

# MACCY BIOCHAR MEMBER BULLETIN

No. 25 - October 2021

Maccy Biochar is a Task Group of the Macclesfield Community Association Inc.

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34,045 litres biochar made; 18 tonnes of CO<sub>2</sub> removed.

## HELLO ALL.

Welcome to our 25th Member Bulletin.

In this Bulletin we report on our biochar production, and biochar developments in the USA, Australia and locally.

## October 2021 PRODUCTION

We made 2774 litres of biochar in October which brings our total for 2021 to 13,874 litres.



Recent view of site showing the large amount of feedstock needing to be processed with Fiona and Dean doing just that (also Kelvin out of sight) while Rodney and Tony unload the biochar we made the week before into bulk bags.

## TOTAL PRODUCTION SUMMARY

The latest summary of our production and carbon capture as at 31/10/21 is shown below. This year's values are based on:

Dry bulk density of our biochar = 189 kg/m<sup>3</sup>.

Carbon content of our biochar = 84.3%.

SA emissions factor = 0.43 kgCO<sub>2</sub>/kWhr.

MACCYBIOCHAR SCOREBOARD at 31/10/21					
YEAR	2019	2020	2021	TOTAL	Units
BIOCHAR PRODUCED	1720	18451 <sup>2</sup>	13874	34045	Litres
CARBON CAPTURED	222 <sup>1</sup>	2939 <sup>3</sup>	2202	5363	Kg
NET CO2 REMOVED	0.775	10.048	7.595	18.418	Tonnes
ELECTRICITY OFFSET	1.520	23.369 <sup>4</sup>	17.664	42.553	MW hr

1. Re-calculated based on 3rd party biochar analysis dated 19/4/20  
2. Includes 3180L from members.  
3. Re-calculated based on 3rd party biochar analysis dated 28/1/21  
4. Calculated based on Australian National Greenhouse Accounts Factors Oct. '20 (SA: 0.43 kgCO<sub>2</sub>/KWh)

At the end of the year we will add in the values provided by members from their home production.

## NEWS FROM THE USA

### RESTORE FORESTS, DECARBONIZE BUILDING, AND SEQUESTER CARBON THROUGH FORESTRY, BIOMASS ENERGY, AND BIOCHAR

By Tom Miles, Executive Director, USBI.

Forest and biomass industries can help grow biochar production and use. One Oregon mill, the Freres Lumber Company, converts renewable fiber to carbon smart building materials, supplies fiber to paper and engineered wood products, generates firm renewable power, sequesters carbon, and enables carbon and nutrient cycling with biochar.

Freres deploys advanced technology to recover fiber from thinning well-managed forests, the mill produces a patented, veneer-based mass timber product, Mass Ply Panels (MPP) which replace climate-unfriendly concrete and steel in tall buildings. They optimize fiber recovery from fire-damaged "black logs". Forest, mill, and urban wood residues, which would otherwise decay in the forest or landfill, are used to generate steam for processing and power for export. The company recovers carbon from the process which is used as biochar to enrich soils and soil amendments for urban landscaping and agriculture in a valley that produces value added crops like nuts, berries, fruit, wine and hemp.

Freres also sells carbon offset and removal credits from their low-carbon intensity processes. As markets grow they can look forward to incorporating technology to scale up biochar production. As a fourth generation Oregonian in the wood products industry, I am proud to see a local family using advanced technology to renew and sustain our forests, decarbonize building, and facilitate biological carbon sequestration in forestry and agriculture through biochar.

USBI continues to support policies that promote biomass conversion to fiber, energy and biochar to help restore ecosystems, sequester carbon, and reduce emissions through active forest and rangeland management. The Senate Committee on Energy and Natural Resources recently introduced the bipartisan Senate Bill S.2836 - America's Revegetation and Carbon Sequestration (ARCS) Act of 2021. Section 203 of the bill directs the Food and Drug Administration to work with the USDA in coordination with the states to establish a pilot program for feeding biochar to livestock. **Feeding biochar is an important high value use of biochar. All other countries feed biochar to improve animal health, reduce disease, medicines, and veterinary costs, and increase meat and milk production. Biochar-enriched manures reduce odor, nutrient leaching, and improve soil health in pastures which increase forage production and reduces feed costs.**



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USBI collaborates with the USDA Forest Service, Agricultural Research Service, and Natural Resource Conservation Service to promote the use of forest residues in climate smart agriculture. Please comment on the USDA's [Climate-Smart Agriculture and Forestry Partnership \(CSAF\) Initiative](#) on or before 11:59 p.m. (ET) on November 1, 2021.

USBI will launch a series of live, online, and in-field presentations and demonstrations on making and using biochar for foresters and agronomists to support the implementation of public biochar incentive programs this year. The first will be the, **Biochar in the Woods Workshop** Webinar and Field Days January 27-February 3, 2022. See the events calendar below.

Carbon markets for biochar have drawn interest from investors. USBI and IBI will present an online, interactive [Business of Biochar Symposium](#), December 7-9, 2021 to match investors with entrepreneurs.

## **NEWS FROM AUSTRALIA - From a report dated 12 Oct. 2021 by *Recharge* at [www.rechargenews.com](http://www.rechargenews.com):**

A unique process will generate multiple revenue streams from the gasification of woody waste biomass, enabling the H<sub>2</sub> to be sold at a low price, chief executive of technology developer CAC-H<sub>2</sub> tells *Recharge*.

A new international joint venture (JV) is to build a \$100m-plus project in Australia that will produce carbon-negative green hydrogen and ammonia from woody waste biomass using a “unique” gasification process.

