

CB&I and Shell Unveil First Commercial-Scale Liquid Hydrogen Storage Tank Design for Global Trade at NASA

TITUSVILLE, FL, UNITED STATES, April 16, 2025 /EINPresswire.com/ -- Titusville, Florida, April 15, 2025 -- CB&I and a consortium including Shell International Exploration and Production, Inc. (Shell), a subsidiary of Shell plc, [GenH2](#) and the University of Houston today announced the

completion of a first-of-its-kind, affordable, large-scale liquid hydrogen (LH2) storage tank concept at NASA's Marshall Space Flight Center (MSFC) in Huntsville, Alabama, that will enable international import and export applications.



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James Fesmire, GenH2 Chief Architect

"Our collaboration with this world-class project team will help provide a path to low-cost, large-scale liquid hydrogen storage," said Mark Butts, President & CEO of CB&I. "We are proud to leverage our six decades of experience with cryogenic insulation and storage to advance innovative solutions for the energy transition market."

The project, which began in 2021 and is supported by the US Department of Energy (DOE), developed a novel non-vacuum tank design concept for large-scale (up to 100,000 cubic meters) storage of LH2 that is anticipated to provide a substantial cost advantage over conventional vacuum-insulated tanks. This concept is being demonstrated through the construction, startup, and testing of a small-scale LH2 demonstration tank at NASA MSFC.

"At Shell, we believe in the power of collaboration to advance technology and scale up innovative solutions," said Theo Bodewes, General Manager, Hydrogen Technology. "With the invaluable support from the DOE, this project demonstrates how experts from industry, academia, and government can solve complex technology challenges. This novel liquid hydrogen technology promises to be more competitive, reducing costs and accelerating large-scale storage commercialization."

The demonstration tank will significantly increase the MSFC hydrogen test facility's LH₂ storage capacity and be used to characterize the behavior of materials under cryogenic conditions, mimicking normal fill and empty cycles and testing non-vacuum insulation materials. In addition to an estimated six-month test period included in the project scope, a Space Act Agreement among the partner organizations provides for MSFC's use of the tank over a five-year period, during which CB&I and Shell will continue to test new insulation technologies under non-vacuum conditions.

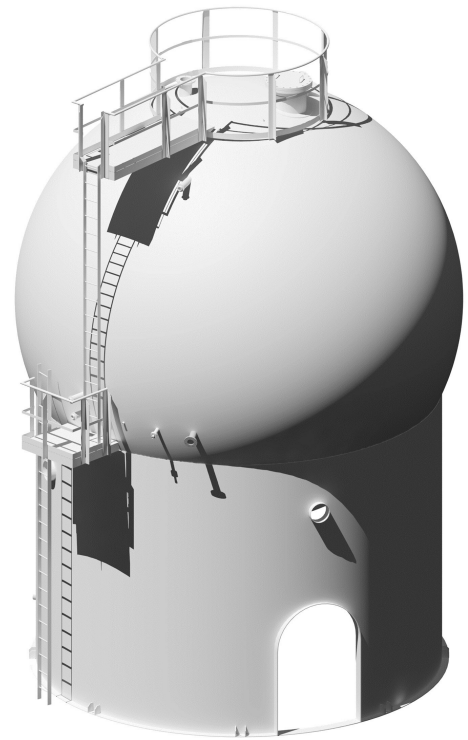
"We take pride in participating in this industry collaboration to advance commercial liquid hydrogen storage applications," said James Fesmire, GenH₂ Chief Architect. "This initiative has allowed us to develop testing capabilities for thermal insulation systems and produce essential data for unlocking the global potential of liquid hydrogen."

"This project is an example of a novel design brought to fruition by a partnership of academia, government agencies, and the energy companies," said Dr. Ramanan Krishnamoorti, Vice President of Energy and Innovation at the University of Houston. "The ability to store liquid hydrogen at scale using a non-vacuum design is a pivotal advancement and opens the door to a more flexible, affordable global hydrogen trade infrastructure. Innovative solutions such as this will be key to advancing our energy economy."

"This first-of-its-kind concept is a great example of unleashing American energy innovation – a key priority for the Department of Energy. Through collaborative expertise from industry, academic, and government agencies, this work can contribute to America's leadership in growing global markets for hydrogen and hydrogen-based fuels and offer greater opportunities for American energy operators to store, deploy, and export liquid hydrogen," said Dr. Sunita Satyapal, director of DOE's Hydrogen and Fuel Cell Technologies Office.

CB&I built the first LH₂ sphere for NASA and NASA contractors in the 1960s, with a capacity of 170 cubic meters, and has expanded that threshold over the last sixty years by almost 30-fold to 5,000 cubic meters with a tank completed in 2022 at Kennedy Space Center for the Artemis program. CB&I has completed over 130 LH₂ storage vessels since the 1960s.

The company and NASA have had a partnership of more than 60 years, with CB&I contributing to



Model of first-of-its-kind liquid hydrogen storage tank for international trade applications.

many NASA projects, including several supporting the Apollo and Gemini space missions.

About CB&I

CB&I is the world's leading designer and builder of storage facilities, tanks, and terminals. With more than 60,000 structures completed throughout its 135+ year history, CB&I has the global expertise and strategically located operations to provide its customers world-class storage solutions for even the most complex energy infrastructure projects. CB&I is owned by a consortium of financial investors led by Mason Capital Management LLC. To learn more, visit www.cbi.com.

About Shell plc

Shell is a global group of energy and petrochemical companies headquartered in London, United Kingdom. Shell operates in over 70 countries, providing a diverse range of energy solutions, including oil, natural gas, and renewable energy sources. For further information, visit www.shell.com.

About NASA's Marshall Space Flight Center

NASA and its government and commercial partners have solved spaceflight's most complex, technical problems at Marshall Space Flight Center for nearly six decades, dating back to the groundbreaking Apollo moon missions of the 1960s and '70s. NASA Marshall's expertise and capabilities are crucial to the development, power and operation of the engines, vehicles and space systems America uses to conduct unprecedented missions of science and exploration throughout our solar system, enabling or enriching nearly every facet of the nation's ongoing mission of discovery.

About GenH2

GenH2 is a technology leader in liquid hydrogen infrastructure systems for advanced clean energy. GenH2 solutions allow for safe hydrogen liquefaction, zero-loss storage, and transfer. The company focuses on mass-producing equipment to speed infrastructure buildout and make hydrogen accessible for everyday use around the globe. The technology team includes former NASA researchers and developers with decades of experience researching, engineering, and building hydrogen solutions. Learn more about GenH2 at www.genh2.com.

About University of Houston

The University of Houston is a Carnegie-designated Tier One public research university recognized with a Phi Beta Kappa chapter for excellence in undergraduate education. UH serves the globally competitive Houston and Gulf Coast Region by providing world-class faculty, experiential learning and strategic industry partnerships. Located in the nation's fourth-largest city and one of the most ethnically and culturally diverse regions in the country, UH is a federally designated Hispanic- and Asian-American-Serving institution with enrollment of more than 47,000 students.

Melissa Perlman

Bluelvy Communications

+1 561-310-9921

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