



AlgaStar 

Earth, Space and Mars cultivation of
microorganism biomass

To View AlgaStar video :

<http://www.algastar.com/>

AlgaStar Inc.

Vision - “Serving mankind through technology”

Mission - We are a Delaware clean-tech company producing revenues since 2018 and passionate about creating technologies to generate valuable biomass derived products from waste and Co2 warming gas such as:

FOOD * FEED * FUEL * FERTILIZER * NUTRACEUTICALS * COSMECEUTICALS * PHARMACEUTICALS

Our AlgaStar Inc. US patented bioreactor technologies will grow various alga that can be converted into **“bio-oil”** which can be further refined into renewable biofuels, biochemicals and nutraceuticals like: Omega 3 oil valued at \$300 to \$700 per gallon as a food additive for nutrition.



Various forms of algae like Lyngba that can be grown to produce very expensive active biological chemicals that treat various cancer ailments in the medical/pharmaceutical industry selling at \$1000 per milliliter.

Expensive cosmetics use chemicals extracted from algae to promote healthy skin and have UV-blocking properties selling at \$1000 per liquid liter.





A recent analysis by World Wildlife Fund (WWF) states that “businesses will uncover billions in hidden profits from climate change action.”



“Corporations must act now not only to address environmental risk, but also to aid economic recovery in the United States and build resilience. Investing in energy efficiency and renewable energy saves cost, stimulates innovation, creates jobs and builds energy independence and security.”

Massive Problem – Incredible \$\$ Potential

\$15.0 to \$21.5 million in the 3rd year of commercial production.

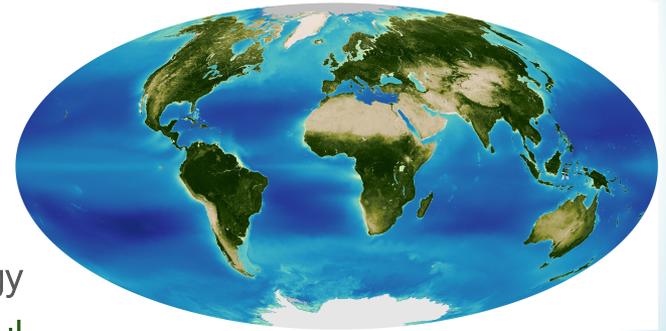
The U.S. Departments of Energy and Agriculture (DOE/A) have stated that the long-term commercial potential of algae-based food and fuel products would reach hundreds of billions of dollars in the next two decades as the world population

grows at over 100 million new inhabitants per year.

Land resources for crop production are diminishing due to global warming and diminishing fresh water resources. DOE/A says algae production for food can be far more efficient and reliable than animal or field crops in the future.



Many countries worldwide are searching for ways to reduce harmful carbon dioxide (Co2) emissions, which plague our planet ecosystems and promotes global warming.



AlgaStar's 200-unit SolarMagnatron™ Symbiotic Energy System (SES) plant converts up to **196,000 tons of harmful Co2 per year** into valuable bioproducts and also earns up to \$36 per ton in marketable Carbon Credits worth \$6.5 million.

These carbon credits add largely to the SES plant revenue resulting from \$15.0 to \$21.5 million in the 3rd year of commercial production.

