News

At the “Choose France” Summit, *new*cleo announces major investment plan of EUR 3 billion in France by 2030

30 MWe demonstrator and pilot plant for innovative fuels for new generation reactors in France by 2030

LYON, France / LONDON, UK, 15 May 2023 – Founded in September 2021, *new*cleo is developing a next-generation nuclear reactor that utilises recycled fuel. This innovative technology will meet the main challenges facing the industry: safety, costs, and waste. *new*cleo’s ambition is to contribute to accelerating the decarbonisation of the French economy and, alongside the French and European nuclear industry, to act in favour of the energy transition.

*new*cleo's project is to develop, build, and operate fourth-generation Small Modular Reactors (SMRs) in France, Europe, and beyond, as well as the manufacture and multi-recycling of MOX fuel (Mixed Oxides). The group has established itself in France with the aim of commissioning a 30 MWe and irradiation reactor in 2030, as well as a pilot unit for innovative fuels.

SMRs have several advantages: they are designed to be mass-produced in a factory and transported to installation sites, and their design is standardised in strict compliance with international requirements. *new*cleo's Lead Fast Reactor (LFR), the first of its kind, will meet the commercial demand for small-scale decarbonised power generation.

*new*cleo's approach will foster the development of new industrial ecosystems, opening the way to new fields of application: hydrogen production, cogeneration for European micro-grids, low-carbon desalination, decarbonisation of the economy, production of medical isotopes, and energy independence.

Fostering industrial and energy sovereignty, *new*cleo's ambition is to implement a global solution contributing to the closure of the fuel cycle through the multi-recycling of MOX fuel, to optimise the use of resources to minimise mining, and to reduce the volume and activity of residual radioactive materials.

MOX is a mixture of oxides resulting from the processing of spent fuel from nuclear power plants, the use of which is already authorised in nuclear reactors in France and other countries. It is composed of depleted uranium (a by-product of the enrichment process of conventional reactors) and plutonium from conventional light water reactors. In the long run, the reactors designed and built by *new*cleo will be able to transmute minor actinides (long-lived radioactive elements) into much shorter-lived fission products.

The industrial-scale manufacture of MOX in France will guarantee the future supply of fuel required for the operation of *new*cleo's French LFR 30 MWe prototype, as well as for future commercialised reactors.

Building on decades of research and development related to fast neutron reactors in France,

*new*cleo chose to establish its French subsidiary in Lyon in June 2022. This site, which already employs 70 engineers and other skilled personnel, is rapidly expanding with dozens of new team members expected to join by the end of 2023. Key innovative technologies will be developed through research programmes with French and European organisations and manufacturers. Engineering and supply chain management will be organised at the heart of the French industrial fabric.

The commissioning of the 30 MWe LFR demonstrator and the associated MOX fuel pilot plant will directly create more than 500 skilled jobs in France by 2030. In total, over the period 2023-2030, *new*cleo plans to invest up to EUR 3 billion in France in the form of industrial investments, R&D and engineering expenses. This overall budget makes *new*cleo one of the largest investors at the Choose France 2023 summit.

Stefano Buono, *new*cleo Chairman and CEO, commented:

"France is on the cusp of a nuclear renaissance thanks to the efforts of the French authorities and in particular the President of the Republic, Mr. Emmanuel Macron. The French government has demonstrated a strong commitment to the nuclear industry.

France, like all European nations, needs to secure access to decarbonised, sustainable, and circular energy. Our solutions will contribute to energy sovereignty, the decarbonisation of French industry, and economic resilience. We are determined to pursue our efforts by relying on our know-how and on the entire French nuclear ecosystem, whose expertise is essential to relaunch innovation in the nuclear field."

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Notes to editors

About *new*cleo

Privately funded and headquartered in London, *new*cleo was launched in 2021 – and since raised a total of EUR 400m – to be an innovator in the field of nuclear energy. Its mission is to generate safe, clean, economic and practically inexhaustible energy for the world, through a radically innovative combination of existing, accessible technologies.

With visionary co-founders, *new*cleo capitalises on thirty years of R&D activity in metal-cooled fast reactors and liquid-lead cooling systems, and our senior management and advisory team can boast hundreds of years in cumulative hands-on experience.

*new*cleo's technology, mostly comprising a novel approach to already qualified solutions, addresses equally well the three challenges affecting the nuclear industry to date: waste, safety and cost.

- **Waste:** fast reactors are capable of efficient "burning" (i.e., fission) of depleted uranium, plutonium and Minor Actinides. When operated with MOX fuel generated from reprocessed nuclear waste, *new*cleo's reactors not only ensure sustainability by closing the fuel cycle, but can also boost energy independence.
- **Safety:** lead-cooled reactors operate at atmospheric pressure. The properties of lead (thermal capacity and conductivity, boiling point, chemically inert, low neutron activation, shielding properties) together with *new*cleo's passive safety systems ensure very high levels of safety
- **Cost:** *new*cleo's reactor design has been optimised over the last 20 years leading to the concept of an ultra-compact and transportable 200MWe module with improvements in energy density compared to other technologies. Costs are kept low by means of simplicity, compactness, modularity, atmospheric pressure operation and elevated output temperature.

*new*cleo is also working to significantly invest in MOX fuel manufacturing in developed countries, extracting energy from the current nuclear industry by-products.

*new*cleo is ready to develop a new, sustainable, and completely safe way of generating nuclear energy that will help humanity reach zero emissions, and mitigate of global warming.

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