RÉDACTION JUNE 9, 2023

FRANCE 2030:

progress in sustainable nuclear energy and pursues its ambitious development

NAAREA, an innovative French company developing a fourth-generation nuclear microreactor, the XAMR® microreactor (eXtrasmall Advanced Modular Reactor), is a winner of the "Innovative Nuclear Reactors" call for proposals under the France 2030 investment plan. This government funding of €10 million reflects the increasingly strong support on the part of public authorities for the development of Generation IV molten salt fast neutron reactors. This important step must now allow NAAREA to accelerate its development and contribute as soon as possible to the objectives of decarbonization and achieving full and complete energy sovereignty.

NAAREA's solution will produce electricity and heat from

molten salt with a fast neutron spectrum, thus enables a fully closed fuel cycle. Thanks to its small size, the XAMR® microreactor does not require any water, can be mass-produced and can be quickly deployed anywhere, to produce 40 megawatts electric to support industrial sites and communities in even the most remote areas. This solution will help reduce the energy bills of even the most energy-intensive industries. NAAREA will retain ownership of its microreactors and will operate and maintain them for its customers.

NAAREA selected as part of the France 2030 plan

After submitting its application for the “Innovative Reactors” call for proposals during the summer of 2022, followed by its presentation before a panel of experts comprising Bpifrance and the French General Secretariat for Investment (SGPI) that implements France 2030, NAAREA’s XAMR® microreactor was selected as a winning project. This selection by the public authorities constitutes a validation of NAAREA’s strategic direction. Its solution will help meet the objectives France has set for 2050 in terms of energy sovereignty, decarbonization and the energy mix. The sum awarded for this initial call for proposals phase, added to the

research and development, and related testing, and to continue increasing its personnel, from 90 employees in March 2023 to 200 by the end of the year.

NAAREA has set in place an ambitious timetable marked by three main phases:

- Mid-2023: finalization of the first digital twin
- 2027: commissioning of a prototype
- By 2030: construction of a manufacturing facility and launch of series production

NAAREA is aiming for €2 billion in investments in France by 2030 and expects to create 1000 jobs in the country. This programme for investing in the future will thus create a true cluster of competitiveness in the sector of nuclear energy contributing to the circular economy.

NAAREA 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 Framatome.

“Sustainable and innovative nuclear power must produce energy that is safe, decentralized, abundant and controllable. That’s the whole purpose of our work at NAAREA: to meet the growing need for electricity as a complement to traditional nuclear energy and renewable energies in a way that strengthens France’s energy sovereignty and independence”,

2030 label and wish to thank Prime Minister Elisabeth Borne and the team of the General Secretariat for Investment for this active support of NAAREA's XAMR® microreactor project."

Promoting training and the transmission of knowledge and expertise in fourth-generation nuclear energy

In line with the recent presentation of a "Marshall Plan" for nuclear skills by the Université des Métiers du Nucléaire, NAAREA is reaffirming its commitment to research, knowledge transfer, skills development and training to support the emergence of fourth-generation nuclear energy as a French centre of competitiveness and excellence. This commitment is reflected in numerous academic partnerships in higher education, for example with the Laboratory of Subatomic Physics and Cosmology in Grenoble and Paris-Saclay University's Irène Joliot-Curie Laboratory.

"Since its inception, I have set out to make NAAREA a French company committed to transferring French nuclear expertise. With this aim, I wanted to bring together the professionals and experts who worked on the Phénix and Super Phénix reactors and the ASTRID project alongside young engineers and

that knowledge and skills are shared. This is what makes our project so exciting: we're designing an innovative, sustainable microreactor while training passionate young people who are eager to contribute to the sustainability of our planet", explains Jean-Luc Alexandre.

France 2030: a major investment plan for France

Presented on 12 October 2021 by President Emmanuel Macron, the France 2030 plan sets out a twofold ambition: sustainably transforming key sectors of our economy (energy, automotive, aeronautics and space) through technological and industrial innovation, and positioning France as not only a player but as a leader in tomorrow's world. €54 billion will be invested to help French businesses, universities and research organizations fully succeed in achieving their transitions in these strategic areas.

The challenge is to enable them to respond competitively to the ecological and attractiveness issues of the world ahead, and to foster the emergence of future champions in our sectors of excellence to strengthen French sovereignty and independence in key fields. This forward-looking investment programme is essential for achieving the ecological

emerging drivers of innovation without an adverse impact on the environment (according to the “Do No Significant Harm” principle).

The aim is to address the major challenges of our time:

- Produce innovative small nuclear reactors, green hydrogen, zero-emission electric vehicles and biopharmaceuticals
- Build the first low-carbon aircraft
- Launch the third agricultural revolution, and ensure food chains that respect biodiversity
- Support immersive technologies and virtual reality
- Invest in learning and training to prepare all of society to participate in the professions of the future
- Explore the seabed to better understand it and discover its possibilities

France 2030 is betting on emerging players, and therefore capitalizing on the exceptional dynamism of the innovation ecosystem, including researchers, startups and innovative SMEs. France 2030 will devote half of its funding to emerging innovators with the aim of developing key sectors for the future.

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