

# Orano Solutions



**orano**  
Giving nuclear energy its full value



# Giving nuclear energy its full value

The nuclear sector is an industry of the future. Its capacity to provide massive, safe, low carbon and competitively priced electricity gives nuclear energy its place among the energies of tomorrow.

Orano is a recognized international operator and reliable long-term partner in the field of nuclear materials, mastering cutting-edge technologies. We offer customers high value-added products and services throughout the entire fuel cycle and beyond through innovation and operational excellence in a competitive and profitable way.

We provide customers with efficient products, services and technologies in uranium mining, chemistry and enrichment, as well as used fuel recycling and nuclear waste management, nuclear packages and transport, support for operations and maintenance, decommissioning, and engineering.

In addition, beyond nuclear market, we provide a wide range of standards and tailored-made calibration sources for various applications and have started production of stable (non-radioactive) isotopes. Furthermore, our Extractive Metallurgy Innovation Center develops solutions for the recovery of radioactive and nonradioactive materials, and our ambition is to become a leader in the recycling of lithium-ion electric vehicle batteries. Last but not least, we aim to become an important player in nuclear medicine.

Orano contributes to the fight against global warming, to the preservation of natural resources through the development of circular economy, and to human health, all of which are major challenges of our century. We are making them central to our purpose: **to develop know-how in the transformation and control of nuclear materials, for the climate, for a healthy and resource-efficient world, now and tomorrow.**

# Our fundamentals

to rise to the challenges

## Our values

- Safety and security
- Customer satisfaction
- Continuous improvement
- Respect and people development
- Cohesion and team spirit
- Ethics, transparency and dialogue

## Our commitments

- Communities
- Climate
- Competencies
- Customer growth
- Cash

## Our strengths

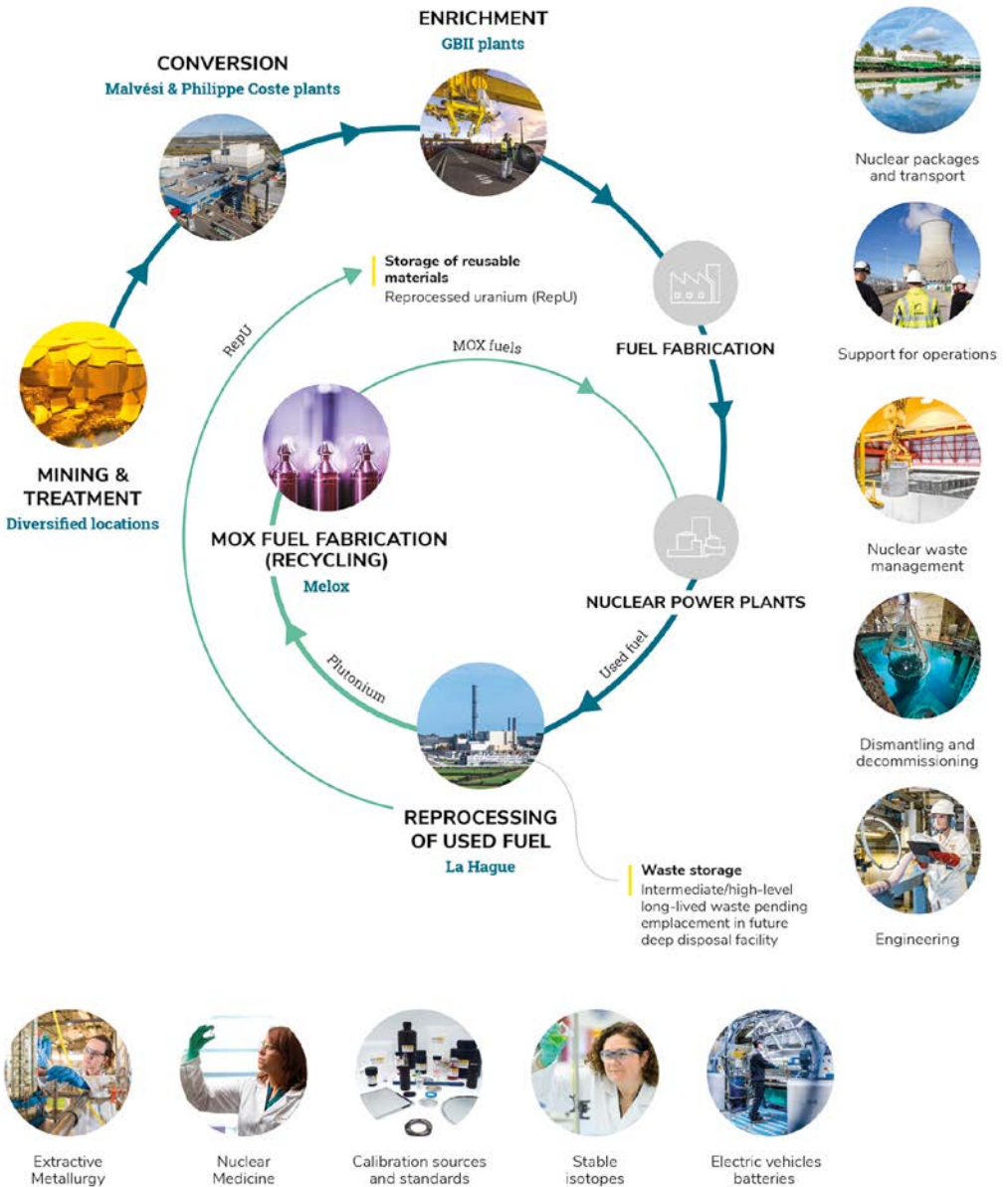
- An uncompromising culture of industrial and occupational safety
- A strong portfolio of nuclear customers
- Recognized industrial expertise and modern facilities
- Technologies that have set worldwide standards
- Teams renowned for their skills, their commitment, and their ability to succeed

