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CONCORD BLUE

SCRIPTING A NEW CHAPTER IN SUSTAINABLE ENERGY,
DECARBONIZATION, AND WASTE ELIMINATION

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SCRIPTING A NEW CHAPTER IN SUSTAINABLE ENERGY, DECARBONIZATION, AND WASTE ELIMINATION

By Charlotte Smith



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“If you deploy the Concord Blue technology across the world and take all waste and biomass streams available, it will solve the world’s energy needs while meeting zero carbon goals,” says Charlie Thannhaeuser, CEO and Founder, Concord Blue.

Thannhaeuser’s claim might sound outlandish to some, but since 2002, his company, Concord Blue, has been successfully realizing its mission of creating clean, sustainable energy from waste.

Concord Blue’s inception began at a time when the reliance on fossil fuels to generate energy was at an all-time high. Today, it is a widely accepted fact that fossil fuels are causing many of the world’s problems, and their use over the long term would not be sustainable. Having had

this realization early on, Thannhaeuser focused his attention and resources on figuring out ways to transform waste into a renewable source of energy and renewable fuels, such as hydrogen and electricity.

The result is Concord Blue’s industry-leading, thermolysis-based, patented waste to energy (W2E) technology, the Concord Blue Reformer (CBR). Unlike commonly available W2E solutions, CBR fulfills all international, EPA, and European regulations for renewable energy and air emissions.

CBR can transform nearly any form of waste—including industrial waste, sewage sludge, hospital waste, and regular municipal solid waste—into a variety of renewable fuels, including hydrogen and electricity, with virtually no pollutants. This makes

the technology a perfect weapon to address three of the most pressing requirements of the modern world: generating more energy, achieving decarbonization targets, and eliminating waste.

Fuelling the Reformation: Waste into Energy

Waste is undoubtedly one of the largest contributors to greenhouse gas emissions, and the world has not yet found the right solution for its disposal. The traditional waste disposal solutions, such as landfilling and incineration, incur tremendous costs and negatively impact the environment. For example, incineration, the predominant W2E technology used today, is the world's dirtiest form of energy production, generating more CO2 per unit of energy than coal-fired plants. In addition, it releases several harmful chemicals into the atmosphere, including dioxins and furans.

importantly, CBR meets the needs of nearly any business or community, offering flexibility in feedstock, end product, and scale as it offers a wide range of output choices, such as syngas, electricity, liquid fuels, and hydrogen.

"CBR technology is the leader of next generation W2E technologies. It is capable of tapping into the true potential of waste for producing more energy with significantly less emissions," says Thannhaeuser. "It sets the benchmark for clean, low carbon waste to hydrogen energy generation."

Unlocking the Untapped Potential of Waste—Hydrogen

Concord Blue believes that to achieve decarbonization targets such as International Energy Agency's (IEA) Net Zero Emissions by 2050, there is a need for certified net negative technologies capable of significantly reducing the carbon footprint. Likewise,

a rapid transition to the only emission-free fuel available today—hydrogen—is imperative. Concord Blue's CBR is currently the only Waste to Hydrogen (W2H2) technology that is carbon negative certified. The way in which CBR brings heat into its vessels and thermolyze the waste in an oxygen-starved environment allows Concord

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Concord Blue's patented CBR technology promises a feasible way forward here. CBR is capable of producing significantly more energy from waste than traditional W2E technologies. This is due to two main reasons: first, its cold gas efficiency of more than 80% and when producing hydrogen a higher efficiency of 55-65 percent versus ~20 percent, which is obtained by the combination of incineration plus electrolysis for hydrogen production. Second and perhaps more importantly, CBR can transform a much wider range of waste feedstocks into energy, including industrial waste, sewage sludge, hospital waste, and regular municipal solid waste.

CBR's non-combustion reforming process uses the principles of staged reforming to efficiently and cleanly recycle waste into energy. It uses a patented technology called steam thermolysis that relies on heat transfer instead of incineration.

The technology allows waste inputs to be heated in an oxygen-starved environment. This eliminates the production of toxic oxidized pollutants, including dioxins and furans. More



Blue to achieve the highest calorific hydrogen-rich syngas. It can be used as a direct replacement for natural gas, electricity generation, and pure quality 5.0 hydrogen.

With a continuous focus on reliability, efficiency, and maximizing hydrogen output, Concord Blue has put extensive efforts into optimizing its waste reforming process technology and has been granted several patents.

Recently, its CBR technology has been reviewed and validated by the world's leading experts on W2E technology—Fichtner Energy Consulting. The company has also been endorsed by Ernst & Young and invited to attend their ESG Symposium highlighting the most significant energy companies of 2022.

These accolades have allowed Concord Blue to serve a wide array of customers ranging from those focused primarily on waste disposal such as waste management companies, municipalities, and waste management businesses to those more focused on the production of clean energy, including utilities, infrastructure investors and energy companies. To date, Concord Blue has seen the most interest from impact funds and investment firms that are looking for higher returns than traditional infrastructure projects while giving preference to projects that are better positioned to achieve meaningful and positive impacts on society and the environment.

Reducing the Negative Impacts of Climate Change

Concord Blue's tremendous success is powered by its passionate and competent workforce that is naturally attracted to its motto of saving the environment while fulfilling the world's energy requirements. The company always strives to maximize the contribution of passionate and talented people by empowering each team member to share their thoughts and ideas. It also encourages flexible work hours, home

offices, company events, and a decentralized organizational structure, stressing direct and open communications. This work environment enables employees to truly love their job and achieve the heights of excellence.

Backed by its competent team, Concord Blue can build facilities of any size. The company can build mega facilities for

cities like Mexico as well as small facilities for remote villages in Africa. "The principle idea is that you have relatively short distances of trucking the waste, which ultimately ensures cost-effective pollution control," says Thannhaeuser.

Going forward, Concord Blue aims to expand geographically into the Middle East and Europe. The company has already undertaken close to ten projects to develop entire waste management platforms in these regions and will launch project development by the third quarter of 2022 in Abu Dhabi, Dubai, Saudi Arabia, Germany, and the Netherlands. In fact, Concord Blue has already developed the first of many W2H2 platforms consisting of five strategic locations in northwest Germany, processing a total of 211,000 tons of waste into 23,600 tons of hydrogen. Half of the company's total capital requirements have now been committed by leading investors. The remaining funding is on track to be secured within the next few months.

Concord Blue believes that every step toward improving the environmental condition will contribute to a better and more sustainable future. The company is truly a front-runner in this regard. It is championing the concept of decarbonization and reducing the negative impacts of climate change to make the world a better place for the forthcoming generation. "With the right political and financial support, our technology can allow the world to have a swift energy transition and take excess carbon out of the air today and in the future," informs Thannhaeuser. **ET**

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