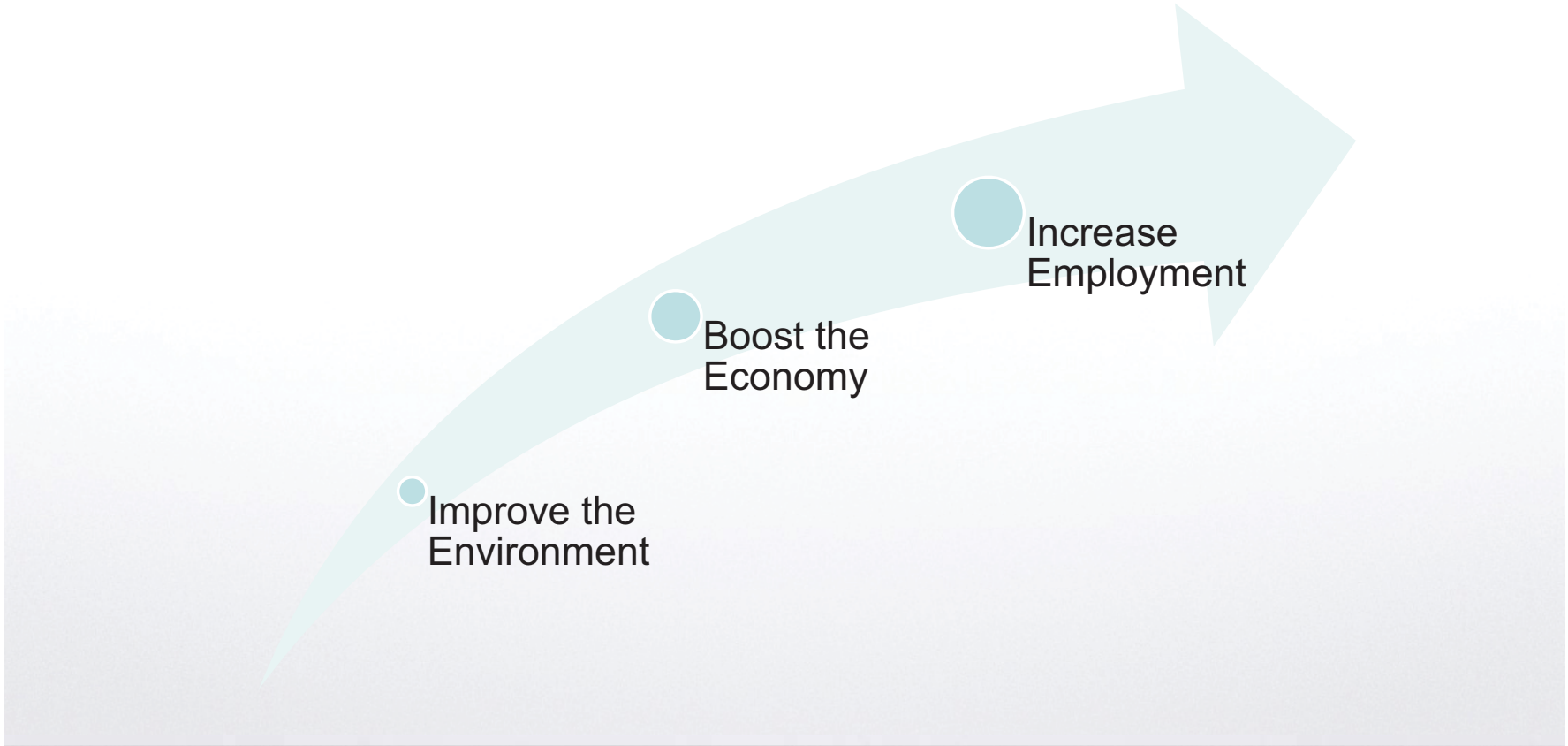
Algae Aqua-Culture Technologies

"Integrated Smart Technologies for a Sustainable Future"

Whitefish, MT

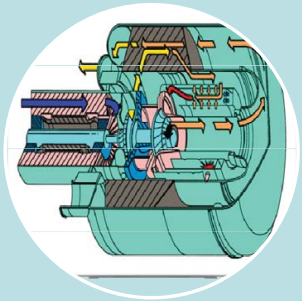
Imagine…



Using Waste Materials & CO_2

Imagine…

Fertilizer



Fuel

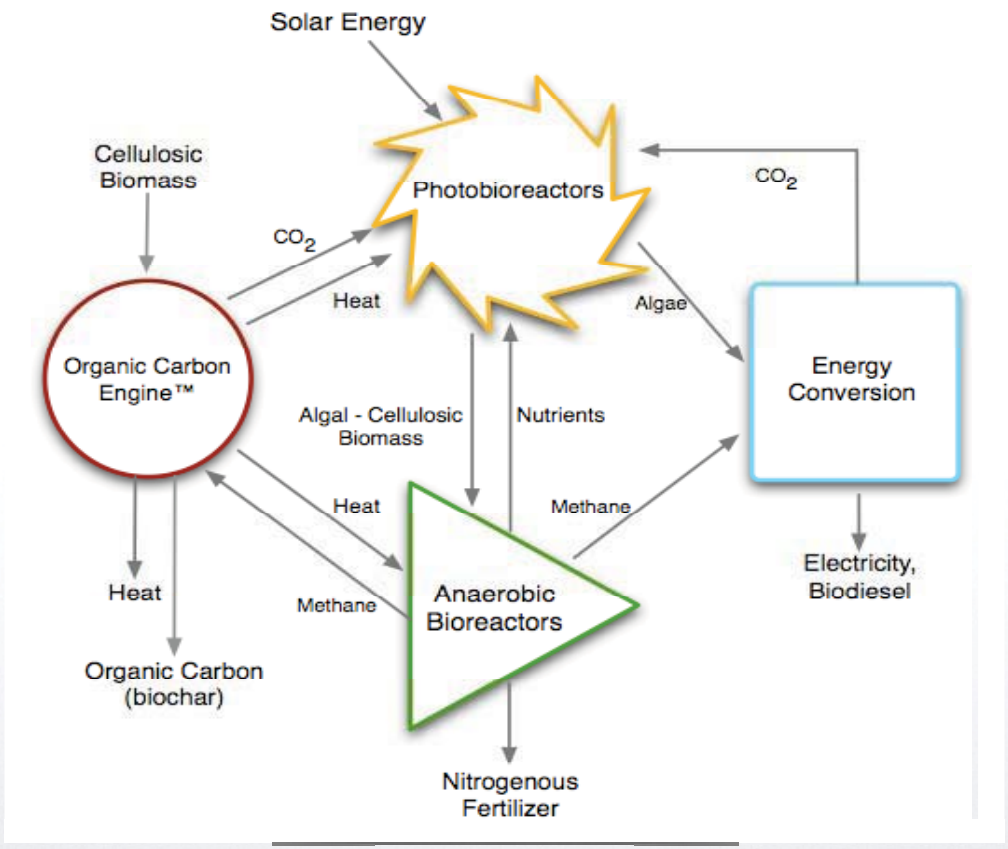
Food

Created from Waste!

