



**Mission** - We are a clean-tech company producing revenue in 2018 and passionate about innovations to create bio-products from inexhaustible, waste resources with breakthrough biotechnology such as:

**FOOD \* FEED \* FUEL \* FERTILIZER \* NUTRACEUTICALS \* COSMECEUTICALS \* MEDICINES**

**Vision** - “Serving mankind through technology” – by producing sustainable bio-products with technology that promotes the health of Earth and a clean “green” ecosystem.

The U.S. Department of Energy and Agriculture has stated long-term commercial potential of algae-based fuel and other high value bio-products will reach into hundreds of billions of dollars in the next 10-20 years. Worldwide demand for algal-based bio-fuels, chemicals, and nutritional products are driven by market price, supply and the hope of diversification from petroleum-based products, while reducing harmful carbon dioxide (Co2) emissions which plague our planet eco-systems and promotes global warming.

### **Diversified product stream**

Algae can be readily converted directly into an intermediate form called “bio-oil”, which can be further refined into renewable gasoline, aviation fuel or renewable diesel by any modern oil refinery. Moreover, other valuable chemicals can be extracted from algae oil such as those used to generate nutraceuticals like Omega 3 oil valued at \$300 to \$700 per gallon as a food additive for nutrition or as a vitamin. Expensive cosmetics use chemicals extracted from algae whereby fatty acids, pigments, carotenoids, astaxanthin and phycobilin proteins are utilized to promote healthy skin and have UV-blocking properties. Algae are also grown to produce very expensive (up to \$100,000 per 10 mil) active biological chemicals that treat cancer in the medical/pharmaceutical industry.

### **AlgaStar Inc.**

AlgaStar, Inc. is headquartered in Gulf Breeze, and owns the control of a New Mexico State funded research and development company subsidiary named, BioStim Inc.

Most importantly, in early 2018, AlgaStar won a State of Florida funded, 20 month (REET) research grant with Florida A&M University, NASA at Kennedy Space Center and ASA, a leading US R&D/engineering firm to pursue producing algae biomass that focuses on the interaction of electromagnetic energy utilizing our “BioStim” electromagnetic biostimulation research system while growing cyanobacteria and microalgae, utilizing a supply of waste water nutrients from treatment plants for potential commercial and space biomass production of pure oxygen, fuel and food.

NASA Space Center participants have expressed interest in the potential of our electromagnetic biostimulation technology for use in long-term space travel and for the future Mars

exploration/inhabitation programs. The total grant funding and donations to the REET research project is in excess of \$1.0 million.

In addition, BioStim Inc. won a third year of competitive New Mexico Small Business Assistance research grant (total over \$225,000) to fund our patent pending electromagnetic biostimulation research with microwave energy at Los Alamos National Laboratory in New Mexico during years 2015 thru 2017. Both companies are algae technology innovators and cultivation companies primarily engaged in research, development and production of a US patented #8,569,050 commercial-scale bioreactor system named “SolarMagnatron” and a patent pending electromagnetic bio-stimulation technology system named “BioStim”. Our combined prior BioStim research efforts have shown up to a **374%** increase per day in natural algal biomass productivity over other systems growing with only natural daylight.

Our electromagnetic biostimulation system breakthrough is critical; according to a recently released \$80.0 million DOE funded study (see #2 bibliography below) by the NAABB—stats that increasing biomass productivity and lipid yield by up to **400%**, beyond today’s best-known capabilities is currently one of the most limiting factors in advancing US technologies for creating sustainable, cost-efficient biochemical/fuels production. Genetically modified (GMO) algae/bacteria were also suggested for increasing productivity along with developing better controlled, lower cost, biomass production systems as is featured in our technology.

AlgaStar’s principal and inventor, Mr. John D. Ericsson identified the need for the above NAABB desired system in 2009 and built his breakthrough closed, air-lift algae bioreactor system, named the SolarMagnatron™ (SM). Ericsson licensed his USA patent #8,569,050 in 2018 to AlgaStar Inc. The SM and BioStim systems are the central elements of an integrated system for the production of natural and genetically modified organism (GMO) algal biomass on a very profitable, commercial scale.

