactor components and systems. It also includes programmes and cooperation initiatives with universities and research centres to further strengthen education, training and skills development. A significant share of the resources are dedicated to LFR technologies, supporting fuel cycle closure. This will contribute to improving long-term sustainability and more efficient use of resources.

Concerning the regulatory body, ISIN renewed and reinforced its cooperation agreement with the US Nuclear Regulatory Commission (NRC) to improve exchanges of knowledge and expertise in nuclear safety, safeguards, physical protection and radiation protection. ISIN also strengthened its inspection capacity by appointing new inspectors and setting up a dedicated organisational structure. Preparatory activities were launched for the IAEA Integrated Regulatory Review Service (IRRS) mission, which Italy is scheduled to host in late 2026.

National planning for radioactive waste management and the national repository project continued in line with domestic legislation and EU obligations. Concerning fuel cycle policy and international cooperation, Italy and France discussed amendments to the 2006 Intergovernmental Agreement on spent fuel reprocessing (the Lucca Agreement). In parallel,

Sogin and Orano Recyclage agreed in December on a term sheet to update their contractual arrangements in line with the revised agreement. The Additional Act to the Intergovernmental Lucca Agreement between Italy and France was signed on 2 February 2026.

Lithuania

The Ignalina NPP initiated a public consultation in June on different options for the design and construction of an interim storage facility. The facility is for radioactive waste from the upcoming decommissioning of the plant's reactors, which were permanently shut down in 2004 and 2009.

In 2025, the Environmental Impact Assessment (EIA) report on the cumulative environmental impact of the decommissioning of the Ignalina Nuclear Power Plant (INPP) was prepared and approved. The report evaluates the impact of the plant's decommissioning process on the environment and the population throughout the entire decommissioning period (until the planned final completion in 2049). The EIA report was made available for public review, and transboundary environmental impact assessment procedures were also initiated. In January 2026, a public presentation of the EIA report for the residents of the Republic of Latvia was held remotely.

In July, Ignalina NPP signed a memorandum of understanding with Italy - France-based Newcleo to evaluate whether Newcleo's LFR-AS-200 SMR would align with Lithuania's energy strategy and would address the management of legacy spent nuclear fuel. The collaboration includes feasibility studies for potential reactor sites, compatibility of Newcleo's SMR in a Lithuanian electricity grid powered mostly by renewables, supply of the fuel and spent fuel reprocessing, industrial applications such as hydrogen and ammonia production and many other aspects of the feasibility of the Newcleo reactor technology in Lithuania.

According to Lithuania's national energy independence strategy, electricity demand is projected to rise from 13 TWh in 2025 to 74 TWh by 2050. The Ministry of Energy considers SMRs as one of the possible solutions to meet climate, security and reliability goals. The Ministry of Energy and Ignalina NPP in cooperation with other Lithuanian institutions and SMR technology vendors conducting an analysis of the possibilities of using nuclear energy in Lithuania. As result of assessment of the SMRs technologies, a draft law on the construction of a new nuclear power plant could be submitted to the Seimas of the Republic of Lithuania around 2030, which would create the prerequisites for the implementation of new nuclear power projects, with the first reactor potentially operating by 2040.

At the end of 2024, a study was completed in which detailed implementation scenarios for the construction of a deep geological repository (hereinafter – DGR) in Lithuania, including their schedules, project cost, and other project aspects, were updated. The study was prepared by SKB International AB based on its experience in implementing the DGR project in Sweden and taking into account Lithuania's progress in implementing the DGR project. In early 2025, Ignalina Nuclear Power Plant, taking into account the DGR project cost calculated in the contractor's study and recommendations regarding uncertainties (applying the recommended minimum uncertainty margin), concluded that the estimated cost of the DGR project is EUR 7 billion.

Netherlands

The Dutch government maintained its ambitions for nuclear power, with plans to extend the operational lifetime of the Borssele NPP beyond 2033, accelerate the SMR programme and strengthen the national nuclear cluster. The construction of four new NPPs remains a government objective, supported by funding from the Climate Fund and collaboration with industry and research institutions. Nuclear energy is now fully integrated into the Topsector Energy programme, which promotes nuclear technology in research, innovation and education at vocational, applied science and university levels. The aim is to advance the national human capital and research and innovation agenda to support the growing nuclear sector.

In October, the government presented a strategy for SMRs, building on the previously published SMR programme. The strategy provides direction on spatial planning, integrating SMRs into energy infrastructure, dividing roles and responsibilities among stakeholders and supporting early feasibility studies of SMR initiatives. It also continues to strengthen the innovation ecosystem in the Netherlands to support the development of Generation IV reactor initiatives.

Previously, in 2024, the government decided to bring forward the decision on the location of the final disposal site for radioactive waste from 2100 to 2050. The aim is to develop a new participatory, step-by-step approach, including a timeline to be finalised by the end of 2027. The goal is to decide on the location and management of the final repository by 2050. The Dutch Physical Environment Consultative Council will initiate a consultation in 2026 on how to organise public participation in relation to the final repository.

EU approval was granted for Dutch government financing of the new PALLAS reactor. Progress continued on the construction of the reactor at the Petten site. From 1 January 2025, NRG PALLAS operated as a single legal entity and, from May, it operated as a State-owned company. Within this new structure, NRG PALLAS continues to focus on nuclear energy research, industry-supporting activities and developing medical isotopes.

Urenco is currently constructing Hal 8, which will add 750 tonnes of SWU capacity from 2027. In addition to Hal 8, Urenco Netherlands is investing in Hal 9, which will add a further 750 tonnes of SWU enrichment capacity. Urenco Netherlands is also investing in a new cascade for Urenco Isotopes.

Poland

In early January 2025, the Polish cabinet approved a draft bill allowing the State to fund the country's first NPP with PLN 60.2 billion (EUR 14.1 billion). The proposed funding schedule includes an initial instalment of PLN 4.6 billion in 2025, followed by allocations of PLN 11 billion in 2026, PLN 14 billion in 2027, PLN 13 billion in 2028, PLN 11 billion in 2029 and PLN 6.6 billion in 2030. The allocated funds are intended to cover 30% of the capitalisation of the State-owned company Polskie Elektrownie Jądrowe (PEJ), with the remaining 70% to be sourced from foreign loans. The law was signed by President Andrzej Duda in March.

In January, Poland and Canada signed a landmark agreement providing a legal framework for increased cooperation on nuclear power, enabling Canadian companies to support Poland's energy transition.

Westinghouse Electric Company and Bechtel held a Supplier Symposium in Kraków in February, bringing together representatives from 74 companies to explore opportunities in Poland's first nuclear power project. PEJ provided updates on the status of the AP1000 PWR construction project, while Westinghouse and Bechtel summarised the main equipment and service requirements.

Poland is considering four potential sites for its second NPP: Bełchatów and Konin in central Poland, Kozienice in eastern Poland and Polaniec in the southeast. A decision on the site is expected in 2026.

In April, PEJ and the Westinghouse-Bechtel consortium signed an engineering development agreement (EDA) for the planned three-unit Lubiatowo-Kopalino NPP. The agreement covers continued design and preparatory work at the site, including geological surveys and efforts to acquire the necessary regulatory approvals and permits to commence construction.

Poland signed a nuclear treaty with France in May, which includes provisions for cooperation in the civil nuclear sector and joint activities aimed at leveraging the advantages of nuclear energy for the decarbonisation of European industry. The two countries also plan to collaborate on strengthening the security of nuclear fuel supply.

Two government advisory bodies were formed in June: one focused on ensuring that domestic companies participate in constructing the first NPP, and the other examining the regulatory framework for strategic energy infrastructure to identify and propose changes to legal and administrative barriers. The government also announced that a Nuclear Competence Centre would be set up, which will serve as a national hub for education, training and certification in nuclear energy to address skills shortages and promote long-term domestic involvement in the sector.

In June, Poland's nuclear power programme (PPEJ) was updated, shifting from planning to implementation. The programme confirms that the planned 6-9 GW of nuclear capacity will be provided by two large-scale NPPs – one on the Baltic coast and the second likely in central Poland. The first nuclear station will be constructed at the Lubiatowo-Kopalino site in Pomerania using Westinghouse AP1000 reactor technology in partnership with the US-based company Bechtel, under an engineering, procurement and construction (EPC) consortium. Construction is scheduled to begin in 2028, with commercial operation expected to start between 2036 and 2038.

Poland notified the Commission in July of its investment plan to construct its first NPP at the Lubiatowo-Kopalino site in accordance with Article 41 of the Euratom Treaty. The Commission's opinion is a prerequisite for securing a construction licence from Poland's National Atomic Energy Agency (PAA). PEJ President Marek Woszczyk announced plans to submit a construction permit application in 2027.

In August, PEJ submitted the design documentation for the Westinghouse AP1000 NPP technology to the Office of Technical Inspection (UDT) for review and approval. Later that month, the Pomeranian Voivodeship issued a permit to PEJ to begin preparatory works at the Lubiatowo-Kopalino site, including staking and marking the site, fencing, vegetation removal, grading and levelling. The permit also allows PEJ to commence geodetic surveying. PEJ submitted

an application for the second phase of preparatory work to the Pomeranian Voivode in September.

The Maria research reactor was issued a new operating licence for an indefinite period in August. The licence application had been submitted to the PAA in 2024, but operation of the reactor was suspended when the previous licence expired in March due to delays in providing the clarifications and additional documentation requested. The new licence was issued following a lengthy analysis and evaluation of the documents submitted.

In August, Włocławek was selected to host Poland's first SMR after being shortlisted alongside five other candidate sites in 2023 for further geological surveys.

In November, the Ministry of Energy invited four reactor vendors – Westinghouse (US), EDF (France), AtkinsRéalis (Canada) and KHNP (South Korea) – to begin discussions for the country's second NPP. Initial discussions are scheduled to take place in 2026 and will advise the government on the preferred reactor technology.

On 9 December, the Commission approved Poland's request to finance its first commercial NPP with an estimated EUR 14.2 billion in public aid. The NPP will comprise three Westinghouse AP1000 reactors and is scheduled to begin operating in late 2030.

Romania

In 2025, Romania consolidated its position as a committed nuclear energy country in Europe, transitioning from planning to concrete implementation across its major nuclear projects. Against the backdrop of the revised national energy and climate plan (NECP) and renewed momentum for nuclear energy at EU level, Romania continued to promote nuclear energy as a strategic pillar for decarbonisation, energy security and competitiveness.

A central focus in 2025 was refurbishing Cernavodă Unit 1 (RTH U1), a strategic project aimed at securing an additional 30-year operating cycle and maintaining a stable, low-carbon baseload source beyond 2030. The project remained in its second phase, which is dedicated to securing full financing, procuring long-lead items and finalising all necessary permits and approvals. Romania advanced the pre-notification process with the Commission for individual State aid, including a CfD applicable over the entire post-refurbishment operating period (2030-2060), as well as State guarantees for loans. The authorities aim to submit the formal notification to the Commission's Directorate-General for Competition (DG COMP) so that a State aid decision can be adopted by spring 2027, in line with the outage schedule for 2027-2030. On 3 September, a groundbreaking ceremony at Cernavodă marked the political launch of the project's implementation phase in the presence of the President of Romania and members of the government.

The Cernavodă Units 3 and 4 project also progressed from preparatory work towards structuring its financing and State aid arrangements. Efforts in 2025 were dedicated to advancing the support scheme. They built on the engineering, procurement and construction management (EPCM) contract signed in November 2024 with an international consortium led by Fluor, and on the positive Euratom Article 41 opinion received in 2024. The support scheme combines State-guaranteed loans from export credit agencies, in-kind contributions from the Romanian State and a CfD mechanism to ensure revenue stability over the lifetime of the new units. Once commissioned around 2030-2031, Units 3 and 4 are expected to add over 1 400 MW of new nuclear capacity, increase Romania's annual electricity production by more than 11 TWh, avoid at least 10 million tonnes of CO_2 emissions per year and enable nuclear energy to cover more than 30% of national electricity demand. These parameters are fully integrated into the updated NECP modelling and underpin Romania's contribution to the EU's 2040 climate objectives and long-term decarbonisation pathway.

Romania's SMR project at Doicești, based on NuScale technology, recorded a landmark regulatory achievement in 2025. On 29 May, the US NRC approved the standard design of the 77 MWe NuScale module, the technology selected for the Doicești site. This decision supports the licensing process carried out jointly by Romania's National Commission for Nuclear Activities Control (CNCAN) and the NRC. In parallel, the project continued the second phase of front-end engineering and design (FEED 2) under a contract with the Fluor Corporation. This phase involves refining the technical scope, schedule and cost estimates, as well as preparing permitting and regulatory documentation.

In 2025, Romania transitioned from planning to construction for key strategic facilities. The Cernavodă Tritium Removal Facility (CTRF), the first of its kind in Europe and the third globally, entered its construction phase after an engineering, procurement and construction (EPC) contract was signed with KHNP. The CTRF is based on Romanian technology developed by the Institute for Cryogenics and Isotopic Technologies (ICSI) in Râmnicu Vâlcea. It will position Romania as a future supplier of tritium for fusion projects.

The medical isotope programme at Cernavodă advanced from a collaboration agreement signed in November 2024 to a formal agreement concluded between Societatea Națională Nuclearelectrica (SN Nuclearelectrica) and Framatome in October 2025. This agreement focuses on producing lutetium-177, a key isotope used in advanced oncological therapies.

At EU level, Romania played a leading role as co-coordinator of the Important Project of Common European Interest (IPCEI) strand on medical applications. A letter of support for an IPCEI in innovative nuclear technologies, including medical isotopes, was adopted at the High-Level IPCEI Forum in Brussels in April 2025. The Advanced Lead-cooled Fast Reactor Demonstrator (ALFRED) project also moved forward, with the FALCON partners setting up the EAGLES consortium to prepare for the commercial phase of a 350 MW lead-cooled reactor. This confirms Romania's role in developing Generation IV technologies.

Romania strengthened its human capital and international cooperation framework in the nuclear field during 2025. At national level, the National University Alliance for Nuclear Energy (ANUEN), launched in 2024 by 13 universities, continued to expand nuclear curricula and training programmes. These efforts complement initiatives at the E2 Center in Bucharest and initiatives under the US Foundational Infrastructure for Responsible Use of Small Modular Reactor Technology (FIRST) programme to support workforce development for SMRs.

Romania's message in European forums emphasises that decarbonisation will not be possible without nuclear energy and that a coherent framework for financing, skills and innovation is essential to deliver on the EU's climate and competitiveness goals.

The developments in 2025 confirm that Romania's nuclear programme is entering a decisive implementation phase. Progress on refurbishing Unit 1, the completion of Units 3 and 4, the Doicești SMR project, the CTRF and medical isotope projects – coupled with a strong focus on State aid frameworks, innovative financing and workforce development – positions Romania as a credible and proactive nuclear partner in Europe and globally. This contributes to a clean, secure and innovation-driven energy future.

Slovakia

Slovak utility SE commenced hot hydrostatic testing at Unit 4 of the Mochovce NPP in March as part of the pre-operational testing phase, which was preceded by successful cold hydrostatic testing.

In July, the European Bank for Reconstruction and Development announced that the two VVER-440 reactors at the Bohunice NPP had been successfully removed and dismantled, marking the end of the decommissioning project. The units had been closed in 2006 and 2008.

Slovakia took a step forward towards fuel diversification by contracting alternative suppliers to TVEL.

In August, SE signed a memorandum of understanding with Synthos Green Energy to explore the potential deployment of the BWRX-300 SMR in Slovakia.

In October, Slovakia finalised an intergovernmental agreement with the United States to construct a new nuclear reactor using Westinghouse Electric Company technology. The new unit will be built at the Jaslovské Bohunice site and is expected to have a generating capacity of 1 250 MWe.

Slovenia

In 2025, the spatial planning procedure continued for the new Krško NPP (JEK2). In early July, the initiative for the national spatial plan (DPN), prepared by the State-owned investor, was made public. This enabled the public and spatial planning authorities at State and municipal levels to issue guidelines for the project to satisfy to obtain siting approval. By the end of 2025, the analysis of the guidelines was completed, having addressed all comments from the public and institutions. The government of Slovenia is expected to adopt a decision to formally initiate the preparation of the spatial plan in the first quarter of 2026, thereby legally launching the procedure. The final investment decision is anticipated in 2028.

Construction continued on the repository for the permanent disposal of low- and intermediate-level radioactive waste (LILW) near the existing Krško NPP. This included excavating the silo and preparatory works for concreting the base slab and external walls.

