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NEWS LETTER 13

CLEANTECH CATALYSTS

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The renewable energy landscape is undergoing a remarkable transformation.

According to a report by Allied Market Research, in 2020, the global renewable energy market was valued at $881.7 billion. Fast forward to 2030, and experts predict it will soar to an astonishing $1,977.6 billion, driven by an impressive annual growth rate of 8.4%. This evolution underscores the dynamic nature of the industry.

What's more impressive is the influence of renewable energy startups. These innovative companies are breathing new life into an industry historically dominated by corporate giants. They stand as the trailblazers of this change, reimagining energy production for a future that's not only cleaner and more efficient but also environmentally responsible. With visionary leadership and cutting-edge technologies, these startups are at the forefront, propelling us toward a brighter and more sustainable energy future.

WHAT ARE RENEWABLE ENERGY STARTUPS?

Renewable energy startups are new businesses that focus on creating innovative and eco-friendly solutions for how we produce, distribute, and use energy. These startups are important because they're helping make green technologies more affordable and accessible to people.

There are three big reasons why these startups matter:

01 Cost Savings

They're finding ways to make green products cheaper, so we can all use them without breaking the bank.

02 Innovative Technologies

These startups are always coming up with new and better ways to make their products work, which means they keep getting more efficient and affordable.

03 Improved Job Market

By doing what they do, renewable startups are also creating more jobs, especially in places where work is hard to come by.

These startups are at the forefront of transforming the energy landscape, contributing to both environmental sustainability and economic growth.

RENEWABLE ENERGY STARTUPS

CELSIUS ENERGY, FRANCE

FOUNDED IN 2019

Celsius Energy was founded by engineers Cindy Demichel, Sylvain Thierry, and Matthieu Simon, driven by a mission to combat global carbon emissions linked to building heating and cooling. Recognizing the significant impact of this sector on CO2 emissions, they harnessed their expertise in geo-energy technology and subsurface science to pioneer a solution.

Their journey initially focused on deep geothermal technology for heating, but as they delved deeper into their mission, they uncovered an even more promising avenue: ground-source heat pumps. These systems have the potential to reduce carbon emissions by a remarkable factor of up to 10 compared to conventional methods. This discovery fueled Celsius Energy's commitment to providing comprehensive solutions for building decarbonization.

Celsius Energy's groundbreaking systems can significantly reduce building energy consumption by harnessing geothermal energy, covering between 80-100% of heating and cooling requirements. The core elements of their solution include:

A pyramid-shaped geothermal exchanger

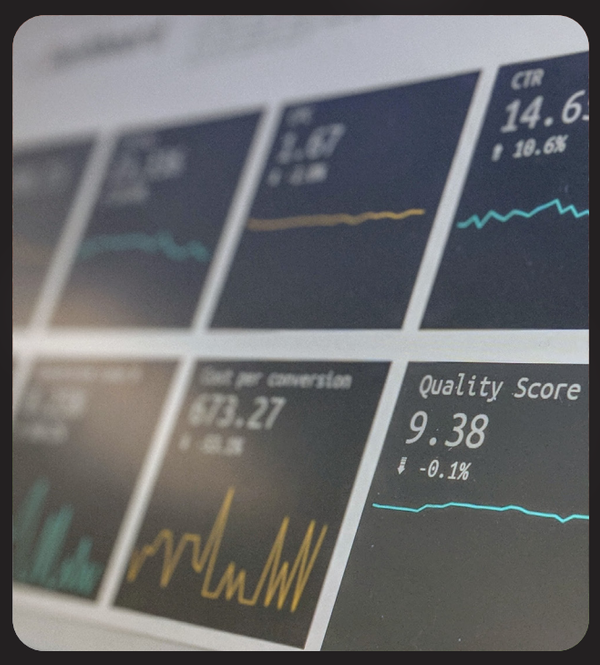
(less than 200 meters deep) efficiently taps subsurface heat while saving surface space.

A year-round heat pump

provides both winter heating and summer cooling.

Intelligent digital controls

optimize subsurface and heat pump operations in real time, reducing electricity consumption.



Celsius Energy's dedication to sustainability and groundbreaking solutions will transform how we heat and cool buildings, fostering a greener, energy-efficient future.

