



US Biochar Initiative Newsletter

July 2022

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North American Biochar and Bioenergy Conference Highlights

Morgantown, WV

by Tom Miles, Executive Director



The 2022 North American Biochar and Bioenergy Conference is just a few weeks away. **Regular registration ends Monday, August 1.** Share the biochar experience with producers and researcher from across North America and Europe.

We have workshops for biochar practitioners, biomass and biochar stakeholders, life cycle assessment, and the biochar industry.

Keynote speakers will propose strategies for scaling biochar while expanding bio-based products in a sustainable circular economy.

Conference sessions include bioenergy and other value-added products, carbon markets and circular economies, biochar production and commercialization, climate smart agriculture and forestry, and environmental restoration and remediation. Attendees will learn current trends in products and markets, new biomass and biochar-based products, emerging carbon markets, experiences from technology providers and producers, and results from using biochar in climate smart agriculture. The USDA Natural Resource Conservation Service will also present a session on how biochar producers and farmers can benefit from the new Soil Carbon Amendment (Code 336) and other conservation practices. Workshops and presentations will help demystify life cycle assessments and enable producer access to carbon markets and capital. There will be discussion about biochar markets' needs and strategies and pathways to scale the industry in North America.

Conference field trip participants will learn how the CharBoss air curtain incinerator can recover biochar while reducing emission from burning slash and see demonstrations of the Mid-Atlantic Bioenergy and Sustainable Bioproducts (MASBio) project.



USBI is collaborating on a **Biochar Market Catalyst** project with the International Biochar Initiative and Global Development Incubator. If you're attending the conference, **please respond to a pre-conference survey that you will receive this week.**

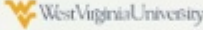
Thanks to West Virginia University, the US Forest Service, and our many sponsors. We look forward to seeing you in Morgantown.





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August 8-11 North American Biochar and Bioenergy Conference 2022, Morgantown, WV Building bridges between scientific, industrial, practitioner, and policy gaps for using biomass for biochar and bioenergy production. [Register or sponsor here.](#)

Sept 8-9 Biochar Industry 2030 Roadmap Summit and Awards Ceremony, Australia will recognize Australians and New Zealanders for their biochar achievements, innovation, entrepreneurship, and best practices. Awardees will attend the summit **to develop an industry roadmap.** **Virtual passes are available.**

Biochar 2030 Roadmap Summit

Support the New Carbon Economy

Oct 24-26 Sustainable Energy for a Sustainable Future, San Jose, Costa Rica, third in a series. This ASABE (American Society of Agricultural and Biological Engineers) Global Initiative Conference will promote interdisciplinary dialogues and present regional energy innovations with a global perspective. [More details are available here.](#)



MEET
Geoff Lindsay
Technical Sales Manager, North America
Vow
Oslo Norway

Vow's technologies convert biomass and waste into valuable resources and generate clean energy.

Q What makes Vow unique in the marketplace and how long have you been in business?

A A unique quality of Vow (headquartered in Oslo, Norway) is that we've been the market leader in advanced wastewater purification systems for cruise ships for over a decade and have over 20 years of experience in pyrolysis. In recent years, we've acquired several leading technology companies that have allowed us to expand. We currently design and deploy three unique pyrolysis systems which are robust, flexible, scalable, allow us to serve a broad range of markets, and solve industry challenges from different angles.

Q What are Vow's major challenges?

A The biggest challenge we're seeing from our industry partners is building scalable pyrolysis solutions to match the large volumes of biomass waste and achieving that scale fast. There is a huge demand for industrial carbon recycling plants to convert waste streams into valuable carbon neutral outputs. In 2021, we established Vow Green Metals (VGM) to meet metallurgic industry demands for biocarbon and CO₂ neutral energy. VGM is now building Europe's largest biocarbon production plant in Norway which will replace fossil coke in ferrous and non-ferrous metal production with 10,000 tonnes of biocarbon every year. This plant is still only going to produce about 1/35th of the biocarbon needed by one metal producer in Norway so there is a massive market to satisfy.