Throughout 2025, the Agency for Radioactive Waste Management (ARAO) conducted long-term monitoring and maintenance of the closed Jazbec repository in accordance with the safety report. In May, the Boršt repository was formally transferred to ARAO, which subsequently commenced monitoring and maintenance activities. Both sites were formerly part of the uranium ore mines.

The University of Maribor initiated the process for international accreditation of a new undergraduate programme in nuclear engineering, to be organised in cooperation with the International Institute of Nuclear Energy (EI2EN). A targeted research project was also launched to develop a national human resources strategy in the field of nuclear energy.

Spain

In 2025, the ENUSA factory at Juzbado (Salamanca) manufactured 251 tonnes of uranium, of which 81 tonnes were for the Spanish market and 170 tonnes were exported to customers in France, Belgium and Finland. Exports accounted for 68% of total production.

There are no plans to build new NPPs in Spain, and the closure protocol agreed in 2019 between Enresa and the owners of Spanish NPPs remains in force. In the case of the Almaraz NPP, for which operations will cease definitively on 1 November 2027 (Unit I) and 31 October 2028 (Unit II), the owner has formally requested that the Ministry for Ecological Transition and the Demographic Challenge (MITECO) renew the operating licence for both units until 8 June 2030. This application is currently being processed and is awaiting the mandatory report from the Nuclear Safety Council (CSN).

While Spain is not participating in the development of SMR designs for its national territory, Spanish companies such as IDOM, Tecnatom-Westinghouse and EA are involved in the initial development of these designs.

There are no reprocessing facilities in Spain. In the case of the Vandellós I NPP, reprocessing was carried out in France by Orano, and the reprocessed and vitrified waste resulting from this process will be placed in a future temporary storage facility at the power station site.

In accordance with the provisions of Spain's seventh general radioactive waste plan, decentralised temporary storage facilities (DTSs) for spent fuel and high-level waste (HLW) are to be built at each NPP with spent fuel. The DTS at each plant will consist of an individualised temporary storage (ITS) facility plus a new complementary facility or additional measures to ensure recoverability at the container level.

For plants that do not have sufficient storage capacity for all the spent fuel they generate (Vandellós II, Ascó, Almaraz and Cofrentes), ITS facilities for 100% of needs (ITS-100) are being licensed. The implementation and assembly of the ITS-100s were authorised on the following dates:

Vandellós II: 11 November 2024

Ascó: 17 January 2025

Cofrentes: 10 February 2025

Almaraz: 17 March 2025

The waste inventory at the end of 2024 was 86 050 m³, with a total inventory projected to reach 296 800 m³ by 2071.

Spain participates in training, technical meetings and workshops organised by the IAEA and the Nuclear Energy Agency (NEA). For example, at the end of November 2025, the IAEA, together with MITECO, the CSN and Enresa, organised an international workshop in Madrid on decision-making and the roles of licensees and operators during the development of a PWR project.

The International Fusion Materials Irradiation Facility – DEMO-Oriented Neutron Source (IFMIF-DONES) project in Granada is a unique scientific infrastructure under development. It is designed to test and qualify materials for future fusion power plants.

Sweden

The Swedish government continued facilitating investments in new nuclear reactors in 2025. A government bill on a new financing model, involving State loans and predictable electricity prices, was approved by Parliament. Vattenfall proceeded with its plans to build 1.5 GW of capacity using SMR technology. These plans will be implemented by Vattenfall and energy-intensive industries through the newly created company Videberg Kraft, which has submitted an application in accordance with the new financing model.

The government presented a bill to remove current restrictions on the location of new nuclear plants. A public inquiry submitted proposals for efficient permitting procedures and differentiated fees. The Swedish Radiation Safety Authority (Strålsäkerhetsmyndigheten, SSM) presented its final report on strengthening the agency's capacity. During 2025, the SSM increased its staff by more than one third. The committee of inquiry reviewing current regulations and the organisation of the management and disposal of spent fuel from new reactors also presented its proposals to the government.

The government hosted a major Nordic-Baltic Investment Summit for government representatives, investors, vendors, power producers and energy-intensive industries to discuss opportunities for investing in new nuclear projects. The Swedish Trade and Invest Council was tasked with promoting Swedish supply chain actors. The Westinghouse fuel factory in Sweden continued to deliver VVER fuels to the EU and Ukraine and was involved in developing a domestic fuel assembly in Ukraine.

4. World market for nuclear fuels in 2025

[Please insert pictures #15, #16, #17 and #18 into the chapter]

According to the International Atomic Energy Agency (IAEA)[32], there were 413 operating reactors worldwide at the end of 2025, capable of generating 377.1 GWe of net electrical capacity. At the same time, 67 reactors were under construction, with a potential net capacity of 71.2 GWe. China was leading the ranks of new builders, with 33 reactors, followed by India with 6. In Europe, 1 reactor was under construction. In total, 3 new reactors were connected to the grid during the year: 1 in China, 1 in India and 1 in Russia, accounting for a net capacity of approximately 3 GWe. In contrast, 7 reactors were permanently shut down.

At the same time, as plans for new buildings progressed, the lifetimes of several existing power plants worldwide were extended, driven inter alia by economic factors and emissions reduction targets. Some examples are Constellation's Clinton unit 1 (USA), which extended operations for up to 60 years, Heysham 1 and Hartlepool (UK), cleared for operation until 2028, and Koeberg 2 in South Africa, authorised for a further 20 years of operation. Russia also extended the lifetime operation (LTO) for three reactors in 2025.

The Canadian Nuclear Safety Commission (CNSC) renewed the operating licence at the Darlington nuclear power plant for an additional 30 years after completion of the refurbishment of the 4 units.

In 2025, expectations of growth in the nuclear market continued to be high. These expectations were shaped by a group of high-impact developments that improved policy support, widened access to finance and strengthened the increasing global interest in nuclear power for both existing and new nuclear capacity, driven by an energy security and decarbonisation rationale.

The IAEA, in its Report on Energy, Electricity and Nuclear Power Estimates for the Period up to 2050[33], highlighted the significant increase in projections for nuclear electrical generating capacity. The report estimates an increase to 2.6 times the current capacity in the high case scenario. In this context, the EU has updated the Nuclear Illustrative

32 PRIS - Reactor status reports - In Operation & Suspended Operation - By Country

33 IAEA - Energy, Electricity and Nuclear Power Estimates for the Period up to 2050 (Vienna, September 2025).

Programme[34], a strategic policy document issued by the European Commission, highlighting the long-term investment needs in expanding nuclear capacity and consequent implications in the nuclear fuel cycle.

The role of nuclear energy was also reaffirmed in 2025 at the UN Climate Change Conference (COP30), where two new countries, Rwanda and Senegal, joined the global commitment to triple nuclear energy capacity by 2050, bringing to 33 the total number of countries that have endorsed this pledge.

In the United States, executive orders issued in 2025 to promote nuclear energy represented another relevant event for the market. The measures emphasised faster deployment, licensing reform, stronger domestic fuel and supply-chain capability, and the strategic value of nuclear generation for economic growth, defence needs and rising electricity consumption.

Furthermore, AI and data centres emerged as power demand drivers. During the year, nuclear energy was increasingly discussed not only as a decarbonisation tool, but also as a source of firm, round-the-clock power suited to digital infrastructure, with very high reliability requirements to power AI systems and hyperscale data centres. This trend was visible through prominent partnerships and joint project involving 'Big Tech' companies and nuclear developers.

An important development for the market came in June 2025, when the World Bank agreed to end its long-standing ban on financing nuclear energy projects and formalised cooperation with the IAEA.

In 2025, global interest in developing small modular reactors (SMRs) continued to increase. New commitments, progress in technologies, and investments will make the deployment of these reactors more tangible in the years to come. In the EU, the SMR Industrial Alliance has laid down its Strategic Action Plan (SAP)[35], aiming to facilitate the development of SMRs in Europe by the early 2030s.

In this atmosphere of renewed nuclear interest, some issues relating to the supply of nuclear fuel and services persist, driven by geopolitical instability, which is leading to continued uncertainty. Notably, the four years of Russia's war of aggression against Ukraine, and tensions in certain regions where uranium mines are present, have had a major impact on the nuclear fuel market, supply chain and related logistics.

In 2025, several European countries enacted policies to switch procurement of uranium and fuel cycle services from Russia to other partners, shifting demand towards suppliers from OECD countries. As a result, those countries saw an increase in their production, towards the limit of the current capacity of the supply chain.

4.1. Prices overview[36]

As in recent years, in 2025 the market faced pressure on prices due to increasing demand and uncertain supply situations. This led operators to restart mothballed facilities and extend the capacity of existing ones, for uranium mining as well as conversion and enrichment.

During the year, uranium prices fluctuated significantly. Average uranium spot prices in 2025 decreased by 14% compared with the average value for 2024, to USD 72.94 per pound of U3O8. However, the spot price of uranium increased by 13% during the year, to USD 81.40 in late December.

In contrast, the average spot price of conversion services amounted to USD 69.83 per kgU, a 3% increase compared with the average for 2024. The 2025 evolution of month-end prices followed a slight decreasing trend up to the end of the year, after two steps down at the beginning of the year, falling by 27% within the first quarter.

The same variations could be seen in the EU market as in the North American market, except for the long-term average conversion price, where there was a difference of 1.8%.

The average enrichment spot price in 2025, at USD 187.50 per kg SWU, increased by almost 9% compared with the average values for 2024. The trend remained flat up to September 2025, with a steady price of USD 185. It then rose

34 Nuclear Illustrative Programme (PINC) - COM(2026) 120 final - Brussels, 10.3.2026, after the opinion of the EESC.

35 Strategic Action Plan (SAP).

36 Based on UxC month-end prices.

in two steps, reaching USD 200 per kg SWU by the end of December, resulting in 8% growth.

Long-term yearly average prices in the uranium market rose slightly in 2025, by 5% compared with 2024, reaching USD 81.50 per pound of U3O8.

The long-term average conversion price increased to USD 51.38 per kgU in 2025, after averaging USD 40 in the previous year, resulting in a 30% rise.

Average long-term enrichment prices followed an upward trend in 2025, to USD 170 per kg SWU, a 6% increase compared with 2024. The average price increase during the year was still linear, amounting to a 4% rise.

4.2. Primary uranium supply

Growing global interest in nuclear energy, in both advanced and developing economies, is driving uranium's rise as a commodity of critical strategic value. Uranium's importance is expected to increase steadily in the coming years. The current and future stability of the global nuclear energy sector therefore depends heavily on secure access to large, easily extractable uranium reserves in politically stable and predictable countries. It is in this context that significant challenges are emerging.

In Kazakhstan, the world's largest supplier of primary uranium, amendments to the Subsoil and Subsoil Use Code, signed into law on 26 December 2025, have major implications for foreign uranium exploration and investment. Among other provisions, foreign companies' stakes in new uranium projects are now capped at 25%, down from the previous limit of 50%. This means that developing new projects in the country may be less economically attractive to foreign companies. Such changes to the regulatory framework are widely viewed as part of Kazakhstan's strategy to increase direct state control over its uranium sector.

Kazatomprom, the world's largest uranium producer, announced that its 2025 output would be higher than the previous year's. This was despite its earlier reduction of 2025 production guidance due to sulphuric acid shortages, as well as delays in development work and a short production suspension at JV Inkai in January 2025 to obtain the necessary state approvals. The increase in output resulted mainly from higher production at JV Budenovskoye. However, the company also announced a planned 10% cut in production for 2026.

The government of Canada committed to further developing the new nuclear projects in Saskatchewan, Alberta and Ontario. Uranium production restarted at McClean Lake mine in Saskatchewan using the 'surface access borehole resource extraction' (SABRE) mining method. The project is a joint venture between Orano Canada and Denison Mines.

Cameco lowered its 2025 uranium production due to delays in transitioning the McArthur River mine to new mining areas, particularly linked to development work and ground freezing challenges. Output was down, with strong performance at Cigar Lake mine only partially offsetting the shortfall.

Uzbekistan increased uranium production to about 7 000 tonnes in 2025, significantly exceeding earlier estimates, and reported total reserves of 139 000 tonnesOrano and Navoiyuran signed an agreement to accelerate industrial development of the South Djengeldi mine via Nurlikum Mining JV.

In 2025, the SOMAIR uranium mine in Niger, which had been the subject of ongoing legal disputes with Orano, was nationalised. The Niger authorities announced their intention to sell the extracted uranium on the international market. At the end of 2025, Niger signed an agreement with Russia to cooperate in uranium mining and eventually open new mines.

In this developing context, several producing countries continued to encourage new investments, restarting existing sites and increasing the mining of uranium.

In the US, uranium was included on the critical minerals list to address the risk posed by reliance on foreign sources, triggering renewed support for domestic source development. In the space of a few months, the Velvet-Wood uranium mine in Utah received clearance to restart production and expand an existing underground mine. Uranium Energy Corp produced its first drum of uranium concentrate since in-situ leach operations restarted at Christensen Ranch, Wyoming. Uranium production in the US in 2025 was boosted greatly by the Alta Mesa mine in Texas, which had resumed operations the previous year. The country increased its efforts to produce uranium directly from mining. Domestic US

production of uranium concentrate (U3O8) at the end of the 2025 was 980 t U3O8 increased by 219% compared with the 307 t U3O8 produced in 2024.

A new mining partnership was signed by Brazil and China, aiming to unlock the South American country's vast uranium reserves by leveraging Chinese technical know-how. China is already operating the largest domestic uranium mining project using highly enhanced in-house technology.

Noteworthy events also include developments in Western Australia, where the national mining association is pushing to lift the ban on uranium mining.

France's Orano signed an investment agreement with the Mongolian government to develop and operate the Zuuvch Ovoo ISR project, via the joint venture Badrakh Energy. The operator plans to start industrial production by 2030 and reach around 2,500 tonnes annually by 2034.

Also worthy of note is the Swedish parliament's vote to allow uranium mining in the country by lifting the ban previously in force. The Australian mineral company Aura Energy, which already owns the Häggån vanadium, potash and uranium project, will start exploitation in early 2026.

Australian-based Lotus Resources Ltd reopened the Kayelekera uranium mine in Malawi, producing its first drummed yellowcake in the summer and third quarter of 2025. Paladin Energy announced a sharp increase in production from the Langer Heinrich uranium mine in Namibia.

In 2025, even though many initiatives were still ongoing and had not yet produced consistent additional capacity, the total production of uranium worldwide reached ?? tonnes, x% more than in 2024, when it stood at 60 213 tonnes.

Table 6. Natural uranium production in 2025 (compared with 2024, in tonnes of uranium)

Region/country	Production in 2025	Share in 2025 (%)	Production in 2024	Share in 2024 (%)	Change 2024/2025 (%)
Kazakhstan	**25 839**		**23 270**	**38.6%**	
Canada			**14 309**	**23.8%**	
Namibia			**7 333**	**12.2%**	
Australia			**45 598**	**7.6%**	
Uzbekistan			**4 000**	**6.6%**	
Russia			**2 738**	**4.5%**	
China			**1 600**	**2.7%**	
Niger			**962**	**1.6%**	
Others			**655**	**1.1%**	
Ukraine			**288**	**0.5%**	
United States			**260**	**0.4%**	
South Africa			**200**	**0.3%**	

Total			**60 213**	**100.0%**	

Source: Data from the UxC weekly news specialised publications (due to rounding, the totals may not add up). Not all 2025 data were available at the date of publication of the report. Note: (*) estimate.

4.3. Secondary sources

Secondary uranium supply encompasses non-mining sources such as stockpiles, government reserves, tails re-enrichment, underfeeding, reprocessed uranium and plutonium, and down-blended materials. Unlike primary supply, it is less flexible and largely driven by strategic, political and technical constraints rather than purely commercial factors.

Predicting imbalances in the uranium market remains a challenge due to limited data on secondary sources. Nevertheless, most analysts[37] expect a faster depletion of secondary sources towards the end of the current decade, driven by rising enrichment demand and SWU prices, reduced underfeeding and growing physical uranium holdings by entities such as the Sprott Physical Uranium Trust.

A key feature of the 2025 market was the continued shift from surplus commercial inventories to strategic holdings, resulting in tighter accessible stocks. The IAEA's work on global secondary uranium supplies has consistently shown that these stocks are not a permanent commercial resource. The events of 2025 reinforced this interpretation, as more material was treated as strategic rather than being readily available to the market. Traditional market models often assumed that secondary inventories could be mobilised quickly in response to price increases. However, 2025 demonstrated that much of this material is either encumbered, sensitive to policy or already committed elsewhere, Producers' level of commitments prevented them to make short term delivery offers because their long term customers exercised high flexibilities and others, in North America, started building inventory and/or contracted new commitment as early as 2022 .