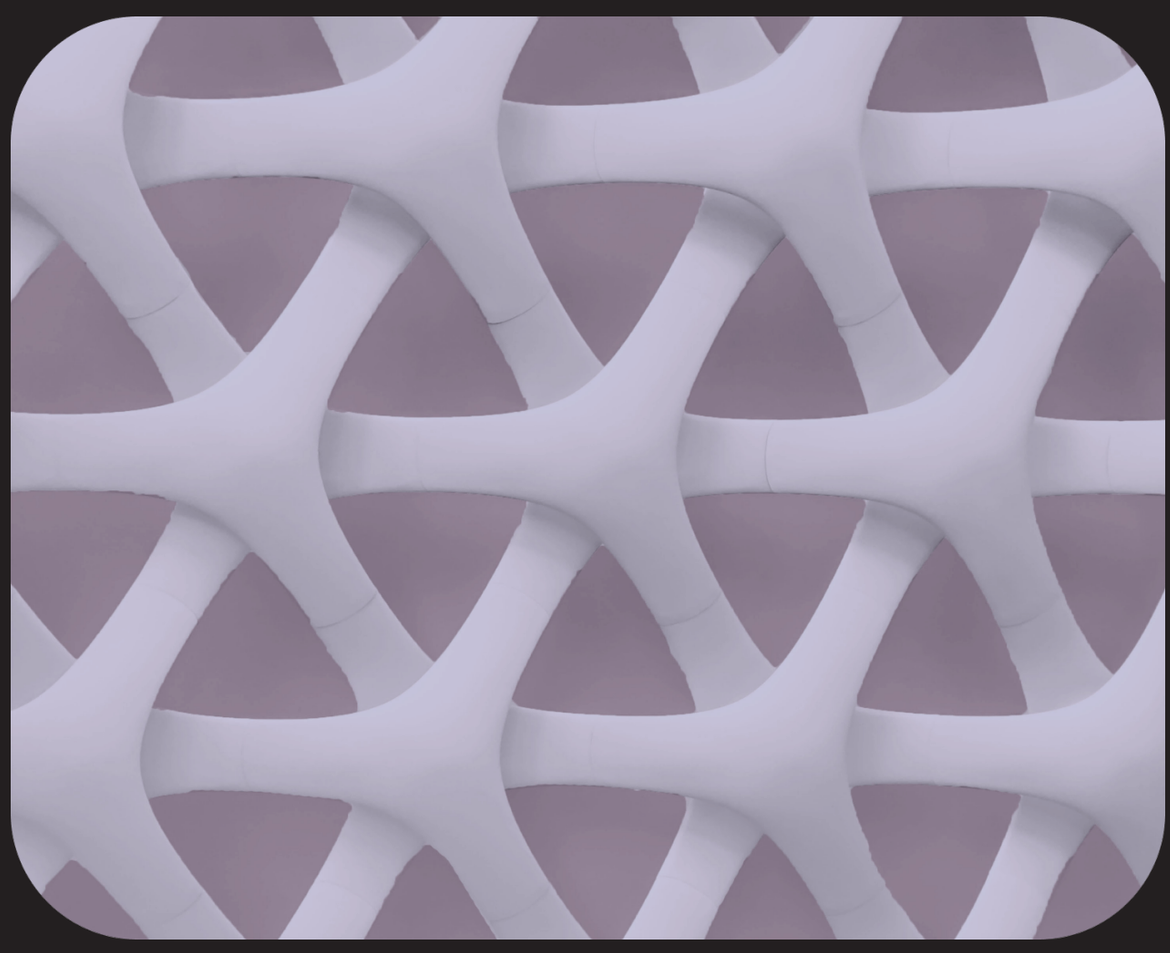
BLOOM BIORENEWABLES, SWITZERLAND

FOUNDED IN 2019

Bloom Biorenewables, with its visionary founders Dr. Remy Buser, Dr. Florent Héroguel, and Prof. Jeremy Luterbacher, is a Swiss trailblazer in the quest for innovative, sustainable, and cost-competitive bio-based materials for the chemical industry.

