GE Vernova’s Advanced Research Center successfully concludes independent verification and validation milestone of DARPA AIR2WATER project

- To address water scarcity, cost, and the logistics burden of water supply, DARPA created the Atmospheric Water Extraction (AWE) program, of which GE Vernova’s Advanced Research Center was a performer

- GE Vernova’s Advanced Research Center successfully designed, constructed, and tested a standalone, sorbent-integrated AIR2WATER prototype system, which utilizes advanced metal-organic framework (MOF) sorbents for the deployable production of distilled and potable water

- Through AirJoule® LLC, a 50/50 joint venture between GE Vernova and AirJoule Technologies Corporation (Nasdaq: AIRJ), the AIR2WATER technology is being commercialized at scale across a wide breadth of applications and has the potential to address water scarcity around the world

NISKAYUNA, New York (January 16, 2025) - GE Vernova Inc.’s (NYSE: GEV) Advanced Research has completed the independent verification and validation milestone of the Department of Defense, Defense Advanced Research Projects Agency (DARPA) AIR2WATER project, demonstrating the successful completion of the Atmospheric Water Extraction (AWE) program awarded to GE Vernova.

Today, soldiers in arid regions get water through bottled water, which is often transported by caravan. This causes significant logistical hurdles. To address water scarcity and the cost and logistics burden of water supply, DARPA created the Atmospheric Water Extraction (AWE) program, of which GE Vernova Advanced Research was a performer.

The 4-year project delivered a transformation in atmospheric water extraction by developing an “Advanced-manufactured, Integrated Reservoir To extract Water using Adsorbents and Thermally Enhanced Recovery (AIR2WATER)” technology. The AIR2WATER project has now concluded, following the successful independent verification and validation (IV&V) of GE Vernova’s standalone, sorbent integrated AIR2WATER system.

“The DARPA AWE-funded AIR2WATER project has been a catalyst to accelerate GE Vernova’s development of solid sorbent technologies,” says **David Moore, Carbon Capture Technology Leader with GE Vernova’s Advanced Research Center**. “Our technical differentiation is derived from the exquisite coupling of sorbent plus process in a modular, scalable system that produces potable water. Not only is the integrated sorbent the beating heart of the AIR2WATER system for atmospheric water harvesting, but it is also the enabling technology for several adjacent applications, including HVAC and carbon capture (direct air capture and point source capture of CO_2).”

Working closely with collaborators, including the University of California, Berkeley (UCB), the University of Chicago, and the University of South Alabama, GE Vernova’s Advanced Research Center successfully designed, constructed, and tested the AIR2WATER system. The AIR2WATER prototype utilizes advanced solid sorbents, which are crystalline sponges with affinity for water, including pioneering metal-organic frameworks (MOFs) developed by Prof. Omar Yaghi at UCB and computationally investigated by Prof. Laura Gagliardi, professor at the UChicago Pritzker School of Molecular Engineering and Chemistry Department. To move these innovations in chemistry towards system scale application, detailed measurements describing the speed of water capture in these materials were completed by Prof. T. Grant Glover at the University of South Alabama. The revolutionary MOF sorbent is integrated into a heat exchanger, which is contained in a device the size of a refrigerator. Together, they capture water vapor from thin air. The system is powered by a fuel source to capture and release the water vapor, ultimately precipitating distilled, potable liquid water.

The IV&V team tested the AIR2WATER prototype device and resultant water quality across a wide range of relevant environmental conditions, including outdoor and exhaust exposure conditions, at the Aberdeen Proving Ground in Aberdeen, Maryland. The AIR2WATER tabletop unit produces distilled water 24-hours a day, 7-days a week. Through AirJoule® LLC, a 50/50 joint venture between GE Vernova and AirJoule Technologies Corporation (Nasdaq: AIRJ), this technology is being commercialized at scale across a wide breadth of applications including atmospheric water harvesting for military and humanitarian uses, along with industrial dehumidification and commercial air conditioning. AirJoule LLC's commercial deployment of the technology underpinning the AIR2WATER unit has the potential to address water scarcity around the world.

###

Acknowledgement and Disclaimer
This material is based upon work supported by the Defense Advanced Research Projects Agency (DARPA) under Contract No. HR0011-21-C-0020. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the DARPA.

© 2025 GE Vernova and/or its affiliates. All rights reserved.
GE and the GE Monogram are trademarks of General Electric Company used under trademark license.

GE Vernova's **Advanced Research** business is an innovation powerhouse, operating at the intersection of science and creativity to turn cutting edge research into impactful realities. Advanced Research collaborates with GE Vernova's businesses across a broad range of technical disciplines to accelerate the energy transition.

Forward-Looking Statements

This document contains forward-looking statements – that is, statements related to future events that by their nature address matters that are, to different degrees, uncertain. These forward-looking statements often address GE Vernova's expected future business and financial performance and financial condition, and the expected performance of its products, the impact of its services and the results they may generate or produce, and often contain words such as "expect," "anticipate," "intend," "plan," "believe," "seek," "see," "will," "would," "estimate," "forecast," "target," "preliminary," or "range." Forward-looking statements by their nature address matters that are, to different degrees, uncertain, such as statements about planned and potential transactions, investments or projects and their expected results and the impacts of macroeconomic and market conditions and volatility on the Company's business operations, financial results and financial position and on the global supply chain and world economy.

https://www.gevernova.com/
GE Vernova

Media inquiries

Emily Havelka

GE Vernova | Communications, Advanced Research
emily.havelka@gevernova.com