### **PHASE 1**

AlgaStar’s enclosed bioreactor systems were built during Phase 1 R&D (see pictures on page 6) with electromagnetic bio-stimulation “BioStim” (see pictures on page 3) methods. These systems are under development as algae agnostic, designed to grow a wide variety of algal and other forms of natural and genetically modified microorganism-based biomass, each with their own *Diversified product streams*. Only a few competitors like Cyanotech, a public company in Hawaii, produce for these markets with most all growing within open pond/raceway systems, which are very unpredictable due to bio-contamination/climatic control and bio-security problems. The USEPA has not allowed GMO’s grown in open systems in the USA. None of the Cyanotech type producers are large enough to capture major positions in the rapidly growing world markets for these diversified chemical and bio-oil products.

### **Uniquely Positioned**

Over the last ten years, hundreds of millions have been invested into open-pond and raceway alga production systems via the US Department of Energy and many oil companies and public/private investors. *None of these well-funded algae biomass production companies have AlgaStar’s game-changing biostimulation technologies for the exponential increase of energy/chemical-rich biomass, in a controlled, closed, bioreactor system, which is essential for all future DOE/NAABB suggested GMO biomass production.*

Our R&D scientific team at Los Alamos National Laboratory (LANL) and Florida A&M University (FAMU) along with other consulting university scientists and engineers will be testing and improving in 2018 thru 2019 our US patent pending “BioStim” Electromagnetic BioStimulation Research System.

The BioStim system utilizes low-power, safe levels of static-magnetic and microwave energy fields (EMF) that transmits growth stimulation energy into 36 mini bioreactors growing various microorganisms that may help determine the future production of chemical rich compounds for the future supply of valuable biofuels, biochemicals and pharmaceutical compounds. The “BioStim” system studies the cause and effect of EMF for increasing the growth rate of algae, yeast and bacteria. The results of these growth stimulation studies will result in the creation of new commercial scale biostimulation systems for incorporation into our US patented “SolarMagnatron” enclosed photo-bioreactor system for turbocharging the growth rate of energy/chemical-rich biomass. Our LANL scientists recently reported in 2017, a 30% growth increase in certain algae with microwave biostimulation. In addition, our affiliated research scientist at the University of Western Ontario has documented our own past research which resulted in **374%** biomass growth increase and **173%** increase in lipid oils in algae by static-magnetic energy stimulation.

*The “BioStim” Electromagnetic Biostimulation Research System US Patent Pending-2018*



The “BioStim” system above pictured at FAMU will study the cause and effect of static-magnetic and microwave energy when radiated upon various microorganisms that can produce valuable biochemical like Omega 3 oil and other related food and fuel products.

Our breakthrough bio-systems technologies, when commercialized, will help to create a very profitable biomass production platform for building our own 200-unit SM plant (40X5 unit modules) with approximately one million gallons in continuous biomass production as well as generating royalty income

from the use of our BioStim commercialized systems for increasing biomass in third party biomass producing companies like Cyanotech in Hawaii that produces nutraceutical products in open ponds. The SM plant is projected to cost approximately \$35 million with project financing on 30-year terms, producing 5-year EBIT projections of \$80 million and a 100% ROI by the third to fifth year of operations.

US government guaranteed, and credit-enhanced project finance bonds are planned to be placed by a nationally known bond placement organization located in St. Louis, Missouri, which has already accepted AlgaStar as a future project finance client. In addition, income may be derived from profit-sharing royalty contracts for adding our commercial “BioStim” equipment to boost biomass production for other domestic and international companies growing organisms like yeast for beer and other alcohol related products, algae for biofuels and bacteria for pharmaceuticals (see *Hunt et.al in bibliography below*). In addition, income from patent royalties and technology license fee agreements with other companies wishing to utilize our USA patented AlgaStar SolarMagnatron™ (SM) closed, controlled, airlift bioreactor system and royalty payments from its “BioStim” bio-stimulation technologies for increasing natural or GMO organism production.

#### **PHASE II - \$1.5 - \$5.0 million - (2019 funding offer)**

In Phase II, the Company expects to complete the current R&D efforts on a single, 4,500-gallon SolarMagnatron™ bioreactor by adding additional equipment and system control requirements, and further R&D of the BioStim technology and complete the remaining single-unit production tests on the system’s performance in order to demonstrate sustainable continuous growth of the Company’s SM unit with BioStim. AlgaStar also intends to have third-party validation, as well as a full economic assessment of the technology by the end of this phase. In addition, design of the next generation of the SolarMagnatron™ will be finalized in anticipation of initiating the next phase directly resulting from the Company’s R&D effort. The Company anticipates this phase will require 6 to 12 months, at an estimated cost of \$1.5 million with no expected revenues for the first 6 months of operation.