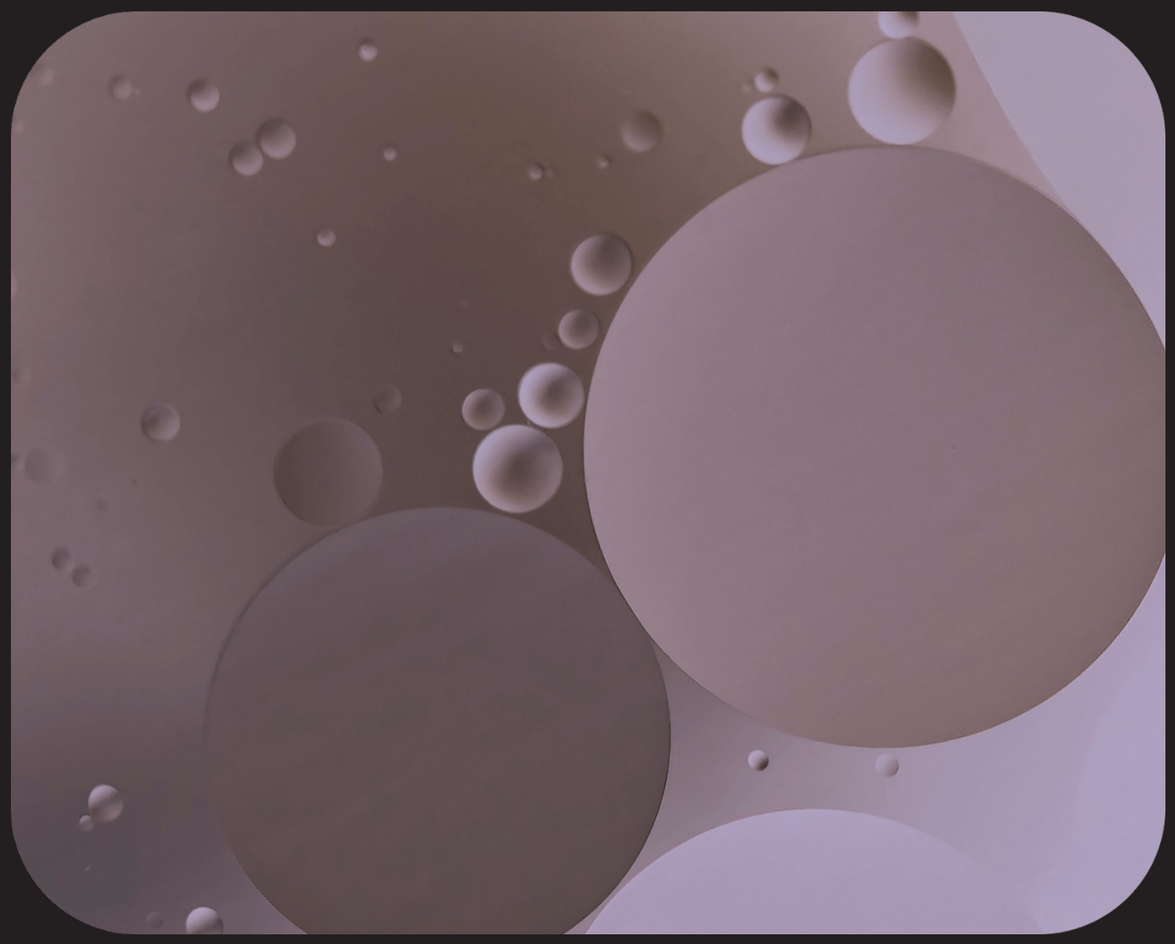
Bloom specializes in extracting two pure biomass fractions. The first, the lignin fraction, undergoes an efficient and selective transformation into bio-based aromatic molecules for the flavor and fragrance market. The second, the cellulose fraction, serves as a substitute for petroleum-based synthetic fibers in the textile industry. Bloom's upgrading process disruptively converts plant materials (wood or agricultural side-streams) into cost-competitive building blocks, contributing to resource efficiency and promoting a circular bio-economy.

At the forefront of innovation, Bloom achieved a remarkable milestone by unlocking the potential of ‘lignin,’ a plant component often overlooked, but strikingly resembling petroleum. Their cutting-edge Aldehyde-Assisted Fractionation (AAF) technology extracts cellulose while preserving lignin polymers and hemicellulose-derived sugars, revolutionizing the bio-based materials sector.