The Closed-Loop AACT System

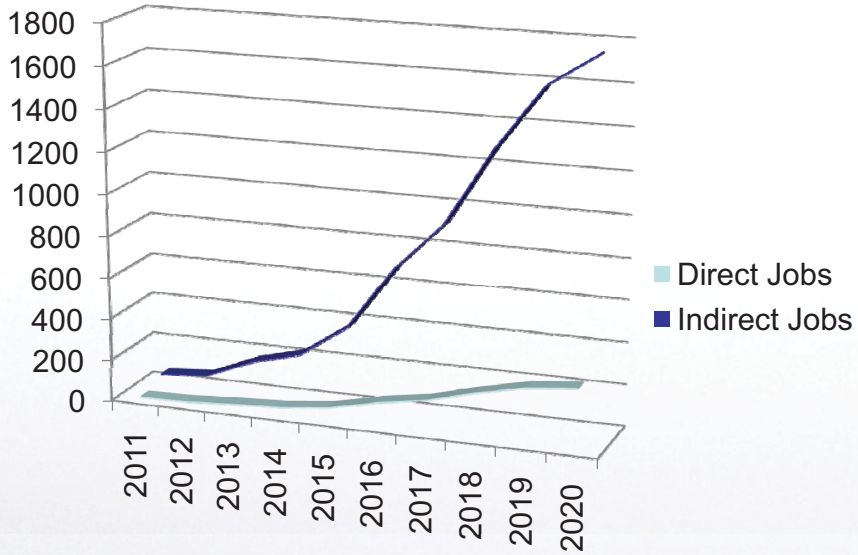
A Carbon Neutral to Carbon Negative Process!

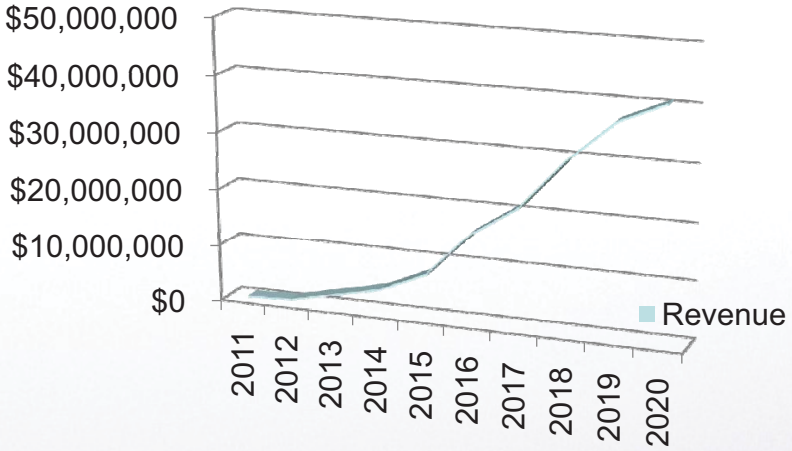
The AACT System



Integrated Systems Approach

Employment and Revenue





290 Direct & 1740 Indirect Jobs by 2020!

A Vision Becomes Reality…

FH Stoltze Land & Lumber Co	• Host for Phase I & In-Kind Support
Chairman Chas Vincent	• Letter of Support
Senator Ryan Zinke	• Letter of Support
Representative Mike Jopek	• Organic Farmer and Supporter
Dept of Ag Director Ron de Young	• Letter of Support
Dept of Comm Prog Mgr Tom Kaiserski	• Letter of Support
NW Power & Conservation Council	• Letter of Support
Senator John Tester	• Interested Supporter
Governor Brian Schweitzer	• Letter of Support

Phase I Development Seeking Phase II Funding

AACT

"Integrated Smart Technologies for a Sustainable Future"

www.algaeacqua.com

333 Lupfer Ave, Whitefish, MT 59937

Algae Aqua-Culture Technologies

Business Plan Executive Summary

Our Vision

To create automated systems for the production of energy and agricultural products that will revitalize earth, air, water and the economy.

Our Mission

To a build a profitable enterprise with minimal or negative carbon footprint while causing the least disturbance to natural systems. Our products are meant to improve existing industries by providing alternative energy, increased efficiency and to aid in the restoration of agroecosystems. Our scaleable and extensible energy production systems will produce valuable carbon sequestration byproducts derived from biochar, algae and lignocellulosic biomass. Deployment of our systems will provide long term employment for skilled and unskilled labor.

Introduction

AACT is entering three established and growing industries:

1) The small-scale power generation system industry.
2) The biomass processing/cellulosic waste reduction industry.
3) The high-quality soil-amendment industry.

All three industries rely upon innovation and new technologies.

AACT is poised to be first to market with a unique biorefinery that is designed to produce biofuels, electricity and organic soil amendments while simultaneously sequestering anthropogenic carbon dioxide. AACT's intelligent components allow the system to adapt to a wide variety of cogeneration applications as well as varying climatic conditions. System scalability and extensibility are inherent in the design making it ideal for integration with light industries that have a waste carbon stream.

Algae Aqua-Culture Technologies intends to make carbon sequestration, soil and waste water

remediation profitable, not just for large corporations but especially for small businesses, farms and ranches. While so many of the new green technologies are complex, the AACT system is based on the integration of simple organic processes that mimic the behavior of natural systems.

As America moves to embrace environmentally sustainable technology and revitalize the economy, AACT systems will be there as an additional source of income for small businesses, farms and ranches, as well as contribute to the reduction of greenhouse gases.

Company Overview

Algae Aqua-Culture Technologies is a startup company located in Whitefish, Montana, less than 30 miles from Glacier National Park. Surrounded by disappearing lumber mills, forests devastated by pine beetles and rapidly receding glaciers, AACT has focused on practical, small to medium scale energy systems that will have a positive impact on the environment. AACT understands that no one technology will reverse the effects of climate change. We can however, achieve substantial reductions in anthropogenic carbon dioxide by combining new *smart technologies* with existing industries to make them more efficient.

Management Team

The interdisciplinary background of AACT's management team brings the unique skill set needed to accomplish the development and commercialization of the products and consumer byproducts described herein.

- Michael F Smith - President, Chief Technical Officer, Cofounder
  Michael has been a pioneer in the software industry for more than 30 years. With a strong background in the physical sciences and mathematics, his engineering experience ranges from sophisticated data capture and control systems used by the aerospace companies to the creation of behavioral and physical modeling software used by the entertainment industry. He is currently involved in the development of adaptive behavioral controls to support and augment biologically active environments.

- John W Poling - Chief Financial Officer
  John has over 30 years of financial management experience with companies small and large. His experience ranges from management and auditing of a companies managing hazardous nuclear waste to financial advisory to public and private companies in need of investment banking, turnaround and financial modeling. He has operated and served on the board of several publicly traded corporations involved in environmental engineering and bioremediation.
-
- John Murdock - Vice President Engineering and Marketing
  John has over 30 years engineering experience in industrial instrumentation, controls and automation. His expertise also includes marketing and sales of engineered systems and components for companies such as: Underwriters Laboratories, the Canadian Standards Association, Factory Mutual and local approval agencies. John oversees the development of AACT process controls and instrumentation as well as marketing and sales strategies.

