

Front-End Solutions to Your Business Needs

Uranium Mining, Chemistry, Enrichment



orano
Giving nuclear energy its full value



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ARNE'S

Securing your fuel cycle supplies for the long term



Our Mission

Orano is committed to being a long-term reliable partner in nuclear fuel cycle operations, creating value to your specific needs, through innovation and operational excellence, in a competitive and profitable way.

Our Vision

Having access to a competitive energy source that supports the fight against climate change is a key challenge for society and the environment. In order to secure the electricity supply in mature markets and to support the growing demand in developing countries, particularly throughout in Asia, **nuclear power** is and will continue to be an **essential component of the global energy mix**.

What drive us

Orano transforms nuclear materials so that they can be used to support the development of society, first and foremost in the field of energy. Orano offers products, services and technologies in uranium mining, chemistry and enrichment as well as in used fuel and nuclear waste management, nuclear material transportations, engineering, services and decommissioning.

Our values

- Safety
- Customer satisfaction



- Continuous improvement
- Respect for people and development
- Cohesion and team spirit

Our strengths

Orano has real assets to meet these challenges:

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

Our Front-End solution drivers

- Discover, develop and operate profitable uranium deposits to ensure the security of your supply.
- Supply high-added-value services in chemistry and enrichment, with the best practices and best processes in terms of safety and competitiveness.

Our global network

Anticipate your needs, meet your expectations is our top priority. Our sales teams located in the European, North American and Asian markets entertain close relationship with each customer. Orano feeds your requirements all around the world.

MINING

One of the world's leading uranium producers



Innovation Center. Operations in Niger and Kazakhstan.

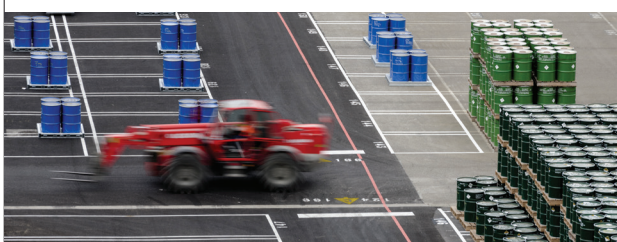
«We offer reliable and competitive long-term supply for our customers. This implies controlling costs in this period of low prices and continuous cash flow generation to finance our investments. In addition to preserving our existing sites, we maintain a significant effort in exploration and innovation to optimize our projects and truly secure the longer term.»
Nicolas Maes, Senior Executive Vice President, Mining.

- Among the 3rd largest uranium producers in the world with circa 15% of annual production (8,000 MTU in 2018). One of the world's most **diversified** uranium players, operating 5 sites on 3 continents, with **advanced technologies**:
 - in **Canada** since the 70s: access to production from McArthur and Cigar Lake, the two highest-grade and largest uranium mines in the world. Operator of McClean Lake, the only mill to treat undiluted very high grade Athabasca ore.
 - in **Kazakhstan** since the 90s: KATCO, the world's largest ISR mine operated with innovative wellfield optimization technologies.
 - in **Niger** since the 70s: SOMAIR, an open pit mine using the heap-leaching technique, and COMINAK, one of the largest conventional underground uranium mine.
- A diversified portfolio of **projects** (in Niger, Canada, Mongolia, and Namibia) in **different stages of development**. Reserves and weighted resources providing our customers with **twenty years worth of production visibility** (187,000 MTU in 2018). Continuous investment in **exploration** in the most promising countries, along with the unique **knowledge** and expertise of our 200 geologists.
- Developing highly efficient technologies and techniques on uranium recovery processes at our **Mining Innovation Center**.
- A **responsible mining operator** with a long-term and sound track-record: ISO 14001 & OHSAS 18001 certifications, support of social projects, long-term relationship with stakeholders... Implementing best international practices as member of the **International Council of Mining and Metals**. Our report and practices are audited annually by a third party.
- Long-term relationship with **customers** worldwide, innovative and competitive offer, as well as safe deliveries.

Expert in each stage of the mine life cycle: exploration, project development, production and remediation. 70 years of experience.