Harmful Co2
converted per year

196,000 tons

Carbon
Credits

\$6.5 million

Net
Revenue

\$15 to \$21.5 million

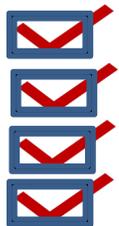
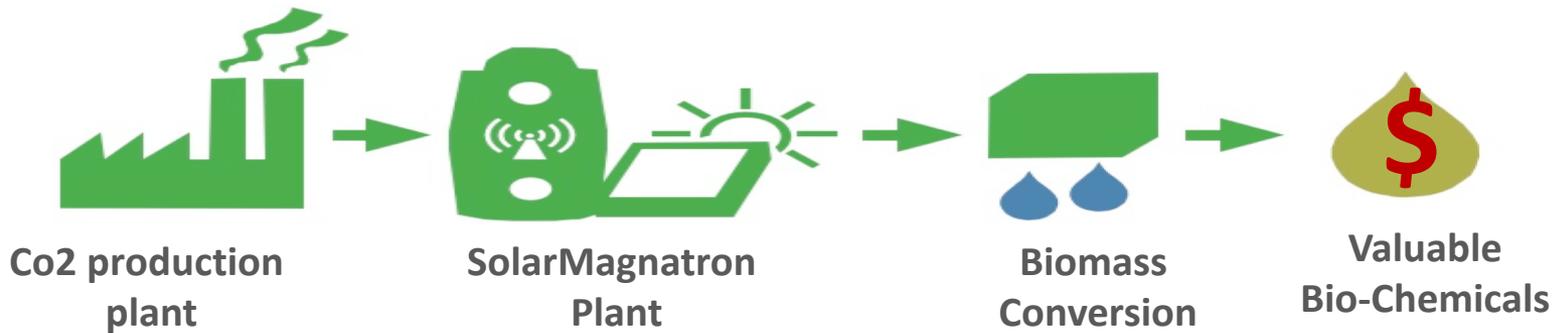


Symbiotic Energy System (SES)



Our proposed SolarMagnatron™ Symbiotic Energy System (SES) plant will be a complete Co2 conversion-to-algae biomass-to bio-products solution.

The SES symbiotic relationship combines several technologies that work together to capture thousands of tons of harmful Co2 gas that is converted into energy/chemical-rich algal biomass that is processed into biofuels and valuable chemicals.



- Algae-based biofuels
- Food for fish, aquatic organisms, livestock feed supplement
- Nutraceuticals & Pharmaceuticals
- Fine chemicals for cosmetics

\$3 TRILLION MARKET

\$5-\$10 BILLION MARKET BY 2022

\$50 BILLION MARKET BY 2022

Sources: Department of Energy, Greener Dawn Research

Ground-breaking Solution to Pollution

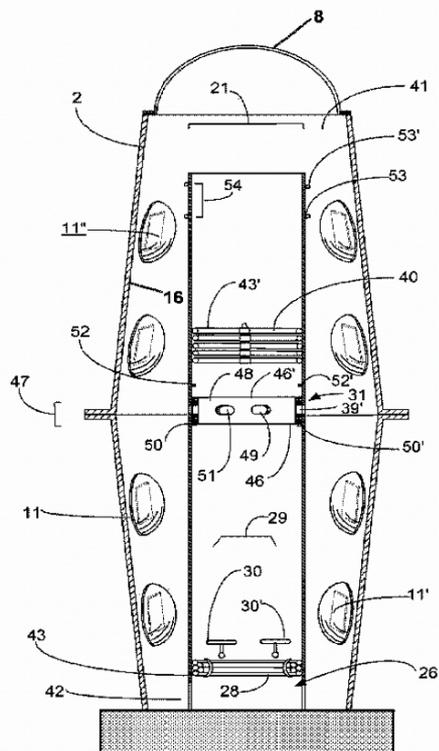
AlgaStar's principal and inventor, Mr. John D. Ericsson, answered the DOE and the National Alliance for Advanced BioFuels and Bio-products (NAABB) published call for creating an algae biomass production system that could generate biofuels and other valuable bioproducts. Subsequently, he built and tested his commercial-scale breakthrough closed, air-lift algae bioreactor system, named the SolarMagnatron™(SM) in NW Florida. The unit stands 15' tall, is 7.5' in diameter and produces 18,000 liters of biomass.



SolarMagnatron™ BioReactor



The SolarMagnatron™ operates as a controlled, closed system and incorporates many new innovations that converts thousands of tons of harmful Co2 per year into valuable products and can turbo charge algal biomass production by **300% to 600%** over any other technology.



(12) United States Patent Ericsson

(54) ENCLOSED BIOREACTOR SYSTEM AND METHODS ASSOCIATED THEREWITH

(76) Inventor: **John D. Ericsson**, Gulf Breeze, FL (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 294 days.

(21) Appl. No.: **12/772,970**

(22) Filed: **May 3, 2010**

Related U.S. Application Data

(60) Provisional application No. 61/175,256, filed on May 4, 2009.