- Richard T Swope - Chairman
  USAF Lieutenant General, retired. Dick has commanded large, integrated industrial and transportation organizations. As USAF Inspector General he developed inspection policy and performance evaluation techniques for the 700,000 member service. He currently serves on public company boards and has worked with startup companies. Dick is acutely involved in

AACT development and commercialization strategies.

- Michael Holecek - Biochemistry and Soils Engineer, Cofounder
  Michael has been a professional consultant in environmental and biophysical design for the past 28 years. He has been a long time advocate for sustainable agriculture and renewable energy. His current project portfolio ranges from advanced biological building technology to permaculture techniques in landscape applications and community planning initiatives.

- Evan Sugden - Ecologist, Biologist
  Evan's career has spanned several decades of ecological studies on several continents. His awards have included several grants, including a long-term postdoctoral fellowship from the National Science Foundation. In addition to his research and development work at AACT he lectures in Ecology, Entomology, and General Biology at the University of Washington and the University of Oregon.

Company Products

AACT products are designed to work in concert with each other or independently. Each component has an autonomous control system, or agent, that enables it to adapt to changing environmental conditions. Multiple AACT components can be interconnected to form a Biorefinery or Bioprocessor. AACT Bioprocessors can be applied to numerous industrial applications to make them cleaner, more efficient and ultimately more profitable.

- PhotoBioReactor (PBR)
  Horizontal aquaculture raceway systems designed to optimize the cultivation and harvesting of algae. Carbon dioxide which is normally considered a pollutant is used as a *nutrient* to increase the algal growth rate. AACT PBRs are designed to work directly with geothermal heat sources to significantly improve energy conversion efficiency. The *plug and play* nature of the AACT system architecture enables AACT PBRs to connect to virtually any heat and/or carbon dioxide waste stream as well as AACT's own Organic Carbon Engines. AACT's intelligent control system enables multiple PBRs to be configured as an array and scaled to meet the energy and carbon sequestration demands of the target industry.

- Anaerobic BioReactor (ABR)
  Specialized biomethane generators designed to plug directly into AACT PBRs. AACT ABRs can be used with AACT PBRs or standalone to digest other waste streams or biomass feedstocks. AACT ABRs are two stage bioreactors that use the AACT control system to optimize the harvesting and digestion of algal-cellulosic feedstock. Our anaerobic bioreactors use smaller tanks to reduce the system cost and *distributed load balancing* to maximize efficiency. The ABR system is also scalable so more reactor tanks can be easily added as energy and soil production demands grow — or as the volume of organic waste streams increase.

- Organic Carbon Engine (OCE)
  Biomass powered pyrolytic boilers that are designed to plug into the AACT Biorefinery system. AACT OCEs can be used to boost the overall geothermal energy for the biorefinery as needed but they also convert woody biomass into a valuable soil amendment. Carbon dioxide generated by the system is captured and fed to the AACT PBRs as a nutrient to grow more algae. The AACT control system senses and regulates the flow of thermal energy and carbon dioxide through the system for the optimal production of biofuel and electricity. Excess heat generated by the OCEs can be diverted

into the AACT Geothermal Energy Storage system for later use. The biochar produced by OCEs can be added to the algae based soil amendment to significantly improve its agricultural value.

- Geothermal Energy and Storage
  Geothermal energy is not, per se, a company product but is an integral part of the AACT bioprocessing system. The AACT Biorefinery uses ground source heat to reduce the energy needed to keep the process running smoothly and efficiently. AACT controls manage the thermal energy available to the system whether it be from natural geothermal wells or ground source heat pumps that are supplemented by solar, wind or AACT's own Organic Carbon Engines.

- Adaptive Behavioral Controls
  Each individual component of the AACT Biorefinery described above is controlled by its own *intelligent software agent*. Each agent is capable of sensing its environment and adapting to changing conditions. As more components are added to the biorefinery the control system dynamically rebalances flow of energy, biomass and waste through the system. Using adaptive algorithms that mimic natural processes, the proprietary AACT control system supplies the intelligence that makes the system scalable and extensible.

- Green Power House™ (GPH)
  By combining the components listed above and covering an array of PBRs with our own biogenic greenhouse design, we create a greenhouse that is capable of generate nearly all of its own energy and soil amendments, thereby substantially reducing the operating costs and providing additional income. In addition, the Green Power House, with the main algae culture system at floor level, is a self-heating, perennial environment with space to grow a wide range of agricultural or horticultural crops. This opens up the Green Power House for production of high-cash agricultural products to further enhance revenue flow.

Market Opportunity and Competition

Energy and fertilizer are intricately related. As costs of petroleum-based energy and petroleum products inexorably rise, so will the price of conventional petroleum-based fertilizer, a $40 billion market in the US alone in 2007. Commensurately, the demand for organic soil amendments is increasing dramatically. In the same year the organic fertilizer market, driven partly by the skyrocketing popularity of organic food, was $60 million and continues to grow. Although organic soil amendments are only part of our commercialization strategy they are important enough to be given special treatment here.

Most organic amendments are produced locally or regionally and marketed through distributers such as Scotts Miracle-Gro or Perdue Farms inc. At this time it is easy to carve out a geographic niche because the number of organic fertilizer producers is relatively small. AACT has identified an extraordinary market opportunity for the "waste" output from it's biorefineries when the input feedstocks come from *controlled sources* (such as the output from the AACT photobioreactors and organic carbon engines). The production of synthetic nitrogenous fertilizers is an energy intensive process and as such has a substantial carbon footprint. Pending carbon legislation may impact the cost of synthetically produced fertilizers so that their competitive economic advantage is radically diminished.

A conservative estimate of the annual growth of the organic fertilizer market, not including carbon legislation or the added efficiency of AACT systems, is about 20%, putting the value of the 2010 market at over $120 million. AACT's market penetration could be substantial when we

consider that high grade organic nitrogenous fertilizer is just a waste byproduct of the AACT energy production system. The efficiency of the AACT system is even higher when it is working in conjunction with woody biomass processing plants. In this case the AACT Bioprocessor uses the waste streams from the factory as supplemental energy and nutrients to increase the system efficiency. As the efficiency of the AACT system increases, the cost of organically produced fertilizers decreases to a point where the cost matches (or is lower) than synthetically produced fertilizer, allowing even greater penetration into the $40 billion US fertilizer market.

AACT Bioprocessors use no natural gas to produce nitrogenous fertilizer unlike synthetic fertilizer production. They have the potential to bring huge economic benefit to the communities in which they are installed, since current US fertilizer plants normally have over 150 employees with an average salary of $75,000. Synthetic fertilizer producers argue that *Cap and Trade* legislation would contribute to an immediate $49/ton increase in the price of synthetically produced nitrogenous fertilizer. Since AACT bioprocessors *fix* nitrogen by way of natural biological processes there would be a price reduction greater than the $49 dollar increase.

Stage One Marketing Strategy

The first stage marketing strategy for the integrated bioprocessors is simple and minimizes risk by providing combined heat and power (CHP) to industries in need of it, the “waste byproducts” are managed by AACT and sold into the organic fertilizer market. Using a standard software business model, the technology is licensed, not sold, to the target industry so that support and maintenance of the biorefinery is the responsibility of AACT. This is attractive to the licensee, since the operation and maintenance of a biorefinery would be an added expense to the target industry.