Learn more:



# Comprehensive range of solutions

throughout the nuclear fuel cycle and beyond



# Orano

around the world



Revenue  
**€4.8 Bn**

Backlog  
**€30.8 Bn**  
(nearly 6.5 years of revenue)

**17,500**  
employees in the world

**Worldwide leader**  
in our key activities

**50%**  
of revenue from export markets

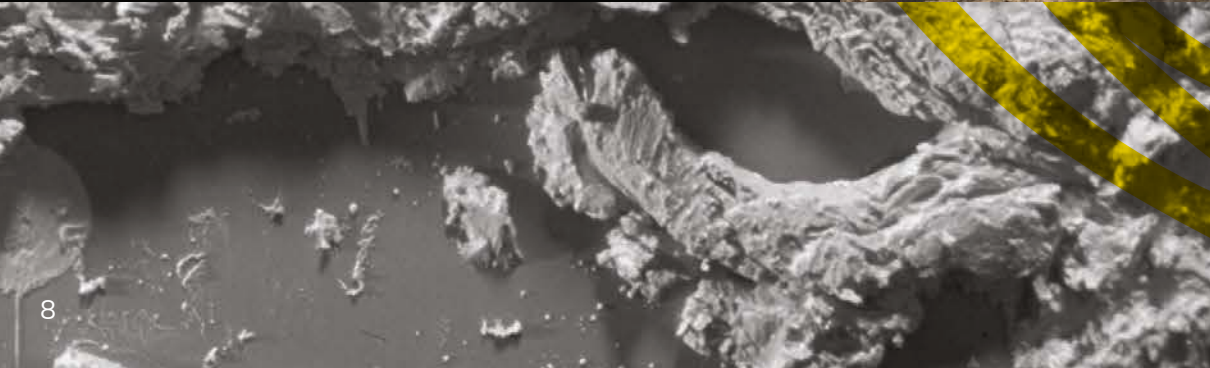


● Countries with Orano Mining and production operations

● Countries with Orano commercial presence



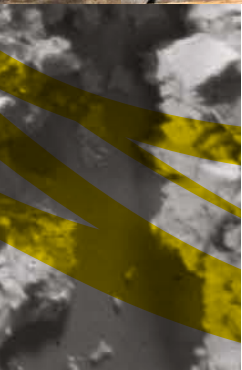
# Uranium Mining





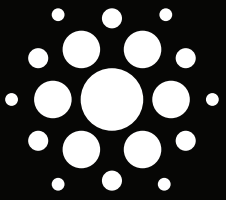


The first stage in the nuclear fuel cycle, Orano's mining operations encompass worldwide exploration, production and commercialization, as well as mining site remediation. Operating mines in Canada, Kazakhstan and Niger, the group is one of the world's leading uranium producers, with competitive production costs and mining techniques at the cutting edge of innovation, protective of the environment. Orano maintains a significant effort in exploration and innovation to optimize its projects, and has projects in different stages of development, to secure a sustainable and diversified supply for its customers.



Learn more:





# Uranium conversion and enrichment



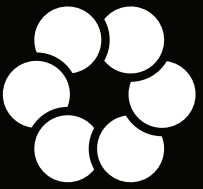


**B**acked by an unrivalled, integrated industrial platform and the world's most modern facilities – the Malvési and Philippe Coste conversion plants and the Georges Besse II enrichment plant – Orano is recognized by the industry for its technical skills and processes at the forefront of innovation. The group has solid industrial assets to provide high added-value services to customers, including the best processes and practices in terms of safety, competitiveness, and environmental footprint. For its customers, Orano has developed innovative, dedicated and competitive products and services, such as LEU+ and is keen to develop HALEU thanks to its complete know-how, to support both the current nuclear fleet and the development of new nuclear. Recently, it demonstrated its responsiveness by deciding to expand its enrichment capacity in response to major changes in market conditions and increased demand.

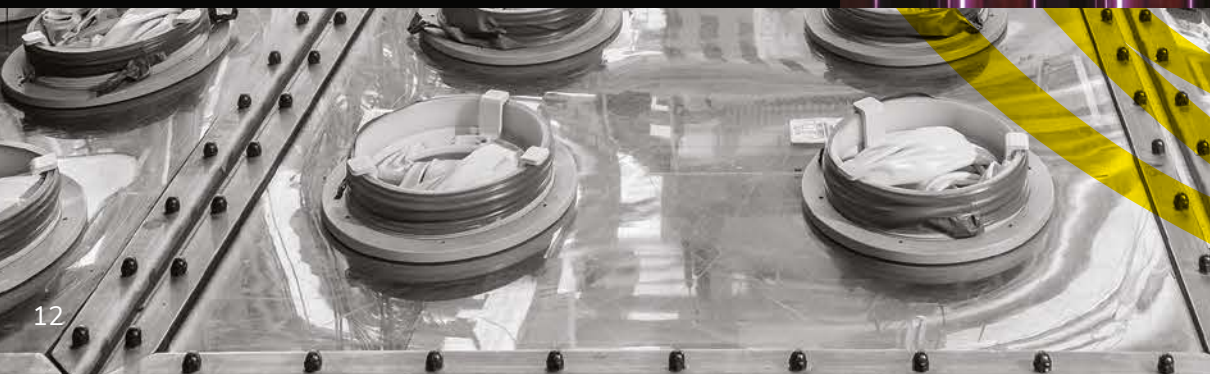


Learn more:



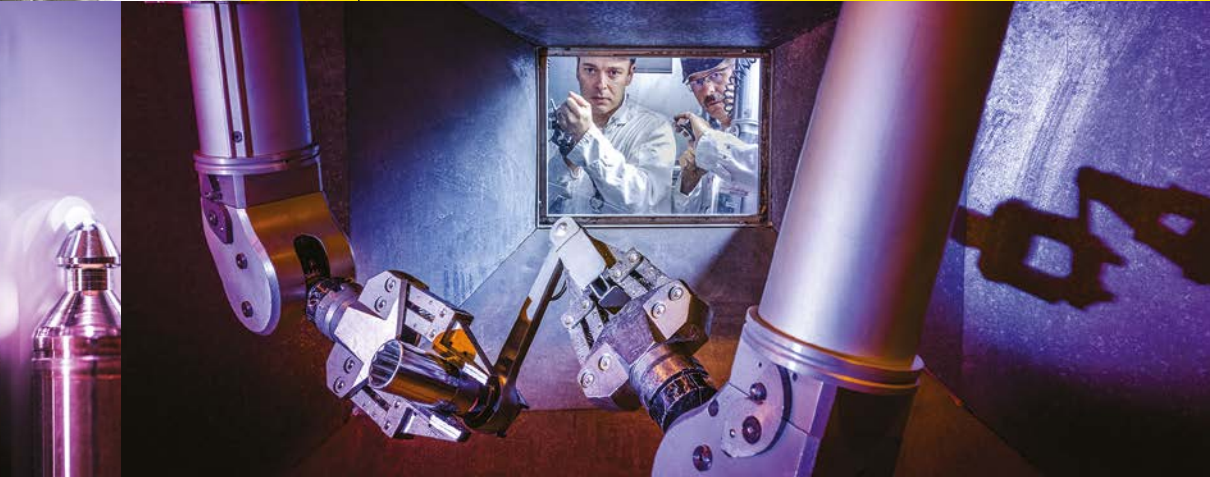


## Used fuel recycling



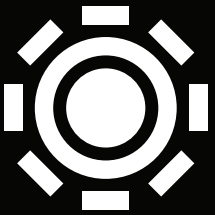


Orano provides adaptable solutions for used fuel management, including recycling, innovative interim storage, and a comprehensive range of used fuel services based on decades of international experience and proven capabilities. Thanks to the performance of its large-scale production plants La Hague and Melox, Orano is positioned as a leading international player in used fuel reprocessing and recycling. Its ability to recycle materials and to produce safe and stable radioactive waste packages can save approximately 25% to 40% of natural uranium resources and reduce final high-level radioactive waste volumes by 5 and their toxicity by 10. Orano supports the development of the fuel cycle for new nuclear, including SMRs and AMRs, by adapting used fuel management solutions to evolving market requirements.



Learn more:





# Nuclear packages and transport





Orano has been providing customers with integrated nuclear logistics solutions for more than fifty years. Across the fuel cycle, the group provides unique expertise in the design, licensing and manufacturing of casks, as well as in storage and shipping operations, whatever the purpose, destination and mode of transport (by land, sea, or rail).

Orano provides certainty to the key steps of transportation and storage for all types of nuclear material with licensing expertise, multi-purpose packages, routing management and fleet ownership.

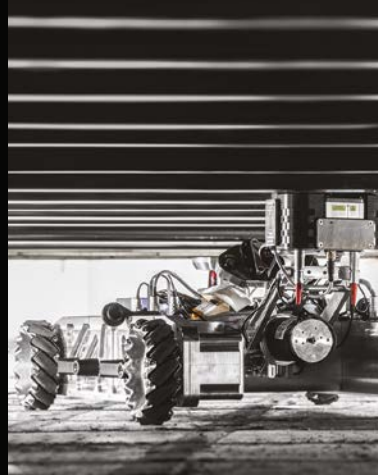


Learn more:





## Support for Operations



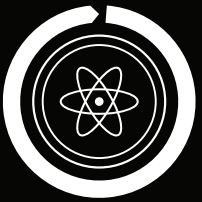


**A**s a nuclear operator, Orano has a world-renowned expertise in every phase of the plant equipment and nuclear facility lifecycle. Fifty years of experience have made Orano a leading supplier of support services to nuclear site operations spanning the entire nuclear lifecycle from facility management, operations, maintenance, and logistic support to radiological analysis, safety, and training.



