

Google agrees to buy up to 500MW from Kairos Power small modular reactors

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New nuclear clean energy agreement with Kairos Power

Oct 14, 2024

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To accelerate the clean energy transition across the U.S., we're signing the world's first corporate agreement to purchase nuclear energy from multiple small modular reactors (SMR) to be developed by Kairos Power.

Michael Terrell

Senior Director, Energy and Climate

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Rendering of a future facility

Since pioneering the first corporate purchase agreements for renewable electricity over a decade ago, Google has played a pivotal role in accelerating clean energy solutions, including the next generation of advanced clean technologies . Today, we're building on these efforts by signing the world's first corporate agreement to purchase nuclear energy from multiple small modular reactors (SMRs) to be developed by Kairos Power . The initial phase of work is intended to bring Kairos Power's first SMR online quickly and safely by 2030, followed by additional reactor deployments through 2035. Overall, this deal will enable up to 500 MW of new 24/7 carbon-free power to U.S. electricity grids and help more communities benefit from clean and affordable nuclear power. This agreement is important for two reasons: The grid needs new electricity sources to support AI technologies that are powering major scientific advances, improving services for businesses and customers, and driving national competitiveness and economic growth. This agreement helps accelerate a new technology to meet energy needs cleanly and reliably, and unlock the full potential of AI for everyone. Nuclear solutions offer a clean, round-the-clock power source that can help us reliably meet electricity demands with carbon-free energy every hour of every day. Advancing these power sources in close partnership with supportive local communities will rapidly drive the decarbonization of electricity grids around the world. Why we're supporting new advanced nuclear energy This agreement is part of our efforts to develop and commercialize a broad portfolio of advanced clean electricity

technologies to power our global data centers and offices. This approach will complement our use of variable renewables, like solar and wind, and help us reach our ambitious 24/7 carbon-free energy and net-zero goals . The next generation of advanced nuclear reactors offers a new pathway to accelerate nuclear deployment thanks to their simplified design and robust, inherent safety. The smaller size and modular design can reduce construction timelines, allow deployment in more places, and make the final project delivery more predictable. Investing in advanced nuclear technology can also provide direct economic benefits to communities across the U.S. Nuclear power has the highest economic impact of any power generation source, according to the U.S. Department of Energy (DOE) , and creates high-paying, long-term jobs. The agency estimates reaching 200 GW of advanced nuclear capacity in the U.S. by 2050 will require an additional 375,000 workers.

How Kairos Power's technology works Kairos Power's technology uses a molten-salt cooling system, combined with a ceramic, pebble-type fuel, to efficiently transport heat to a steam turbine to generate power. This passively safe system allows the reactor to operate at low pressure, enabling a simpler more affordable nuclear reactor design. Using an iterative development approach, Kairos Power will complete multiple successive hardware demonstrations ahead of its first commercial plant. This will enable critical learnings and efficiency improvements that accelerate reactor deployments, as well as greater cost certainty for Google and other customers. Kairos Power has already reached several technical milestones toward deploying its first power-producing reactor and unlocking the path to long-term commercial scale. This summer, Kairos Power broke ground on its Hermes non-powered demonstration reactor in Tennessee, the first U.S. advanced reactor project to receive a construction permit from the U.S. Nuclear Regulatory Commission.

Our work to scale advanced technologies to benefit everyone By procuring electricity from multiple reactors — what experts call an “ orderbook ” of reactors — we will help accelerate the repeated reactor deployments that are needed to lower costs and bring Kairos Power's technology to market more quickly. This is an important part of our approach to scale the benefits of advanced technologies to more people and communities, and builds on our previous efforts. Last November, we completed a first-of-its-kind enhanced geothermal project with developer Fervo Energy. And earlier this year, we partnered with utilities across the U.S. to create a new clean transition rate that helped expand this commercial pilot to 25x the amount of enhanced geothermal capacity. We'll continue working to accelerate a diverse portfolio of advanced clean electricity technologies and bring new 24/7 clean, affordable energy onto every grid where we operate.

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