AACT would provide a menu of products that could be licensed by the client. Those products not licensed by the client would be managed and sold through AACT (or other) distribution channels. The products include but are not limited to:

• Electricity
• Heat
* Biofuels
• Soil Amendments
• Greenhouse space.

Clients / Potential Clients

AACT has partnered with Stoltze Land and Lumber Company, a family owned lumber company based out of Columbia Falls, Montana, to build a model AACT Biorefinery at their mill site. This project is part of AACT’s phase 1 development strategy. Stoltze long ago adopted sustainable forestry practices and is looking for ways to utilize their mill waste and timber slash to improve the efficiency of their mill and provide them with alternative revenue streams as the timber market fluctuates. Stoltze is a relatively large consumer of electricity and currently uses their waste wood in an antiquated boiler to provide steam for the kilns. AACT has identified multiple valuable agricultural byproducts that would result from the generation of heat and power provided by the AACT system. The completed biorefinery will serve as a demonstration site for this particular application of the technology and will lead to the adoption of AACT bioprocessors by other local industries that produce cellulosic waste streams.

Other potential AACT biorefinery clients would include industries such as *Montana Sustainable Building Systems*, a company based in Whitefish, MT that produces solid wood wall structures. Montana Sustainable Building Systems has a need for both heat and power in their manufacturing process. They are an ecologically oriented company that processes small

diameter trees or trees killed by pine beetles to manufacture a product that is superior to many competing construction products. They also have a woody biomass waste stream that can be consumed by the AACT biorefinery. Struggling or defunct pulp processing companies such as Smurfit-Stone in Frenchtown, MT are also likely candidates for AACT technology.

AACT technology can be easily extended to mitigate a wide range of waste heat and carbon dioxide scenarios. AACT will start by focusing on local industries that produce a significant amount of waste wood (or heat) and carbon dioxide. Local pine beetle infestations have resulted in the death of a large number of trees in the area that must be removed from the forest to reduce the risk of forest fires. The amount of woody biomass produced from beetle kill tree removal and other Wild Land Urban Interface operations (WUI) also provides AACT with a unique economic opportunity. AACT is developing the Stoltze biorefinery as a prototype improve the design of its energy / soil production systems so that they could be setup as needed in areas where large amounts of woody biomass are being produced. Stoltze has estimated that they alone could provide more than 250,000 metric tons of woody biomass annually through its mill, lumber slash and wild land urban interface operations. There are other lumber companies in the northwest region to which the Stoltze model would apply directly.

Capitalization and Plan of Action

AACT's plan of action already has strong political support as demonstrated by the accompanying letters from Montana Governor Brian Schweitzer, Department of Agriculture, Department of Environmental Quality, Department of Commerce, Northwest Energy and Conservation Council and other qualified researchers.

Capital needed to accomplish phase 3 commercialization - $3 Million

Capitalization will be accomplished through a combination of private investment and matching federal and state grants. The use of proceeds follows a low risk three phase plan:

- **Phase 1 - Feasibility study and scale model development**
  Construction of a 1/10 scale model Green Power House ™. The bench scale model demonstrates the feasibility and the interoperability of the basic components. So far three major components physical components have been developed: a photobioreactor (1/8 scale), an anaerobic bioreactor (1/60 scale) and a geothermal energy interconnects. The bench scale model is the primary research tool for developing future AACT components, software and feedstocks.

  Current Status: February - March 2010 AACT has completed the construction of a working GPH model on the Stoltze Land and Lumber Company mill site. The laboratory is a 1/10 scale model of the proposed midsize Green Power House ™ product. AACT needs $75,000 to complete the model Organic Carbon Engine (*see Company Products section)* and necessary instrumentation. $10,000 will come from a Montana matching development grant. The OCE bench scale model will be completed 3 months after funding is in place.

- **Phase 2 - Full Scale Prototype development**
  Construction of a fully integrated biorefinery supplying combined heat and power to a beta client, e.g. Stoltze Land and Lumber Company. The prototype, jointly owned and operated by AACT and Stoltze, becomes a second stage research and development center for refining phase 3 commercialization. Upon completion of phase 2, AACT will be ready for a commercial scale energy and fertilizer production run with products valued between $700,000 to $800,000 annually. Phase II development allows AACT to fine tune it's commercial manufacturing and

licensing strategies.

AACT will require $800,000 complete the full scale prototype / showcase model. Time to completion after funding is approximately 18 months.

- **Phase 3 - Commercialization**
  Upon completion of the phase II prototype AACT will be ready to mass produce the biorefinery components. Initially, the manufacture of components will be subcontracted to regional facilities. Manufacturing will be contracted until it is determined whether the construction of an AACT manufacturing facility will be cost effective. The one time cost to develop the industrial grade OCE is approximately $2 million, including ASME certification. The cost of each AACT biorefinery depends upon the target application's configuration and byproduct licensing arrangement, ranging from $350,000 to $35,000,000.

  Time to commercialization after the completion of phase II is approximately 18 months

Revenue Streams

The scalability of AACT technology lends itself to projects that can start with one or two GPH systems and then expand as needed to match the input streams and market demand. The table below shows gross revenue generated by one 5000 sq ft GPH Biorefinery if the products were sold regionally in the Northwest. The value of the thermal energy produced by the system is not listed since it would be dependent upon the application. A reasonable estimate of the value of the thermal energy produced would be similar to the value of the electrical power generated. In some applications the thermal energy produced by the OCEs would be converted to electricity, boosting the net electrical power output of the system.

Product	Gross Income	Basis
Weed Free Organic Fertilizer	$250,000	$12 / Unit (1.5 Ft^3)
Electricity from Biofuel	$30,000	$0.10 / kW
Organic Vegetables / Herbs	$72,000	$6 / ft^2 4 crops / yr
Thermal Energy	To Be Determined	Site Specific

Our Bioprocessors will create a diverse set of revenue streams for AACT as well as for prospective clients and cooperators. Our primary goal is to develop a marketable self-contained system that can generate energy and soil amendments. The energy itself (methane-generated) will be used to offset the power required to electrify the facility and for other industrial/farm/ranch work. Excess power generated will be a commodity that can earn credits where grid connection exists and where local utilities have metering programs. Soil amendments can be used on site to build and maintain new or existing cropping systems and/or may be packaged and sold. The incorporated greenhouse system, heated by thermal algae ponds and/or supplementary green power, will provide enough space to house an indoor plantation which, depending on the crop, may provide specialty product income. We envision a supply line to local markets of fresh herbs, high-value vegetables, and flowers. (In Montana, recent efforts to establish perennial

greenhouse agriculture have largely failed due to high energy costs, which our system essentially obviates.)

