



PRESS RELEASE

Genoa, 22nd November 2021

Ansaldo Nucleare signs a contract for the birth of ATHENA: a research facility for the development of 4th generation reactors in Romania

In an era of energy transition and on a path towards carbon neutrality, nuclear energy plays a fundamental role and in particular the implementation of 4th generation reactors. In this context, the research facilities that support technological development and, at the same time, the production of experimental data, are fundamental.

As part of the research into lead-cooled reactors, the consortium including Ansaldo Nucleare and Reinvent Energy (Romania), has been awarded a contract worth approximately € 20 million for the design, procurement, installation, and commissioning service of the ATHENA experimental plant.

ATHENA (i.e., Advanced Thermo-Hydraulics Experiment for Nuclear Application) is 2.21 MW pool-type facility housing 880 tons of liquid lead in a main vessel (3 meters in diameter by 10 meters in height). This facility will host scale components for testing and demonstration of Lead Fast Reactor technology, that is liquid lead refrigeration fast spectrum reactors.

The consortium is supported by ENEA (Italy) and SRS (Italy) for the conceptual and executive design of the technological part, as well as by ISPE (Romania) and Somet (Romania), respectively for the design of civil works and installation activities.

The project involves the construction of an electrical core-based simulator, a main pump and a heat exchanger similar to the arrangement of the Advanced Lead-cooled Fast Reactor European Demonstrator system (ALFRED), the first project of a new generation nuclear reactor entirely conceived and managed by a pan-European community of researchers. The plant will also be equipped with a water-cooling circuit to ensure representative conditions on the secondary side of the heat exchanger. The main scientific objectives of ATHENA concern the research and development needs (e.g., chemistry control, lead / water interaction), as well as stationary and transient testing of thermohydraulic phenomena occurring during normal operation and accidental conditions of an LFR reactor.

“The ATHENA project will bring to light the largest facility in Europe for research on LFR technology,” said Luca Manuelli, CEO of Ansaldo Nucleare. “The experimental results produced will be a key to support the development of ALFRED in Romania and in Europe. In line with our NewClear vision, the collaboration

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between research centers and key industrial players will bridge the gap for faster deployment of advanced nuclear technologies with SMR characteristics, towards a cleaner, safer, and more sustainable role of nuclear in the European energy transition ".

"ATHENA is the first step in a complex technological infrastructure through which the physics and engineering of the next generation of lead-cooled nuclear power plants will be better understood and validated," said Catalin Ducu, general manager of RATEN-ICN. "ATHENA is a first milestone in the ambitious ALFRED infrastructure project and represents a great opportunity for the South-Muntenia region for the development of highly qualified Romanian professionals, as well as for the European research and development program".

"The Romanian industry is deeply involved in this important project, so we are honored to have this significant contribution. Together with our partners, we believe in a healthy green future, built with sustainability, quality and innovation " said Marius Gheorghiu, general manager of Reinvent Energy.

The project will be carried out over the course of approximately two years, with close collaboration between international and local companies. ATHENA will be based at the RATEN-ICN research center, near Pitesti, in the southern Sud-Muntenia region of Romania.

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