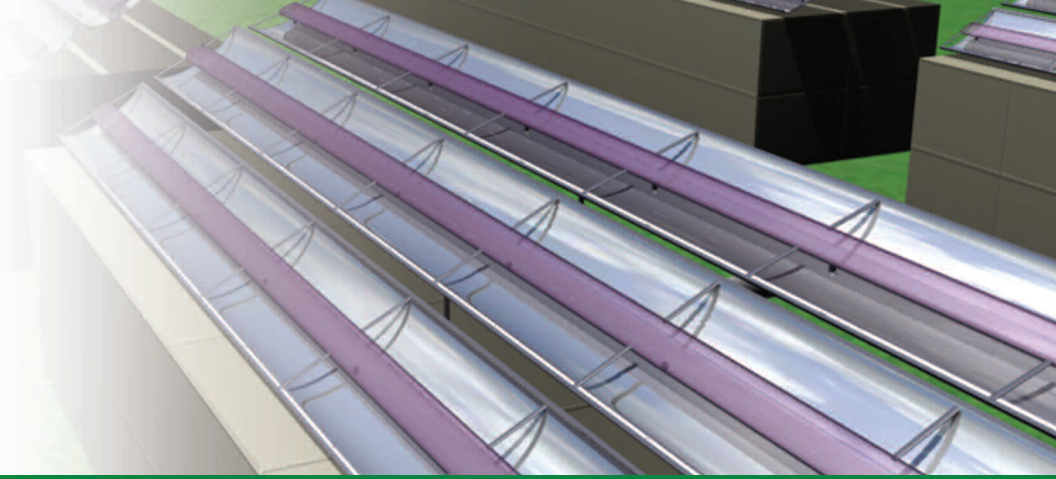




gsCLEANTECH



GS CleanTech's Patented "CO₂ Bioreactor"

Decreasing Emissions while Reducing Dependence on Foreign Oil

Market:

Greenhouse gas emissions and energy dependence are two of the United States largest concerns. During 2005 alone, the United States released into the atmosphere over 5 billion metric tons of CO₂, an increase of over 600 million metric tons since 1994. Carbon dioxide is a well known greenhouse gas that absorbs and traps the infrared radiation that is reflected off the earth's surface causing surface temperatures to increase.

During 2005, the United States imported and consumed more than 200 billion gallons of oil. As our nation strives to become more energy independent and environmentally proactive, it is imperative that we implement new consumption practices that rely less on foreign oil and more on cleaner, greener sources of homegrown energy. We need to be better about conservation and we need to continue to innovate ways to consume natural resources in smarter, more efficient ways. GS CleanTech is committed to delivering innovative new technologies that help our clients achieve this and to help reduce their carbon footprint.

GS CleanTech's Objectives:

GS CleanTech's patented CO₂ Bioreactor reduces greenhouse gas emissions while creating an additional feedstock for renewable fuel production. If applied at ethanol facilities, it would boost fuel production by more than 15%, and if applied to coal fired power generation, it could produce more than 200 million gallons of renewable fuel annually for every 1,000 MW of electricity produced. Even more significant, however, is the relatively small footprint of the bioreactor. While traditional corn derived ethanol produces up to 450 gallons of fuel per acre, GS CleanTech's CO₂ Bioreactor can produce more than 200,000 gallons of fuel per acre. With GS CleanTech's CO₂ Bioreactor, our clients can reduce their carbon footprint while turning their exhaust carbon dioxide into a valuable source of clean, homegrown fuels.

Features:

GS CleanTech's CO₂ Bioreactor is an enclosed structure with the ability to convert a concentrated supply of CO₂ into oxygen and biomass. The biomass can then be converted into fuel through traditional means.

All plants, including algae, need the following to live and grow: a supply of CO₂, light, a growth media and water with nutrients. The GS CleanTech CO₂ Bioreactor provides these resources in a compact, cost-efficient way.

First, concentrated CO₂ is captured at power plants or other source and piped to the bioreactor. The sunlight is then collected using efficient parabolic mirrors that transfer and filter the light to a series of light pipes. The light pipes channel the light into the bioreactor structure where it is distributed and radiated throughout the structure using light panels. The algae requires as little as 1.5% direct light which means that our collected light can be distributed over a substantial surface area.

Next, a growth media, such as polyester, is inserted between each lighting surface. Water, containing nutrients, continuously cascades down the growth media to facilitate the final required step for optimal growth.

Finally, to harvest the algae, the flow rate of the water over the growth media is increased slightly to gently remove a portion of the algae, allowing a portion of algae to remain and to begin the next growth cycle. The removed algae is then collected and routed for conversion into renewable fuels.

Our technology is also very flexible and can accommodate a variety of algae types. High starch, high oil, or high cellulose algae can be grown in our bioreactor depending on output fuel requirements.

Benefits:

GS CleanTech's CO₂ Bioreactor has the ability to reduce our greenhouse gas emissions and to create an entirely new feedstock for cleaner and greener burning fuels.

Our bioreactor can substantially reduce the amount of greenhouse gases that are produced from ethanol, power generation other industrial facilities while generating a significant new source of revenue.

GS CleanTech's CO₂ Bioreactor is profitable for our customer and cleaner for the environment.

Impact on Ethanol Facilities:

About one third of the mass of the corn input into the ethanol production process exits the process at the fermentation stage in the form of carbon dioxide. GS CleanTech's patented bioreactor technology uses algae to consume these carbon dioxide emissions. The algae use the carbon dioxide in the exhaust, sunlight and water to grow new algae, giving off pure oxygen and water vapor in the process. If properly cultivated, the algae double in mass every 7 to 12 hours and are harvested for conversion into clean fuels as they grow to maturity.

GS CleanTech is currently deploying its first commercial scale pilot bioreactor system and anticipates use of the bioreactor technology at ethanol facilities to further enhance corn to clean fuel conversion efficiencies.

GS CleanTech's pricing model for its bioreactor technology has not yet been finalized.

Technical Specifications:

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