In the next decade, Uranium inventory drawdowns are unlikely to be sufficient to closer the structural supply gap resulting from global demand growth outpacing the development of new mining capacity. However, inventories may continue to play an important role in mitigating short-term market imbalances. At the same time, planned expansions of enrichment capacity, the development of new conversion projects and the entry of additional market participants are expected to contribute to a more balanced fuel cycle market, while gradually reducing exposure to Russian supplies.

In 2025, fuel reprocessing and nuclear material recycling were considered by a very limited number of utilities as a means to reduce dependence on mined uranium, but their contribution remained limited due to economic, infrastructural and plant availability constraints. In practice, they continued to play only a supporting role rather than providing meaningful market-wide relief.

4.4. Conversion

Uranium conversion is the process that turns uranium oxide concentrate into uranium hexafluoride, the form typically used for enrichment. In 2025, the market paid unusually close attention to conversion because of geopolitical fragmentation, the push for non-Russian supply chains and the emergence of new capacity projects in OECD countries.

The year also confirmed that conversion is structurally concentrated, with limited spare capacity and long lead times for developing new plants. Producing countries continued to take action to increase their capacity by expanding existing facilities, increasing output from existing plants and facing the long-term challenge: the expected expansion of nuclear energy.

Companies in the USA, France and Russia have expanded, increased or restarted conversion capacity in the last few years, aware that it could help ease market pressures. However, any new investments are likely to be effective only in the longer term. For this reason, the conversion market is vulnerable to possible supply shocks.

In 2025, the only US conversion facility in operation, the Metropolis Works plant, with a nominal capacity of 17 600 tU as UF6) per year, announced that it expected to produce more than 10 000 tU as UF6 in 2026, as anticipated in the

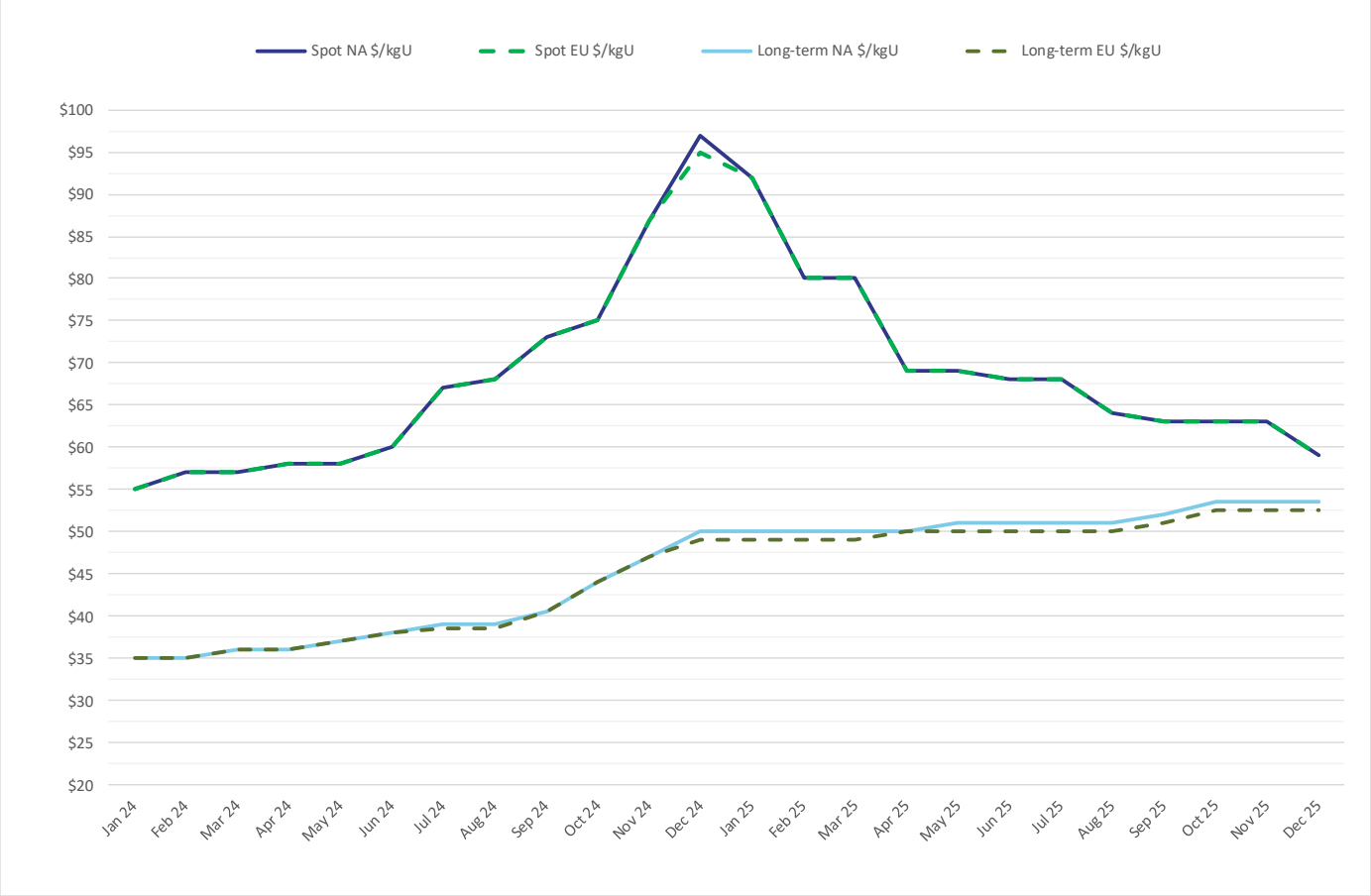
37 Supply of Uranium - World Nuclear Association; Recycling of Critical Minerals – IEA - December 2025

previous year's output expectations.

One of the most significant developments in 2025 was the push by US companies to expand domestic conversion capability. In September 2025, Uranium Energy Corp. launched Uranium Refining and Conversion Corp. (UR&C) to develop a new UF6 conversion facility, marking a significant step by the private sector towards expanding non-Russian supply-chain infrastructure.

On the price side, the uranium conversion market experienced a significant surge in spot prices in both the North American and EU markets up to the end of 2024. The beginning of 2025 saw a sudden inversion of the trend, and spot prices continued to decrease throughout the year. By contrast, there was a slow but steady increase in long-term prices for conversion services in Europe and North America.

Figure 14. Uranium conversion price trends (in USD) in Europe and North Africa



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This trend reflects uncertainties caused by tightened market conditions, geopolitical tensions and the decision by OECD countries to reduce their reliance on Russian supply capacity.

Table 7. Commercial UF6 conversion facilities

Company	Licensed capacity in 2024 (tU)	Share of global capacity
Orano* (France)	15 000	24%
CNNC** (China)	15 000	24%
Rosatom (Russia)	12 500	20%
Cameco (Canada)	12 500	20%
ConverDyn*** (United States)	7 000	11%
Total nameplate capacity	62 000	100%

Due to rounding, the totals may not add up. Source www.world-nuclear.org, and company websites

* Approximate capacity installed 10 500 tU

** Information on China's conversion capacity is estimated.

*** Activity restarted in 2023

4.5. Enrichment

Being proliferation-sensitive, enrichment technology is available only to a limited number of governments, who entrust it to an even smaller number of commercial operators.

Table 8. Commercial uranium enrichment facilities in operation

Company	Operational capacity in 2025 (tSW)	Share of global capacity
Rosatom (Russia)	27 100	44%
Urenco (UK/Germany/Netherlands/United States)	17 200	28%
Orano (France)	7 500	12%
CNNC (China)	10 000	16%
Others* (INB, JNFL)	400	1%
Total operational capacity	62 200	100%

Due to rounding, the totals may not add up.

Source: www.world-nuclear.org, WNA Nuclear Fuel Report 2025 and company websites.

* INB, Brazil; JNFL, Japan.

Increasing demand – also due to the shift towards non-Russian supply chains – is driving OECD enrichers to continue investing in additional production capacity. For example, as reported by Urenco in its annual report, 2025 saw not only a continued, stable upward trend in SWU market prices in line with recent years, but also countries demonstrating a growing commitment to nuclear energy to reach their decarbonisation targets and ensure independence and security. Governments are supporting this expansion, as they are aiming to develop a reliable domestic supply chain in the nuclear fuel cycle. The supply of enrichment services is part of this effort.

In addition to building a new centrifuge hall at its Amelo site, in 2025 Urenco started production in three new centrifuge

cascades at its Eunice plant in New Mexico, which will eventually reach an expanded capacity of 15% (i.e. an additional 700tSW per year).

Similarly, Orano, while continuing the extension works on its Georges Besse 2 plant, came a step closer towards building a new enrichment facility at Oak Ridge, Tennessee, after receiving federal funding in early 2026. The project, entitled IKE, is at the licensing stage.

There was increased interest in 2025 in SMRs and advanced modular reactors (AMRs), with their new fuel technology and design. There was also growing interest in higher assays of low-enriched uranium fuel (LEU+, HALEU), which has not been used until now in commercial nuclear fleets. Many advanced and small reactor designs are expected to require higher assays of low-enriched uranium fuel (LEU+, HALEU. The US Department of Energy (US DOE) estimates that domestic demand for high-assay low-enriched uranium (HALEU) could reach 50 metric tonnes per year by 2035, compared with a maximum of just 3.3 metric tonnes per year in the EU within the same timeframe. A part of the HALEU enrichment segment also consists of non-power applications, such as process heat production by new advanced reactors, and to a lesser extent research reactor fuelling.

Orano GB2 enrichment Facility is able to produce UF6 up to 6% a Safety case was submitted to the French Nuclear Safety and Radiation Protection Authority for production up to 8%. Urenco has started producing LEU+ product (up to 10% enrichment) at both its US and UK sites and is investing in the UK Advanced Fuels Facility at Capenhurst to produce HALEU (enrichment up to 19.75%), with the potential to produce up to 27 tonnes of this fuel in the coming years

This follows the development of new advanced technology.

The US, which in 2024 unlocked USD 2.72 billion in federal funding to rebuild the domestic nuclear supply chain, continued to expand enrichment capacity following an executive order signed in 2025. General Matter, one of the companies selected by the US DOE, plans to build an enrichment facility at the former Paducah Gaseous Diffusion Plant in Kentucky, while Centrus Energy has already committed to expanding the production of HALEU at its Piketon, Ohio site.

Closely related to the HALEU enrichment market, in July 2025 the UK Department for Energy Security & Net Zero launched the HALEU deconversion competition, which grants funding to support the development of a HALEU deconversion facility. In December, the UK company Nuclear Transport Solutions signed an agreement with Westinghouse to develop the Pegasus package to transport the future HALEU fuel.

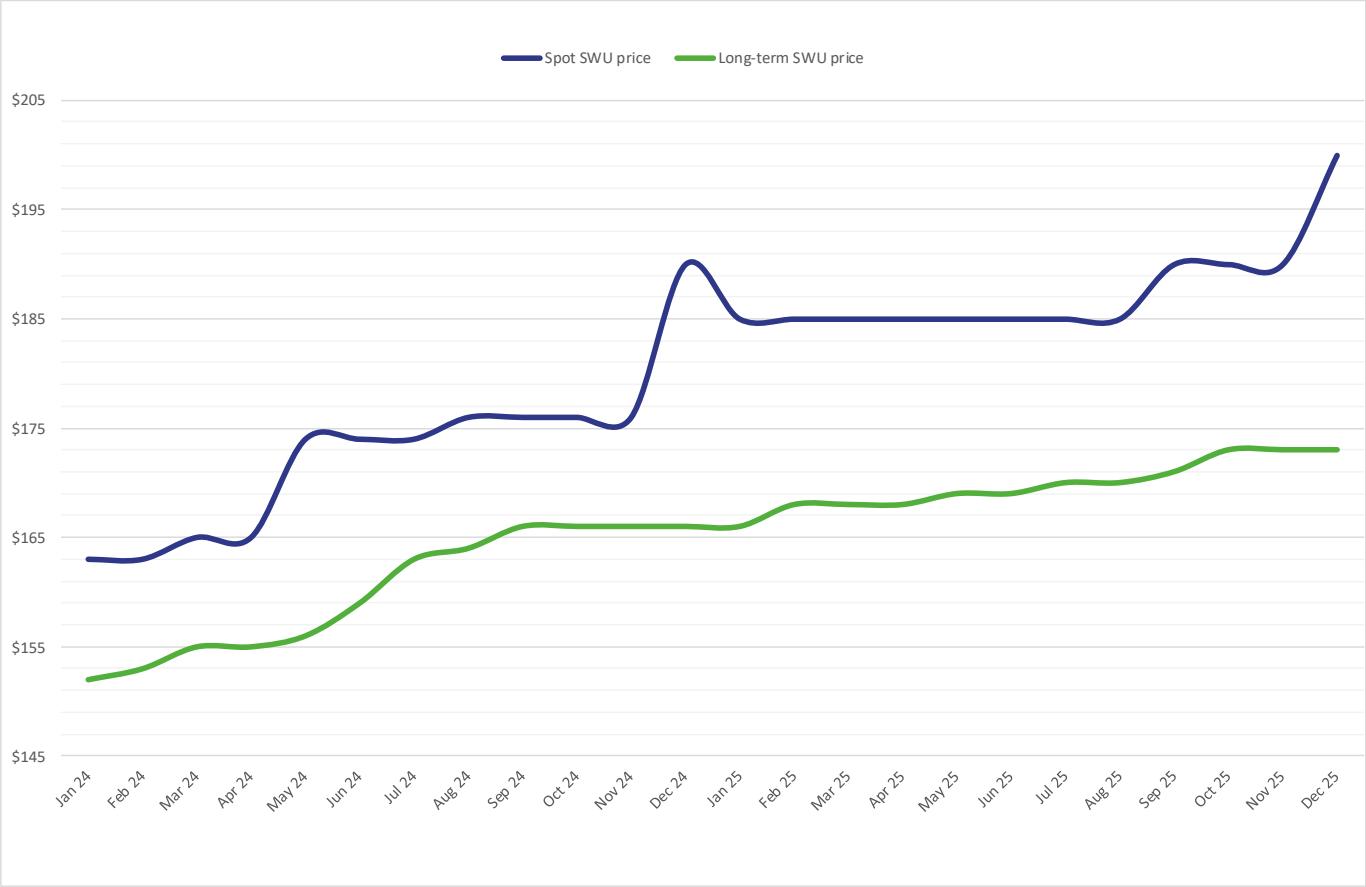
Expanding enrichment production, modernisation and technology improvements are also part of the strategy in Eastern Europe and Asia. This is especially the case in Russia, where in 2025 new-generation centrifuges were installed at the Zelenogorsk site and the Isotope Separation Plant of the Siberian Chemical Combine in Seversk. It is probably also the case in China, where the nuclear programme is developing quickly and domestic demand for new fuel requires consistent new enrichment capacity.

In September 2025, Global Laser Enrichment (GLE) announced that it had successfully completed a large-scale demonstration of its laser-based uranium enrichment technology, moving the separation of isotopes by laser excitation (SILEX) closer to commercial reality at its Paducah Laser Enrichment Facility. Meanwhile, LIS Technologies has announced its intention to build a laser enrichment plant at Oak Ridge.

Lastly, Urenco signed an agreement with Australian-based company Ubaryon to develop next-generation enrichment technology. Assessed by two independent technical reviews, Ubaryon technology is currently appraised at Technology Readiness Level 4.

Throughout 2025, the enrichment market saw a slow and stable increase in long-term prices, repeating the pattern of the previous year, but exceeding it by posting a rise for another consecutive year. The spot market price highlighted a more volatile tendency, reaching a peak at the end of 2024 and declining in the following months. The trend in 2025 was steady until the last quarter of the year, with a sudden increase that brought the spot price to almost USD 200.

Figure 15. Monthly spot and long-term SWU prices (in USD)



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4.6. Fuel fabrication

Unlike conversion or enrichment services, which mostly involve the chemical and physical transformation of uranium, fuel fabrication is a rigorous manufacturing service that requires preparing fuel assemblies to the exact design and technical specifications of the customer reactor unit. While some degree of competition is theoretically possible, vendor consolidation over the years has led to a high degree of concentration.

