NANO Nuclear Energy Assembles First ZEUS™ Advanced Portable Microreactor Hardware for Initial Testing

March 25, 2025

New York, N.Y., March 25, 2025 (GLOBE NEWSWIRE) -- NANO Nuclear Energy Inc. (NASDAQ: NNE) ("NANO Nuclear" or "the Company"), a leading advanced nuclear energy and technology company focused on developing clean energy solutions, today announced that it has assembled the first reactor core hardware of its **ZEUS** microreactor for initial non-nuclear testing.

ZEUS, a solid core battery reactor, is being developed by NANO Nuclear as part of the next generation of portable, on-demand capable, advanced nuclear microreactors to provide clean, scalable power for data centers, remote locations, industrial sites, military operations, and disaster relief scenarios. The successful validation of the reactor core through scaled testing will position NANO Nuclear to advance toward full prototype construction and licensing efforts in the coming years.

The assembled hardware consists of a 1:2 scale block, precisely engineered to be representative of a fuel element of the ZEUS microreactor core. This milestone represents a major advancement in NANO Nuclear's continued development of its proprietary microreactor technology.

The initial testing phase will focus on the assessment of the thermo-mechanical performance of the block under anticipated prototypical conditions for ZEUS. The results will inform the next stages of reactor development. These results will be crucial for verifying engineering plans, refining physics models, and optimizing ZEUS core and heat management systems.

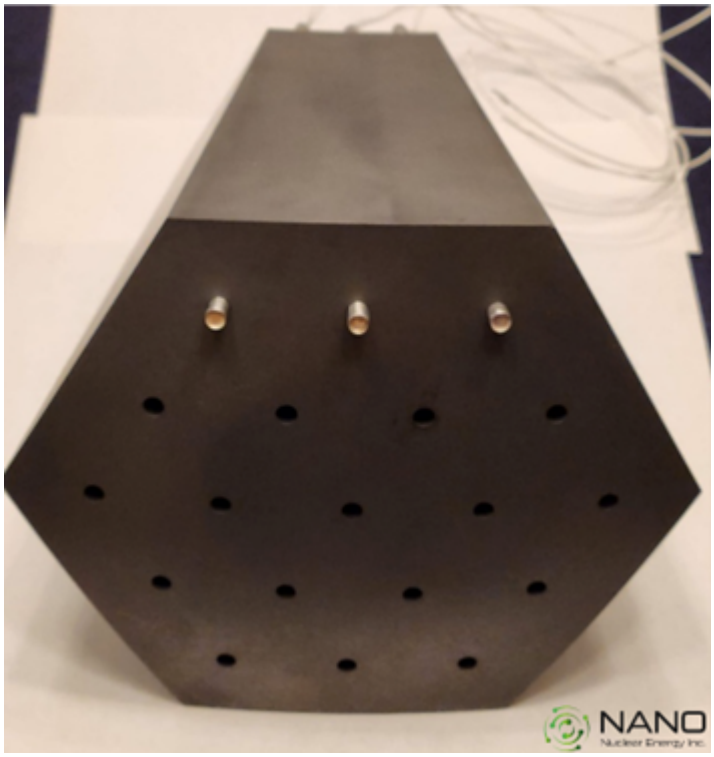
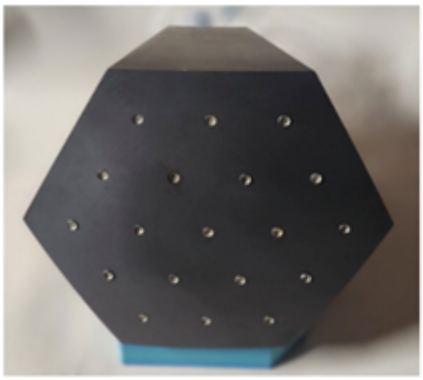


Figure 1 - NANO Nuclear Energy Inc.'s fuel element being set up for testing.

"We are very excited to have completed the first ZEUS reactor core block for non-nuclear testing," **said Prof. Peter Hosemann, Head of Nuclear Reactor Design and Materials of NANO Nuclear.** "This very precise component will be heated conventionally using linear heaters as fuel rod surrogates. The test will be used to verify temperature distribution, to investigate fit tolerances, and to confirm and benchmark our models, paving the way for a larger sub-core assembly."

"I am thrilled to see our transition from design to hardware assembling and testing for a key component of our ZEUS reactor," **said Prof. Massimiliano Fratoni, Senior Director and Head of Reactor Design of NANO Nuclear.** "The lack of an in-core fluid in our ZEUS design not only simplifies greatly the design but also enables rapid prototyping and non-nuclear testing. We are expecting to iterate quickly through progressively larger scale tests up to full core."



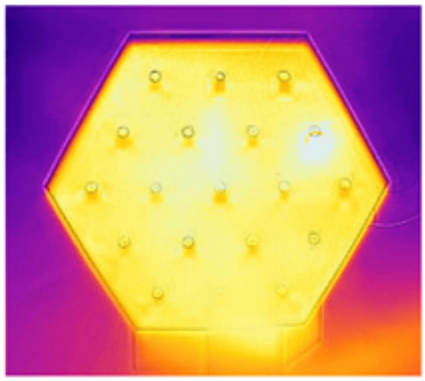


Figure 2 - Single core block fully outfitted with linear heaters as fuel rod surrogates (left image) Infrared camera image of the block during initial test (right image).

NANO Nuclear's engineering team is preparing to mount insulation, fixtures, and instrumentation to create a single-block demonstration unit, which will eventually scale up to a fully functional demo core assembly. In the next phase, the team will integrate cabling, sensors, and additional structural components to build a fully instrumented demo unit. This will enable the team to gather essential data on heat transfer, material performance, and overall reactor safety margins, facilitating real-world validation of the ZEUS reactor's thermal and structural performance and ensuring that the design meets expectations before full-scale assembly.

