CATERPILLAR®

News

Caterpillar contact:
Kelly Poe
Global Government & Corporate Affairs Specialist
Mobile: 412-841-552
kelly.poe@cat.com

FOR IMMEDIATE RELEASE

Caterpillar Demonstrates Viability of Using Hydrogen Fuel Cell Technology for Backup Power at Microsoft Data Center

Demonstration marks significant progress toward providing data centers with reliable and sustainable backup power with hydrogen technology

IRVING, Texas, Jan. 19, 2024 – Caterpillar Inc. (NYSE: CAT) announced the success of its collaboration with Microsoft and Ballard Power Systems to demonstrate the viability of using large-format hydrogen fuel cells to supply reliable and sustainable backup power for data centers. The demonstration provided valuable insights into the capabilities of fuel cell systems to power multi-megawatt data centers, ensuring uninterrupted power supply to meet 99.999% uptime requirements.

The demonstration was conducted in a challenging environment and validated the hydrogen fuel cell power system's performance at 6,086 ft (1,855 m) above sea level and in below-freezing conditions. The project simulated a 48-hour backup power event at Microsoft's data center in Cheyenne, Wyoming, where a hydrogen fuel cell was integrated into a data center electrical plant to support its critical load. A Caterpillar Microgrid Controller was used to operate two Cat® Power Grid Stabilization (PGS) 1260 battery energy storage systems along with the 1.5 MW hydrogen fuel cell.

Caterpillar led the project, providing the overall system integration, power electronics, and microgrid controls that form the central structure of the hydrogen power solution. "This

(more)

successful collaboration with Microsoft and Ballard demonstrates the potential of hydrogen fuel cells to help data centers address their critical power needs while reducing their emissions," said Jaime Mineart, senior vice president of Caterpillar Electric Power.

"This project's success provides an opportunity for hyperscale providers to drive innovations in the sustainability of power generation technologies," said Sean James, senior director of data center research at Microsoft. "The research and findings of the hydrogen fuel cell demonstration will help us towards our goal of becoming carbon negative by 2030."

The project is supported and partially funded by the U.S. Department of Energy Hydrogen and Fuel Cell Technologies Office (DOE) under the H2@Scale initiative, which brings stakeholders together to advance affordable hydrogen production, transport, storage and utilization in multiple energy sectors. During the demonstration, the DOE's National Renewable Energy Laboratory (NREL) analyzed safety, techno-economics, and greenhouse gas (GHG) impacts.

"We see the completion of this demonstration as an important proof point of the reliability and durability of Ballard's fuel cells in providing zero-emission backup power for data centers," said David Mucciacciaro, Chief Commercial Officer of Ballard Power Systems. "We are excited about the ability of our products to meet the critical power needs of data center customers in this rapidly growing sector."

# # #

About Caterpillar
With 2022 sales and revenues of $59.4 billion, Caterpillar Inc. is the world's leading manufacturer of construction and mining equipment, off-highway diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. For nearly 100 years, we've been helping customers build a better, more sustainable world and are committed and contributing to a reduced-carbon future. Our innovative products and services, backed by our global dealer network, provide exceptional value that helps customers succeed. Caterpillar does business on every continent, principally operating through three primary segments – Construction Industries, Resource Industries and Energy & Transportation – and providing financing and related services through our Financial Products segment. Visit us at caterpillar.com or join the conversation on our social media channels at caterpillar.com/en/news/social-media.html.

Acknowledgement
This material is based upon work supported by the U.S. Department of Energy's Office of

Energy Efficiency and Renewable Energy (EERE) under the Hydrogen and Fuel Cell Technologies Office, H2@Scale Initiative, Award Number DEEE0009252. The views expressed herein do not necessarily represent the views of the U.S. Department of Energy or the United States Government.