In some subsegments, such as fuel with hexagonal geometry, fuel using mixed oxides and fuel using reprocessed or blended uranium, competition is even more restricted. Nevertheless, driven by the need to reduce dependence on Russia and the commitment to develop domestic fuel cycle supply chains, this segment is also undergoing marked changes.

The main trends in 2025 for the fabrication segment are, in a nutshell: (i) the commitment by fuel manufacturers to upgrade their plants considering the coming growth in demand; (ii) the water-water energetic reactor (VVER) market in Eastern Europe shifting to alternative suppliers; (iii) the increasing effort to deploy accident tolerant fuels (ATFs), high burnup fuels (HBFs) and LEU+ fuel; and (iv) as already mentioned for the enrichment segment, the preparations for small, advanced and microreactors (SAMRs), where some designswill need new fuels based on the HALEU products.

Westinghouse continued manufacturing fuel alternatives for VVER reactors. After refuelling unit 2 of the Loviisa power plant in Finland with the first batch of its NOVA fuel, designed and produced for the VVER-440 reactor last year, the company signed a contract with ENUSA (Spain's nuclear operator) for this fuel production. In addition, Westinghouse delivered its VVER fuel to the Temelín and Dukovany nuclear power plants (NPPs) in Czechia.

It is worth noting that, at the end of 2024, Westinghouse and Bulgaria's Kozloduy Nuclear Power Plant signed a contract for safety analyses required for the licensing of an alternative nuclear fuel assembly design for Unit 6.

Ukrainian operator Energoatom announced it had received a licence from Westinghouse to produce components of its fuel assemblies, marking a further step forward in its plans to build a new facility to produce fuel assemblies, including those that will operate the planned new units 3 and 4 at Khmelnytsky NPP.

In 2025, Framatome produced the first fuel assemblies for the Emirates Nuclear Energy Company's Barakah NPP, under a supply agreement that will allow the UAE to diversify its supply chain. In parallel, the French company is developing its role in the new TRISO fuel market through a joint venture with Standard Nuclear for the future advanced fleet of SMRs after the US decided to rebuild its fuel supply chain. The TRISO fuel will be fabricated at the Richland plant in Washington. In line with the need for an alternative fuel supply for VVER reactors in the EU, Framatome continued working to establish its own design.

Westinghouse has produced LEU+ advanced doped pellet technology at the Columbia Fuel Fabrication Facility in Hopkins, South Carolina. This technology contains uranium enriched to levels of around 8% and loaded into the Vogtle 2 power plant reactor.

The Kazakh-Chinese joint venture Ulba-FA LLP, which produces nuclear fuel for Chinese NPPs, is now working at full capacity, producing fuel assemblies equivalent to 200 tonnes of low-enriched uranium.

Rosatom Corporation announced steps forward in its ongoing cycles of testing innovative uranium-plutonium REMIX fuel at the MIR research reactor, aiming to demonstrate the safety of MOX fuel for use in VVER-type reactors. Using a full load of MOX fuel could reduce the consumption of natural uranium by 50% compared with a standard fuel load.

MOX fuel is also required for the future operation of advanced reactors and, as mentioned in the previous chapter, the company Newcleo plans to build a MOX fabrication plant in France.

Oklo Inc.'s Aurora Fuel Fabrication Facility at Idaho National Laboratory received approval of its Nuclear Safety Design Agreement from the US DOE. The site will host the plant for fabricating fuel for Aurora's 'powerhouse' liquid metal-cooled fast reactor plant, which will be located at the same site. The fuel will be fabricated using HALEU.

Finally, interest in developing thorium-based fuels has been revived by their possible use in the Generation IV advanced reactors. Clean Core Thorium Energy received clearance from the US government to share the technology of its patented ANEEL thorium and HALEU fuel, under deployment at Idaho National Laboratory, with India, meaning significant collaboration with a country that owns huge thorium reserves.

The Chinese experimental TMSR-LF1 molten salt research reactor in Wuwei, Gansu Province, was the first Chinese reactor to utilise thorium fuel, obtaining the first successful conversionthorium-uraniumnuclear fuel.

4.7. Reprocessing and recycling

The back end of the nuclear fuel cycle is strictly related to recycling and reprocessing spent fuel. The front-end phases of the cycle are, however, also involved in the expansive push to improve and innovate, driven by growing demand for nuclear energy and the development of advanced technologies in reactor design.

Fuel reprocessing is the chemical separation of usable uranium and plutonium from spent nuclear fuel. Fuel recycling, on the other hand, refers to the reuse of recovered materials, most commonly in the form of MOX fuel or other refabricated products. These activities are often presented as ways to reduce waste volumes and improve resource utilisation, but they remain technically complex, capital intensive and policy dependent.

In 2025, the sector received renewed attention because governments and industry groups increasingly framed the back end of the fuel cycle as part of a broader nuclear expansion strategy against the background of the geopolitical situation, which has led countries to reduce their dependence on Russia. That said, actual large-scale commercial changes remained limited, and the year was defined more by strategic discussion than transformative industrial deployment.

The number of facilities capable of processing irradiated materials to separate all or part of the elements contained is small and expected to remain so worldwide. Like enrichment, reprocessing technology is sensitive from a proliferation perspective, which means that commercial operations in this segment are necessarily restricted.

In France, reprocessing capacity was determined mainly by the requirement to process domestic fuel, but spare capacity was sold via contracts to foreign fuel owners. The most established recycling pathway remained MOX fuel, which uses recovered plutonium mixed with uranium oxide.

Also worthy of note in 2025 were the continued cooperation between the Japanese Federation of Electric Power Companies (FEPC) and France's Orano to advance research on reprocessing MOX fuel; and China's progress in expanding its reprocessing capacity, aiming to realise a closed fuel cycle.

Other developments included the validation of Moltex's waste to stable salt (WATSS) process for converting used nuclear fuel into an asset (coupling WATSS with its molten salt reactor fuel in the Stable Salt Reactor – Wasteburner (SSR-W) significantly reduces nuclear waste volumes and produces new fuel for advanced reactors) and its pre-licensing consultation with the Canadian nuclear safety commission.

Oklo Inc. announced enhancements to the design, realisation and siting of a new facility at Oak Ridge, Tennessee to recycle conventional spent fuel for fast reactors like the Aurora powerhouse design.

The Russian state nuclear energy corporation Rosatom is carrying out a project to develop a closed fuel cycle. The Pilot Demonstration Energy Complex at the Mining and Chemical Combine facility is hosting the completion works for the lead-cooled BREST-OD-300 fast reactor, a module for the production (fabrication/refabrication) of dense uranium-plutonium nitride nuclear fuel, and a module for reprocessing irradiated fuel. The BREST-OD-300 reactor is scheduled to start operating in 2026.

4.8. Storage and repository of spent nuclear fuel

In 2025, as in previous years, several countries reaffirmed their support for the construction of deep geological repositories for the management and storage of spent fuel. Progress has been made in the design and realisation of the repositories. However, it is a huge challenge that requires time and resources, and for the moment many countries continue to rely on interim storage.

Projects in Finland, France, Sweden, Canada, Switzerland and elsewhere are advancing through varying combinations of licensing, construction and public consultation.

An important milestone in 2025 in this area was the start of construction of Sweden's final repository for spent fuel at Forsmark in January 2025. The Swedish Radiation Safety Authority (SSN) approved the safety report submitted by Svensk Kärnbränslehantering AB (SKB, radioactive waste management company), allowing groundworks to start in order to extend the final repository (Forsmark) to all levels of waste. Moreover, SKB signed a contract with the Swiss construction company Implenia to start work on a deep geological repository for Sweden's nuclear reactor fleet. The project is designed to hold roughly 6 000 copper canisters containing about 12 000 tonnes of spent fuel in repository tunnels at a depth of around 500 metres.

Finland's Radiation and Nuclear Safety Authority is completing the final stage of Posiva Oy's application for an operating licence for a deep geological repository for its used nuclear fuel. A first batch trial of five spent fuel canisters has been encapsulated and then stored at a depth of 430 metres. The Finnish company is now ready to start the trial phase of the underground storage facility.

Andra, the French waste management company, received approval from the Aube department to increase the authorised capacity of the Cires very-low-level radioactive waste disposal facility and received a favourable opinion from the French Nuclear Safety and Radiation Protection Authority to start the construction of the Cigéo deep geological repository in a natural layer of clay near Bure, to the east of Paris in the Meuse/Haute Marne area. The administrative process could take between three and five years.

Switzerland is in the final stage of site selection after Nagra (the national waste management cooperative) submitted an application to the Swiss Federal Office of Energy to construct a planned deep geological repository for radioactive waste and a used nuclear fuel encapsulation plant.

Finally, the Lithuanian state-owned enterprise Ignalina NPP launched a consultation on the construction of an interim waste storage facility for the decommissioning of its nuclear reactors.

Beyond Europe, there were further developments in Canada, where, after positive consultation with communities, Wabigoon Lake Ojibway Nation in Ontario and the township of Ignace were selected to host a proposed deep geological repository.

In line with a US Senate bill issued in October 2025 to expand nuclear fuel recycling, US-based SHINE Technologies (Wisconsin) selected deep isolation technology as the preferred solution for storing high-level waste, following its deployment of the technology for recycling used fuels.

5. Key achievements

[Please insert pictures #19, #20, #21, #22 and #23 into the chapter]

5.1. Legal status and mission

Legal status

The Euratom Supply Agency (ESA) was set up directly by Article 52 of the Euratom Treaty[38] to take responsibility for the common supply policy for ores, source materials and special fissile materials, which is intended to ensure the regular supply of the materials concerned to Euratom Community users. The policy is based on the principle of equal access to sources of supply for all Community users.

The Agency is endowed with legal personality, enabling it to make independent decisions on matters within its remit. It carries out its activities exclusively in the general interest[39]. It has its headquarters in Luxembourg[40]. It operates under the supervision of the European Commission[41].

ESA is assisted in its tasks by its Advisory Committee, which provides opinions, analyses and information. The Committee also acts as ESA's link with producers and users in the nuclear industry, as well as with Member State governments[42]. The Agency provides the Committee and its working groups with a secretariat and logistical support[43].

Mandate and objectives

As per the Treaty, ESA's strategic objective is the security of supply of nuclear materials, in particular nuclear fuel, for all civilian, both power and non-power, uses.

To this end, as it is responsible for the common supply policy, ESA has the exclusive right to conclude contracts for the supply of nuclear materials, whether those materials come from inside or outside the Community. Likewise, it has a right of option on nuclear materials produced in the Community[44]. ESA also monitors transactions pertaining to the provision of services in the nuclear fuel cycle, including by acknowledging the mandatory notifications by which market players give details of their commitments to the Agency[45].

As part of its Treaty missions, ESA is entrusted with a market observatory role to identify market trends that could affect

38 Treaty establishing the European Atomic Energy Community (consolidated version published in the Official Journal of the European Union C 203, 7.6.2016, p. 1).

39 Article 2(1) of ESA's Statutes.

40 Article 2(3) of ESA's Statutes.

41 Article 53 of the Euratom Treaty; Article 5 of ESA's Statutes.

42 Article 13 of ESA's Statutes.

43 Article 14(6) of ESA's Statutes.

44 Article 52 of the Euratom Treaty.

45 Article 75 of the Euratom Treaty.

the security of the EU's supply of nuclear materials and services[46]. This mission extends to aspects of supplying medical radioisotopes in the EU in the light of the Council Conclusions on this issue[47].

In line with its statutory mission, powers and responsibilities, ESA is further assigned the task of providing the Community with expertise, information and advice on any subject connected with the operation of the market in nuclear materials and services[48].

Activities of the Agency's Advisory Committee

The first ESA Advisory Committee meeting of the year took place in person on 3 and 4 June 2025 in Luxembourg.

In the general context of an increasingly complex security of supply landscape, the Committee discussed the crucial topic of nuclear material and fuel supply security, also in the light of the recent Commission 'Roadmap on ending Russian energy imports'[49] and the REPowerEU action plan. Another issue the Committee reviewed was the security of supply for small modular reactors (SMRs) and advanced modular reactors (AMRs). It specifically looked at the work undertaken by the European Industrial Alliance on Small Modular Reactors and agreed on the future ESA and Committee activities on this matter.

The Committee also reviewed and provided feedback on ESA's draft 2024 Annual Report, gave its positive opinion on ESA's 2024 Annual Activity Report and delivered a favourable opinion on ESA's 2024 Annual Accounts, including the financial and budgetary statements.

Finally, the Committee elected two new vice-chairpersons for the remainder of the current mandate (until May 2026) to replace the former ones, who changed roles in their organisations.

A further Advisory Committee meeting took place in hybrid mode on 18 and 19 November 2025.

In a follow-up to the REPowerEU Roadmap discussion, the Committee discussed the short- and long-term security of supply of nuclear materials. Based on a presentation by the chairperson of the Joint NEA/IAEA Group on Uranium, the Committee discussed the situation of uranium mining in Europe.

The Committee gave a favourable opinion on ESA's 2026 work programme and the draft estimate 2027 budget, together with ESA's 2027 draft establishment plan.

Both meetings included a report on the progress made by the Advisory Committee working group on prices and security of supply and were concluded by a roundtable on nuclear development in the Member States.

5.2. Principal activities

5.2.1. Contract management

The incoming files registered in connection with requests under Chapter 6 of Title II of the Euratom Treaty and related secondary legislation continue to represent a significant fraction (over 75%) of ESA workload linked to the supply, processing, conversion, shaping, transfer, import or export of ores, source materials or special fissile materials.

In 2025, 266 transactions were processed, including in the form of contracts, amendments and notifications, a 2.7% increase compared to the previous year. Handling these transactions represented a high workload for the small contract team, particularly for files requiring in-depth investigations, reviews and follow-up.

Contracts pertaining to the supply of nuclear materials, under Article 52(2) of the Treaty, must be concluded (i.e. signed) by ESA to be valid. Unless the Agency establishes that the regular supply of nuclear materials to users is endangered

46 Article 1 of ESA's Statutes.

47 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; 17453/12, ATO 169/ SAN 321, 7 December 2012 and 11293/24 ATO 48/RECH 317/SAN 384 17 June 2024. See also the European and Social Committee opinion EESC-2024-00265-AS, 16 May 2024.

48 Article 1 of ESA's Statutes.

49 Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions 'Roadmap towards ending Russian energy imports', COM(2025) 440 final/2, 12.5.2025.

and has an appropriate decision published in the Official Journal of the European Union[50], these contracts are processed according to the 'simplified procedure'[51]. Under that procedure, users are authorised to invite tenders directly from producers, intermediaries or other users of their choice, and to negotiate the supply contract freely.

As more Member States embark on nuclear energy use and new nuclear technologies, such as SMRs and AMRs, new players have entered the market. These new stakeholders, unfamiliar with the Agency's requirements and procedures, need a higher degree of support, counselling and guidance. ESA has raised awareness among these stakeholders on its security of supply policies and recommendations, as well as on users' obligations under the chapter of the Euratom Treaty on supply. It has also provided assistance to the stakeholders, guiding them through the relevant procedures, thus ensuring a smooth transition and minimising potential disruptions to the supply chain.

In addition, the contract team organised, at the beginning of the year, an online training session. It provided an opportunity to clarify reporting requirements and issues related to submitting supply contracts and notifications for those preparing submissions to the Agency in EU nuclear utilities, production companies and other concerned companies.

The Agency has increasingly been faced with submissions of more complex contracts that demand exhaustive, more in-depth analysis to address possible security of supply risks for the Agency and the Euratom Community as a whole.

Type of contract (*)	2025	2024
Natural uranium (**)	90	64
Purchase/sale by EU utilities/end users	***40***	***25***
Multiannual	16	12
Spot	24	13
Purchase/sale between EU producers/intermediaries	***41***	***8***
Multiannual	6	0
Spot	35	8
Exchanges and loans	***0***	***0***
Contract amendments	***9***	***31***
Special fissile materials	34	41
New contracts	***24***	***21***
Purchase by an EU utility/end user	18	12
Sale by an EU utility/end user	6	5
Purchase/sale between two EU utilities/end users	0	0
Purchase/sale other	0	2
Exchanges/loans	0	2

50 Article 12 of the Rules of the Agency. Should the regular supply of nuclear materials be endangered, the 'centralised procedure' (as opposed to the 'simplified procedure') may apply.

