Bloomenergy®

The Bloom Electrolyzer™ Demonstration in Collaboration with SoCalGas and Caltech

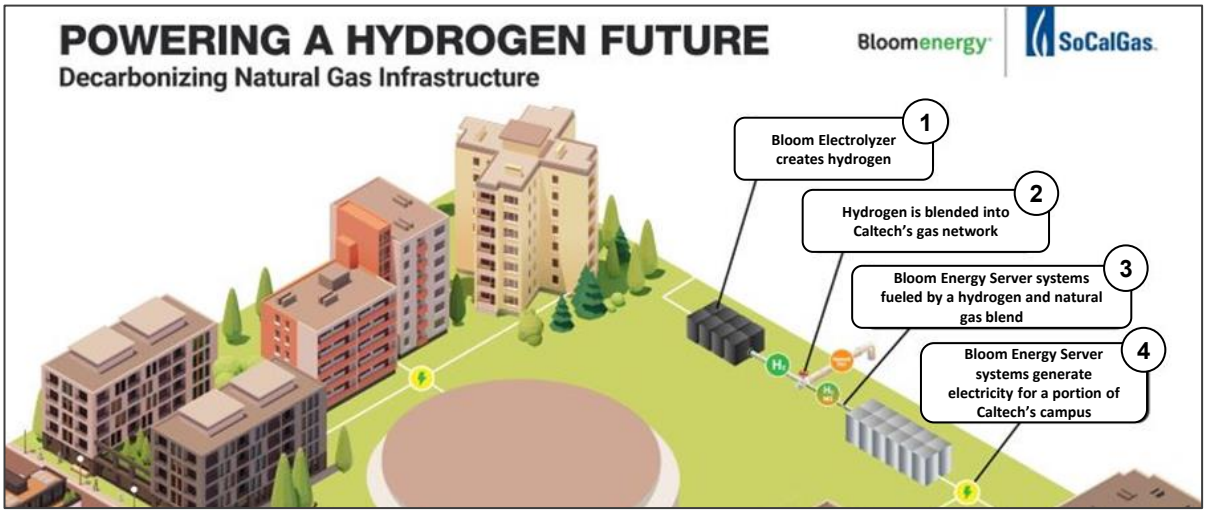
Executive Summary:

Bloom Energy, in partnership with Southern California Gas Company (SoCalGas), completed a year-long demonstration project at the California Institute of Technology (Caltech) in Pasadena. The initiative focused on producing hydrogen onsite using Bloom's Electrolyzer and blending it into Caltech's existing Bloom Energy Server® systems, which previously operated solely on natural gas.

By integrating hydrogen into the system, the project showcased how existing infrastructure can be adapted to support lower-carbon energy solutions. The blended hydrogen fuel supplied part of Caltech's campus with baseload electricity. This collaboration offered valuable insights into how hydrogen can help decarbonize energy systems while supporting future energy reliability and demand.

Project Highlights:

Bloom's Energy Server systems operated in grid-parallel mode, delivering consistent, low-carbon electricity to the Caltech campus.



Hydrogen Production: Bloom's Electrolyzer is built on solid oxide electrolyzer cell (SOEC) technology with industry-leading efficiency and the lowest commercially available levelized cost of hydrogen (LCOH) solutions for hydrogen production. It produced hydrogen via electrolysis, further illustrating how California's decarbonization efforts could be implemented.

Hydrogen Integration for Power Generation: The hydrogen created by Bloom's SOECs was then processed via a custom-built gas condenser and compressor skid before being blended into the Energy Server systems' fuel stream. Bloom Energy developed and operated every subsystem—from hydrogen production to fuel blending—demonstrating full-stack capability and technical leadership.

Fuel-Flexibility with Fuel Cells: Bloom's Energy Server systems can run on natural gas, biogas, pure hydrogen, or blended hydrogen. In this project, they operated with up to 24.5% hydrogen, supplied by the Electrolyzer, and blended it with natural gas from SoCalGas, demonstrating robust adaptability to the future hydrogen economy.

> *"We need to pursue a diverse set of decarbonization levers. Projects like this expand and accelerate clean fuel initiatives, which will help decarbonize California faster."*
>
> **Maryam Brown**
> **CEO and President, SoCalGas**

Bloom Energy Headquarters
4353 North First Street
San Jose, CA 95134 USA
bloomenergy.com

Reliable. Cost-effective. Future Proof.

Power you can count on, at any scale.

© 2025 Bloom Energy, Inc. All rights reserved.