CHEMISTRY

Modern and right-sized industrial complex



Conversion services carried out at our facilities in France for our customers worldwide.

The only industrial conversion facilities in the world being renewed. Philippe Coste plant implements innovative processes with a reduced environmental footprint.

- **The new Philippe Coste conversion plant** located at the Tricastin site has now been commissioned at the end of 2018. The plant's ramp up will be smoothly managed up to 15,000 tons of installed capacity by 2021, after the commissioning of a new fluorine production facility.
- Processing **all forms** of concentrates from all origins, Philippe Coste plant offers an international **safe** storage haven for concentrates and UF₆ owned by our customers worldwide.
- For more than 55 years, Malvési-Tricastin is an integrated and **efficient chemistry-enrichment platform** that enables to mitigate transportation risk and reduce notification time. Its operations also encompass defluorination and denitration (with a capacity of 13,000 and 1,400 metric tons per year respectively) and cylinders maintenance.
- Latest **nuclear safety** requirements met: increased seismic resistance, confinement workshops...
- **Innovative** and proven technology used, such as the Isoflash technology and effluent management workshop. **Environmental** footprint reduced even further: ammonia -75%, nitric acid reduced 50% through recycling, industrial water -90%...
- **A responsible company:** ISO 9001, ISO 14001 and OHSAS 18001 certifications, well integrated locally and close relationship with stakeholders, publication of an annual Corporate Social Responsibility report.
- Long-term relationship with **customers** worldwide, innovative and competitive offer, as well as safe deliveries.

«We are committed to delivering high-value-added services for our customers over the long-term, with a unique European location and an integrated industrial platform, based on best practices and processes.» Jacques Peythieu, Senior Executive Vice President, Chemistry-Enrichment.

ENRICHMENT

A state-of-the-art facility using the most competitive technology



Enrichment services carried out at the Tricastin site in France for our customers worldwide.

Georges Besse II, a diversified and flexible supply in support of your procurement strategy.

- **Georges Besse II facilities**, with its South and North units, reached its full production capacity of 7.5 million SWU at the end of 2016. Significant, right-sized plants have been built, backed by our strong backlog.
- The **largest** enrichment facility in Europe, using the most **efficient** and proven enrichment technology (TC12 and TC12+ centrifuges).
- Dedicated support services: start of RECII workshop in 2015 dedicated to high-tech, **high-quality cylinder** filling.
- Latest **nuclear safety** requirements (e.g. increased seismic resistance, confinement workshops) and **environmental** footprint reduced even further (energy consumption divided by 50, water consumption -100%).
- The North unit is also suitable for the enrichment of **reprocessed and depleted uranium**.
- For more than 55 years, Malvési-Tricastin is an integrated and **efficient chemistry-enrichment platform**: mitigation of transportation risk and notification reduction. Highly skilled operators, and operational experience and excellence since Eurodif plant operations.
- **A responsible operator**: ISO 9001, ISO 14001 and OHSAS 18001 certifications, well-integrated locally and close relationship with stakeholders, publication of an annual Corporate Social Responsibility report.
- Long-term relationship with **customers** worldwide, innovative and competitive offer, as well as safe deliveries.

«We are focused on being the leading platform in the world, developing innovative, dedicated products and services for our customers. We strive to meet your requirements with additional high value and competitive solutions.» Jacques Peythieu, Senior Executive Vice President, Chemistry-Enrichment.



Orano transforms nuclear materials so that they can be used to support the development of society, first and foremost in the field of energy.

The group offers products and services with high added value throughout the entire nuclear fuel cycle, from raw materials to waste treatment. Its activities, from mining to dismantling, as well as in conversion, enrichment, recycling, logistics and engineering, contribute to the production of low carbon electricity.

Orano and its 16,000 employees bring to bear their expertise and their mastery of cutting-edge technology, as well as their permanent search for innovation and unwavering dedication to safety, to serve their customers in France and abroad.

Orano, giving nuclear energy its full value.

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Energy is our future. Don't waste it!