(51) **Int. Cl.**
C12M 1/08 (2006.01)
C12M 1/42 (2006.01)
C12N 1/12 (2006.01)

(52) **U.S. Cl.**
 USPC **435/292.1**; 435/294.1; 435/295.2

(58) **Field of Classification Search**
 USPC 435/292.1, 294.1, 295.1, 295.2, 296.1; 422/227, 605

See application file for complete search history.

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 (45) **Date of Patent:** **Oct. 29, 2013**

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Primary Examiner — William H Beisner
 (74) *Attorney, Agent, or Firm* — Allen, Dyer, Doppelt, Milbrath & Gilchrist, P.A.

(57) ABSTRACT

A bioreactor production system for growing commercial volumes of algae or other biomass in a uniquely configured, enclosed, biosecure, photo-type reactor vessel, having internal artificial growth light production as well as exterior solar energy capturing devices or the like designed to facilitate enhanced sunlight exposure for photosynthesis organism production. A unique electromagnetic field generation system is integrated with the bioreactor and its operation to substantially enhance growth rate and overall productivity.

36 Claims, 25 Drawing Sheets

US patented # 8,569,050 B1 SolarMagnatron™ and BioStim™ System





FLORIDA **A&M** UNIVERSITY



BioStim™ Earth, Space and Mars

AlgaStar, is a commercial development staged company producing revenues since 2018. The company focuses on the cultivation of patent-protected algal and other microorganism biomass technology under development with assistance by Los Alamos National Lab, NASA Kennedy Space Center, Florida A&M and Applied Research Associates (ARA).





BioStim™
DEVELOPMENT



During 2015 to 2018, we competed and won over **\$250,000** in New Mexico Small Business Assistance (NMSBA) grants to help develop the BioStim™ electromagnetic biostimulation system at Los Alamos National Lab (LANL). Additional NMSBA grants for BioStim™ are expected in 2020 at LANL.

In early 2018, AlgaStar won a highly competitive State of Florida-funded, 20-month, Renewable Energy and Energy-Efficient Technologies (REET) research grant for **\$399,000 with over \$600,000** in added matching contributions partnering with: Florida A&M University, NASA at Kennedy Space Center and ARA Labs, a leading US R&D/engineering firm. BioStim™ has been successfully tested at Florida A&M to increase selected algae growth by over **600%** in just 6 days of electromagnetic stimulation. This spectacular achievement in biostimulation research of microorganisms is the first known development in turbo charging the growth of algae with rare earth magnetic energy that could:

- Focus on studying the cause and effect of electromagnetic energy utilizing our BioStim™ electromagnetic biostimulation research system for turbo-charging growth rates while growing cyanobacteria and microalgae into valuable biochemical products.
- Utilize a supply of waste water nutrients from sewage treatment plants as a free nutrient resource for biomass production.
- Be used for future Earth, Space and Mars biomass production of pure oxygen, fuel, food, nutraceutical and pharmaceutical products to sustain our growing civilization.

Our growth stimulation studies currently being conducted with AlgaStar at Florida A&M University, has resulted in over **600%** biomass growth increase utilizing a scientific breakthrough created by the use of rare earth magnetic energy.

In 2017, Los Alamos National Laboratory (LANL) scientists reported a **30%** biomass growth increase in certain algae with microwave biostimulation and they are expected to be continuing these BioStim™ developments into 2020.

Our affiliated research scientist at the University of Western Ontario has verified our own research, which resulted in **374%** biomass growth increase and **173%** increase in lipid oils in algae by static magnetic energy stimulation.