Our cooperators, including green building systems, will benefit directly from integration of our system in two major ways. First, we can supply energy for wood product processing necessary in wood waste-to-building module manufacturing. As such, the energy is once again an offset that enables greater profit through lowering production costs. Secondly, our system can provide a sink for wood waste, which is so abundant as to be problematic at present. Wood chips provide a substrate and nutrients for algal growth in the PBRs, stabilize the digestion process in the ABRs, and finally, can be pyrolicized in our supplementary OCE, the byproduct of which, charcoal, is added to the soil amendment outflow.

The table below is a conservative income projection assuming only 1 or 2 development projects each year following the Stoltze project currently in development. The table shows a 4% capture of the organic amendment market by 2020 based on potential projects within Montana. This projection shows projects covering from 0.1 acre to 2 acres, although projects covering 5 to 10 acres are feasible depending on climate and the amount of waste heat available.

Site	2011 GPH Sales Rev	2012	2013	2014	2015	2016	2017	2018	2019	2020
Stoltze	0.353	0.706	1.765	1.765	1.765	1.765	1.765	1.765	1.765	1.765
Mill 2 (Smurfit Stone?)			0.706	1.765	1.765	1.765	1.765	3.530	3.530	3.530
WUI Project 1				0.706	1.765	1.765	1.765	1.765	1.765	1.765
Coal Project 1					1.765	3.530	3.530	3.530	3.530	3.530
WUI Project 2					0.706	1.765	1.765	1.765	1.765	1.765
Coal Project 2						3.530	3.530	3.530	3.530	3.530
Mill 3						1.765	1.765	1.765	1.765	1.765
WUI Project 3							1.765	1.765	1.765	1.765
Oil Refinery 1							3.530	7.060	7.060	7.060
Coal Project 3								3.530	7.060	7.060
Oil Refinery 2									3.530	7.060
Total Sales Millions	**$0.35**	**$0.71**	**$2.47**	**$4.24**	**$7.77**	**$15.89**	**$21.18**	**$30.01**	**$37.07**	**$40.60**

The buildout plan for AACT biorefineries in Montana is designed to minimize the consumption of transportation fuels used to move lignocellulose to processing site. Recent studies have shown the cost of transporting mill waste or timber slash is about $42 per green ton within a 50 mile radius, although the cost fluctuates with the cost of transportation fuels. The modular nature of AACT bioprocessor technology allows the biorefineries to constructed near agricultural and municipalities where the energy and soil amendment byproducts can by consumed locally or regionally.

A more aggressive development plan includes projects outside of Montana. Recently several farms and municipal waste management facilities in Hawaii have shown interest in purchasing AACT technology for the reduction of green waste and “behind the meter” power production.

Hawaii pays nearly 3 times the national average for electrical power and organic soil amendments.

Implementation of our systems in whatever configuration, is expected to achieve negative carbon footprint, i.e. sequester large amounts of CO_2, and therefore would be eligible for Carbon and Renewable Energy Credits, yet another source of income.

Contact:

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Job Growth in U.S. Driven Entirely by Startups, According to Kauffman Foundation Study

New firms add an average of 3 million jobs in their first year, while older companies lose 1 million jobs annually

(KANSAS CITY, Mo.), July 7, 2010 – When it comes to U.S. job growth, startup companies aren't everything. They're the only thing. It's well understood that existing companies of all sizes constantly create – and destroy – jobs. Conventional wisdom, then, might suppose that annual net job gain is positive at these companies. A study released today by the Ewing Marion Kauffman Foundation, however, shows that this rarely is the case. In fact, net job growth occurs in the U.S. economy only through startup firms.

The new study, The Importance of Startups in Job Creation and Job Destruction, bases its findings on the Business Dynamics Statistics, a U.S. government dataset compiled by the U.S. Census Bureau. The BDS series tracks the annual number of new businesses (startups and new locations) from 1977 to 2005, and defines startups as firms younger than one year old.

The study reveals that, both on average and for all but seven years between 1977 and 2005, existing firms are net job destroyers, losing 1 million jobs net combined per year. By contrast, in their first year, new firms add an average of 3 million jobs.
Further, the study shows, job growth patterns at both startups and existing firms are pro-cyclical, although existing firms have much more cyclical variance. Most notably, during recessionary years, job creation at startups remains stable, while net job losses at existing firms are highly sensitive to the business cycle.

"These findings imply that America should be thinking differently about the standard employment policy paradigm," said Robert E. Litan, vice president of Research and Policy at the Kauffman Foundation. "Policymakers tend to focus on changes in the national or state unemployment rate, or on layoffs by existing companies. But the data from this report suggest that growth would be best boosted by supporting startup firms."

Because startups that develop organically are almost solely the drivers of job growth, job-creation policies aimed at luring larger, established employers will inevitably fail, said the study's author, Tim Kane, Kauffman Foundation senior fellow in Research and Policy. Such city and state policies are doomed not only because they are zero-sum, but because they are based in unrealistic employment growth models.

And it's not just net job creation that startups dominate. While older firms lose more jobs than they create, those gross flows decline as firms age. On average, one-year-old firms create nearly one million jobs, while ten-year-old firms generate 300,000. The notion that firms bulk up as they age is, in the aggregate, not supported by data.

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http://www.kauffman.org/newsroom/u-s-job-growth-driven-entirely-by-startups.aspx

Algae Aqua-Culture Technology Benefits to Montana

The wood and lumber industry of NW Montana has been significantly impacted by both the national recession and continually decreasing raw material from federally managed land. These circumstances require wood and pulp mills to become innovative, doing more with less, and using all products including biomass in the most efficient way possible, cutting costs and maximizing revenue.

The Green Power House™ system created by AACT is an innovative way for wood industry businesses to create value from what is currently waste in their landfill and for agriculture and food processing facilities to create energy and fertilizer from green waste. The benefits to Montana companies such as F.H. Stoltze Land and Lumber Company will be significant. The completion of the AACT biorefinery will provide alternative revenue streams for such companies as well as reduce their operating costs by providing heat and power for their processes. The Stoltze biorefinery will become a model for other wood and pulp mill sites across Montana and the United States.

The State of Montana faces a challenge in dealing with trees killed by the Pine Beetle and standing dead in the forests creating a huge fire hazard. AACT's systems provide one possible solution by turning that liability into a source of energy and soil amendment.

Montana and national agriculture businesses will also benefit in two ways. First, through the increased availability of high grade organic fertilizers that will hold moisture and nutrients in the soil longer than synthetically produced fertilizers. Second, facilities producing green waste such as straw, sugar beets, malt, sugar cane, nut shells, etc. will be able to use their current waste to feed a process that will create heat, electricity, biofuel and fertilizer for their operations in a negative carbon, closed loop system and minimizing the need to transport those resources to sometimes remote locations while at the same time minimizing the costs connected to waste material management.

Additionally the environment benefits from the sequestering of carbon dioxide in the form of taking waste wood and turning it to energy. The Green Power House™ system results in a market shift for both the wood industry and agriculture. It changes the relationship between carbon and carbon dioxide by maximizing the efficiency of the use of carbon and minimizing the pollution.

WHITE PAPER

ALGAE ACQUA-CULTURE TECHNOLOGY

Summary: Algae Aqua-Culture Technology, a Montana owned and led phase 1 corporation will bring new jobs and restore others to Montana's economy using biomass conversion technology. Already, bench model operational results are exceptional resulting in accelerated growth of organic food products. Outside financial support is required.

