

March 29, 2022



# Capstone Green Energy Achieves Goal of 30% Hydrogen Blend-Compatible Products

## *Standard Microturbine Products Operate on 30% Hydrogen with No Modifications*

VAN NUYS, Calif.--(BUSINESS WIRE)-- [Capstone Green Energy Corporation](#) (NASDAQ: CGRN), a global leader in carbon reduction and on-site resilient green Energy as a Service (EaaS) solutions, announced today that its partnership with the U.S. Department of Energy (DOE) – Argonne National Laboratory and the University of California, Irvine (UCI) has determined that the Company’s microturbine-based systems can safely perform on 30% hydrogen blended with natural gas without requiring costly hardware or software modifications.

This press release features multimedia. View the full release here:

<https://www.businesswire.com/news/home/20220329005359/en/>

(Graphic: Business Wire)

The long-term, promising method for producing hydrogen

is electrolysis, the process by which hydrogen is split out of water. Electrolysis is one of several approaches to Green Hydrogen that is power generated from carbon-free energy resources such as wind, solar and water. Green hydrogen-fueled microturbines are perfect for complementing the intermittent nature of wind and solar power, making them an ideal component of the modern clean and green microgrid. Further, when wind and solar energy production exceeds demand, excess energy can be used in the production of storable renewable hydrogen energy.

The recent U.S. Government Infrastructure Bill has nearly \$10 billion allocated to hydrogen-related areas, which includes \$8 billion for Regional Clean Hydrogen Hubs, \$1 billion for a Clean Hydrogen Electrolysis Program, and \$500 million for Clean Hydrogen Manufacturing and Recycling Initiatives. The U.S. DOE has already begun to move ahead with planning as it relates to the Hubs.

“We have continued to push the limits of our technology in preparation for global acceleration toward a hydrogen economy,” commented Don Ayers, Vice President of Technology. “There is a broad international initiative to decarbonize electricity generation through blending of natural gas with hydrogen in existing pipelines. These tests performed at Argonne and UCI show that our existing fleet of fielded power generation units, unmodified, can handle any of the blends currently being discussed for pipeline injection around the world,” added Mr. Ayers.

“We have systematically tested the current commercial C65 and C200 engines, as designed

for operation on natural gas, regarding their tolerance to hydrogen/natural gas blends,” explained Dr. Vince McDonell of University of California, Irvine. “The results indicate no deleterious effects when operating either turbine on up to 30% hydrogen by volume, including only slight increases in emissions, but well within current design specifications. The results also indicate a direction for attaining further NOx reductions when burning 100% hydrogen by exploiting the inherent flame stability of hydrogen,” added Dr. McDonell.

In addition to testing on 30% hydrogen, Argonne Laboratory has also been running a Capstone C65 microturbine on 100% hydrogen, utilizing Capstone’s patented High Flame Speed injector design. Results have been very positive, with high combustion stability, demonstrated injector integrity, and elimination of carbon emissions. Looking forward, Capstone’s research and development activities will transition this design and controls to the C200, fine-tuning for optimum performance and emissions, and in support of pilot hydrogen installations.

“The recent experiments at Argonne with pure hydrogen in a Capstone microturbine-based system showcases technology operability and readiness,” said Muni Biruduganti, Principal Research Engineer at Argonne National Labs. “We tested the new Capstone High Flame Speed Injectors during transient and start-stop operations. Hydrogen-fueled microturbines are one step closer to global prime-time use.”

“Hydrogen technologies are an important pillar in the strategic initiatives we announced when Capstone Green Energy was launched on Earth Day 2021,” stated Darren Jamison, President and Chief Executive Officer of Capstone Green Energy. “The success of our hydrogen products in testing will be a key element in the partnerships that we are developing with hydrogen generation companies, such as our strategic relationship with PowerTap. The ability to generate clean electricity at the source of generation saves millions of dollars in infrastructure costs and keeps hydrogen costs to a minimum.”

## **About Capstone Green Energy**

Capstone Green Energy ([www.CapstoneGreenEnergy.com](http://www.CapstoneGreenEnergy.com)) (NASDAQ: CGRN) is a leading provider of customized microgrid solutions and on-site energy technology systems focused on helping customers around the globe meet their environmental, energy savings, and resiliency goals. Capstone Green Energy focuses on four key business lines. Through its Energy as a Service (EaaS) business, it offers rental solutions utilizing its microturbine energy systems and battery storage systems, comprehensive Factory Protection Plan (FPP) service contracts that guarantee life-cycle costs, as well as aftermarket parts. Energy Generation Technologies (EGT) are driven by the Company's industry-leading, highly efficient, low-emission, resilient microturbine energy systems offering scalable solutions in addition to a broad range of customer-tailored solutions, including hybrid energy systems and larger frame industrial turbines. The Energy Storage Solutions (ESS) business line designs and installs microgrid storage systems creating customized solutions using a combination of battery technologies and monitoring software. Through Hydrogen & Sustainable Products (H2S), Capstone Green Energy offers customers a variety of hydrogen products, including the Company's microturbine energy systems.

For customers with limited capital or short-term needs, Capstone offers rental systems; for more information, contact: [rentals@CGRNenergy.com](mailto:rentals@CGRNenergy.com). To date, Capstone has shipped over 10,000 units to 83 countries and estimates that, in FY21, it saved customers over \$217

million in annual energy costs and approximately 397,000 tons of carbon. Total savings over the last three full fiscal years are estimated to be approximately \$698 million in energy savings and approximately 1,115,100 tons of carbon savings.

For more information about the Company, please visit [www.CapstoneGreenEnergy.com](http://www.CapstoneGreenEnergy.com). Follow Capstone Green Energy on [Twitter](#), [LinkedIn](#), [Instagram](#), [Facebook](#), and [YouTube](#).

### **Cautionary Note Regarding Forward-Looking Statements**

This release contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, including statements regarding expectations for green initiatives and execution on the Company's growth strategy and other statements regarding the Company's expectations, beliefs, plans, intentions, and strategies. The Company has tried to identify these forward-looking statements by using words such as "expect," "anticipate," "believe," "could," "should," "estimate," "intend," "may," "will," "plan," "goal" and similar terms and phrases, but such words, terms and phrases are not the exclusive means of identifying such statements. Actual results, performance and achievements could differ materially from those expressed in, or implied by, these forward-looking statements due to a variety of risks, uncertainties and other factors, including, but not limited to, the following: the ongoing effects of the COVID-19 pandemic; the availability of credit and compliance with the agreements governing the Company's indebtedness; the Company's ability to develop new products and enhance existing products; product quality issues, including the adequacy of reserves therefor and warranty cost exposure; intense competition; financial performance of the oil and natural gas industry and other general business, industry and economic conditions; the Company's ability to adequately protect its intellectual property rights; and the impact of pending or threatened litigation. For a detailed discussion of factors that could affect the Company's future operating results, please see the Company's filings with the Securities and Exchange Commission, including the disclosures under "Risk Factors" in those filings. Except as expressly required by the federal securities laws, the Company undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, changed circumstances or future events or for any other reason.

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Source: Capstone Green Energy Corporation