Carbon Fertilizer™

Marketing & Distribution Plan

March 17, 2022

Casella Organics

Carbon Fertilizer™ is a byproduct produced by the Carbon Manufacturing Facility (the "Facility") that Saratoga Biochar Solutions, LLC ("SBS") is building in Moreau, NY. SBS derives 69% of its revenues on average (78% in 2024) from biosolids tip fees which is sufficient to operate and finance the Facility. Biosolids revenue is guaranteed by Casella Organics. A copy of the redacted Biosolids Supply Agreement (the "Agreement)" has been provided to the NYSDEC. As part of the Agreement, Casella is obligated to receive any unmarketable Carbon Fertilizer™ at no charge provided SBS provides transportation to their designated "beneficial use" facility. The Agreement with Casella Organics was negotiated specifically with the intent of providing a disposal pathway in the event Carbon Fertilizer™ cannot be marketed at any time of the year.

Casella Organics operates numerous composting facilities throughout the region. Using Carbon Fertilizer™ in compost production should qualify as a "beneficial use" of the material. "Beneficial use" is a requirement that Casella Organics is motivated to maintain as they typically receive a premium tip fee if a "beneficial use" of biosolids can be determined. "Beneficial use" is also a requirement that SBS is motivated to maintain as any "beneficial use" of Carbon Fertilizer™ ensures the carbon sequestration potential of the material is also achieved. In this respect, SBS is also submitting a BUD petition to the NYSDEC.

Carbon Fertilizer™ Revenues

Carbon Fertilizer™ net revenues are pure profit as operations and debt servicing are covered by guaranteed revenue from the Agreement with Casella Organics. Carbon Fertilizer™ generates revenue for SBS in two ways which ensure revenues even when "giving" the product away to Casella Organics.

- "Carbon Credit Sales" – SBS is marketing voluntary carbon credits that are conservatively estimated at $59/ton based on carbon sequestration value only.
- "Fertilizer Sales" – SBS is conservatively marketing Carbon Fertilizer™ at $92/ton (i.e., introductory pricing) based on its projected "guaranteed" or "minimum" nutrient content.

The disposal pathway provided by Casella Organics ensures that SBS generates net revenues (i.e., profits) from carbon credit sales even when the Carbon Fertilizer™ is "given" to Casella Organics for use in their compost operations, or other "beneficial uses". In this respect, a beneficial use determination (a "BUD") is highly desired, but not required as SBS does not rely on profit from Carbon Fertilizer™ sales for operating and financing the Facility.

"Carbon Credit Sales"

Voluntary carbon credit markets have developed significantly over the past decade. The market is driven by large corporations (i.e., Microsoft, Spotify, etc.) that purchase voluntary carbon credits based on verified GHG emission

reductions as a means for offsetting their GHG footprint. SBS is currently engaging a third-party engineering group, Eco Engineers, PLC, to develop our lifecycle GHG analysis to determine the net GHG reductions which can be monetized as voluntary carbon credits. In the lifecycle GHG analysis, the SBS Facility's GHG footprint will be based on GHG emissions from the Facility and the following credits for GHG emission reductions:

1. GHG emissions avoided by diverting biosolids from current biosolids disposal methods (i.e., landfilling, incineration, composting, etc.) that have a much higher GHG footprint than the SBS Facility.
2. GHG emissions avoided by substituting Carbon Fertilizer™ for chemical fertilizers which are produced with a much higher GHG footprint.
3. GHG emissions sequestered by using Carbon Fertilizer™ in crop production, compost, or other "beneficial use" applications.
4. GHG emissions avoided by reducing biosolids transportation as 25% of biosolids generated in NY currently are exported to out-of-state landfills.

Carbon Fertilizer™ (i.e., #3 above) alone is projected to sequester its weight in GHG emissions based on its fixed carbon content. Fixed carbon is carbon that is not utilized by soils and therefore builds up in soils through repeated applications. Fixed carbon helps restore the soil's ability to retain moisture and nutrients and has a very long shelf-life in the soil which qualifies it for carbon sequestration credits.

SBS expects a minimum of $59/ton carbon sequestration value from the Carbon Fertilizer™ based on its fixed carbon content. SBS forecasts a minimum of $2MM in net carbon credit sales at a minimum (i.e., based on the carbon sequestration value alone) at full production.