51 Article 11 of the Rules of the Agency. The simplified procedure applies by default.

Contract amendments	***10***	***20***
Conversion notifications (***)	***16***	***16***
New notifications	***11***	***14***
Notification amendments	***5***	***2***
Enrichment notifications (***)	31	38
New notifications	***30***	***28***
Notifications of amendments	***1***	***10***
Other services	***84***	***88***
New notifications	***64***	***78***
Notification amendments	***20***	***10***

The number of cases falling under Article 52 of the Treaty (approximately 5 in 10), as well as those falling under Article 75, follows roughly the same trend as in recent years, with an increase in the number of natural uranium transactions offsetting the decrease in the number of those involving fissile materials. The remaining proportion of cases registered, including notification cases relating, inter alia, to Article 74, remains low (approximately 1 in 10)[52].

(*) Transactions for small quantities (as under Article 74 of the Euratom Treaty) and information communicated on any contracts other than supply contracts are not included.

(**) Including feed contained in enriched uranium product (EUP) purchases.

(***) Contracts with primary converters and enrichers only, respectively.

5.2.2. Security and diversification of the nuclear fuel supply chain

ESA is instrumental in guaranteeing a stable and equitable supply of nuclear fuels and ores to all Euratom Member State users, whilst minimising dependence on individual third-country suppliers. In accordance with the Euratom Treaty and in line with the common supply policy, it furthers the diversification of supply sources. This not only boosts the security of supply in the medium and long term but also helps the European nuclear industry to become more sustainable. To achieve this, ESA closely monitors market trends and developments that may impact the supply of nuclear materials and services, issuing recommendations and proposing measures to mitigate potential risks. By collaborating with its Advisory Committee, industry stakeholders, and market players, the Agency has continued to work towards its strategic objective of ensuring a diversified and secure supply of nuclear fuels for both power and non-power applications. This aligns with the Commission's policies and priorities.

Security of supply of nuclear materials for power uses

In 2025, the Agency continued to advise users to prioritise long-term commitments, particularly for securely sourced conversion and enrichment services, and to minimise exposure to high-risk providers or unreliable supply chains.

ESA's efforts to diversify suppliers and supplies are critical to reducing dependence on any single non-EU design, supplier or region. It encourages the creation of strategic inventories of nuclear supplies, which can help to mitigate potential disruption to the supply chain.

In 2025, ESA continued to follow up on the short- to long-term challenges related to the security of supply of nuclear materials and fuel, both from an economic perspective and in terms of inventory robustness. It paid particular attention to contractual transactions that appeared vulnerable to geopolitical risks, notably because of the place of economic or geographical origin of supplies. As a result, ESA had to engage in an increased number of negotiations on specific

52 Because files earmarked with reference to Article 52 may also involve notifications flagged pursuant to Article 75, and because some dossiers may relate to multiple transactions, the above-mentioned numbers need not add up.

contractual conditions to strengthen the EU's security of supply.

The Agency continued to emphasise the importance of diversifying suppliers and supplies, particularly for water-water energetic reactors (VVERs). Progress was noticeable as a second supplier entered the market, which contributed towards a more balanced and competitive market and the goal of creating a multipolar market , reducing dependencies on single suppliers and addressing concerns about distorting pricing practices.

In collaboration with the Commission, the Agency worked towards achieving the objectives of the REPowerEU Plan. That plan stresses the importance of diversification options also for Member States that depend on Russia for nuclear fuel. It also calls for working within the EU and with international partners to secure alternative sources of uranium, and boosting the conversion, enrichment and fuel fabrication capacities available in Europe and in the EU's global partners.

The Agency closely followed up on the fuel diversification process. In cooperation with the Commission, it continued to follow up on the steps towards alternative design and supplies of fuel for the Russian-designed VVER reactors, including the medium-term plans of major EU fuel manufacturers. The Agency visited some of these plants to assess their preparedness for implementing the plans according to the timelines announced.

ESA also monitored the operational autonomy of VVER plants, taking into account both stored fresh fuel and forthcoming deliveries. Furthermore, it provided technical input and analysis to the Commission on planned additional policy and regulatory actions or other measures that could be undertaken to address the security of supply of nuclear materials.

ESA continued to monitor transport challenges related to nuclear materials and fuels from Russia, as well as deliveries originally routed through Ukraine. Previously identified challenges related to transporting nuclear fuel through regions in conflict or with increased logistical risks continue to exist.

ESA collaborated with the Commission on multilateral efforts to address global challenges in nuclear fuel supply security. In the context of the REPowerEU initiative, it engaged, together with the Commission, in multilateral exchanges focusing on developments in the demand for, and capacity of, front-end nuclear fuel cycle services in like-minded non-EU countries.

The Agency supported the European Commission's efforts to devise policies aiming to phase out Russian supplies and dependence on Russian energy. It supplied market insights and developments, while recommending gradual and proportionate steps to implement phase-out, due to the technical and safety requirements of the nuclear sector. It also underlined the need for flexibility and case-by-case approaches to address unforeseen security of supply challenges.

ESA also provided input on matters within its remit related to the legislative work of the Commission. It contributed to briefing requests and requests for information from the Commission, Members of the European Parliament, national parliamentarians, the press, and nuclear sector associations with the security of nuclear supplies as their core subject.

Within its remit, ESA assisted the Commission in handling European Parliament questions, petitions and national parliament resolutions, as well as in assessing notifications under Article 41 and international agreements communicated under Article 103 of the Euratom Treaty.

Security of supply of nuclear materials for non-power uses

In line with its strategic objective, ESA continued to monitor the security of supply of high-enriched uranium (HEU) and high-assay low-enriched uranium (HALEU), required to feed the production of medical radioisotopes and to fuel research reactors. These strategic materials are currently not produced in the Community and have to be imported, mainly from the US. Some EU research reactors still need HEU until they are converted to HALEU in line with international nuclear security and non-proliferation commitments. In 2025, in cooperation with the US and the Euratom Member States concerned, ESA reviewed progress in implementing the Memorandum of Understanding[53] with the US Department of Energy-National Nuclear Security Administration on the exchange of HEU and mutually agreed to extend it for an additional five years.

Several research reactors producing essential medical radioisotopes rely on Russian fuel and materials. In this context,

53 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 five more years in 2021 and 2025, respectively.

ESA has called for measures to tackle supply chain vulnerabilities. Certain EU research reactor operators have transitioned to alternative fuels and ceased using Russian supplies. Additionally, some are actively involved in Euratom research initiatives aimed at creating new fuel designs and ending Russia's dominance in providing fuel for medium-power research reactors originally designed in the Soviet era.

5.2.3. Market monitoring and analysis

Market monitoring

Market uncertainty, driven primarily by geopolitical events, persisted throughout the reporting year. In addition, the renewed interest in nuclear energy as a low-carbon alternative to fossil fuels, both in the European Union and globally, as well as the emergence of new technologies such as SMRs and AMRs, contribute to uncertainties about the short- to long-term security of supply.

ESA continued to closely monitor the nuclear market. It tracked trends, prices and global supply chain developments, and analysed them from an economic and industry viewpoint. Identifying market trends likely to affect the EU's medium- and long-term security of supply of nuclear materials and services remained a priority.

In this connection, the Agency produced comprehensive statistical reports on nuclear market trends and updated previous years' forecasts of EU and global supply and demand for front-end fuel cycle services. These were based on data from contracts concluded or acknowledged by the Agency, on information obtained from EU utilities through the annual survey, and on market data from various sources. The findings were supplemented by insights into market developments gathered from specialised media, stakeholders and open sources.

In response to Russia's war of aggression against Ukraine, ESA has continued to assess how geopolitical shifts in the EU affect conversion and enrichment capacities globally. It revises its analyses based on current developments and prepares long-term forecasts of future supply and demand scenarios. In its market review, ESA reiterated that EU utilities are increasingly vulnerable to Russian disruptions to the supply of natural uranium, to fuel fabrication and to related services, due to the changing geopolitical climate. Reports from the nuclear sector, including conversion and enrichment providers, suggest that, in particular, the overall conversion capacity in Western geopolitical regions might fall short without new investments. Likewise, these countries might also lack sufficient enrichment capacity if they cannot access services from other countries. Establishing new conversion and enrichment capacity could take several years.

ESA participated in developing the Commission's Nuclear Illustrative Programme (PINC)[54]. In particular, it contributed to the analyses of future global supply and demand for conversion and enrichment services. The PINC provides a strategic vision for the role of nuclear energy in achieving climate neutrality and energy security in the EU, highlighting the investment needs up to 2050.

Annual report 2024

In its 2024 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. The survey provided a detailed analysis of supply and demand for natural uranium and for conversion and enrichment services in the EU in 2024. It 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 analysed in detail future contractual coverage for natural uranium and enrichment services, and the diversification of supply. It also analysed EU inventories of nuclear material.

The report set out ESA's findings and recommendations on supply and demand for nuclear fuels. It reflected ESA's diversification policy and work on security of supply and discussed the security of supply of medical radioisotopes. As recent political and economic events had seriously impacted the global nuclear market, ESA's recommendations were more relevant and urgent than ever. They aimed to boost the security of supply and overcome the current areas of

54 Communication from the Commission: Nuclear Illustrative Programme presented under Article 40 of the Euratom Treaty for the opinion of the European Economic and Social Committee, SWD(2025)160 final, June 2025

vulnerability. ESA's report also 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 June 2025, and its print version was made available in September[55]. The report was widely disseminated, including to the European Parliament, the Council and the Commission, and was presented to the Council Working Party on Atomic Questions.

Publication and knowledge sharing

ESA regularly publishes information on price trends on its website[56], to increase the transparency of the EU's natural uranium market, reduce uncertainty and help improve security of supply.

In 2025, ESA's nuclear fuel market observatory issued four quarterly reports on the uranium market. 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[57]. ESA also issues a weekly nuclear newsletter for Commission staff.

5.2.4. Supply of medical radioisotopes

Radioisotopes are essential in modern medicine. Over 10 000 hospitals worldwide use radioisotopes in about 100 different nuclear medicine procedures. In the EU alone, more than 1 500 nuclear medicine centres deliver around 10 million procedures to patients each year. The main source of radioisotopes is nuclear research reactors, with several other non-fission technologies such as cyclotrons and accelerators in use or under development. Radioisotope production technologies mostly rely on highly specialised supply chains that usually stretch across countries and continents and involve 24/7 just-in-time delivery.

While many of the medical radioisotopes are produced domestically, the EU remains dependent on Russian production for certain critical stable isotopes and radioisotopes. The supply of precursor material to produce medical radioisotopes remains a particular source of concern. The EU is, to a certain extent, dependent on Russia for the enrichment of the stable isotopes needed to produce several important medical radioisotopes, in particular Ytterbium-176 (Yb-176), which is needed to produce Lutetium-177 (Lu-177). Enriched isotopes would also be 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 at present partly sourced from Russia.

ESA continued to provide expertise and analysis of the situation and worked closely with the relevant Commission services and other stakeholders. It regularly updated the Council Atomic Question Working Party on the supply situation.

European Observatory on the Supply of Medical Radioisotopes

In order to support the security of supply of widely used medical radioisotopes, focusing on Molybdenum-99/Technetium-99m (Mo-99/Tc-99m), ESA continued to co-chair the European Observatory on the Supply of Medical Radioisotopes in 2025, together with Nuclear Medicine Europe (NMEU).

Set up in 2012, the Observatory monitors the EU supply chain for Mo-99/Tc-99m and engages in 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. The Observatory is a vehicle for gathering information on potential shortages and for dispatching it to interested parties, sometimes directly through ESA. It enables stakeholders to contact appropriate EU bodies and services promptly to raise awareness of supply issues and facilitate responses to them at Member State and EU level.

In 2025, the Observatory continued its close cooperation with NMEU's Security of Supply Working Group on the supply of Mo-99/Tc-99m and Iodine-131 (I-131). NMEU's Security of Supply Working Group ensures effective coordination of reactor maintenance schedules to avoid disruptions in the supply of Mo-99/Tc99m. The Emergency Response Team (ERT) was set up under the Observatory's umbrella within the NMEU. It is composed of representatives of research reactors, Mo-99 processors and Mo-99/Tc-99m generator manufacturers. It identifies potential shortages of Mo-99 and

55 ESA Annual Reports

56 Nuclear Market Observatory.

57 Provided at least three spot contracts have been concluded.

draws up mitigation action plans involving all stakeholders.

In March, the ERT dealt with the temporary interruption of Mo-99 and I-131 production at the NTP processing facility in South Africa. The Observatory played a pivotal role in managing this supply disruption. The Joint Communication Team (JCT), set up within the Observatory, shared the updates received from the ERT with various stakeholder groups, including European Commission departments, the EU Health Security Committee, the Council of the European Union (Atomic Questions Group), the European Medicines Agency (EMA), the European Association of Nuclear Medicine, the Nuclear Energy Agency (NEA) of the Organisation for Economic Co-operation and Development (OECD) and the International Atomic Energy Agency (IAEA).

The most recent plenary meeting of the Observatory was held on 23 September in Gréoux-les-Bains (France), hosted by the French Alternative Energies and Atomic Energy Commission (CEA Cadarache). The Observatory reviewed the global research reactor scheduling for the remainder of 2025 and 2026. The Directorate-General for Energy provided an update on the latest developments related to creating a European Radioisotope Valley Initiative (ERVI) in the context of the SAMIRA action plan.

The meeting also provided an opportunity to hear about CEA research on nuclear medicine and the activities of the Research Institute for Nuclear Systems for Low-Carbon Energy Production (IRESNE) dedicated to developing low-carbon energy through nuclear fission.

The meeting heard presentations on the project to produce Lutetium-177 medical radioisotope at the Cernavoda Nuclear Power Plant in Romania and an update on the European Prep-HALEU research project, which aims to build HALEU capacity in the EU.

The EMA presented its ongoing initiatives to tackle vulnerabilities in the supply chain for radiopharmaceuticals in the EU. The Joint Research Centre and the Directorate-General for Research and Innovation presented their activities related to medical radioisotopes.

NMEU, the European Association of Nuclear Medicine (EANM), the OECD NEA and the IAEA also presented their activities related to medical radioisotopes.

Following the meeting, a technical visit to the Jules Horowitz Material Test Reactor (JHR), which is currently under construction, was organised.

In October, ESA presented the Observatory's activities and the results of its 2024 and 2025 meetings to the Council Working Party on Atomic Questions. It reported on the 2025 disruptions to the supply of medical radioisotopes and the related mitigation measures taken by the Observatory in response to them.

5.2.5. Cooperation with stakeholders and partners

In 2025, ESA continued to foster strong relationships with a diverse range of stakeholders and partners, including EU institutions, Member State authorities, utilities, industry representatives and nuclear organisations. This cooperation was critical in reinforcing the security of supply of nuclear materials, particularly in the context of the uncertain market conditions driven by the changing geopolitical situation, which has significant implications for the global nuclear energy sector. Throughout the year, the Agency closely monitored market developments, identifying potential risks and opportunities, and provided expert advice and follow-up to ensure that the common supply policy was being effectively implemented and to mitigate emerging risks.

The Agency reported to the Council's Working Party on Atomic Questions on its activity throughout the year, on the supply situation of nuclear materials, services and medical radioisotopes in the EU and on market trends. It also shared its recommendations for strengthening the security of supply in the short, medium and long term.

The Agency has long-standing and well-established relationships on nuclear energy with international organisations, namely the IAEA, the NEA and nuclear industry associations. In 2025, ESA continued to cooperate with these organisations by participating in working groups, conferences and seminars. For example, in February, ESA took part in the Joint NEA/IAEA 60th Uranium Group meeting, aimed at coordinating the preparation of periodic assessments of the world's supply of natural uranium and examining the relationship between these supply capabilities and projected demand for natural uranium. The Group is responsible for publishing the report: Uranium – Resources, Production and

Demand (the 'Red Book')[58].

Throughout the year, ESA engaged in numerous events and activities.

In March, a representative of ESA spoke at the 'Safe & Sovereign: Nuclear energy's key role for competitive decarbonisation' event organised by the European Parliament in Brussels. This event brought together stakeholders from across the EU to discuss the role of nuclear energy in achieving a low-carbon economy.

In April, ESA attended the European Research Reactor Conference (RRFM) organised by the European Nuclear Society (ENS) in Aix-en-Provence, France. The conference programme revolved around the latest global developments and challenges in research reactor technology and fuel management.

In May, ESA attended the FISA EURADWASTE 2025 conference and SNETP Forum 2025, which brought together 500 participants from all areas covered by Euratom research. The conference was organised under the auspices of the Polish Presidency of the Council of the EU. This special edition of the conference was co-organised with the Sustainable Nuclear Energy Technology Platform (SNETP) and saw the SNETP Forum 2025 held as part of the event. Furthermore, the European Nuclear Education Network (ENEN), the ENS, and the European Nuclear Society – Young Generation Network (ENS-YGN) were co-organisers of the conference.

