

## Press Release

### Signature of a partnership agreement between NAAREA and Phoenix Manufacture for the industrialization of the XAMR® microreactor

**23 January 2025 – Nanterre – NAAREA, a French deep tech company developing a fourth-generation molten salt fast microreactor, has joined forces with Phoenix Manufacture, a French company based in Niort specializing in the industrialization of complex devices for the military, nuclear, petroleum, aerospace and robotics sectors. The aim of this partnership is to structure the industrialization of the XAMR® microreactor NAAREA is developing, integrating the key phases of the project: design, prototyping, first-of-a-kind (FOAK) manufacturing and mass production. To meet these challenges, NAAREA and Phoenix Manufacture will harness technologies such as 3D printing and envisage creating a joint plant including specially designed reprocessing facilities.**

NAAREA is pursuing its industrial development by establishing a partnership with Phoenix Manufacture, a company based in Niort and supported by the Nouvelle-Aquitaine Region, specializing in industrial precision engineering and the design and manufacturing of mechanical systems for the industrial and defence sectors.

This partnership aims to implement industrial solutions for the various phases of development of NAAREA's XAMR® nuclear microreactor, in particular for prototyping, first-of-a-kind (FOAK) production and mass production.

The collaboration between NAAREA and Phoenix Manufacture is based on five main phases extending until 2032:

1. Preliminary phase: validation of raw materials and the manufacturability of parts designed by NAAREA for additive manufacturing.
2. Prototyping of the components of the XAMR® microreactor.
3. Series production: providing the necessary parts for the FOAK and mass production.
4. Scaling up production capacity: study on the creation of a joint production facility for components of the XAMR® microreactor, pooling of resources and mutual skill development.
5. Reprocessing: evaluation of solutions for recycling and recovering waste material resulting from production and the recycling of used components.

This partnership reflects an innovative approach, with the incorporation of additive manufacturing as a production process. 3D printers will be used to produce components for the XAMR® microreactor. Phoenix Manufacture will lend its expertise to assist NAAREA with design reviews and the manufacturing of these parts throughout the project phases. This collaboration reflects NAAREA's commitment to working with French partners, contributing to technological development and promoting local French industrial capabilities.

*"We have chosen to rely on the expertise and skill of Phoenix Manufacture, a French company that will contribute to the design of an XAMR® microreactor made in France. Incorporating additive manufacturing represents a major asset for us: it will allow us to produce parts with consistent quality controlled in situ at each step of the manufacturing process. Additive manufacturing also makes it possible to lower production costs, reduce assembly needs and meet the highest standards in terms of safety and security, which remains our absolute priority,"* explained Jean-Luc Alexandre, Founder and CEO of NAAREA.

*"We are proud of this strategic partnership with NAAREA, since additive manufacturing is at the heart of our vision for French reindustrialization. We firmly believe that this disruptive technology is profoundly transforming all industries, in particular the nuclear sector. In our collaboration with NAAREA, we share a common ambition: to become key agents of change. Together, we are creating positive momentum to strengthen sectors contributing to sovereignty and shape an ambitious technological future."* Marco Calcamuggi, CEO and co-founder of Phoenix Manufacture.

#### **About NAAREA:**

NAAREA (Nuclear Abundant Affordable Resourceful Energy for All) was founded in 2020 by Jean-Luc Alexandre and Ivan Gavriloff to help meet the objectives of energy sovereignty, decarbonization and improving the energy mix. NAAREA is developing the XAMR®, a nuclear microreactor capable of producing electricity (40 megawatts electric) and high-temperature heat (80 megawatts thermal) by burning long-lived nuclear waste recovered from spent fuel from traditional nuclear power plants.



The XAMR® microreactor is designed to be industrially mass-produced and installed in close proximity to consumers, namely in the mobility sector, electro-intensive industries and remote areas. NAAREA currently has 250 employees and benefits from the support of the French Alternative Energies and Atomic Energy Commission (CEA) and French National Centre for Scientific Research (CNRS), as well as industry players such as Assystem, Dassault Systèmes, Orano and Amentum. A carbon-free and non-intermittent energy source planned to be on the market by 2030, NAAREA's XAMR® microreactor is paving the way for sustainable and innovative nuclear energy that supports energy independence, increased resilience and the circular economy. NAAREA is a winner of the "Innovative Nuclear Reactors" call for proposals under the France 2030 investment plan and a beneficiary of the French Tech 2030 support programme.

Learn more at: [www.naarea.fr](http://www.naarea.fr)

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**About Phoenix Manufacture:**

Phoenix Manufacture has established itself as a key player in France's industrial redevelopment, drawing on 30 years of combined experience in additive manufacturing. With the first French megafactory dedicated to metal additive manufacturing, or 3D printing, the company is redefining industrial production standards by combining mass production with exceptional quality. Serving strategic sectors such as energy, aerospace, defence, and the automotive industry, Phoenix Manufacture stands out for its expertise in the industrialization of complex products, such as drones. Incorporating additive manufacturing as a disruptive force opens the door to new opportunities for innovation and competitiveness for industrial businesses. In addition to its economic performance, additive manufacturing helps meet environmental challenges by considerably reducing the ecological impact of the manufacturing industry. Based in the Mellois region of western France, the factory plans to hire 30 new employees in 2025. This project, fully in line with France's national plan for 3D printing ("Impression 3D France") and supported by the Nouvelle-Aquitaine Region, actively contributes to the emergence of an independent and competitive French additive manufacturing industry.

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