SBS intends to complete the lifecycle GHG analysis prior to starting construction which may double or triple the amount of carbon credits that we expect to generate. We are also initiating marketing relations with voluntary carbon credit brokers to initiate pre-sale contracting.

"Fertilizer Sales"

Carbon Fertilizer™ is Made in USA from American organic matter, carbon, and nutrients. Farmers know what that means to soils damaged by decades of intense chemical fertilizer application. Furthermore, the current political environment is causing favorable price disruptions in fertilizer markets globally as almost 15% of nitrogen fertilizers used globally come from urea which is almost exclusively manufactured in Russia.

Selling Carbon Fertilizer™ as a commodity generates additional net revenue (i.e., profits) for SBS shareholders. SBS is estimating the initial price of Carbon Fertilizer™ at only $92/ton bulk, loaded at the Facility. The estimate is based on macro-nutrient content including organic nitrogen ("N"), phosphorus (P_2O_5) ("P"), and potassium (K_2O) ("K"). The total claimed nutrients are based on our worst-case production scenario and further discounted. Carbon Fertilizer™ is expected to have a wholesale value of $141.52/ton based on current wholesale NPK pricing. We have further discounted that value 35% to provide a margin for wholesalers and transport from the SBS Facility.

Furthermore, the introductory price for Carbon Fertilizer™ does not attribute any value to the organic matter, organic carbon, and micro-nutrient (calcium, sulfur, magnesium, copper, iron, manganese, nickel, and zinc) content which add value. The introductory price does not place any value on the further reduction in petrol-related fertilizer application related to reduced nutrient runoff qualities that Carbon Fertilizer™ uniquely

possesses. SBS intends to capture additional premiums above and beyond the minimum claimed macro-nutrient value once we can guarantee a minimum value for each constituent.

The following table demonstrates the minimum net revenues provided all the Carbon Fertilizer is sold and a minimum carbon sequestration value is monetized. These are minimum expectations as similar forms of carbon-based fertilizers produced from biosolids in Europe are being imported at over $1,000/ton delivered to greenhouses in NY. Furthermore, we expect to identify numerous specialty markets, such as treating chemical runoff from roadways, that may receive premiums for its adsorption properties. Lastly, it is worth noting that Calcium (Ca), Sodium (Na), Manganese (Mg), Copper (Cu), Zinc (Zn), Nickel (Ni), Iron (Fe), and Manganese (Mn) exceed minimum levels to be included in the guaranteed analysis on the product label but are not initially valued.

Guaranteed Analysis				
Carbon Fertilizer Value	**Min. Scenario Values**	Total Claimed Nutrients	**Wholesale Nutrient Value**	**Net Nutrient Value**
Macro-Nutrient Value, $/ton	-	-	**$ 141.52**	**$ 91.99**
Nitrogen (N), %	**4.07%**	4.00%	$ 66.52	$ 43.24
Phosphorus (P_2O_5), %	**6.55%**	6.50%	$ 69.33	$ 45.07
Potassium (K_2O), %	**0.59%**	0.50%	$ 5.67	$ 3.68
Sulfur (S), %	**0.87%**	0.00%	$ -	$ -
Organic Matter, %	**39.24%**	0.00%	$ -	$ -
Organic Cabon, %	**35.35%**	0.00%	$ -	$ -
Fixed Carbon, % (CO_2e value)	***23.43%***	***23.40%***	***$ 62.49***	***$ 59.36***
Calcium (Ca), %	**3.71%**	3.50%	$ -	$ -
Sodium (Na), %	**0.25%**	0.20%	$ -	$ -
Magnesium (Mg), %	**0.86%**	0.50%	$ -	$ -
Copper (Cu), mg/kg	**0.05%**	0.05%	$ -	$ -
Zinc (Zn), mg/kg	**0.09%**	0.05%	$ -	$ -
Nickel (Ni), mg/kg	**0.0026%**	0.0010%	$ -	$ -
Iron (Fe), mg/kg	**1.98%**	1.90%	$ -	$ -
Manganese (Mn), mg/kg	**0.10%**	0.05%	$ -	$ -
Moisture, %	**10%**			
Net Carbon Fertilizer Value, $/ton				**$ 151.35**

SBS recently reached out to Professor Johannes Lehmann, at the School of Integrative Plant Science Soil and Crop Sciences Section, to profile Carbon Fertilizer™ in research publications. We intend to work with Prof. Lehmann to develop research, and the Cornell Cooperative Extension to identify progressive "demonstration" farmers throughout the region. Professor Lehmann has been instrumental in our early-stage research, and we look forward to taking the next steps to verify Carbon Fertilizer's value in soil.