In July, ESA was invited to present the activities of the European Observatory on the Supply of Medical Radioisotopes at the General Assembly of NMEU. The meeting also provided an opportunity to engage with stakeholders on the supply of medical radioisotopes.

ESA also presented its activities and shared its insights at various webinars, conferences and meetings, such as the ENS webinar 'Is Europe's Nuclear Fuel Market Resilient enough' in July.

In September, at the World Nuclear Symposium in London, ESA contributed to the session on the launch of the World Fuel Report. This gave an opportunity to highlight the ESA Annual Report and the PINC, as well as the geopolitical developments, in particular Russia's war of aggression against Ukraine, which are shaping strategic EU decisions on energy policy. ESA representatives met participants from the nuclear industry, utilities and the emerging EU market. They provided insights into the market situation, learnt about market developments and exchanged information on existing and future supply challenges.

Also in September, ESA attended the 2nd General Assembly of the European Industrial Alliance on SMRs, which aims to facilitate and accelerate the development, demonstration and deployment of SMRs in Europe by the early 2030s.

In the same month, ESA was also represented in the Euratom delegation to the IAEA General Conference. Then, at the Stakeholder Forum on the 'European Radioisotopes Valley Initiative (ERVI)' held in Brussels, ESA co-chaired the second roundtable, on HALEU and stable isotope supply, and presented lessons learnt from the European Observatory on the Supply of Medical Radioisotopes.

In October, ESA took part in a study visit to the Joint Research Centre (JRC) in Karlsruhe, aimed at giving officials of the European institutions' insights into the JRC's work on nuclear non-power applications.

Also in October, Agency insights on how EU imports of uranium and nuclear fuel had evolved recently were shared at the online meeting of Eurelectric's Working Group Thermal & Nuclear, held with representatives of the European nuclear industry though their respective national associations.

In November, ESA attended the 6th edition of the World Nuclear Exhibition, held in Paris. The event, which attracted more than 36 000 participants, looked at two general themes: (1) key drivers for the development of the nuclear industry and (2) nuclear applications beyond energy production – including medical use, agriculture, space, hydrogen, heat, desalination and propulsion.

The Agency held regular meetings with representatives of utilities and the EU nuclear industry to share information and market outlook. These meetings provided a platform for discussing both key issues and the current challenges faced by the nuclear sector as it navigates the complex nuclear market situation, and for exploring potential solutions and cooperation opportunities. By engaging with a wide range of stakeholders and partners, the Agency was able to leverage its knowledge and expertise to contribute to developing a more secure, sustainable and resilient nuclear fuel

58 Uranium 2024 – Resources, Production and Demand

supply chain.

6. Management

[Please insert picture #24 into the chapter]

Governance of the Agency

The Euratom Supply Agency ('ESA'), the sole agency to have been directly established by primary European Law, is mostly governed by Title II, Chapter 6[59], of the Euratom Treaty ('the Treaty').

The Treaty's provisions on ESA's governance (including the manner in which the European Commission supervises it) are supplemented by ESA's Statutes, laid down by Council decision[60]. The Statutes determine, in particular, ESA's capital and the terms for subscribing it. They set the main financial provisions applicable to the Agency. They also provide for the composition, the terms of reference and the meetings of ESA's Advisory Committee.

The Agency operates on a non-profit-making basis. It has financial autonomy, pursuant to the Treaty. The implementation of its budget is governed by the Financial Regulation applicable to the general budget of the Union[61].

The manner in which ESA performs its functions in balancing supply against demand for nuclear materials is determined by the Agency Rules, which require approval by the European Commission. The current Rules entered in force in 2021[62].

6.1. Budgetary and financial management

ESA is funded entirely from the European Union budget, as the option to collect a charge on transactions to defray its operating expenses as per Article 54 of the Euratom Treaty was postponed sine die by the Council in 1960.

ESA covers part of its operational costs through its own budget, while the European Commission directly funds another portion through in-kind contributions.

The European Commission is responsible for adopting ESA's budget, and ESA's Director-General serves as the Authorising Officer for executing that budget. ESA's financial operations comply with the relevant provisions in its Statutes and the EU Financial Regulation[63], along with the accounting rules and methods set by the European Commission.

Budget

The Agency's 2025 budget was EUR 312 550[64], i.e. 15.76% higher than the 2024 budget of EUR 270 000. ESA was financed entirely from the EU budget contribution under Section III – Commission, budget item 20 03 14 01 'Euratom contribution for operation of the Supply Agency'.

The 2025 draft budget received a favourable opinion from ESA's Advisory Committee at its meeting on 14 December 2023. The Commission services were then consulted on the draft budget on 4 October 2024. The budget was adopted

59 Articles 52-76 of the Treaty establishing the European Atomic Energy Community (Euratom Treaty).

60 The current Statutes were laid down by Council Decision of 12 February 2008 (2008/114/EC, Euratom), published in OJ L 41, 15.2.2008, p. 15.

61 Regulation 2024/2509 of 23.9.2024; Article 68.

62 Approved by Commission Decision 2021/986, of 29.4.2021, they were published in OJ L218, 18.6.2021, p. 58.

63 Regulation (EU, Euratom) 2024/2509 of the European Parliament and of the Council of 23/09/2024 on the financial rules applicable to the general budget of the Union, repealing Regulation (EU, Euratom)

64 EU General Budget 2025. Definitive Adoption (EU, Euratom) 2025/31, OJ L, 27.2.2024, p. 1 163.

by the Commission on 22 November 2024[65].

During the year, there were no budget amendments. ESA's revenue and expenditure were in balance.

Budget execution

In 2025, in accordance with Articles 28 and 68 of the EU Financial Regulation, the Director-General signed two decisions involving internal budget transfers to address emerging requirements.

The operating costs covered by the ESA budget included:

- meetings of the ESA Advisory Committee and the European Observatory on the Supply of Medical Radioisotopes;
- development of the NOEMI core business information systems;
- duty travel, study visits and participation in seminars and conferences;
- subscriptions to nuclear market information media and data sources;
- ESA publications and communication activities.

As of 31 December 2025, ESA had recorded a high level of budget execution for the current year's funds of 98.91%, or EUR 309 151.95 of commitment appropriations (99.53% or EUR 268 732.25 in 2024) with cancellations amounting to EUR 3 398.05, or 1.09% (EUR 1 267.75 or 0.47% in 2024).

The payments executed on the same funds amounted to EUR 224 203.13, resulting in an implementation rate of 71.73% of available appropriations (EUR 182 306.19 or 67.52% in 2024).

The outstanding commitments of 2025 (committed amounts not yet paid) carried forward to the 2026 financial year stood at EUR 84 948.22, or 27.48% of committed appropriations (EUR 86 426.06 or 32.16% in 2024). That amount mainly concerns IT services for the information and communication technology (ICT) project NOEMI.

In 2025, the Agency achieved an implementation rate on payments for carried-over appropriations from the previous year of EUR 83 411.84, corresponding to 96.51% of available carried-over funds (EUR 125 632.64 or 95.69% in 2024), with cancellations amounting to EUR 3 014.22, or 3.49% of the same appropriations.

In-kind contribution from the Commission

Most of the Agency's operating costs are directly financed by the Commission. In addition, in 2025, it continued to be exempted from charge-back[66] on any baseline services provided to it by the Commission services, including for hosting the IT system in a secure environment.

The basic categories of expenses covered largely relate to staff (e.g. salaries and allowances, socio-medical facilities and training); infrastructure (e.g. buildings, offices and associated costs); general information and communication technology infrastructure and services; EC administrative software applications; and hosting of ESA's IT system.

In 2025, the Agency's total operating cost covered by the Commission amounted to EUR 3 087 054.93 (EUR 2 903 410.73 in 2024). This includes direct personnel costs for the Agency's staff, estimated at EUR 2 428 400.00 in 2025 (EUR 2 226 233.33 in 2024), and other related operating costs (for buildings and other administrative costs, ICT and hosting of ESA's IT system), which totalled EUR 658 654.93 (EUR 677 177.40 in 2024).

These off-budget expenditures and the underlying transactions are not disclosed in ESA's accounts but are included in

65 C(2024) 7955.

66 Annex 21 to the *Commission decision on the internal rules for the implementation of the Commission*

the Commission's section of the EU annual accounts.

Financial accounts

In 2025, the Agency's assets totalled EUR 1 348 982.89 (EUR 1 210 786.64 in 2024). They were financed by liabilities of EUR 138 466.84 (10.26%) and equity of EUR 1 210 516.05 (89.74%).

The 2025 provisional accounts, budget outturn and report on budget implementation were submitted to the European Court of Auditors and the Commission's Accounting Officer on 27 February 2026. The final accounts were issued on 26 May 2026. After receiving a positive opinion from the Advisory Committee, they were submitted to the EU institutions on 18 June 2026.

6.2. Human resources

The Agency underwent some organisational changes during the year. These were aimed at optimising the allocation of resources, streamlining reporting structures and breaking down silos.

As part of this effort, the Unit's structure was reviewed to improve overall efficiency and effectiveness.

For the first time, a Deputy Head of Unit position was created and was filled on 1 May 2025.

Subsequently, the Market and Contracts Sectors were merged, with the relevant staff now reporting to the ESA Head of Unit. This change ensured that ESA could maintain its core functions and activities without interruption, while continuing to evolve and adapt to changing circumstances.

Human resources	2025		
Number of officials (or temporary agents)	Posts	Actually filled as of 31.12.2025	Effective throughout the year
Administrators (AD)	8	8	8
Assistants (AST)	9	7	7
Assistants secretarial (AST/SC)		2	2
Total	**17**	**17**	**17**

Staff allocation

ESA employees are Commission civil servants (officials), and the staffing levels specified in ESA's establishment plan are included within the Commission's overall workforce figures. In 2025, no adjustments were made to ESA's establishment plan.

Equal opportunities

The Agency promotes equal opportunities, creating a workplace that values diversity and inclusion. ESA's staff reflects gender balance, with 2025 statistics showing 47% female (eight) and 53% male (nine) employees. At year-end, the workforce included 13 nationalities from across the EU.

6.3. Information management and communication

NOEMI

Development work on the NOEMI IT system continued to improve internal workflows and the user experience, aiming to streamline and optimise the process for handling contract-related information.

The project charter was further updated at the beginning of 2025, at the request of the Information Technology and Cybersecurity Board of the European Commission (ITCB), to assess whether there was scope for further uptake of corporate reusable solutions. This updated project charter received a positive opinion – with no further remark – from the ITCB at its meeting of 19 February 2025.

Security

During 2025, ESA experienced no security incidents. The planned security assessments were concluded without findings.

In addition, ESA organised an internal all-staff cybersecurity training event. It covered the current threat landscape and ongoing attack practices (actors, use of AI, social engineering). During the session, a CERT-EU innovative educational tool on cybersecurity was used. The training was very useful and therefore ESA decided to organise it regularly.

Communication

In 2025, ESA continued to implement its communication and outreach policy, tailored to addressing the evolving needs of its diverse stakeholders. In particular, a webinar for stakeholders submitting contracts was organised in January 2025. In response to the ongoing security of supply challenges in Europe and the uncertainty surrounding the nuclear fuel and medical radioisotopes supply chain, the Agency maintained a strong commitment to targeted outreach and continuous dialogue with key stakeholders.

The Agency also offered tailored support to help new entrants in the nuclear market, particularly from the emerging nuclear industry.

In addition to its outreach efforts, the Agency was approached by various media outlets, including press and specialised news organisations, seeking expertise and insights on matters related to nuclear fuel supply. The Agency's experts were featured in several publications and interviews.

6.4. Audit and discharge

Audit by the European Court of Auditors

The European Court of Auditors (ECA) performs an audit of ESA's financial and budgetary accounts and the underlying transactions on an annual basis in line with internationally accepted public-sector auditing standards. The Court's responsibility is to provide the European Parliament and the Council with a statement of assurance as to the reliability of the annual accounts and the legality and regularity of the underlying transactions.

ESA duly notes the Court's observations and takes the necessary measures. It also carefully follows the observations of a cross-cutting nature accompanying the Annual Report of the EU agencies.

In the Court's opinion, for the year ended 31 December 2024:

- ESA's accounts presented fairly, in all material respects, ESA's financial position as of 31 December 2024, 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 the accounting rules adopted by the Commission's Accounting Officer.

- the revenue and payments underlying ESA's accounts were legal and regular in all material respects.

Discharge

On 7 May 2025, the European Parliament, acting as the discharge authority, formally granted the Director-General of the ESA discharge in respect of the implementation of the Agency's budget for the financial year 2023[67].

6.5. Internal control and assurance

Internal control and risk management

ESA has adopted a robust internal control framework, designed to provide reasonable assurance regarding the achievement of five key objectives outlined in Article 36 of the Financial Regulation. These objectives are:

1. **Operational excellence**: ensuring the effectiveness, efficiency and economy of operations to achieve the Agency's mission and goals.

2. **Reliable reporting**: maintaining the accuracy, completeness and reliability of financial and operational reporting to stakeholders.

3. **Asset and information protection**: safeguarding the Agency's assets and sensitive information to prevent loss, theft or unauthorised access.

4. **Fraud prevention and detection**: preventing, detecting, correcting and following up on fraud and irregularities to maintain the integrity of the Agency's operations.

5. **Transaction integrity**: managing risks related to the legality and regularity of underlying transactions to ensure compliance with relevant laws and regulations.

The Agency's internal control framework is aligned with the European Union's Financial Regulation and other relevant rules and regulations and is guided by the principles of the Committee of Sponsoring Organisations (COSO) framework.

In 2025, ESA conducted a comprehensive review of its risk assessment, covering all aspects of ESA's work, and its operational and administrative processes. This review allowed it to identify potential risks and areas for improvement, and to refine its internal controls to mitigate those risks. ESA adjusted its controls to ensure that they are aligned with the identified risks and areas requiring monitoring, thereby strengthening its risk management framework and increasing the overall effectiveness of its internal control system.

Management assurance

ESA conducted a comprehensive self-assessment of the effectiveness of its internal control system, in accordance with established best practices and regulatory requirements. This evaluation was designed to provide assurance on the reliability of its operations and financial reporting, and to identify areas for improvement.

The self-assessment consisted of three key components:

1. **Monitoring and feedback**: the Agency reviewed predefined monitoring indicators, including a staff survey at the end of 2024, to gather feedback and insights on the effectiveness of internal controls.

2. **Audit and quality assurance**: the Agency examined audit results, including new and outstanding recommendations, to identify areas for improvement and ensure that corrective actions were implemented.

3. **Exception management**: the Agency analysed non-compliance and exception cases, if any, to determine their root causes and implement measures to prevent them from recurring.

The annual assessment for 2025 confirmed that the Agency's internal control system is operating effectively. No

67 DECISION (EU, Euratom) 2025/1657 OF THE EUROPEAN PARLIAMENT of 7 May 2025 on discharge in respect of the implementation of the budget of the Euratom Supply Agency for the financial year 2023. Decision adopted under the procedure: 2024/2030(DEC) – Discharge 2023: Agencies.

significant risks that could impact the reliability of its operations or financial reporting were identified. The assessment provided assurance that the Agency's internal control system is robust and effective, and that it is well-positioned to manage risks and ensure the integrity of its operations.

Based on the results of the self-assessment, the Director-General, as the Authorising Officer, was able to provide a declaration of assurance, which is included as Annex 10 to this report.

Assessment of costs and benefits of its internal control system

ESA estimated the effort dedicated to control activities at 1.0 full-time equivalent (FTE) staff. This estimate was derived by aggregating the time spent by ESA staff on core control-related tasks.

The benefits of these controls, while not easily quantifiable in monetary terms, include improved assurance of the legality and regularity of transactions; early detection and correction of anomalies; improved accountability; and reduced reputational and financial risk. These qualitative benefits are considered significant in relation to the modest resource investment. Based on this analysis, the controls in place are deemed proportionate and justified, contributing meaningfully to the overall effectiveness of ESA's internal control system. At the same time, ESA will continue to work on developing synergies, particularly with Commission services, as described in 6.6 of the Annual Activity Report, in order to reduce the administrative burden on Agency staff.

6.6. Improving effectiveness and efficiency

In 2025, ESA remained committed to improving its effectiveness and efficiency by streamlining procedures, reducing administrative burdens, developing synergies and fostering cooperation with other EU institutions and bodies, while also building on past European Parliament resolutions on performance, financial management and control of EU agencies[68].