Background:

No new science is required for AACT's computer controlled, proven biological processes using naturally occurring algae for its range of products

Products:

- **Fuels (methane, hydrogen and biofuels), electricity**
- **Organic fertilizers (liquid and solid alga's for rapid, enhanced plant growth) and amended soil product (enhances soil water retention, nutrient transfer, nematodes)**
- **Food from intrinsic greenhouse operation**
- **Waste & water remediation**
- **Heat/Steam**

In production development at Stoltze Land & Lumber, Columbia Falls.

Directly benefits Montana's forestry, agricultural and extractive industries' jobs and environment.

AACT is a near closed-loop system, adaptable to any process producing CO2, recycles waste products into powerful, "Green", in-demand, affordable products.

Organic fertilizers are growing at 20% compounded growth rate.

AACT is initially depending on grants, leading to private investment and commercially viable on-going operations.

Full scale industrial build out will require additional equity.

The project is strongly supported by Montana's executive leadership.

Talent is on board; full scale operation will provide 15 direct jobs; process is exportable across Montana and beyond.

Timely support can put Montana in a dominant market position.

Summary: the objective facility will meet all Stoltze' operating heat/steam for kilns and a significant part of its electricity needs. Using mill waste will positively impact environmental concerns with a net improved profitability.

Brian Schweitzer
Governor

MONTANA
Department of
AGRICULTURE

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Ron de Yong
Director

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August 26, 2009

I wholeheartedly support work that the Algae Aqua-Culture Technologies group is doing to integrate low-temperature geothermal and solar energy sources to grow algae in a greenhouse setting that creates methane fuel, organic fertilizer and other soil amendments and locally produced food.

This holistic approach enhances algae growth while sequestering carbon dioxide and fixating atmospheric nitrogen, similar to the process that occurs in legumes. Incorporation of greenhouses for production of food, culinary herbs or reforestation adds additional symbiotic relationships. Products and byproducts of the energy system all are useful in the region, while input requirements are low compared to most other forms of alternative energy.

Although algae is not a traditional crop in the arid regions of Montana, the AACT project definitely qualifies as sustainable agriculture. I strongly support the group's efforts to move the technology forward with a demonstration project at Hot Springs, Montana, and eventual commercialization throughout the region.

Sincerely,

Ron de Yong

Ron de Yong
Director

MONTANA
Department of Commerce

Anthony J. Preite, Director
ENERGY INFRASTRUCTURE PROMOTION & DEVELOPMENT DIVISION
301 S. Park Ave. ★ P.O. Box 200501 ★ Helena, Montana 59620-0501
Phone: 406-841-2030 ★ Fax: 406-841-2031 ★ TDD: 406-841-2702 ★ http://commerce.mt.gov/energy

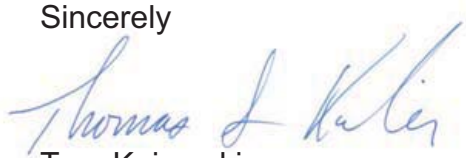
August 28, 2009

My office is the frontline for promoting the energy policies of Governor Brian Schweitzer, who is a strong advocate for US energy security. He believes Montana's vast and varied energy sources can and will be an important component in increasing the supply of domestically produced energy. My Energy Promotion and Development office in the Montana Department of Commerce supports the Algae Aqua-Culture Technologies (AACT) geothermal-biomass energy project. It represents the types of projects that we need to develop in Montana. This project will showcase to the country just what is possible when enterprising folks like those at AACT put their minds to it; and what is possible is clean energy development, increased energy security and economic development.

The AACT system integrates low temperature geothermal and solar energy to maximize the production of algae. The geothermal heat is also used to process the algae to produce electricity, fertilizer, and other soil amendments.

My office is supporting this environmentally important project and we urge entities charged to fund this type of business entity to given strong consideration to this innovative technology and business concept.

Sincerely



Tom Kaiserski
Program Manager Manager

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

August 15, 2009

The Algae Aqua-Culture Technologies (AACT) geothermal-biomass energy project is a great example of cross-cutting technologies and innovative thinking on the part of its principals. The AACT system integrates low temperature geothermal and solar energy to produce and process algae that can be used for a number of end products. The state Geothermal Technologies Program supports the use of Montana's abundant geothermal resources for direct uses and for electricity generation.

The Department of Environmental Quality is home to the state energy office for Montana. The Department's mission is to provide a clean and healthful environment for present and future generations. Renewable energy projects such as the geothermal project proposed by AACT meet the Energy and Pollution Prevention Bureau's challenge for increasing the use of renewable energy for power generation and to supply heat for structures and processes.

The Department assisted AACT in the feasibility phase of this project and we are pleased that those efforts indicated that the project and organization had the right elements to move toward commercialization. We applaud AACT's commitment to use alternative sources of energy for their business needs, and support their application to your program. We urge you to fund this project.

Sincerely,

Richard H. Opper
Director

c: Kathi Montgomery, Program Manager, Geothermal Technologies Program, Alternative Energy Revolving Loan Program, MT Dept Environmental Quality

OFFICE OF THE GOVERNOR
STATE OF MONTANA

BRIAN SCHWEITZER
GOVERNOR

JOHN BOHLINGER
LT. GOVERNOR

July 7, 2009

Generating clean, inexpensive renewable energy sources and reducing carbon dioxide in the atmosphere must be among our top priorities. Therefore, I enthusiastically support the Algae Aqua-Culture Technologies (AACT) geothermal-biomass energy project, which achieves these and other vital benefits, and I write to encourage you to give your support to this landmark project as well.

Commercializing AACT, a startup company based in Whitefish, Montana that maintains a demonstration site in Hot Springs, Montana, will provide additional jobs and economic opportunities for Montana. It will seriously address important environmental issues, such as creating a clean, inexpensive renewable energy source and decreasing the amount of carbon dioxide in the atmosphere, while serving as an important national model of emerging green technologies.

Through an integrated systems approach, AACT has developed a landmark process for addressing the problems of renewable energy development, carbon sequestration—permanently capturing and sequestering industrially-produced CO_2—and sustainable agriculture.

The AACT system integrates low temperature geothermal and solar energy to maximize the production of algae. The geothermal heat is also used to process the algae to produce electricity, fertilizer, and other soil amendments.

This process decreases the amount of carbon dioxide in the atmosphere by permanently sequestering carbon in the soil amendment byproducts while at the same time reducing the need to generate more carbon dioxide through conventional energy and fertilizer production methods.

Montana will eagerly provide support for this environmentally important startup by focusing grant monies for the research and development of the AACT technology. However, we acknowledge that this support will not be enough. We urge you to lend your financial support as well.

Sincerely,

Brian Schweitzer
Governor

STATE CAPITOL • P.O. BOX 200801 • HELENA, MONTANA 59620-0801
TELEPHONE: 406-444-3111 • FAX: 406-444-5529 • WEBSITE: WWW.MT.GOV

Montana

Northwest Power and Conservation Council

Bruce A. Measure, Council Member
Rhonda Whiting, Council Member

P.O. Box 200805
Helena, Montana 59620-0805
(406) 444-3952
FAX (406) 444-4339

August 27, 2009

As Montana's representatives on the Northwest Power and Conservation Council, we write to lend our support to the Algae Aqua-Culture Technologies (AACT) geothermal biomass energy project.