While it may be several years until we realize the full value of Carbon Fertilizer™, which is expected to exceed $400 per ton on average, we are in an advantageous situation whereby we can attribute some profit to Carbon Fertilizer™ even when the product is disposed of. Furthermore, biosolids tip fees account for 69% of revenues over the first 10 years (78% in 2024). In short, we are in an excellent position to introduce a new type of biological fertilizer to the market at a negligible, or negative, cost basis.

Specific End-Users

Specific end-users of the voluntary carbon credits are currently unknown. While it is possible to pre-contract some sales in advance, the voluntary carbon market has never been more liquid as the volumes of transactions grows rapidly. Microsoft is a likely target as they have purchased voluntary carbon credits from similar pyrolysis facilities and consider it the only option for filling their "medium-term" carbon sequestration goals. Voluntary carbon credits are currently valued at $80 per metric ton of carbon dioxide equivalent ($MTCO_2e$) and are increasing in value due to a shortage of supply. In short, while it may not be advantageous to lock in a fixed price, we do anticipate conducting a life-cycle analysis ("LCA") that would yield a comprehensive carbon intensity ("CI") score for the SBS Facility. The CI score will then be used to line up interested buyers prior to completing the SBS Facility.

Specific end-users for the Carbon Fertilizer™ itself are currently unknown and may never be known in its entirety. SBS intends to develop a network of wholesale distributors in New York and neighboring states. As a

manufacturer, we intend to focus on business to business ("B2B") transactions instead of business to consumer ("B2C") transactions. In this respect, we may only know very large consumers of our products as others will be directly marketing Carbon Fertilizer™ to consumers. SBS does anticipate developing a retail product line of bagged products in 1 and 2 cubic foot bags. However, these sales will likely be developed in partnership with service providers that can receive, store, and bag bulk product off-site of the SBS Facility, and market directly to big box retail outlets that handle bagged products (i.e., Home Depot, Lowes, Walmart, etc.).

Distributor Relationships

SBS is developing several relationships with distributors already. However, we intend to focus more on distributor relationships once we have secured our permits and financing for the SBS Facility. SBS anticipates a 1-year construction period and 6-month ramp-up period after we secure the permits and financing. SBS anticipates starting construction in Summer 2022. This gives us nearly two years to focus on agricultural research and forming distributor relationships with existing fertilizer distributors. Given the concern for soil health in the current legislative environment in New York, we are anticipating a warm reception as our product blends well with chemical fertilizers and helps reduce nutrient runoff, and consequently reduces nutrient application requirements typically attributed to "nutrient loss".

1. **Agro-Shield** https://www.agro-shield.com/

Agro-Shield is a distributor of crop protection products, fertilizers, and organic growth regulators. Agro-Shield has a representative based in Buffalo , NY, that has taken a keen interest in getting Carbon Fertilizer™ into roadway applications with the NYS Department of Transport as well as adding Carbon Fertilizer™ to their algae treatment service. Agro-Shield currently markets products that treat algae blossoms in ponds. Agro-Shield is interested in marketing Carbon Fertilizer™ for continual use to prevent algae blossoms from returning after the initial treatment. Agro-Shield is anxious to initiate business development with Carbon Fertilizer™ and intends to market bulk, super sacks, and retail bagged product by the pallet. At a minimum, Agro-Shield anticipates purchasing at least 1,000 tons per year and has executed a letter of intent. Deliveries will be unpredictable but are expected year-round as Agro-Shield sells products to wholesalers, including agriculture cooperatives, that have seasonal storage.

2. **BioEnergy Innovations Global, Inc.** https://www.facebook.com/TerraCharInfo/

BioEnergy Innovations Global, Inc ("BEIG"). owns the Terra-Char brand and currently distributes high fixed carbon biochar as a soil amendment in several states. BEIG is interested in mixing their high fixed carbon biochar, Terra Char, with Carbon Fertilizer™ to market to soil remediation companies for the upcoming NRCS program. The objective is to create a product with 60% fixed carbon and some nutrient value to improve adsorption heavy metals and other soil contaminants. At a minimum, BEIG anticipates purchasing at least 1,000 tons in the first year to develop and test its new product and has executed a letter of intent. Deliveries will depend on coordinating the development of the new product.