"Achieving this hardware milestone represents a major step forward in our ZEUS microreactor program," **said James Walker, Chief Executive Officer of NANO Nuclear.** "This testing will provide our team with the key thermal and mechanical insights needed to fine-tune the core design before full-scale fabrication and regulatory engagement."

About NANO Nuclear Energy, Inc.

NANO Nuclear Energy Inc. (NASDAQ: NNE) is an advanced technology-driven nuclear energy company seeking to become a commercially focused, diversified, and vertically integrated company across five business lines: (i) cutting edge portable and other microreactor technologies, (ii) nuclear fuel fabrication, (iii) nuclear fuel transportation, (iv) nuclear applications for space and (v) nuclear industry consulting services. NANO Nuclear believes it is the first portable nuclear microreactor company to be listed publicly in the U.S.

Led by a world-class nuclear engineering team, NANO Nuclear's reactor products in development include patented **KRONOS MMR™ Energy System**, a stationary high-temperature gas-cooled reactor that is in construction permit pre-application engagement U.S. Nuclear Regulatory Commission in collaboration with University of Illinois Urbana-Champaign, **"ZEUS"**, a portable solid core battery reactor, **"ODIN"**, a portable low-pressure coolant reactor, and the space focused, portable **LOKI MMR™**, each representing advanced developments in clean energy solutions that are portable, on-demand capable, advanced nuclear microreactors.

Advanced Fuel Transportation Inc. (AFT), a NANO Nuclear subsidiary, is led by former executives from the largest transportation company in the world aiming to build a North American transportation company that will provide commercial quantities of HALEU fuel to small modular reactors, microreactor companies, national laboratories, military, and DOE programs. Through NANO Nuclear, AFT is the exclusive licensee of a patented high-capacity HALEU fuel transportation basket developed by three major U.S. national nuclear laboratories and funded by the Department of Energy. Assuming development and commercialization, AFT is expected to form part of the only vertically integrated nuclear fuel business of its kind in North America.

HALEU Energy Fuel Inc. (HEF), a NANO Nuclear subsidiary, is focusing on the future development of a domestic source for a High-Assay, Low-Enriched Uranium (HALEU) fuel fabrication pipeline for NANO Nuclear's own microreactors as well as the broader advanced nuclear reactor industry.

NANO Nuclear Space Inc. (NNS), a NANO Nuclear subsidiary, is exploring the potential commercial applications of NANO Nuclear's developing micronuclear reactor technology in space. NNS is focusing on applications such as the **LOKI MMR™** system and other power systems for extraterrestrial projects and human sustaining environments, and potentially propulsion technology for long haul space missions. NNS' initial focus will be on cis-lunar applications, referring to uses in the space region extending from Earth to the area surrounding the Moon's surface.

For more corporate information please visit: https://NanoNuclearEnergy.com/

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Cautionary Note Regarding Forward Looking Statements

This news release and statements of NANO Nuclear's management in connection with this news release contain or may contain "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended, and the Private Securities Litigation Reform Act of 1995. In this context, forward-looking statements mean statements related to future events, which may impact our expected future business and financial performance, and often contain words such as "expects", "anticipates", "intends", "plans", "believes", "potential", "will", "should", "could", "would" or "may" and other words of similar meaning. In this press release, forward-looking statements includes those related to the timing for and results of the ZEUS testing described herein, as well as the overall timing and anticipated steps for ZEUS development. These and other forward-looking statements are based on information available to us as of the date of this news release and represent management's current views and assumptions. Forward-looking statements are not guarantees of future performance, events or results and involve significant known and unknown risks, uncertainties and other factors, which may be beyond our control. For NANO Nuclear, particular risks and uncertainties that could cause our actual future results to differ materially from those expressed in our forward-looking statements include but are not limited to the following: (i) risks related to our U.S. Department of Energy ("DOE") or related state or non- U.S. nuclear fuel licensing submissions, (ii) risks related the development of new or advanced technology and the acquisition of complimentary technology or businesses, including difficulties with design and testing, cost overruns, regulatory delays, integration issues and the development of competitive technology, (iii) our ability to obtain contracts and funding to be able to continue operations, (iv) risks related to uncertainty regarding our ability to technologically develop and commercially deploy a competitive advanced nuclear reactor or other technology in the timelines we anticipate, if ever, (v) risks related to the impact of U.S. and non-U.S. government regulation, policies and licensing requirements, including by the DOE and the U.S. Nuclear Regulatory Commission, including those associated with the recently enacted ADVANCE Act, and (vi) similar risks and uncertainties associated with the operating an early stage business a highly regulated and rapidly evolving industry. Readers are cautioned not to place undue reliance on these forward-looking statements, which apply only as of the date of this news release. These factors may not constitute all factors that could cause actual results to differ from those discussed in any forward-looking statement, and NANO Nuclear therefore encourages investors to review other factors that may affect future results in its filings with the SEC, which are available for review at www.sec.gov and at https://ir.nanonuclearenergy.com/financial-information/sec-filings. Accordingly, forward-looking statements should not be relied upon as a predictor of actual results. We do not undertake to update our forward-looking statements to reflect events or circumstances that may arise after the date of this news release, except as required by law.

Attachment

- NANO Nuclear Energy Inc.

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Single core block fully outfitted with linear heaters as fuel rod surrogates (left image) Infrared camera image of the block during initial test (right image).

Source: NANO Nuclear Energy Inc.