Harnessing Sunlight to Convert Carbon Dioxide to Liquid Fuel

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Liquid fuel from sunlight.

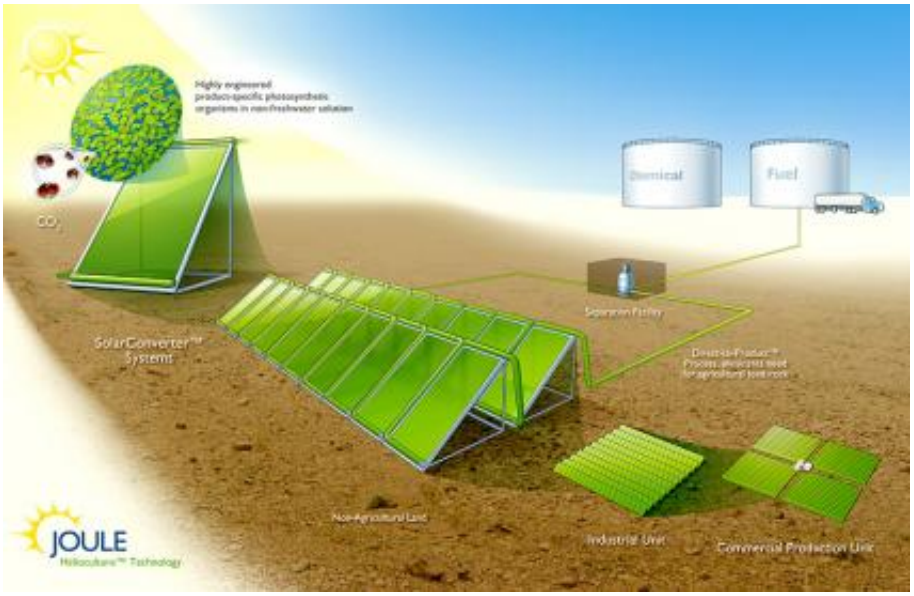
(PhysOrg.com) -- A startup company, Joule Biotechnologies, Inc., has developed an alternative solution of producing liquid fuel by harnessing sunlight to directly convert carbon dioxide (CO2) into liquid energy (SolarFuel).

This eco-friendly system requires no agricultural land or fresh water and is capable of producing more than 20,000 gallons of renewable ethanol or hydrocarbons per acre annually.

Bill Sims, president and CEO of Joule Biotechnologies stated: “There is no question that viable, renewable fuels are vitally important, both for economic and environmental reasons. And while many novel approaches have been explored, none has been able to clear the roadblocks caused by high production costs, environmental burden and lack of real scale”.

Bill Sims went on to say; “Joule was created for the very purpose of eliminating these roadblocks with the best equation of biotechnology, engineering, scalability and pricing to finally make renewable fuel a reality—all while helping the environment by reducing global CO_2 emissions.”

By leveraging highly-engineered photosynthetic organisms to catalyze the conversion of sunlight and CO_2, usable liquid fuels and chemicals can be manufactured. This “SolarConverter” system assist the process capturing the sunlight to product conversion and separation using minimal resources. This diverts from established processes of biomass derived biofuels such as algae and cellulose-based forms which are costly, involves many processing steps and substantial scale-up risk.



Joule process for converting sunlight into liquid energy (SolarFuel) Credit: Joule Biotechnologies, Inc.

Joule Biotechnologies has a patent-pending “Helioculture” technology

that far surpasses the limitations of other clean fuel processes by using sunlight to convert CO_2 directly into "SolarFuel" liquid energy. This liquid energy has up to 100 times the energy storage density of conventional batteries, and can be very efficiently stored and shipped without any degradation of power.

The company's first product offering of "SolarEthanol" fuel, will be ready for commercial-scale development this year. Joule Biotechnologies has also demonstrated proof of concept for producing hydrocarbon fuel and expects process demonstration by 2011.

More information: www.joulebio.com