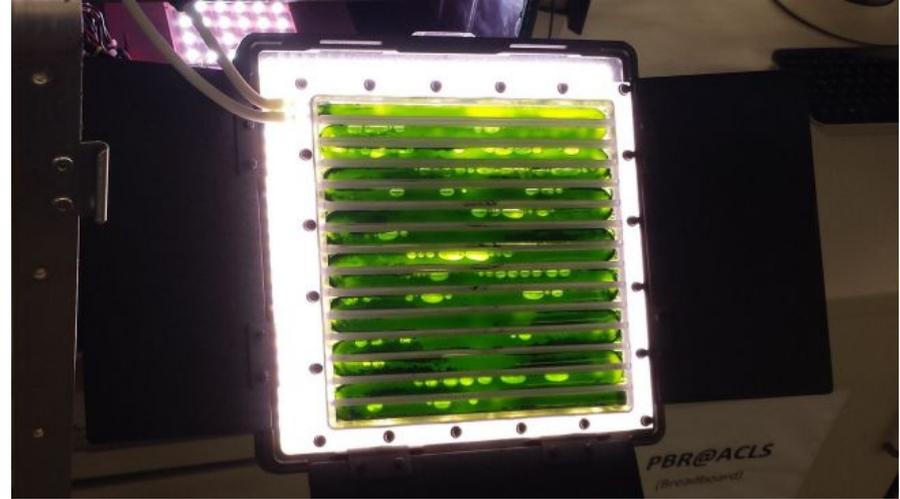


Demand for algal-based fuels, chemicals and feedstocks are not only driven by the desire for lower cost, but also a smaller carbon footprint that can be created by our SolarMagnatron™ in a SES plant that **converts thousands of tons of harmful Co2** daily into useful and valuable products.

Market Opportunity

Earth, Space and Mars

Our Earth, Space and Mars biomass conversion technologies will become massive as planet Earth's resources evolve toward supporting currently over 100 million new inhabitants per year arriving upon the planet. All will require food, fuel, nutrients, drugs and life support.



A Photobioreactor on the International Space Station converts carbon dioxide into oxygen and edible algae biomass through photosynthesis.

[Hybrid life support system Photobioreactor \(PBR\) on the ISS](#)



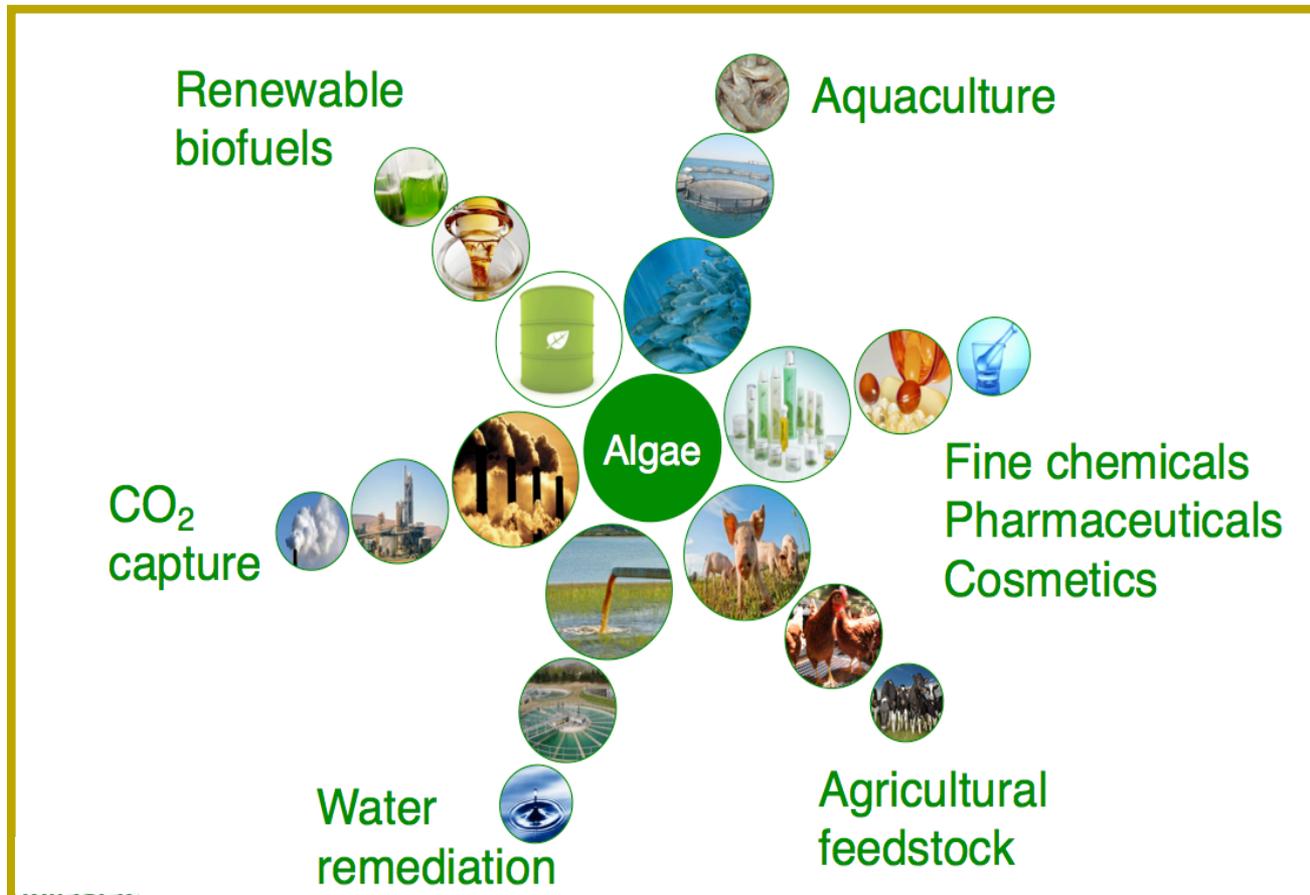
All these same issues require resolution while sending deep space explorers and planet Mars colonizers to establish a livable environment by converting CO_2 into pure oxygen, producing food, fuel, nutrients and drugs by growing various microorganisms known for producing these survival requirements, which will require enclosed bioreactors with our patent pending BioStim™ technology.