Learn more:





# Nuclear waste management



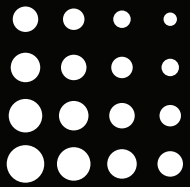


Orano provides full-scope services with optimized strategies and technical expertise for nuclear waste management from characterization to disposal, including treatment, conditioning and volume optimization. Over the years, Orano has built a sound expertise for the customized management of all types and levels of nuclear waste, covering needs from low to high complexity.



Learn more:





## Dismantling and Decommissioning



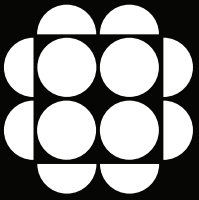


O rano deploys leading capabilities for the end-of-life management of nuclear reactors and nuclear fuel cycle facilities. Thanks to its unique experience as an operator and a supplier, the group combines proven and new technologies as well as comprehensive expertise to deliver reliable projects, from scenarios and planning to operations, including waste management strategies.



Learn more:



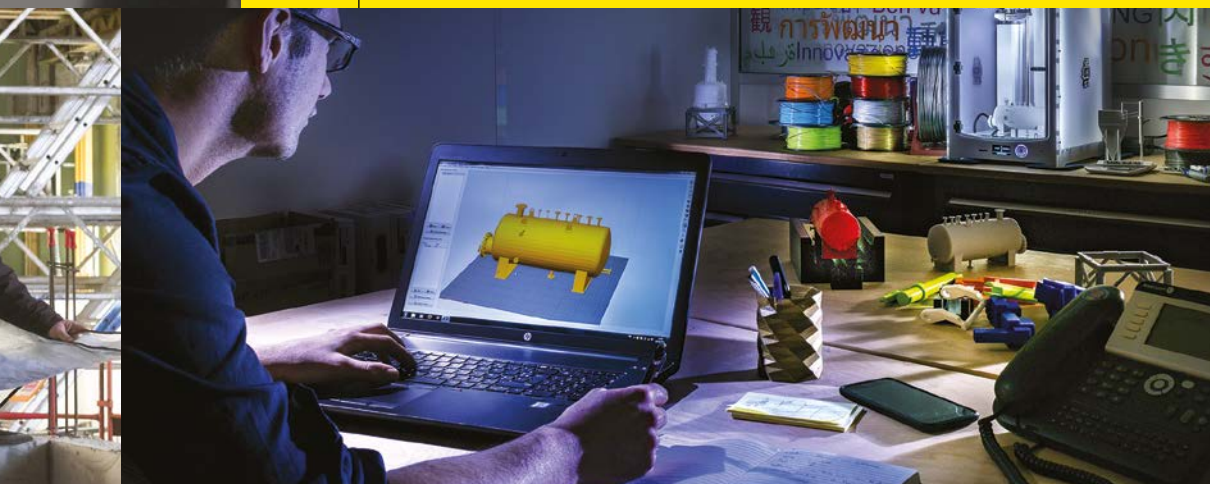


# Engineering



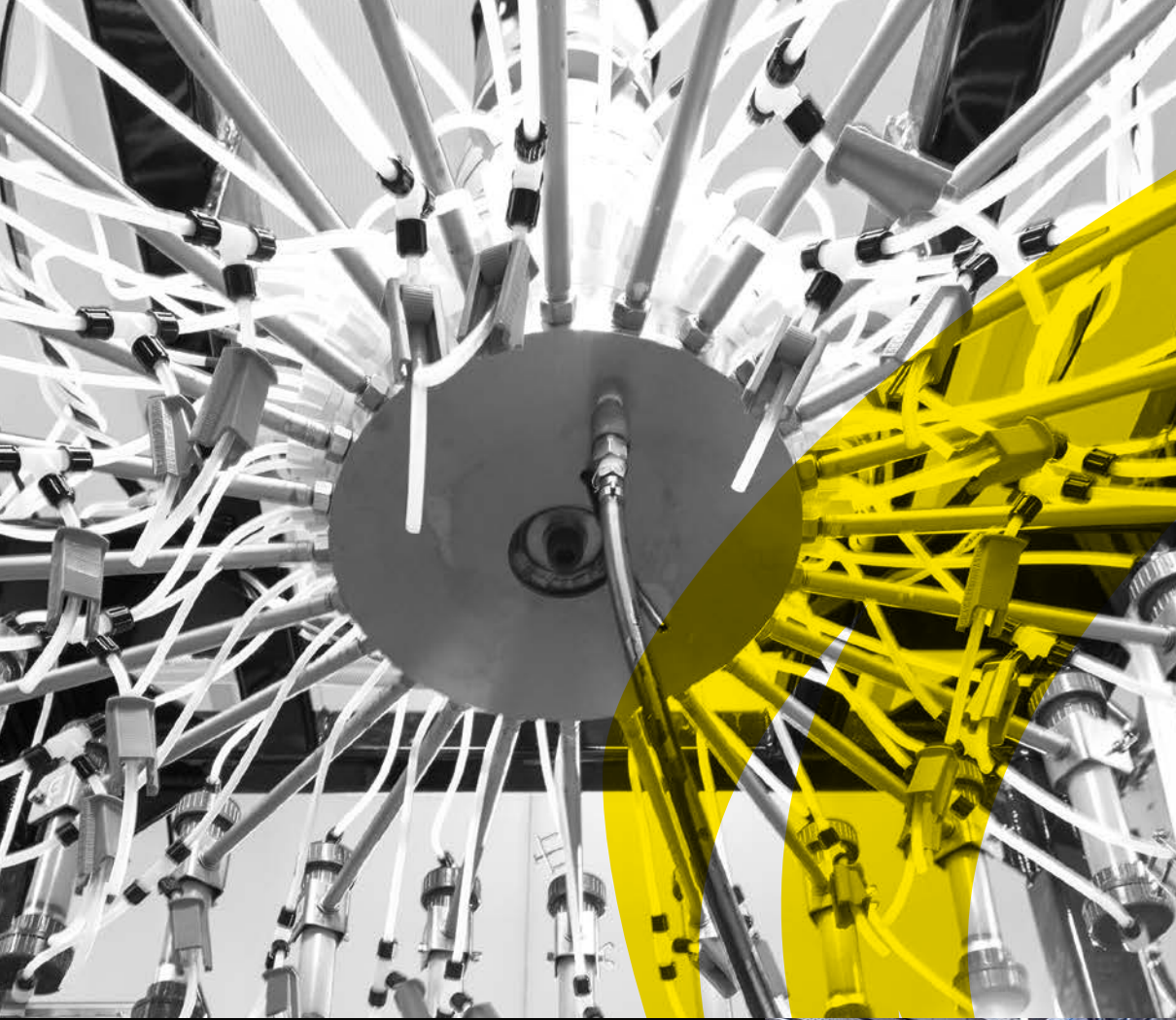


With widely acknowledged expertise in nuclear fuel cycle engineering, Orano works both for external customers and for its own needs. Services range from operational support engineering to complete EPCM (Engineering, Procurement, Construction, Management) missions. Its engineering teams are experienced across the full scope of the group's operations. Orano is also aiming to develop its business in nuclear segments outside of the fuel cycle as well as in non-nuclear applications.



Learn more:





## Extractive Metallurgy







Orano's Extractive Metallurgy Innovation Center (CIME) develops end-to-end or tailor-made solutions for the recovery of radioactive and nonradioactive materials, from technical studies through to the implementation and commissioning of industrial pilots, benefitting from a state-of-the-art environment.

The CIME meets the needs of customers in the fields of energy, environment, industrial recycling, health, minerals and ores processing, and engineering. With facilities renewed in 2021, the CIME is strengthening its support to its customers and continuing its diversification into innovative projects in the broader fields of energy transition and the circular economy.