#### **PHASE III - \$3.5 million**

Phase III funding is incorporated into our current funding efforts which will require an additional \$3.5 million in capitalization to build and test a 5-unit module SolarMagnatron system with 20,000 gallons of biomass in continuous bio-oil production and commercially developing and incorporating the BioStim US patent pending technology.

#### **Management**

John D. Ericsson - CEO Inventor, Chairman of the Board

Jane Barnes – Interim Secretary/Treasurer

Adam Morgan – Member of the Board – Advisor –Attorney

New members of the management including President, CFO, and Chief Science Officer are pending.

#### **Ownership**

Currently 7,700,000 common shares are owned by the current officers/directors and advisors of the company in partial consideration for funding years of R&D expended thru 2019 in the development of the commercial prototype SolarMagnatron system and the for the patent license

issued to AlgaStar Inc. Currently only \$372,000 is owed in accrued salaries and expenses due the officers/ directors and others since AlgaStars inception in 2012.

**200-unit SolarMagnatron Plant Pro forma**

<b>Unit without EMF</b>	<b>kg/4000 * gal</b>	<b>lbs./4000 * gal</b>	<b>lbs. of oil/# day</b>	<b>gal of oil/ † day</b>	<b>gal of bio-oil/† yr.</b>
One SolarMagnatron™	150	330	82.5	11.25	3,375
200 SolarMagnatron™	30,000	66,000	24,750	2,250	675,000
<b>Unit with EMF (300% boost)</b>	<b>kg/4000 * gal</b>	<b>lbs./4000 * gal</b>	<b>lbs. of oil/# day</b>	<b>gal of oil/ † day</b>	<b>gal of bio-oil/† yr.</b>
One SolarMagnatron™	450	990	247.5	33.7	10,125
200 SolarMagnatron™	90,000	198,000	74,250	6,740	2,025,000

(200 SolarMagnatron™ units = 1.0 million gallons of continuously producing biomass) Dry weight estimated 48-hr. algae doubling time with a harvesting of 25% total biomass per day. One gallon of oil (density of 0.88) weight is equivalent to 7.344 lbs. Operation of the unit(s) for 300 days a year.

<b>- Projected Revenues w/EMF - Years 1 to 5 (\$) @ least valuable product as biofuels/oils @ \$7.70/gal</b>				
	<b>Yr. 1</b>	<b>Yr. 2</b>	<b>Yr. 3</b>	<b>Yr. 4</b>
<b>Gross Revenue</b>	\$35,730	\$7,390,248	\$15,076,106	\$15,592,500

The Company’s principals and supporters have spent their own funds for the years of R&D and are prospecting for \$1.5 million up to \$5.0 million in additional development capital leading to the commercialization of the BioStim systems and startup of a 200-unit SM biomass to bio-oil production plant within 18 to 24 months of full funding. No further Company equity funding is anticipated to be required beyond \$5.0 million in the next three years of development since project financing with USDA and DOE federal government bonds and/or major insurance company performance guaranteed policies will be applied to raise up to 100% of the 200 SM plant installation and operations cost. Our original investors will be given first right-of-refusal to supply additional capital, if required.

**Bibliography:**

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2. Department of Energy ” naabb\_synopsis\_report.pdf”, 12-12-14  
<http://energy.gov/eere/bioenergy/downloads/national-alliance-advanced-biofuels-and-bioproducts-synopsis-naabb-final>, National Alliance Advanced Biofuels and Bioproducts, 08-18-14

# Pilot commercial scale SolarMagnatron™



8' X 15' round bioreactor with a 8' X 8' flat panel photo-bioreactor unit adjacent to the outdoor greenhouse and laboratory facility. Total volume @ 4500 gallons (18,000-liters)

United States Patent #8,569,050 B1 issued October 29, 2013.



US patent pending "BioStim"  
Electromagnetic  
BioStimulation Research System at  
Florida A & M



Florida State funded REET project  
With NASA and other research partners

For further information contact: [www.info@algastar.com](mailto:www.info@algastar.com)

Video & Website: [www.algastar.com](http://www.algastar.com)