According to the U.S. Department of Energy and Pike Research, the long-term commercial potential of Earth's required food, algal fuel and other high-value co-products is



as high as \$3 trillion.



Meet The Team



John D. Ericsson

CEO, DIRECTOR AND INVENTOR

- Mr. Ericsson is the inventor of the patented SolarMagnatron™ and patent pending BioStim systems technologies.
- He has considerable expertise in a wide range of industry ranging from oil and gas operations, cogeneration, three patents in fish/oyster farming systems and advanced algae systems development. Mr. Ericsson has been featured in *Forbes* magazine as an industry science and technology leader.



Matthew Ortega

VICE PRESIDENT OF MARKETING

- Gallagher Insurance, Risk Management, & Consulting – Producer/Broker
- Was Previously involved in bank management, marketing and sales for Wells Fargo Bank in New Mexico.
- Involved in business development management, administration and operations and staffing, among other accomplishments and successes.



Jane Barnes

INTERIM SECRETARY/TREASURER | CO-FOUNDER

- 35 years of business management and consulting experience in several service businesses Is skilled in business accounting and record keeping and has assisted Mr. Ericsson in developing the BioStim systems.
- Establish business organization support and New Mexico Small Business Assistance grants for BioStim R & D efforts at Los Alamos National lab.



Adam J. Morgan

DIRECTOR AND LEGAL ADVISOR

- 22 years of experience in legal and business roles. Since January 2009, he has served as Vice President General Counsel & Business Development and Secretary of Dyadic International, Inc. (OTC Pink: DYAI), a global biotechnology company.
- From December 2004 until October 2008, Mr. Morgan served as President, Chief Operating Officer and Secretary of Advance Publishers, L.C., a private distributor of licensed books and accessories in Maitland, Florida.

Advisory Board



Wankei Wan, Ph.D.

MICROBIOLOGICAL SCIENCE AND
ELECTROMAGNETIC TECHNOLOGY CONSULTANT

- Currently, Professor of the Faculty of Engineering in the Department of Chemical/Biochemical Engineering at The University of Western Ontario.
- 30 years of academic and industrial experience in microalgae biomass production, utilization and photosynthesis, electromagnetic effect on microorganisms, microbial fermentation processes and reactor design, biomaterials, nanomaterials and medical devices.



Timothy Moore, Ph.D.

ADMINISTRATIVE AND TECHNICAL ADVISOR

- 30 years of federal, private, military and university research and development experience involving more than \$350 Million in competitive research awards.
- Most recently served as Vice President for Research at Florida A&M University.



George Hersbach., MBA

FINANCIAL ADVISOR

- President, Chief Executive Officer, owner and founder of HeartStream Group B.V.
- Some of his accomplishments include US and European financings, mergers and acquisitions greater than € 300 million in total equity, € 100 million in total debt and € 150 million in total mergers and acquisitions.



Mark Edwards Ph.D., MBA

ALGAE INDUSTRY ADVISOR

- Professor Emeritus after 39 years at Arizona State University.
- He advises global companies on strategy for food, energy, and technology, by providing structure, metrics and advanced algae technologies.