The Council is an electricity-planning agency of the four Northwest states of Montana, Idaho, Oregon, and Washington. Under federal law, the Council develops a regional power plan and a fish and wildlife program that are implemented by the Bonneville Power Administration, a division of the U.S. Department of Energy and the largest electricity provider in the region.

The Council's Northwest Power Plan, which we revise every five years, looks 20 years into the future. Currently the Council is working on the sixth iteration of the plan. The focus of the Sixth Northwest Power Plan is addressing the potential impacts of climate change, including the potential impacts of state and federal policies that aim to reduce greenhouse gas emissions, particularly carbon dioxide.

While energy conservation is the primary resource in the plan to meet new demand for power, the plan also addresses the future of various electricity generating and transmission technologies. The plan envisions that conventional coal-fired power plants will operate in the future with effective carbon-reducing technologies or be displaced by resources that emit less or no carbon.

Currently, power plants that burn coal provide about 18 percent of the region's electricity. Given current climate-change policies and concerns, it is unlikely that new coal-fired power plants will be built unless they can achieve significant reductions in carbon emissions. It is also likely that existing coal plants will run less frequently in the future unless carbon emissions can be reduced.

Thus, the ability to reduce or sequester carbon will be important to the power industry both here in the Northwest and across the nation. For that reason we enthusiastically support the AACT biomass project, which uses low-temperature geothermal and solar energy to produce algae, which fixes carbon from the atmosphere, potentially including the carbon in emissions from power plants that burn fossil fuels. The algae then is digested to yield high-nutrient fertilizer and methane, which burns cleaner than coal. If this technology is developed as its proponents anticipate, the net result could be less carbon dioxide in the atmosphere.

We encourage you to join us in supporting this environmentally important endeavor.

Sincerely,

Bruce Measure
Montana NWPCC Member

Rhonda Whiting
Montana NWPCC Member

F.H. STOLTZE LAND & LUMBER COMPANY

Lumber Manufacturers

Box 1429 Columbia Falls, MT 59912
Phone (406) 892-7005 Fax (406) 892-1612
www.stoltzelumber.com

May 11, 2010

Ms. Vicki Woodrow, Procurement Officer
Department of Environmental Quality
Financial Services, Room 3
1520 E. Sixth Avenue
Helena, MT 59620

Dear Ms. Woodrow,

Generating clean, inexpensive renewable energy sources and reducing carbon dioxide in the atmosphere must be among our top priorities. Therefore, I enthusiastically support the Algae Aqua-Culture Technologies (AACT) biomass energy project which achieves these and other vital benefits. I write to encourage you to give your support to this landmark project as well.

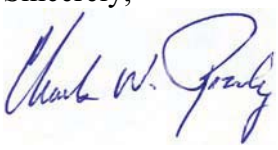
F.H. Stoltze Land & Lumber Company and AACT have agreed to develop a biorefinery that will consume waste wood from the Stoltze mill in Columbia Falls and timber slash from the surrounding forests to produce electricity for the mill, heat for Stoltze's wood-drying kilns and organic fertilizer and soil amendments for the wholesale market.

We are supporting this project by providing wood waste input, land for the green house that houses the entire system and grows the algae, and heavy equipment and labor as needed for moving the wood waste. F.H. Stoltze Land & Lumber intends to provide the property for the green house and entire system at our mill site and provide the wood waste to power the system. In return we will receive heat and electricity from the system along with reduced waste in our landfill. It is expected that this full-scale system will be utilized as a showcase by AACT to educate future, potential customers about the system and its benefits.

Commercializing AACT will provide additional jobs and economic opportunities for Montana. It will seriously address important environmental issues, such as creating a clean, inexpensive renewable energy source and decreasing the amount of carbon-dioxide in the atmosphere, while serving as an important national model of emerging green technologies.

The AACT technology has the potential to benefit F.H. Stoltze Land & Lumber, the environment, the State of Montana's economy while at the same time creating and retaining jobs in the timber industry as well as in the alternative energy and agricultural industries.

Sincerely,



Chuck Roady
General Manager / Vice President

The Stoltze / AACT Biofuels Demonstration Project

This project is designed to demonstrate how woody biomass can be integrated into the AACT Biorefiney to produce biofuels and organic soil amendments. The goal of the project is to show how mill and logging waste can be incorporated into a c*losed loop system* that will generate high value byproducts that will provide an additional source of income.

The byproducts include but are not limited to:

Heat
Electricity
Nitrogenous Fertilizer
Organic Soil Amendments
Biodiesel

Why the greenhouse?

The temporary greenhouse is a one-tenth scale model of a proposed AACT product that we call the *Green Power House*™, or GPH. The GPH is designed to demonstrate how waste heat and carbon dioxide recovered from other parts of the system can be used to produce biofuels and soil amendments. The GPH will serve as a laboratory for collecting the data that will prove the feasibility of the processes.

The scale model will not provide enough electricity or soil amendment to be commercially viable. AACT estimates that a full scale GPH (4,000 - 20,000 sq.ft.) is capable of producing soil amendments that have a commercial value between $250,000 and $1.2 million annually. One full scale system is capable of producing more than enough electricity to power the Stoltze facility. Multiple GPHs can be used on a site to multiply the output of the system.

What are the system components?

The system uses three main components that are monitored and regulated by a fourth component, a Digital Control System or DCS. The three main components are:

1. Photobioreactors (PBRs) The PBRs are aquaculture tanks that are used to optimize the growth of algae. The DCS monitors and regulates temperature, pH and the dissolved gasses in the water (carbon dioxide and nitrogen). When the amount of algae in the tank reaches a level where the growth of the algae begins to slow, the DCS activates a harvesting system that dewaters the algae and then moves the sludge to an Anaerobic Bioreactor.

