News

France 2030: *new*cleo awarded grant in “Innovative nuclear reactors” call for projects

The reactor developed by *new*cleo was selected as part of the "Innovative nuclear reactors" call for projects under the France 2030 investment plan

LYON, France / LONDON, UK, 9 June 2023 – *new*cleo was founded in September 2021 with an ambitious vision: to develop, build and operate Generation IV small modular reactors (SMRs) in France, then in Europe and beyond, as well as the manufacturing and multi-recycling of MOX (Mixed Oxides) fuel.

We are delighted to announce that *new*cleo's 30 MWe LFR (Lead Fast Reactor) demonstration and irradiation reactor with lead coolant was awarded a grant as part of the "Innovative nuclear reactors" call for projects.

The "Innovative nuclear reactors" call for projects is financed by the "France 2030" investment plan, which devotes EUR1 billion to the nuclear industry. Its aim is to develop breakthrough small-scale nuclear reactor concepts in France, with optimised waste management.

*new*cleo's innovative technology serves this objective, helping to address the three challenges affecting the nuclear industry: safety, cost and waste.

- One of lead’s advantages is passive safety, eliminating the risk of leakage (working at atmospheric pressure, chemically inert, shielding properties, thermal capacity, etc.). It also provides intrinsic physical protection for the reactor: if necessary, its easy-to-reach solidification (330°C) traps the core in an inaccessible, non-transportable sarcophagus.
- Furthermore, SMRs offer several advantages: they are designed to be mass-produced in a factory and transported to an installation site, and their design is standardised in strict compliance with international requirements. These reactors will meet the commercial demand for small-scale, low-carbon power generation units, and open the way to new applications (hydrogen, cogeneration, medical isotopes, etc.).
- With the multi-recycling of MOX fuel - a mixture of oxides resulting from the processing of spent fuel from nuclear power plants - *new*cleo aims to implement a global solution contributing to closing the fuel cycle. *new*cleo's fast-neutron reactors will help optimise resources and contribute to energy independence by using recyclable materials from the fuel cycle. In the long term, these reactors will be able to transmute minor actinides (long-lived radioactive elements) into much shorter-lived fission products: in other words, to burn off much of the nuclear waste from current reactors.

*new*cleo's ambition is to contribute to accelerating the decarbonisation of the French economy and promote industrial and energy sovereignty, alongside the entire French nuclear industry. The Group has established a presence in France with the aim of commissioning a 30 MWe

demonstration and irradiation reactor by 2030, as well as a pilot unit for innovative fuels. Their commissioning will create more than 500 direct skilled jobs in France by 2030, with an overall investment of up to EUR3 billion over the same period.

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

"We would like to thank the government representatives involved in France 2030 for their confidence. We are very proud of this 'label', granted after a long phase of in-depth analysis by technical experts and authorities, and which confirms the technical strength and strategic importance of our project. This label and the associated funding are a strong signal to the entire industry, and a testament to the tremendous work undertaken by our teams and partners since the launch of our project in France."

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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