Learn more:





# Nuclear medicine





Through its Orano Med subsidiary, the group is at the forefront of research in nuclear medicine and is developing new targeted therapies against cancer using the unique properties of lead-212 ( $^{212}\text{Pb}$ ). Lead-212 is a very promising radioisotope that targets the cancer cells while limiting toxicity to nearby healthy cells. In order to produce these treatments and distribute them, Orano Med has developed a global industrial platform. This platform includes two Lead-212 production facilities, one in Bessines-sur-Gartempe (France), the other in Plano (Texas, USA). The company also inaugurated in 2024 the world first industrial-scale lead-212 radiopharmaceuticals manufacturing facility in Indianapolis (Indiana, USA). This represents a major step towards large-scale production of these innovative treatments.



Learn more:






# Calibration sources and standards





Orano, through the LEA (Radioactive Standards Laboratory - Laboratoire d'Etalons d'Activité), provides a wide range of standards and tailored-made calibration sources for various applications (medical, industrial, environment, radiation protection, research ...). LEA's highly reliable sources production contributes to calibrate, control and secure multiple sectors equipment. It also offers turnkey project management solutions, including high activity sources' supply, installation and used sources recovery.



Learn more:





Stable  
isotopes



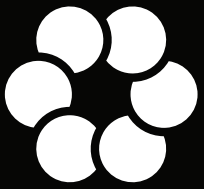


**H**arnessing its expertise and mastery of cutting-edge technologies in the transformation, conversion and enrichment of uranium, Orano began producing Stable Isotopes in 2023 and delivering its customers on time and with the required quality. These non-radioactive forms of atoms, produced in a very high isotopic and chemical purity and in multiple chemical forms (oxide, metal, gas, ...), are used in a large number of applications, notably in the fields of medical imaging and oncology, microelectronics industry and basic research.



Learn more:





Electric  
vehicle  
batteries







Orano's goal with the Battery Program is to become a key player in the lithium-ion (Li-ion) electric vehicle battery ecosystem and particularly in battery recycling for the Gigafactory market in France and Europe. Batteries contain rare metals such as cobalt, nickel, lithium and manganese, for which Orano is developing a completely new low-carbon process - notably at its Extractive Metallurgy Innovation Center - to efficiently recover these valuable materials, ready for industrialization by 2026. The battery program will build on its operational industrial pilot, which is testing the safe and efficient pre-processing of end-of-life batteries and the hydro-metallurgical purification of the recycled metals, which will then be reused in the production of new cathode active materials (CAM) and their precursors (PCAM) required for electric batteries.



Learn more:



# Organization and contacts

The role of the Orano Executive Committee is to set the Group's direction and ensure that the decisions are implemented consistency under the authority of the Chief Executive Officer (CEO). It provides support to the CEO in managing the company and implementing the strategy and the general policy defined by the Board of Directors.

Orano sales teams located in the European, North America and Asian markets maintain strong relationships with each customer. They provide innovative, tailor-made and competitive solutions and support customers' needs all around the world.



Learn more:





July 2024 - Marketing Department

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As a recognized international operator in the field of nuclear materials, Orano delivers solutions to address present and future global energy and health challenges.

Its expertise and mastery of cutting-edge technologies enable Orano to offer its customers high value-added products and services throughout the entire fuel cycle.

Every day, the Orano group's 17,500 employees draw on their skills, unwavering dedication to safety and constant quest for innovation, with the commitment to develop know-how in the transformation and control of nuclear materials, for the climate and for a healthy and resource-efficient world, now and tomorrow.

Orano, giving nuclear energy its full value.

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**orano**

Business corporation with a Board of Directors. Capital of 132,076,389 euros.

Head office: Orano - 125 avenue de Paris - 92320 CHATILLON (France)

Tel.: +33 (0)1 34 96 00 00 - Fax: +33 (0)1 34 96 00 01

**Energy is our future. Don't waste it!**