Kairos Power Begins Construction on Hermes Low-Power Demonstration Reactor

OAK RIDGE, TENNESSEE , USA, July 30, 2024 /EINPresswire.com/ -- Kairos Power has started construction on the Hermes Low-Power Demonstration Reactor, the first and only Gen IV reactor to be approved for construction by the U.S. Nuclear Regulatory Commission and the first non-light-water reactor to be permitted in the U.S. in over 50 years. Hermes represents a critical milestone on Kairos Power's iterative path to commercializing advanced reactor technology.

Architect's rendering of the Hermes Low-Power Demonstration Reactor facility

Workers started excavation at the Hermes site in Oak Ridge on July 17, 2024

Kairos Power has contracted with Barnard Construction Company, Inc. (Barnard), a heavy-civil construction company, to perform site work and excavation at the Hermes site in Oak Ridge, which began earlier this month. In tandem with Hermes, Barnard and Kairos Power have also started collaborating to build the third Engineering Test Unit (ETU 3.0)—a non-nuclear demonstration co-located in Oak Ridge that will generate supply chain, construction, and operational experience to inform the Hermes project. This iterative approach will allow lessons learned from ETU 3.0 civil construction to transfer seamlessly to the Hermes facility.

Both Hermes and ETU 3.0 will be built using modular construction techniques piloted at Kairos

Power's testing and manufacturing campus in Albuquerque, N.M. Reactor modules will be fabricated in Albuquerque and shipped to Oak Ridge for assembly, demonstrating the potential of a factory-built small modular reactor design to transform conventional nuclear construction.

Hermes will generate $100 million in local investment and 55+ high-quality jobs in East Tennessee

Targeted to be operational in 2027, Hermes will be Kairos Power's first nuclear build. The fluoride salt-cooled high-temperature reactor will leverage proven technologies that originated in Oak Ridge—a novel combination of TRISO coated particle fuel and Flibe molten fluoride salt coolant, which yields robust inherent safety while simplifying the reactor's design.

Building on lessons learned from the Engineering Test Unit program, Hermes' primary objective will be to demonstrate Kairos Power's ability to produce affordable nuclear heat. Hermes will not produce electricity.

Hermes will generate $100 million in local investment and 55+ high-quality jobs in East Tennessee

Kairos Power has committed to invest at least $100 million and create 55+ high-paying, full-time jobs in East Tennessee to support Hermes' construction and operation. Rising from the footprint of the historic Oak Ridge Gaseous Diffusion Plant, the project will continue the region's distinguished nuclear legacy and promote its resurgence as a hub for advanced nuclear innovation.

The U.S. Department of Energy will invest up to $303 million in the project through a performance-based milestone contract funded by the Advanced Reactor Demonstration Program to support Hermes' design, construction, and commissioning.

Hermes is a joint effort by Kairos Power and its partners, including Oak Ridge National Laboratory, Idaho National Laboratory, EPRI, and Materion Corporation. In addition, Kairos Power is partnering with Los Alamos National Laboratory to produce TRISO pebble fuel for Hermes in the lab's Low-Enriched Fuel Fabrication Facility. Kairos Power has also established a cooperative development agreement with the Tennessee Valley Authority to provide engineering, operations, and licensing support for Hermes.

In December 2023, the U.S. Nuclear Regulatory Commission issued a construction permit for Hermes following an accelerated review made possible by Kairos Power's extensive pre-application engagement dating back to 2018.

Hermes is named after the mythological messenger of the gods, who was renowned for his speed, reflecting the urgency of Kairos Power's clean energy mission. Lessons learned from Hermes will help de-risk technology, licensing, manufacturing, and construction for the company's future commercial deployments.

Quotes

"Hermes is a pivotal step toward deploying advanced reactor technology with the potential to transform our energy landscape," said Mike Laufer, Kairos Power CEO and co-founder. "The lessons we take away from the construction and operation of this reactor will be invaluable to enable continued innovation in our testing program and accelerate Kairos Power's progress toward delivering true cost certainty to our customers."

"We're thrilled to start building in the historic East Tennessee Technology Park," said Edward Blandford, Kairos Power Chief Technology Officer and co-founder. "The City of Oak Ridge, the Department of Energy and its contractors, and the Barnard team have all been excellent partners in helping us repurpose this brownfield site. Barnard's strong track record and people-centered culture are a great match for Kairos Power, and we look forward to working together over the long term to realize the future of clean nuclear energy."

"Our nation's need for clean, fast, and efficient energy has never been greater," said Quincy Anderson, Barnard Vice President and Operating Manager. "We are honored to partner with Kairos Power and others to launch Hermes. This historic initiative presents a critical opportunity to transform the way we generate power in the U.S., as well as an opportunity to expand economic and employment opportunities for the greater Tennessee area."

About Kairos Power

Kairos Power is a mission-driven nuclear technology, engineering, and manufacturing company singularly focused on commercializing the fluoride salt-cooled, high-temperature reactor (KP-FHR) – a clean energy solution that can be deployed with robust safety at an affordable cost to enable deep decarbonization. Founded in 2016, the company is unique in applying a rapid iterative development approach and vertical integration strategy to bring advanced reactor technology to market. In 2023, the U.S. Nuclear Regulatory Commission issued Kairos Power a construction permit to build the Hermes demonstration reactor – the first Gen IV reactor to be approved for construction in the U.S. Kairos Power's mission is to enable the world's transition to clean energy with the ultimate goal of dramatically improving people's quality of life while protecting the environment. Learn more at kairospower.com.

About Barnard Construction Company, Inc.

For 50 years, Barnard Construction Company, Inc. has delivered large and complex infrastructure

projects throughout North America. The company’s core services include heavy civil, power delivery, underground and tunneling, hydropower, oil and gas pipelines, and environmental efforts. Founder Timothy Barnard continues to serve as Chairman of the privately-held, Bozeman, Mont.-based company. Over the past five decades, Barnard’s people have driven the organization’s growth and success. From a one-man operation to a top contractor, Barnard’s story has unfolded through hard work, safe practices, and lasting partnerships. Learn more at barnard-inc.com.

Contact:
Ashley Lewis
Corporate Communications
media@kairospower.com
(510) 775-1685

Ashley Lewis
Kairos Power
+1 619-723-5000
email us here
