

A High-Pressure Hydrogen Storage Design for Substation Applications

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Technology Summary

Low-cost off-board bulk stationary storage of hydrogen is a critical part in the hydrogen infrastructure, which is well recognized in the DOE Fuel Cell Technologies Program Multi-Year Research Development and Demonstration Plan. Research towards low cost and reliable bulk stationary storage for high-pressure hydrogen is still evolving. This invention presents a conceptual design for stationary storage of high-pressure hydrogen. The safety and economic concerns are the main drivers for the proposed design. The key technical features of the conceptual design include: use of cost-effective commodity materials; novel vessel design to mitigate hydrogen embrittlement of materials; high-productivity and low-cost fabrication technologies; and embedded sensors to ensure the safe and reliable operation of the storage system.

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