BLOOM BIORENEWABLES, SWITZERLAND

FOUNDED IN 2019



Bloom's biomass plastic offers a compelling alternative to petroleum-based products, marking a significant stride toward sustainability. Moreover, the company develops novel technologies for sustainable and circular products.

These "green carbon" products seamlessly integrate into nature's cycle, preventing disruptions caused by carbon extraction from the Earth. With these advancements, Bloom Biorenewables leads the charge toward a more sustainable and eco-friendly future.

NEW A.G.E, USA

FOUNDED IN 2019

New A.G.E, also known as New Alternative Green Energy, was founded by Mike Wilson. This is a mission-driven technology company with a portfolio of patented solutions aimed at improving global quality of life. The company's core focus centers on clean energy, notably an exceptionally efficient process with three key objectives: hydrogen production, coal ash remediation, and rare earth element extraction.

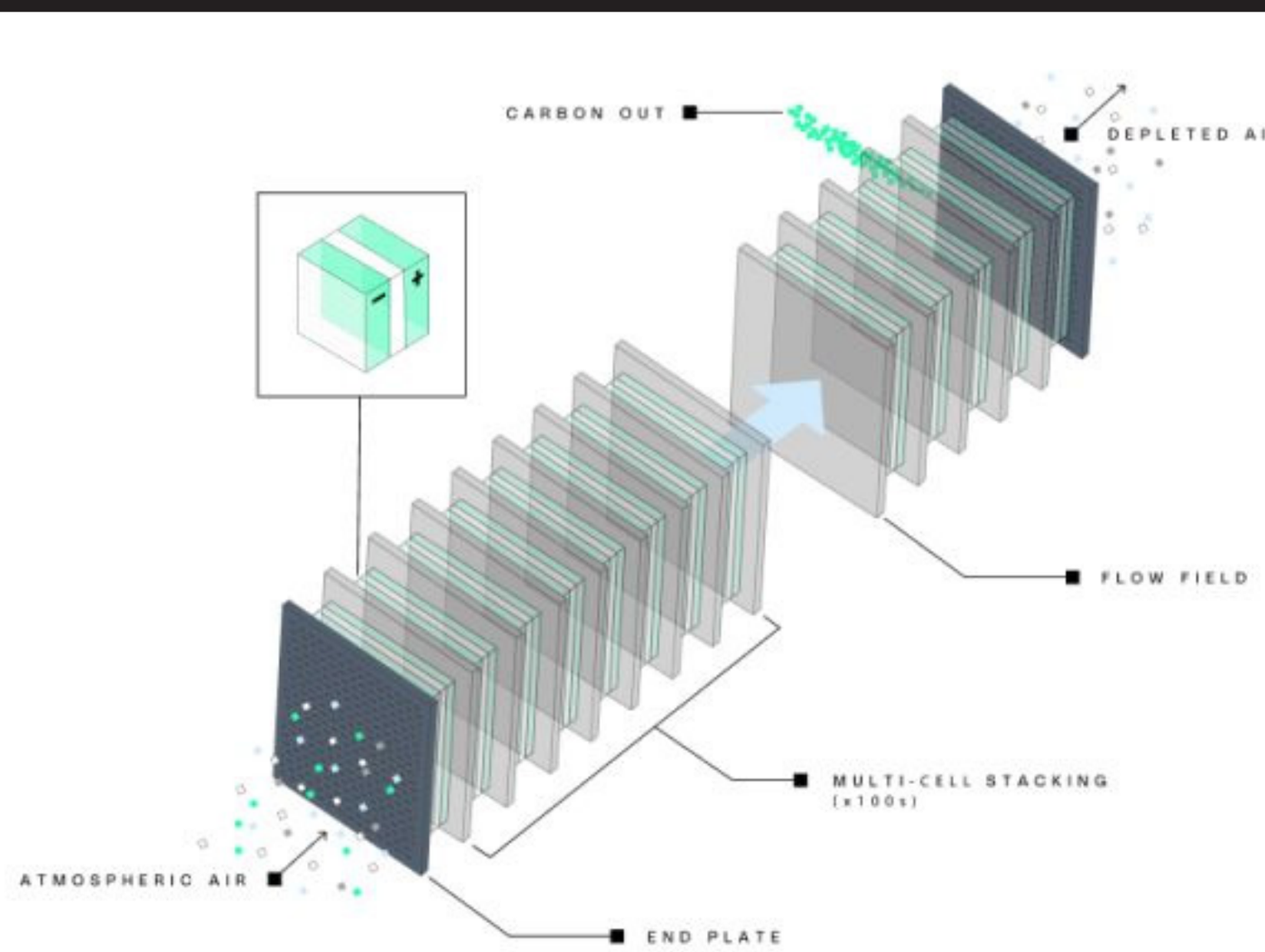
They have lowered Co2 emissions by at least 35%, and cleaned toxins by 85%, by using hydrogen fuel, lightweight materials, aerodynamic design, and regenerative braking. Moreover, they have efficiently generated abundant hydrogen, outperforming other processes. Additionally, they have successfully remediated fly ash and harvested rare earth elements.