None of the competition can accomplish biomass growth with a controlled, closed, bioreactor system -- which is essential for all future DOE and the National Alliance for Advanced BioFuels and Bioproducts (NAABB) suggested natural and genetically modified organisms for biofuel and other valuable products.

Our grants and research speak volumes, from Los Alamos National Laboratory (LANL) to Florida A&M University (FAMU), NASA Kennedy Space Center and ARA Labs with AlgaStar making inroads where others have not.

We are ready to forever change the cultivation of algal and other microorganism biomass by [consuming thousands of tons of harmful global warming Co2 into valuable products](#)



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See our video and website at:

AlgaStar.com

Or inquire by writing to:

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John Ericsson

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Business Model - Revenue Streams

\$15 to \$21.5 million in 200-unit SM plant revenues - 3rd yr. plus 12.5% royalties – BioStim™ | ROI 3.5 years

When commercialized, our breakthrough biosystem technologies will:

Help to create a very profitable biomass production platform with the third year 200-unit SM plant net revenue projecting over \$15 to \$21.5 million in net revenues w/ ROI in 3.5 yrs.

Pave the way for us to build our own 200-unit SM plant with approximately one million gallons in continuous biomass production.

Generate royalty income from the use of our BioStim™ commercialized systems for increasing biomass in third-party biomass and fermentation/ brewing companies.

NET REVENUE

\$15 to \$21.5 million

ROI

3.5 years

ROYALTY INCOME

12.5% -25%

Competitive Overview

None like ours

AlgaStar does not have the usual crop of competitors because of its US patented SolarMagnatron™ bioreactor system with BioStim™ and the Symbiotic Energy System that consumes thousands of tons of harmful Co2 per day while producing valuable bioproducts.

In fact, we'd argue that our solution is so unique, we don't have any direct competition.

But if you look at the few others that exist, the results aren't on par with what we can produce with our much greater environmental impact by converting Co2 into valuable products.

Cyanotech®

Cyanotech, a public company in Hawaii, producing astaxanthin but without BioStim™ electromagnetic biostimulation or our SES level of commercial scale Co2 conversion via the environmentally controlled enclosed bioreactor system.

Most of the growing occurs within open pond/raceway systems, which are very unpredictable due to bio-contamination/ predator organisms /climatic control and other bio-security problems like sandstorms.



Unlike the SolarMagnatron™ pictured above, conventional pond based algae farms require one hundred acres of surface area to achieve the same level of algae biomass production from just one 200-unit SolarMagnatron™ plant located on five acres.



None of the Cyanotech type producers as shown above, are large enough to capture major positions in the rapidly growing world markets for these valuable diversified biochemical and bio-oil products.

Why Invest?

SolarMagnatron™ and BioStim™ Systems



The patented SolarMagnatron™ equipped will convert thousands of tons of CO₂ to produce turbo charged biomass production of chemical rich organisms that process into valuable biofuels, biochemicals and pharmaceutical products. Projected to generate over \$15 million by the third year of commercial production. ROI=3.5 yrs.

The BioStim™ system studies currently ongoing at FAMU with AlgaStar, measures the cause and effect of electromagnetic energy that has recently been found to increase the growth rate of many algae. Yeast and bacteria have also been previously studied and found to be candidates for growth turbocharging in the brewing and drug production industries.

The patent pending BioStim™ system utilizes low-power, safe levels of static-magnetic energy fields (EMF) to determine the types of energy that is required for commercially growing various micro organisms in our SM or licensed to others for a increased productivity royalty payments at 12.5 to 25% of product increase.



Investment Opportunity



AlgaStar is seeking a total raise of

**\$5,000,000 in Equity and/or 4-year
Convertible Debt @ 8%.**

An Offering Memoranda and Business Plan is available upon request

NOTE: An investor qualification questionnaire is required
before investing if you are a US citizen.

For more information on this investment opportunity, please contact.

Matthew Ortega

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office (505) 795-5600

or

John Ericsson

J.Ericsson@AlgaStar.com



But we need your help to make it happen.

For more information on this
investment opportunity, please contact:



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See our video and website at:

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