Q How does your Biogreen pyrolysis technology work and what makes it so versatile?

A Our flagship pyrolysis technology, Biogreen, is an electrically heated pyrolysis process utilizing our Spirajoule technology to directly transfer heat to feedstock in a precise and controlled way.

Spirajoule is a shaftless screw conveyor that is heated by continuously applying a low voltage current just like a toaster or electric furnace. Due to this design, we're able to precisely control the process conditions within the reactor to efficiently achieve complete carbonization of different feedstocks which may require different temperatures or residence times. Because we are using electricity as the heat source, we capture and valorize 100% of the pyrolysis gas to produce CO₂ neutral energy.

We also have also developed a microwave assisted pyrolysis (MAP) technology that will convert solid waste streams on cruise ships into biochar and CO₂ neutral steam for use on board the ship.

Our third industrial pyrolysis technology is being developed by our subsidiary C.H. Evensen which is building a 5 tonne per hour Evensen reactor for markets where CO₂ neutral energy is not as attractive an output.

Q Just this month, your Biogreen pyrolysis

technology was selected for Sweden's largest production facility for producing biochar from garden waste and be demoed in a one-of-a-kind research center. Tell us about these exciting projects!

A This project with NSR, a Swedish waste management and recycling company, is very exciting for us. The plant will produce 1,500 tonnes of biochar per year which will be delivered back to the community for soil amendment in parks and green spaces. The 11GWh of syngas produced



will be thermally degraded in a boiler to produce hot water for 700 homes per year. It's a perfect example of the circular economies that are possible if we make some small adjustments to our mindset about waste.

NSR will also demo our Biogreen technology at their research and education center which is one of seven facilities globally receiving funding from Bloomberg Philanthropies as a means to scale up the potential of biochar pyCCs as a major solution to combat climate change.

Q As you look ahead into the next year, how do you see biochar playing a role in your solutions?

A Biochar and biocarbon are central to Vow's business strategy. We're looking forward to more widespread adoption of biochar in agriculture, horticulture, and industry. Our goal is to see a world without waste and we are focused on solutions to achieve this. Biochar is one of the useful products we can produce in our systems to repurpose waste and give it new value.

Vow believes that we can use pyrolysis to help the world address the energy security concerns brought about by the Ukrainian crisis. Pyrolysis is now a leading CO2 neutral technology that can replace fossil natural gas. In France, we are partnering with GRTgaz in France to upgrade pyrolysis gas into grid injectable renewable natural gas.

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USBI LEARNING CENTER

Why Healthy Soil Matters Now More Than Ever In this 2021 Ted conference, Colorado State University climate change scientist Jane Zelikova calls for agricultural practices that protect Earth's soil and makes carbon flows and accumulation easy to understand.

«Jane Zelikova, PhD, climate change scientist

2022 Field Guide to Biochar Water Treatment Learn how biochar draws dissolved synthetic chemical contaminants into fine micro-pores where they adsorb onto the biochar surface.

Climate Innovation Awards [biochar winners here.](#)

If you missed last January's USBI Biochar in the Woods Webinar, **the video presentations are now available.** The webinar featured over 15 speakers on project logistics and economics, environmental and

BIOCHAR NEWSLINKS

➤ [Building the Carbon Removal Industry Is a Global Urgency.](#)

Global leaders need to double-down on emission reduction efforts, according to Swiss Re Insurance Company's risk research division. Our carbon removal industry must be capable of quickly delivering negative emissions - (within three decades) at scale (10-20 billion tonnes per year). Puro.earth, a supplier of CORCs (Carbon Removal Credits) says biochar is the most sought after type of CORC.



➤ [Bloomberg Philanthropies Announces Mayors' Challenge Winning Project to Combat Climate Change Will Spread to Seven Global Cities](#)

Stockholm's Biochar Project, Winner of the 2014 European Mayors Challenge, will be adopted in Darmstadt, Germany; Helsingborg, Sweden; Sandnes, Norway, Helsinki; Finland, Cincinnati, Ohio; Lincoln, Nebraska; and Minneapolis, Minnesota. In total, the projects are expected to produce 3,750 tons of biochar which would sequester almost 10,000 tons of CO₂ per year – the equivalent of taking 6,250 cars off the roads every year.