To achieve this, the Agency intensified its collaboration with the European Commission and other EU agencies, identifying areas where synergies could be leveraged, particularly in administrative matters.

To this end, the Agency has also been exploring opportunities for cooperation by sharing functions, tools and systems with Commission services or other agencies, particularly in the administrative area (e.g. on data protection or for other administrative functions, such as organising duty travel). As the number of tasks and the expectations of stakeholders continue to grow, ESA has managed, despite its limited resources, to deliver on its objectives. At the same time, ESA is not in a position to continue to fully address the increased workload through internal efficiency gains and reallocating human resources.

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If you would like to provide any feedback on ESA Annual Report or other subject, please feel free to use the following email address: **ESA-AAE@ec.europa.eu**

68 E.g. European Parliament Discharges for 2017-2021 cycles, resolution on performance, financial management and control of EU agencies.

Annexes

Annex 1
EU-27 gross and net requirements (quantities in tU and tSW)

(A) 2026-2035

Year	Natural uranium		Separative work	
	Gross requirements	Net requirements	Gross requirements	Net requirements
2026	13 216	11 292	10 927	9 805
2027	12 423	10 118	10 451	9 518
2028	12 458	10 411	10 670	9 697
2029	12 782	10 248	10 875	9 862
2030	10 852	8 625	9 152	8 056
2031	11 616	9 072	9 721	8 534
2032	11 487	8 970	9 356	8 241
2033	11 396	8 882	9 346	8 163
2034	10 532	7 667	8 793	7 697
2035	11 586	8 876	9 518	8 421
Total	118 347	94 161	98 809	87 994
Average	11 835	9 416	9 881	8 799

(B) Extended forecast 2036-2045

Year	Natural uranium		Separative work	
	Gross requirements	Net requirements	Gross requirements	Net requirements
2036	10 290	7 801	8 447	7 445
2037	11 083	8 815	8 813	7 908
2038	10 194	7 944	8 473	7 569
2039	10 436	8 202	8 642	7 736
2040	10 106	7 890	8 325	7 419
2041	10 627	8 406	8 687	7 783
2042	9 230	7 002	7 536	6 632
2043	9 476	7 239	7 708	6 802
2044	8 943	6 699	7 242	6 336
2045	8 757	6 680	7 242	6 484
Total	99 143	76 678	81 115	72 116
Average	9 914	7 668	8 111	7 212

(B) Extended forecast 2036-2045

Annex 2
Fuel loaded into EU reactors and deliveries of fresh fuel under purchasing contracts

Year	Fuel loaded			Deliveries		
	LEU (tU)	Feed equivalent (tU)	Enrichment equivalent (tSW)	Natural U (tU)	% spot	Enrichment (tSW)
1980		9 600		8 600	(*)	
1981		9 000		13 000	10.0	
1982		10 400		12 500	< 10.0	
1983		9 100		13 500	< 10.0	
1984		11 900		11 000	< 10.0	
1985		11 300		11 000	11.5	
1986		13 200		12 000	9.5	
1987		14 300		14 000	17.0	
1988		12 900		12 500	4.5	
1989		15 400		13 500	11.5	
1990		15 000		12 800	16.7	
1991		15 000	9 200	12 900	13.3	10 000
1992		15 200	9 200	11 700	13.7	10 900
1993		15 600	9 300	12 100	11.3	9 100
1994	2 520	15 400	9 100	14 000	21.0	9 800
1995	3 040	18 700	10 400	16 000	18.1	9 600
1996	2 920	18 400	11 100	15 900	4.4	11 700
1997	2 900	18 200	11 000	15 600	12.0	10 100
1998	2 830	18 400	10 400	16 100	6.0	9 200
1999	2 860	19 400	10 800	14 800	8.0	9 700
2000	2 500	17 400	9 800	15 800	12.0	9 700
2001	2 800	20 300	11 100	13 900	4.0	9 100
2002	2 900	20 900	11 600	16 900	8.0	9 500

2003	2 800	20 700	11 500	16 400	18.0	11 000
2004	2 600	19 300	10 900	14 600	4.0	10 500
2005	2 500	21 100	12 000	17 600	5.0	11 400
2006	2 700	21 000	12 700	21 400	7.8	11 400
2007 (**)	2 809	19 774	13 051	21 932	2.4	14 756
2008 (**)	2 749	19 146	13 061	18 622	2.9	13 560
2009 (**)	2 807	19 333	13 754	17 591	5.2	11 905
2010 (**)	2 712	18 122	13 043	17 566	4.1	14 855
2011 (**)	2 583	17 465	13 091	17 832	3.7	12 507
2012 (**)	2 271	15 767	11 803	18 639	3.8	12 724
2013 (**)	2 343	17 175	12 617	17 023	7.1	11 559
2014 (**)	2 165	15 355	11 434	14 751	3.5	12 524
2015 (**)	2 231	16 235	11 851	15 990	5.0	12 493
2016 (**)	2 086	14 856	11 120	14 325	3.1	10 775
2017 (**)	2 232	16 084	12 101	14 312	3.8	10 862
2018 (**)	2 225	15 912	12 075	12 835	5.0	10 899
2019 (**)	2 129	14 335	10 880	12 835	9.6	12 912
2020 (**)	1 908	13 124	9 988	12 592	3.0	11 224
2021 (**)	2 197	15 401	11 588	11 975	4	10 290
2022 (**)	1 602	10 993	8 340	11 724	2	10 715
2023 (**)	1 771	12 672	9 611	14 578	7	12 260
2024 (**)	1 761	12 120	9 166	13 667	6	10 405
2025	1 795	11 729	9 112	14 678	10.2	12 130

(*) Data not available. (**) The LEU fuel loaded and feed equivalent contain Candu fuel.

Annex 3
ESA average prices for natural uranium

Year	Multiannual contracts		Spot contracts		New multiannual contracts		Exchange rate
	EUR/kgU	USD/lb U_3O_8	EUR/kgU	USD/lb U_3O_8	EUR/kgU	USD/lb U_3O_8	EUR/USD
1980	67.20	36.00	65.34	35.00			1.39
1981	77.45	33.25	65.22	28.00			1.12
1982	84.86	32.00	63.65	24.00			0.98
1983	90.51	31.00	67.89	23.25			0.89
1984	98.00	29.75	63.41	19.25			0.79
1985	99.77	29.00	51.09	15.00			0.76
1986	81.89	31.00	46.89	17.75			0.98
1987	73.50	32.50	39.00	17.25			1.15
1988	70.00	31.82	35.50	16.13			1.18
1989	69.25	29.35	28.75	12.19			1.10
1990	60.00	29.39	19.75	9.68			1.27
1991	54.75	26.09	19.00	9.05			1.24
1992	49.50	24.71	19.25	9.61			1.30
1993	47.00	21.17	20.50	9.23			1.17
1994	44.25	20.25	18.75	8.58			1.19
1995	34.75	17.48	15.25	7.67			1.31
1996	32.00	15.63	17.75	8.67			1.27
1997	34.75	15.16	30.00	13.09			1.13
1998	34.00	14.66	25.00	10.78			1.12
1999	34.75	14.25	24.75	10.15			1.07
2000	37.00	13.12	22.75	8.07			0.92
2001	38.25	13.18	(*) 21.00	(*) 7.23			0.90
2002	34.00	12.37	25.50	9.27			0.95
2003	30.50	13.27	21.75	9.46			1.13
2004	29.20	13.97	26.14	12.51			1.24
2005	33.56	16.06	44.27	21.19			1.24
2006	38.41	18.38	53.73	25.95			1.26
2007	40.98	21.60	121.80	64.21			1.37
2008	47.23	26.72	118.19	66.86			1.47
2009	55.70	29.88	77.96	41.83	(**) 63.49	(**) 34.06	1.39
2010	61.68	31.45	79.48	40.53	78.11	39.83	1.33
2011	83.45	44.68	107.43	57.52	100.02	53.55	1.39
2012	90.03	44.49	97.80	48.33	103.42	51.11	1.28
2013	85.19	43.52	78.24	39.97	84.66	43.25	1.33
2014	78.31	40.02	74.65	38.15	93.68	47.87	1.33
2015	94.30	40.24	88.73	37.87	88.53	37.78	1.11
2016	86.62	36.88	88.56	37.71	87.11	37.09	1.11

2017	80.55	35.00	55.16	23.97	80.50	34.98	1.13
2018	73.74	33.50	44.34	20.14	74.19	33.70	1.18
2019	79.43	34.20	55.61	23.94	80.00	34.45	1.12
2020	71.37	31.36	(***)	(***)	75.51	33.17	1.14
2021	89.00	40.49	(***)	(***)	92.75	42.19	1.18
2022	101.28	41.02	(***)	(***)	76.19	30.86	1.05
2023	115.79	48.16	149.28	60.46	103.56	41.95	1.08
2024	142.26	59.23	132.32	55.09	155.50	64.74	1.08
2025	**131.37**	**54.70**	**168.92**	**70.33**	**165.76**	**69.01**	**1.13**

(*) The spot price for 2001 was calculated based on an exceptionally low total volume of only 330 tU covered by four transactions.

(**) ESA's price method took account of the ESA 'MAC-3' new multiannual U_3O_8 price, which includes amended contracts from 2009 onwards.

(***) In 2020, 2021 and 2022 the ESA U3O8 spot price was not calculated because there were not enough transactions (less than 3) to calculate the index.

Annex 4
Purchases of natural uranium by EU utilities, by origin, 2016-2025 (tU)

Country	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Canada	2 946	4 099	3 630	1 485	2 312	1 714	2 578	4802	4 741	5 384
Russia	2 765	2 192	1 759	2 543	2 545	2 358	1 980	3419	2 185	2 346
Kazakhstan	2 261	2 064	1 754	2 518	2 414	2 753	3 145	3061	3 391	2 981
Australia	1 896	2 091	1 909	1 851	1 671	1 860	327	372	1 474	1 379
Niger	3 152	2 151	2 067	1 962	2 555	2 905	2 975	2089	1 154	33
China	0	0	0	0	0	0	0	0	644	0
Uzbekistan	115	348	166	612	329	0	441	271	249	1 522
Namibia	504	923	1 046	1 234	481	5	262	549	146	842
Malawi	0	0	0	0	0	0	0	0	3	28
South Africa	0	0	118	115	21	21	0	13	0	26
Kyrgyzstan	0	0	0	0	0	0	0	0	0	22
United States	125	193	110	0	0	0	0	4	0	0
Ukraine	0	0	19	0	0	0	0	0	0	0

EU	220	0	18	251	64	163	17	0	0	0
Re-enriched tails	212	171	161	161	196	196	0	0	0	0
Other	130	80	80	103	4	0	0	0	0	115
HEU feed	0	0	0	0	0	0	0	0	0	0
Total	**14 325**	**14 312**	**12 835**	**12 835**	**12 592**	**11 975**	**11 724**	**14 578**	**13 987**	**14 678**

Annex 5
Use of plutonium in MOX in the EU and estimated natural uranium and separative work savings

Year	**kg Pu**	**Savings**	
		tNatU	tSW
1996	4 050	490	320
1997	5 770	690	460
1998	9 210	1 110	740
1999	7 230	870	580
2000	9 130	1 100	730
2001	9 070	1 090	725
2002	9 890	1 190	790
2003	12 120	1 450	970
2004	10 730	1 290	860
2005	8 390	1 010	670
2006	10 210	1 225	815
2007	8 624	1 035	690
2008	16 430	1 972	1 314
2009	10 282	1 234	823
2010	10 636	1 276	851
2011	9 410	824	571

2012	10 334	897	622
2013	11 120	1 047	740
2014	11 603	1 156	825
2015	10 780	1 050	742
2016	9 012	807	567
2017	10 696	993	691
2018	8 080	726	510
2019	5 241	470	331
2020	5 308	481	340
2021	4 859	439	311
2022	3 007	277	197
2023	4 787	427	300
2024	6 934	605	422
2025	8 200	725	506
Grand total	261 143	27 956	19 013

Annex 6

EU nuclear utilities that contributed to this report

ČEZ, a.s.
EDF
ENUSA Industrias Avanzadas, S.A., S.M.E
EPZ
Fortum Power and Heat Oy
Ignalina NPP
Kozloduy NPP Plc
Nuklearna elektrarna Krško, d.o.o.
Oskarshamn NPP (OKG)
Paks NPP Ltd
PAKS II
Polskie Elektrownie Jądrowe (PEJ)
Slovenské elektrárne, a.s.
Societatea Nationala Nuclearelectrica S.A.
Synatom sa
Teollisuuden Voima Oyj (TVO)
Vattenfall Nuclear Fuel AB

Annex 7

Uranium suppliers to EU utilities

BHP Billiton
Cameco Inc. USA
Cameco Marketing INC.
Itochu International Inc
KazAtomProm
Macquarie Bank Limited, London branch
NUKEM GmbH
Orano Cycle
Orano Mining
Peninsula
Rio Tinto Marketing Pte Ltd
Slovak Republic state reserves
Tenex (JSC Techsnabexport)
TVEL
Uranium One
Urenco Ltd
USEC
Westinghouse
WMC Energy

Annex 8
Calculation method for ESA's average U_3O_8 prices

ESA price definitions

To provide reliable objective price information comparable with previous years, only deliveries made to EU utilities or their procurement organisations under purchasing contracts are taken into account for calculating the average prices.

In the interest of market transparency, ESA calculates three uranium price indices on an annual basis:

1. The ESA spot U_3O_8 price is a weighted average of U_3O_8 prices paid by EU utilities for uranium delivered under spot contracts during the reference year.

2. The ESA multiannual U_3O_8 price is a weighted average of U_3O_8 prices paid by EU utilities for uranium delivered under multiannual contracts during the reference year.

3. The ESA 'MAC-3' multiannual U_3O_8 price is a weighted average of U_3O_8 prices paid by EU utilities, but only under multiannual contracts which were concluded or for which the pricing method was amended in the previous 3 years (i.e. between 1 January 2022 and 31 December 2024) and under which deliveries were made during the reference year. In this context, ESA considers amendments as separate contracts, if the amendments directly affect the prices paid.

To ensure statistical reliability (sufficient amounts) and safeguard the confidentiality of commercial data (i.e. ensure that details of individual contracts are not revealed), ESA price indices are calculated only if there are at least five relevant contracts.

In 2011, ESA introduced its quarterly spot U_3O_8 price, an indicator published on a quarterly basis if EU utilities have concluded at least three new spot contracts.

All price indices are expressed in US dollars per pound (USD/lb U_3O_8) and euro per kilogram (EUR/kgU).

Definition of spot vs multiannual contracts

The difference between spot and multiannual contracts is as follows:

• spot contracts provide either for one delivery only or for deliveries over a maximum of 12 months, whatever the time between conclusion of the contract and the first delivery;

• multiannual contracts provide for deliveries extending over more than 12 months.

The average spot-price index reflects the latest developments on the uranium market, whereas the average price index of uranium delivered under multiannual contracts reflects the average multiannual price paid by European utilities.

Methodology

The methodology applied has been discussed and agreed in the Advisory Committee working group.

Data collection tools

Prices are collected directly from utilities or via their procurement organisations on the basis of:

- contracts submitted to ESA;
- end-of-year questionnaires – backed up, if necessary, by visits to the utilities.

Data requested on natural uranium deliveries during the year

The following details are requested: ESA contract reference number, quantity (kgU), delivery date, place of delivery, mining origin, obligation code, natural uranium price specifying the currency, unit of weight (kg, kgU or lb), chemical form (U_3O_8, UF_6 or UO_2), whether the price includes conversion and, if so, the price and currency of conversion, if known.

Deliveries taken into account

The deliveries taken into account are those made under natural uranium purchasing contracts to EU electricity utilities or their procurement organisations during the relevant year. They also include the natural uranium equivalent contained in enriched uranium purchases.

Other categories of contracts, e.g. those between intermediaries, for sales by utilities, purchases by non-utility industries or barter deals, are excluded. Deliveries for which it is not possible to reliably establish the price of the natural uranium component are also excluded from the price calculation (e.g. uranium out of specification or enriched uranium priced per kg EUP without separation of the feed and enrichment components).

Data quality assessment

ESA compares the deliveries and prices reported to the data collected when the contracts are concluded, taking into account any subsequent updates. In particular, it compares the actual deliveries to the 'maximum permitted deliveries' and options. Where discrepancies appear between maximum and actual deliveries, the organisations concerned are asked to clarify.