Instead of releasing the CO<sub>2</sub> absorbed by the wood as it grew, **the carbon will instead be trapped in the form of solid biochar, a substance similar to charcoal that can be used to enrich agricultural soil.**

“We are carbon negative because we emit less than we sequester,” said Glenn Davies, chief executive of joint venture partner CAC-H<sub>2</sub>, a biomass-focused Singaporean technology company.

The Port Anthony Renewables Hub will initially produce 75,000 tonnes of green ammonia and about 1,000 tonnes of H<sub>2</sub> per year by 2023 at Port Anthony in southeast Australia, as part of the Hydrogen Plus JV between CAC-H<sub>2</sub> and clean-energy developer Port Anthony Renewables.

Production of both hydrogen and ammonia can be scaled up in future, according to demand, with the initial ammonia output being lined up for export to Japan, South Korea and Singapore, and the hydrogen being used locally.

Standard gasification is a combustion-free process that uses high temperature heat of more than 700°C and a small amount of oxygen and/or steam to break biomatter down into carbon dioxide and hydrogen. But CAC-H<sub>2</sub>'s gasification process creates **solid carbon** instead of CO<sub>2</sub>.

“Our process is unique as we are solving many problems along the way including waste, carbon removal, and clean energy production,” Davies tells *Recharge*.

“Our by-products are also great for the agricultural sector and construction industries who can use our **biochar & wood vinegar** [a so-called ‘superfood’ for plants with the chemical formula C<sub>5</sub>H<sub>4</sub>O<sub>2</sub>] for environmental purposes, or **blend the biochar with cement for a ‘green’ building product.**”

“And because we’re helping with a waste removal problem, avoiding landfills or incineration, we are often paid to remove this [woody biomass] feedstock.

These multiple revenue streams, including carbon credits, “allow us to have one of the most effective production costs for green hydrogen in the market today — at least a third of what it costs via electrolysis. Our internal commitment is to meet global demand for hydrogen at \$2/kg by 2030.”

Standard green hydrogen — which uses renewable electricity to split water molecules into H<sub>2</sub> and oxygen in a process called electrolysis — is said to cost \$2.50-6 per kg, according to the International Energy Agency, with the price depending on a wide range of factors, including the cost of green power and electrolyzers, the capacity factors of renewables projects, operating expenditure, interest rates, etc.

Climate think-tank Energy Transitions Commission believes that by 2030 the cost of standard electrolytic green hydrogen will fall to “below \$2 per kilogram in

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most geographies and even lower in favorable geographies with very cheap renewables”.

Davies tells *Recharge* that the energy-intensive Haber-Bosch process — which combines nitrogen from the air with hydrogen to produce ammonia — will be powered by burning some of the syngas created during the gasification process. While this combustion results in a “small” amount of emissions, “the net effect is still carbon negative”, he explains.

The woody waste matter will be sourced locally, Davies adds.

“Some of our feedstock is residual wood chips and wood-waste coming from sustainable sawmill activities, and a large part is removing forestry-floor fallen timber from sustainable forestry management practices.

“We are also talking to municipal waste and industrial waste partners to look at alternate feedstocks depending on the plant’s production objectives.”

CAC-H2 is also utilising its carbon-negative biomass-gasification technology at two other projects in Australia — in the Hunter region of New South Wales, where it aims to produce 800 tonnes of hydrogen per year; and in Bundaberg, Queensland, where it will manufacture 4,500 tonnes of green H2 and 27,000 tonnes of ammonia annually.

## NEWS FROM YOUR COMMITTEE

### 1. Climate Action Resource Centre:

Maccy Biochar has recommended to the Macclesfield Community Association (MCA) that a climate action resource centre be developed on the section of Lord Robinson Parklands known as the Pound road paddocks. This area of about 5 acres has been used for agistment of horses and hay production since the early days of Macclesfield. The Centre would feature installations of solar power, wind power and battery power to demonstrate emission reduction technologies; and biochar production to demonstrate carbon drawdown. Other similar technologies and practices such as re-forestation, regenerative agriculture and local food production could also be included and demonstrated.

The MCA has since formed a committee to coordinate the interests of the various community groups who may wish to take part in this venture and/or wish to use the paddocks for other purposes. Maccy Biochar is assisting the MCA with this by explaining what we think a biochar centre would look like as part of a Climate Action Resource Centre.

### 2. Willunga Workshop:

The biochar workshop at Willunga on Saturday 16 October in conjunction with the Willunga Environment Centre was very successful in that all those who attended were very receptive to our carbon drawdown objective using biochar.

### 3. Donation:

A donation of \$200 has been received from one of our generous members. While we do not actively seek donations it is always most gratifying when one comes ‘out of the blue’. It is always encouraging to receive such an endorsement of what we are doing.

### 4. New members:

Welcome to new members **David Reynolds** of Macclesfield and **Maureen Ritchie** of Sellicks Beach.

**David** is involved with a local landscaping and permaculture business called the Green Platypus Gardens.

**Maureen** is currently regenerating a section of her land and we are looking forward to helping Maureen with her project using biochar as part of the ‘mix’.

Committee meetings are normally held on the 2<sup>nd</sup> Monday of the month (public holidays excepted) from 7:30 pm. In the Macclesfield Institute Supper Room. Financial members are welcome to attend.

**Enquiries: Brian Lewis Mob: 041 148 0935**

### COMMITTEE MEMBERS at present are:

**Brian Lewis** – Chairman, Treasurer & Newsletter.

**Kelvin Williams** – Deputy Chair.

**Fiona Williams** – Membership Secretary.

**Geoff Brockhouse** – Wood collection Team Leader.

**John Agnew** – Schools Liaison.

**Stephen Heading, Ivars Eglitis and Dean Hewlett.**

**EX-OFFICIO ADVISORS** are **Greg Marlu – Operations;**  
**Meegan Semple – Horticulture;** and **Tony Huppertz – Carbon credits.**

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