➤ [Lincoln, NE Will Use \\$400,000 Grant to Begin Producing Biochar with Felled Ash Trees.](#)

Bloomberg Philanthropies awarded the city a matching grant of up to \$400,000 for a project to turn ash trees felled because of emerald ash borer infestation and other wood waste into biochar. The biochar will be used for tree plantings, urban agriculture, public gardens, composting and stormwater treatment.

Shahab Bashar, the Yazidi cultural liaison for Lincoln's Community Crops, has already begun using biochar in plots with standing water to absorb the water and improve soil quality. (Biochar absorbs more than two times its weight in water.)

➤ [Dairy Operators Take Note: You Have a Lot to Gain from Biochar.](#) If every dairy in the U.S. used biochar to capture wastewater phosphorus, \$35 million per year in fertilizer costs could be avoided. There are also opportunities to use biochar in recycling dairy wastewater, among other emerging uses.

➤ [Ring of Fire Kiln Takes to the Road.](#) Biochar Coalition's Ken Scherer is traveling the country running biochar demonstrations aimed at spreading the word about the benefits of biochar, using the portable Ring of Fire Kiln. At a Vermont workshop, participants turned invasive weeds into biochar for their soil.



➤ [Airport and Fire District Join in Biomass Study.](#) A regional biomass facility in Truckee, CA (pop. 16, 180 is a step closer to reality following approval of a feasibility study

by both the Truckee Fire Protection District Board of Directors and Truckee Tahoe Airport District Board of Directors. The effort includes a marketability study on biochar and whether it is a cost-effective revenue stream.

➤ [Great Expectations for Biochar.](#) After completing a pilot biochar project, C6 Forest to Farm — Washington's Methow biochar non-profit — has hired engineers to fast-track plans for a local biochar plant. The plant will process wood from local forests to reduce wildfire risk and fight climate change.

➤ [Product from Agriculture Waste Could Become 'Big Thing' for Iowa Farmers.](#) Ever-Green Landscape Construction & Supply in Cedar Rapids, Iowa has been selling biochar from Advanced Renewable Technology International. Ever-Green owner Dale Peterson is exploring the use of biochar for water filtration in a fish pond that has become toxic due to algae buildup. He and others see hope in emerging carbon markets which offer financial incentives in exchange for taking greenhouse gases like carbon out of the atmosphere for extended periods of time.



(Photo courtesy of Kathy Connolly)

> **Biochar Is a Solution to Noxious Weeds.**

A new biochar startup in Old Saybrook, CT will control weeds by turning them to biochar. Unlike composting, pyrolysis eliminates the weed seeds and stops them from spreading.

» Business partners Javaughn Henry (L) and William Hessert (R) hope their new biochar operation, Blusky, will be in full production by September.

> **A Massachusetts Biochar Farmer Shares His Experience with Future Farmers.**

Fourth-grade students from Mrs. Howard's class at Eastham, MA Elementary School marched across the street to Redberry Farm on the morning of June 21. There, they met farmer Bob Wells to plant Eastham turnips — as the town's fourth-graders have done for the last five years. This tradition is one of many ways that Wells shares his land. "The way I look at this piece of ground out here is that it was a gift from God, literally handed to me," said Wells of his five-acre plot. "I don't even think of it as being mine. I think, how can I use this to benefit the most people?"



At Redberry Farm in Eastham, farmer Bob Wells helps students get their hands into the soil.

Former Strip Mine Showcases Nutrient Management Studies. A former Illinois strip mine is being used as a large outdoor laboratory to develop and test best management practices to reduce non-point source nutrient loss and soil erosion on farmland. Approaches include a bioreactor and biochar-sorption system to capture nutrients.

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