Exchange rates

To calculate the average prices, the original contract prices are converted into euro per kgU contained in U_3O_8, using the average annual exchange rates published by the European Central Bank.

Prices which include conversion

For the few prices which include conversion but where the conversion price is not specified, given the relatively minor cost of conversion, ESA converts the UF_6 price into a U_3O_8 price. It does so by using an average conversion value based on reported conversion prices under the natural uranium multiannual contracts.

Independent verification

Two members of ESA's staff independently verify spreadsheets from the database.

As a matter of policy, ESA never publishes a corrective figure, should errors or omissions be discovered.

Data security

Confidentiality and physical protection of commercial data is guaranteed by appropriate measures.

Annex 9

ECA Audit Report 2024

EUROPEAN COURT OF AUDITORS
12, rue Alcide De Gasperi
1615 Luxembourg
LUXEMBOURG

Tel. +352 4398-1
Enquiries: eca.europa.eu/en/contact
Website: eca.europa.eu
Social media: @EUauditors

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

Luxembourg: Publications Office of the European Union, 2025

3.34. Euratom Supply Agency (ESA)

Introduction

3.34.1. The Euratom Supply Agency (ESA), located in Luxembourg, was established in 1958 by the Council of the European Atomic Energy Community. ESA's original statutes were subsequently 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. ***Figure 3.34.1*** presents key figures for ESA[50].

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 staff, EU contract staff and seconded national experts, but excludes interim workers and consultants.

Source: Annual accounts of ESA for the 2023 and 2024 financial years; staff figures provided by ESA.

Our statement of assurance to the European Parliament and the Council – Independent auditor's report

Opinion

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 all described in section ***3.1***. The signature on page ***319*** forms an integral part of the opinion.

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

3.34.3. We have audited:

(a) the accounts of the Euratom Supply Agency (ESA), which comprise the financial statements and the reports on the implementation of ESA's budget for the financial year ended 31 December 2024, 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 2024 present fairly, in all material respects, ESA's financial position as at 31 December 2024, 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.

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 ESA's accounts for the year ended 31 December 2024 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 ESA's accounts for the year ended 31 December 2024 are legal and regular in all material respects.

Follow-up of previous years' observations

3.34.7. An overview of the action taken by ESA in response to our observations in previous years is provided in the ***Annex***.

Annex – Follow-up of previous years' observations

Number	Year of our observation	Our observation (summary)	Corrective action and other relevant developments (summary)	Status of ECA observation (Open/closed)
1	2022	ESA systematically awards low-value contracts (below €15 000) without issuing the corresponding evaluation reports and award decisions. This is not in line with points 30.3 and 30.4 of Annex I to the EU Financial Regulation.	In 2023 ESA revised its procedures and introduced a new template for low-value contracts covering both an evaluation report and an award decision.	Closed

Euratom Supply Agency (ESA)

ESA replies

https://www.eca.europa.eu/Lists/ECAReplies/ESA-Replies-SAR-AGENCIES-2024/ESA-Replies-SAR-AGENCIES-2024_EN.pdf

Ref. Ares(2025)5347608 - 03/07/2025
With qualified electronic signature(s)

ESA's reply

3.34.4. The Agency has taken note of the ECA's report.

3.34.5. The Agency has taken note of the ECA's report.

3.34.6. The Agency has taken note of the ECA's report.

Qualified electronic signature by: MICHAEL HÜBEL
Date 2025-07-03 12:39:40 UTC

Annex 10

Declaration of assurance

Ref. Ares(2026)5065416 - 19/05/2026

EURATOM SUPPLY AGENCY

Director General

Luxembourg,
ENER.AAE/MH

DECLARATION OF ASSURANCE
AAR 2025

I, the undersigned, Michael HŰBEL, 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 my own judgment and on the information at my disposal.

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.

Office: 1, rue Henri Schnadt, L-2530, Luxembourg
Telephone +352 4301 34023

Michael.Huebel@ec.europa.eu

Electronically signed on 19/05/2026 11:12 (UTC+02) in accordance with Article 11 of Commission Decision (EU) 2021/2121

Ref. Ares(2026)5060772 - 19/05/2026

EURATOM SUPPLY AGENCY

Luxembourg,
ENER.AAE.1/SC

DECLARATION OF ASSURANCE
AAR 2025

I, the undersigned, Stefano Ciccarello, Head of the "Nuclear Materials and Fuel Market" Unit, in my capacity as authorising officer by delegation ([1])

State that I have reasonable assurance that the transactions delegated to me, have been executed 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 concerning the legality and regularity of the underlying transactions.

This reasonable assurance is based on my own judgement and on the information at my disposal and is assessed within the framework of the procedures laid down by the Authorising Officer, which I, and all my sub-delegates, need to comply with.

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

Stefano CICCARELLO
Head of Unit

([1]) Ares(2024)3219027 of 2 May 2024.

Euratom Supply Agency, 2920 Luxembourg, LUXEMBOURG – Tel. +352 43011
Office: EUFO 02/389E – Tel. direct line +352 4301-36227

Stefano.CICCARELLO@ec.europa.eu

Electronically signed on 18/05/2026 17:23 (UTC+02) in accordance with Article 11 of Commission Decision (EU) 2021/2121

Ref. Ares(2026)4847021 - 13/05/2026

EURATOM SUPPLY AGENCY

Luxembourg,
ENER.AAE.1/RB

DECLARATION OF ASSURANCE
AAR 2025

I, the undersigned, Remigiusz BARAŃCZYK, Head of the "Monitoring of Nuclear Market and Supply of Medical Radioisotopes" Sector until 30 April 2025 and Deputy Head of Unit in the Unit "Nuclear Materials and Fuel Market" as from 1st of May 2025, in my capacity as authorising officer by sub-delegation,

State that I have reasonable assurance that the transactions delegated to me ([1]), have been executed 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 concerning the legality and regularity of the underlying transactions.

This reasonable assurance is based on my own judgement and on the information at my disposal and is assessed within the framework of the procedures laid down respectively by the Authorising Officer by Delegation and the Authorising Officer, which I need to comply with.

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

Remigiusz BARAŃCZYK

([1]) Ares(2019)3404683 of 24/05/2019, Ares(2024)3243539 of 3 May 2024 and Ares(2025)4040291 of 20/05/2025

Euratom Supply Agency, 2920 Luxembourg, LUXEMBOURG – Tel. +352 43011
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Remigiusz.BARANCZYK@ec.europa.eu

Electronically signed on 13/05/2026 14:21 (UTC+02) in accordance with Article 11 of Commission Decision (EU) 2021/2121

Work Programme 2025

MISSION AND OBJECTIVES

In line with the Euratom Treaty and its own Statutes, the mission of the Supply Agency of the European Atomic Energy Community ('ESA') is to maintain regular and equitable supply of nuclear materials (ores, source materials and special fissile materials) for all users in the Community.

ESA's strategic objective is the security of supply of nuclear materials, particularly nuclear fuel, for power and non-power uses, by means of the common supply policy.

In line with ESA's strategic objective, the following specific medium-term objectives have been defined:

Specific policy objectives

1. ensure continuous supply of nuclear materials for users in the Community in the short and medium/long term;
2. facilitate the future supply of nuclear materials, nuclear fuel cycle services and fuel, and encourage the diversification and emergence of reliable alternative sources;
3. facilitate the continued and equitable supply of medical radioisotopes;
4. provide the Community with expertise, information and advice on the nuclear materials and services market;

Specific supporting objectives

5. pursue contacts with EU and international authorities, international organisations, utilities, industry and nuclear organisations to further the objectives of ESA;
6. further improve the effectiveness and efficiency of ESA's organisation and operations.

This work programme sets out the main activities to be pursued in 2025.

The strategic priority, general and specific objectives, and activities have been linked to ensure that all actions contribute to the achievement of these objectives and to the achievement of the high-level priorities. The Work Programme takes due account of the priorities, policies and objectives set out by the Commission.

AREAS OF ACTIVITY

ACTIVITY I. CONTRACT MANAGEMENT

ESA's main task is to ensure regular and equal access to supplies of nuclear materials for all users in the Community. To this end, it has a right of option on nuclear materials produced in the Community Member States and the exclusive right to conclude contracts for the supply of nuclear materials, coming from inside or outside the Community. In addition, it keeps track of transactions related to services in the nuclear fuel cycle.

To facilitate the operations of the common market for nuclear materials and fuels, ESA will:

1. assess and conclude, as appropriate, nuclear material supply contracts, pursuant to Article 52 of the Euratom Treaty, in line with the common supply policy;
2. review and acknowledge notifications of transactions involving small quantities, pursuant to Article 74 of the Euratom Treaty;
3. review and acknowledge notifications of transactions relating to the provision of services in the nuclear fuel cycle, pursuant to Article 75 of the Euratom Treaty, in line with the common supply policy.

When exercising these tasks, ESA will:

- pay particular attention to transactions that would appear vulnerable to geopolitical risks, notably because of the place of origin of supplies;
- assist utilities in managing issues related to supply of nuclear fuel, including transport;
- provide information and support to stakeholders on contract issues related to the common supply policy and by providing advice on ESA procedures and processes;
- support the European Commission's nuclear materials accountancy, on request, in verifying contract data contained in prior notifications of movements of nuclear materials.

ACTIVITY II. FACILITATING FUTURE SUPPLY OF NUCLEAR FUEL

ESA takes responsibility for the common supply policy with a view to ensuring the security of supply in the short-, medium- and long-term. Through appropriate diversification, in line with the European Energy Security Strategy and the REPowerEU Communication and relevant political decisions, it aims to prevent excessive dependence of Community users on any single external supplier, service provider or design and to facilitate existence, where and when possible, of European supply production capacities in the interest of the EU's strategic autonomy, in particular as regards fuel design and supply. ESA's actions support and complement, as appropriate, the EU policy framework and objectives related to energy security and security of supply in the nuclear sector.

To facilitate future supply, ESA will:

1. use its prerogatives under the Euratom Treaty to facilitate diversification of nuclear materials, nuclear fuel cycle services supply (notably conversion, enrichment, and fuel fabrication) and fuel design in the medium and long term, as stressed in ESA's recommendations in its annual reports;
2. facilitate emergence of alternative sources of nuclear materials, nuclear fuel cycle services and fuel design where such sources are presently not available, in particular for VVER reactors;
3. monitor the potential development of the Small Modular Reactors (SMR) / Advanced Modular Reactors (AMR) technology, explore its implications on future demand for nuclear materials and related services and anticipate the impact on ESA activities.

When exercising these tasks, ESA will stay in close communication with the European Commission services and the Advisory Committee and its working groups.

ACTIVITY III. FACILITATING THE CONTINUED AND EQUITABLE SUPPLY OF MEDICAL RADIOISOTOPES

In order to enhance the security of supply of Molibdenum-99/Technetium-99m and possibly other radioisotopes that are indispensable for nuclear medicine procedures, the Agency has been entrusted with the monitoring role for the supply chain of medical radioisotopes in the EU. ESA, jointly with the industry association Nuclear Medicine Europe (NMEU), chairs the European Observatory on the Supply of Medical Radioisotopes.

ESA will also contribute to the implementation of the European Commission's SAMIRA action plan (Strategic Agenda for Medical Ionising Radiation Applications of nuclear and radiation technology).

ESA will:

1. lead and coordinate the activities of the European Observatory on the Supply of Medical Radioisotopes;
2. undertake measures that facilitate supply of high-enriched uranium (HEU) until full conversion of the reactors and processes using it[1];
3. explore, assess, and propose ways to ensure future supply of high-assay low-enriched uranium (HALEU) for production of medical radioisotopes and as fuel for research reactors[1], based inter alia on the conclusions of the last working group report dedicated to the security of supply of HALEU, as published by ESA in July 2022;
4. explore ways of monitoring and forecasting the supply of a wide range of radioisotopes[1].

To exercise these tasks, ESA will also:

- further raise awareness about the importance of the security of supply of medical radioisotopes and their source materials;
- monitor the needs for HEU and HALEU for the production of medical radioisotopes and for fuelling research reactors;
- encourage (particularly in the context of the Euratom Research and Training programme) projects to secure fuel supply for research reactors and the production of medical radioisotopes.

ACTIVITY IV. PROVISION OF EXPERTISE, INFORMATION AND ADVICE ON THE NUCLEAR MATERIALS AND SERVICES MARKET

Entrusted with the role of the Nuclear Fuel Market Observatory, ESA will continue to monitor the nuclear fuel and services market and relevant research and innovation activities to identify trends likely to affect the EU's security of supply. It will continue to produce analyses and reports.

The Agency needs to retain its position as a reliable and well-respected source of high-quality and neutral analyses of the Euratom nuclear fuel cycle market.

To deliver on its market monitoring responsibilities, ESA will:

1. monitor and analyse market conditions and technological developments which are likely to have an impact on the nuclear fuel market, including by the annual survey;
2. publish the market analysis as part of its Annual Report;
3. publish and disseminate information, including through yearly natural uranium price indices, reports, studies, newsletters, timely updates on ESA's website and through the meetings of the Advisory Committee, Council's Atomic Questions Working Party and other.

ESA will also support the activities of the Advisory Committee's working groups.

ACTIVITY V. COOPERATION WITH STAKEHOLDERS AND PARTNERS

To efficiently carry out its tasks and contribute to security of supply, ESA will actively pursue its relations with EU and Euratom institutions and agencies, Member State authorities, operators, the research community and industry, and international players.

To further its objectives, ESA will:

1. provide its expertise and information on the nuclear market and contribute to any measures, which the Commission may wish to adopt and/or to propose to the legislator, aiming, under the current geopolitical circumstances, to consolidate security of supply for nuclear materials and services in the interest of European users;

2. cooperate with the European Commission services, in particular in order to:
    a. provide them with factual market information to take informed decisions as well as policy or legislative actions,
    b. contribute to Commission actions at international level aiming at facilitating future supply,
    c. mitigate risks related to transport and other issues related to the geopolitical situation,
    d. facilitate future supply of high-assay low-enriched uranium (HALEU) and related services for production of medical radioisotopes and as fuel for research reactors,
    e. contribute to the security of supply of a wide range of medical radioisotopes, in particular through supply monitoring and forecasting,
    f. facilitate stakeholder dialogue to address medical radioisotopes issues and concerns,
    g. contribute to monitoring the implementation of the Euratom cooperation agreements with non-EU countries as regards trade in nuclear materials,

h. contribute, on request, for matters within its purview, to the assessment of investment projects under Article 41 of the Treaty and international agreements communicated to the Commission under Article 103 of the Treaty;

3. proactively liaise with the Advisory Committee and its working groups in order to monitor the situation for factors and trends that could put at risk security of supply of nuclear materials and related services;
4. liaise with the operators and other concerned parties to encourage and facilitate diversification and other measures aimed at security of supply of nuclear materials and related services;
5. engage with medical radioisotopes supply chain stakeholders (industry, research and user organisations) in and outside the EU and representatives of Euratom Member States in order to:
    a. explore ways of monitoring and forecasting the supply of a wide range of radioisotopes,
    b. facilitate the continued supply of medical radioisotopes,
    c. assess the needs and secure the supply of HALEU;
6. in cooperation with the Euratom Member States concerned, with a view to advancing towards the minimisation of HEU use, coordinate the implementation of the Memorandum of Understanding with the US Department of Energy - National Nuclear Security Administration to facilitate supply of HEU and pave the way to securing future HALEU supply by an amended Memorandum with US partners.

ESA will also maintain regular contact with:

- international nuclear organisations such as the IAEA and the OECD NEA;
- other international players on the nuclear fuel market, including through membership of the World Nuclear Association, the World Nuclear Fuel Market and the European Nuclear Society.

ACTIVITY VI. MAKING ESA'S INTERNAL ORGANISATION AND OPERATIONS MORE EFFECTIVE

ESA will continuously review its procedures to further improve the management of the contracts it receives and the operations of its Nuclear Market Observatory. Given ESA's limited resources, it is of paramount importance to ensure that ESA remains effective and efficient.

To this end, ESA will focus its attention on:

1. ensuring compliance and effective internal control;
2. ensuring sound financial management, including by making use of the new Commission application "SUMMA";
3. ensuring competent, engaged and effectively utilised workforce,
4. keeping its work practices under review and updating them where appropriate;
5. the progressive implementation of ESA's document management and security policy with continued emphasis on the security of communication and information systems used by ESA;
6. the progressive implementation of the IT system supporting the work of ESA (NOEMI - Nuclear Observatory and ESA Management of Information).

***

[1] as provided for in the SAMIRA action plan

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