In 2021, they partnered with VODIK Labs of Fort Worth to develop a commercial prototype for New AGE's patented electrolysis solution, extracting rare earth elements from fly ash. This innovative process generates revenue from coal waste remediation and produces clean energy alternatives, including hydrogen and HydrocarbonPlus.

They share a common goal of introducing multiple technologies to the market in the near future, believing these innovations will create jobs and benefit both the local Texas community and global sustainability.

REPAIR, ISRAEL

FOUNDED IN 2020



RepAir, an Israeli startup, was founded by Dr. Yushan Yan, a distinguished authority holding the Henry Belin du Pont Chair in Chemical and Biomolecular Engineering at the University of Delaware. What sets RepAir apart is its pioneering carbon removal solution, achieving remarkable CO2 capture with impressive efficiency – less energy, minimal downtime, and reduced waste.

Notably, RepAir's process is exceptionally cost-effective and remarkably scalable. Compared to conventional direct air capture methods, their streamlined approach consumes a mere 70% of the energy, equating to a mere 600 kWh per ton of CO2 removed. Powered exclusively by renewable energy, it embodies a clean, elegant, and cost-effective solution that scales gracefully.

RepAir's carbon removal process is its heat-independent nature, keeping operational costs low and enabling viable global deployment. Their flexible solution is adaptable to storage or utilization facilities worldwide, offering a versatile and sustainable solution for carbon management on a global scale.

KHEPRA, USA

FOUNDED IN 2019

Khepra is a pioneering company founded by Julie Kring. It began when she went to study Biochemistry at UC San Diego, specializing in creating fully electrified reactors utilizing High-Intensity Focused Ultrasound (HIFU) technology. This innovative approach efficiently transforms waste streams into petrochemical alternatives, reflecting Khepra's commitment to integrating cutting-edge biological and physical concepts.

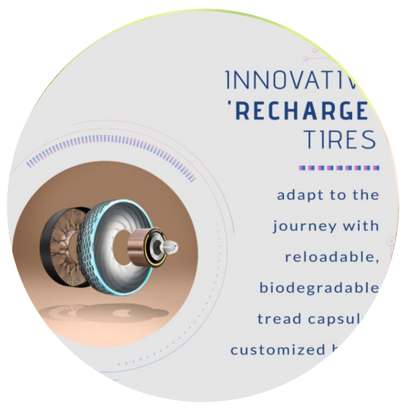
Khepra’s mission is to break global dependence on fossil fuels by generating advanced renewable fuels from waste. Often, renewable electricity is wasted during low grid demand, while fossil fuels are still used to supplement power needs during peak demand. Leveraging their proprietary ultrasonic process, they channel excess energy into the creation of versatile fuels. These fuels not only power electrical generation plants but also find application in various sectors, including transportation, shipping, aviation, and more.

A notable achievement by Khepra is the development of innovative pyrolysis technology, which effectively converts plastic waste into clean hydrogen gas for fuel. This process involves the thermal decomposition of plastics in an oxygen-free reactor, with the resulting hydrogen powering fuel cells to generate emissions-free electricity. Khepra's technology not only addresses the pressing issue of plastic pollution but also harnesses the untapped energy stored within discarded plastics.

FINU*Shots*

Did you know that students in the Netherlands have created a carbon-absorbing car?

Read more....



This fun fact will blow your mind

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FINU*Updates*

Finulent has had an excellent three months. Let's have a look at our 3rd quarter!

Read more....

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