



CBO FINANCIAL

CBO proves that—contrary to popular belief—it is easy being green.



ALGAE: THE FAST-GROWING ORGANISM BEHIND AN EVEN FASTER-GROWING INDUSTRY

Anyone who has ever had a fish tank, pool or pond knows how easily algae can grow. In fact, algae are some of the fastest-growing organisms on the planet. But until recently, most of us never thought of algae as anything more than an aesthetic nuisance. Today, all that is changing with the emergence of an exciting new industry surrounding the commercial production of algae.

To appreciate why algae can be so valuable in today's world, it's helpful to understand what algae are. These humble organisms are somewhere between plants and bacteria. Like bacteria, they grow and multiply at astonishing rates, while at the same time performing photosynthesis like a plant. Most algae require only the readily available and renewable resources of sunlight, water, and carbon dioxide. Algae can even thrive in a wide variety of water sources such as freshwater, fresh, brackish, saline, marine and even wastewater. And, the only real byproduct of algae production is oxygen.

In recent years, a new industry has emerged surrounding the commercial algae production, with more than 20 applications for algae oil—and new usages continuously being discovered. Algae has three main commercial applications: as a food or dietary supplement, agricultural uses such as fertilizer or livestock feed, and as a feedstock for biofuels. In many cases, an algae production facility may produce outputs in all three categories, as byproducts of the same system. Algae

is a compact crop, and production can be done in a variety of ways, including an enclosed growth system or in ponds. Algae production can use land that's otherwise unsuitable for conventional agriculture. This means algae growth won't compete with food production, unlike traditional biofuel row crops, such as corn or soybeans.

Essential to human growth.

Algae themselves are rich in lipids and nutrients. Their nutrient content can be exploited for use as a fertilizer or fish food, typically for aquaculture (fish farming); however, it's the lipid content that's exciting innovators and investors alike. Algae contains a remarkable concentration of Omega-3 fatty acids such as DHA and ALA, which have been proven to be essential to human growth and development. Commercial infant formulas are now enriched by DHA and

AHA. In addition, many people take Omega-3 supplements, or fish oil, for a myriad of health benefits. The reason fish oil is rich in Omega-3's to begin with is because fish eat algae. By processing Omega-3 supplements directly from algae, producers are able to offer a completely vegan alternative to fish oil. The market for such supplements is already booming, and is expected to continue to grow.

Essential to the environment.

While biofuels have received a lot of attention lately, some of the issues raised about the true sustainability, particularly of corn-based ethanol production, are concerning. Corn production is hard on the environment, polluting waterways, degrading soil, and causing erosion. Corn also is a relatively slow-growing plant, and produces a relatively low-energy feedstock for biofuels. Most importantly, taking acreage out of food production and using it for ethanol corn has raised food prices, and there is a growing awareness of the conflict of food versus fuel.

On the other hand, the oil extracted from algae turns out to be one of the most renewable and sustainable feedstocks for biofuels on the planet. It grows quickly and can even be used to clean the environment, feeding on waste carbon dioxide (CO₂) that would otherwise pollute the environment.* It accomplishes this by removing carbon dioxide from the air while growing. Unlike petroleum production from deep wells, carbon sequestration is a beneficial by-product of large-scale algae production, creating the opportunity to participate in a carbon credit or "cap and trade" markets where they exist.

WHY ALGAE?

- Fast growing
- Not picky about water quality
- No need for nutrient-rich land
- No conflict with food production
- Carbon dioxide neutralizer
- Economically rewarding
- Environmentally beneficial
- Viable and sustainable
- Production of biofuels and other valuable co-products (Omega-3 supplements, etc.)

ALGAE TECHNOLOGY



ALGAE'S ECONOMIC ADVANTAGES: *Environmental benefits. Job growth. Low overhead. High yield of consumable products with an even higher demand.*

Algae can be processed into a number of different biofuels, including biodiesel. Biodiesel is an exciting industry because it can fuel a conventional diesel engine, burns cleaner than conventional diesel, and can actually prolong the life of a diesel engine. Biodiesel has such a high flash point, OSHA actually categorizes it as a “non-flammable liquid.” This algae technology could change our world for the better and help the U.S. become less oil dependent.

CBO Financial has the knowledge and the experience to take advantage of this booming industry.

The commercialization of algae production offers an exciting opportunity for innovators. The market is currently crowded by small, nimble companies who have each developed their own processes and technology, all vying for their share of this new space. At this point in its development, the industry has developed a wide variety of different algae production methods, with varying levels of scalability and funding needs.

As an algae project developer, CBO Financial applies inventive funding strategies and customized planning and project management so that algal projects can reach full-scale commercialization. In particular, we utilize our extensive knowledge of the New Market Tax Credit program to combine the local economic benefits of NMTC projects with the global environmental benefits of renewable energy.

When developing a successful algae project, the CBO team establishes a consortium of interested parties—from CO₂ suppliers, to plant development and job training, straight through to helping locate off-takers who will refine the algae oil into useable commercial products. We then integrate all of these components into a financeable project, and are active in building the production plant from the ground up, offering a turn-key solution for recycling unwanted CO₂ into the creation of a usable consumer product that will create green-collar jobs in the community.

In the coming years, as the world looks more and more toward truly sustainable options to feed our insatiable appetite for energy, the algae biofuels industry is expected to explode. The status of today's market provides an exciting opportunity to get in on the ground floor of an industry that promises to be not only economically rewarding, but environmentally indispensable.

Please note: The production of biofuels from algae does not reduce overall atmospheric CO₂, because any CO₂ taken out of the atmosphere by the algae is returned to biofuel except where fuel gas emissions are captured and recycled as feed stock in an enclosed growth system.



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