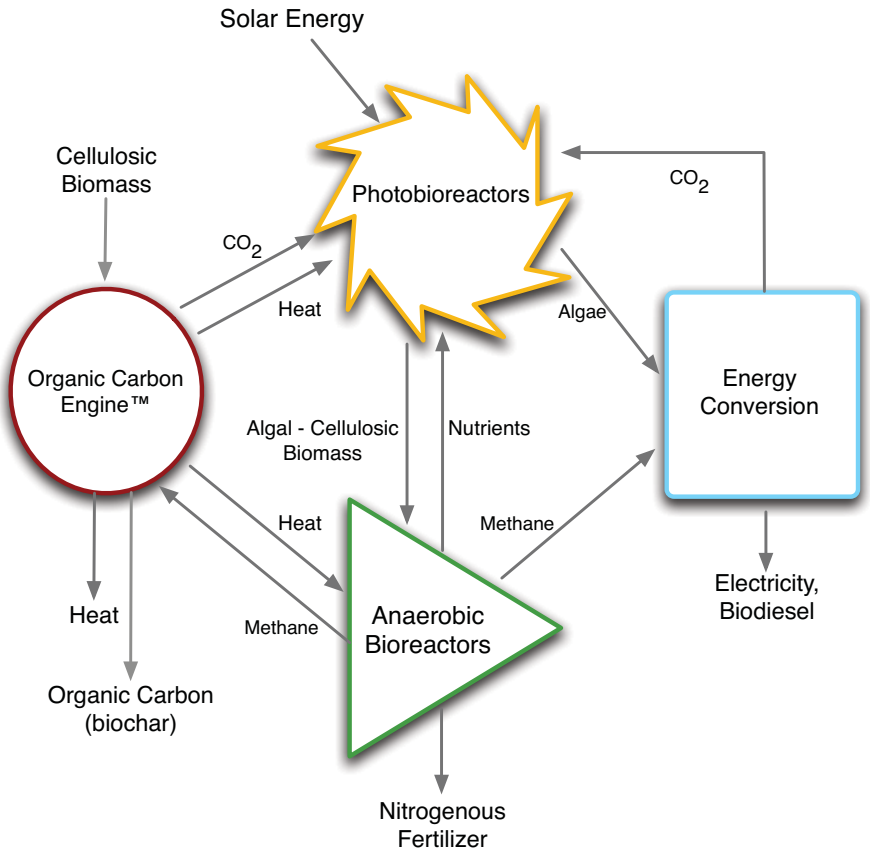
2. Anaerobic Bioreactors (ABRs) AACT ABRs are anaerobic digesters that convert algae and cellulose into methane and nitrogenous fertilizer. The methane that is

produced can be converted to electricity by either combusting it in a microturbine or electrochemically in a fuel cell. Carbon dioxide that is produced in the conversion process is fed back to the algae.

3. Organic Carbon Engine (OCEs) This is the newest component of the AACT system. It is designed to produce heat, carbon dioxide and Organic Carbon. Full scale OCEs can be used as a heat source for the kilns. The AACT PBRs use the carbon dioxide produced by the OCE as a feedstock for the algae. The heat is used by both the PBRs and ABRs to control the rate of algae production and digestion. The OCE produces its own fuel by a process called *pyrolysis*. Pyrolysis produces fuel by heating waste wood and other organic matter to about 600 degrees, driving off the combustible gasses. The gasses are recaptured and burned in the OCE to keep the process running. When all the volatile gasses are driven off, what is left behind is charcoal or Organic Carbon. The Organic Carbon is combined with fertilizer generated by the ABR to produce a high value soil amendment.

The entire process is *carbon negative*, meaning that it puts more carbon back into the earth than is released into the atmosphere.

The diagram below shows the basic components of the project and how they integrate with each other.



John Murdock
Vice President Engineering & Marketing

Algae Aqua-Culture Technologies

406-871-7531
john.murdock01@gmail.com

John Murdock, AACT Vice President of Engineering and Marketing, consults in industrial automation and instrumentation and has significant experience in planning and execution of engineered projects, project management and sales and marketing. His experience encompasses most all process, energy and water industries, and many discrete manufacturing industries, dealing with Fortune 500 companies and privately held businesses. He also worked in engineered systems applications, sales and marketing with an international process-engineering contractor and the largest US industrial automation company. He founded and ran an industrial instrumentation and automation software business for 20 years; and with a parallel career as an Intelligence / Commanding Officer in the Navy. He served on several non-profit boards. He lives in Whitefish.

Michael Smith

Michael is the AACT President and Chief Technical Officer. He is a pioneer in the software industry with over 30 years. He has a very strong background in the physical sciences and mathematics, with engineering experience ranging from sophisticated data capture and control systems used by the aerospace companies to the creation of behavioral and physical modeling software used by the entertainment industry. He is currently involved in the development of adaptive behavioral controls to support and augment biologically active environments. He has been a principal in other successful start up ventures. He lives in Whitefish, MT.

Richard (Dick) Swope, AACT Board Chairman and Chief Strategy Officer is a consultant in the defense and private sectors. Dick advises Fortune 500 companies in marketing strategies for products and services. On Boards, he has served on audit and governance committees for public and non-profit organizations and continues on the Boards of an industrial firm and a consultancy. His 34 year Air Force career culminated as The Inspector General, responsible for audit of organization performance. Prior experience included broad senior direct responsibility for large integrated industrial organizations. He has extensive experience working with senior private sector, local, state and federal officials. He was responsible for the early use of algae in the remediation of a major environmental disaster. He lives in Whitefish.

John W. Poling

1253 Oakmont Lane **Cell (610) 291-2173**
West Chester, PA 19380 **email: jwpoling@aol.com**

Independent Director and Senior Financial Executive with proven ability and experience.

SELECTED ACCOMPLISHMENTS:

- Chairman of the Audit Committee of two publicly owned companies. Also member of Compensation and Corporate Governance committees. Chaired special committees for various corporate issues.
- Chief Financial Officer for public companies in manufacturing, environmental services and entertainment.
- SEC filings/compliance reporting and Sarbanes-Oxley and Corporate Governance issues.
- Raising Capital, Debt and Equity, IPO's and Secondary Offerings.
- Mergers, acquisitions and divestitures.
- Contract negotiations and organizational development.
- B.S., Accounting, Rutgers University, NJ
- Graduate Finance Courses, St. Johns University, NY

CAREER HISTORY:

2009 to Present---The Colmen Group, Inc., Senior Vice President, consulting and financial advisory services to both public and private companies. Services include investment banking, turnaround, due diligence and financial modeling of acquisition/disposition targets as well integration of targets companies into the existing operations.

2006 to Present---Director and Chairman of the Audit Committee and member Compensation Committee for American Ecology Inc., a national hazardous and nuclear waste treatment and disposal company.

2003 to Present---Director and Chairman of the Audit and Corporate Governance Committees, and member Compensation Committee, Kreisler Manufacturing Corporation, an international manufacturer of precision metal components and assemblies for use in military and commercial aircraft engines and industrial gas turbines.

2006 to 2008--- Independent financial consulting and advisory services to both public and private companies;

- Developed business plans and financial modeling in connection with various equity and debt offerings.
- Evaluation and reporting of technical financial issues and coordination with Company management and the SEC.
- Restated multiple years' financial statements due to errors in prior years.
- Assisted in a bank default on a credit facility and developed cash flow model for recovery.

The TUBE Media Corp. Miami, FL CFO 2004 to 2007
An entertainment company composed of a music television channel and a music recording business.

Tatum Partners, LLC, Philadelphia, PA Partner 2002 to 2004
A national professional services firm specializing in Financial and Information Technology leadership practices that serve organizations undertaking significant change.

U.S. Plastic Lumber Corp., Boca Raton, Florida CFO 1999 to 2002
A NASDAQ Company specializing in manufacturing of plastic lumber and other profiles from recycled plastic material, which was primarily used in the building products and packaging industries.

Eastern Environmental Services, Inc. Mt. Laurel, NJ VP Finance 1996 to 1999
A NASDAQ Company, which grew rapidly through the acquisition of sixty-one solid waste collection, transportation and disposal companies over a thirty-month period.

Smith Technology Corp, Plymouth Meeting, PA VP & Treasurer 1994 to 1996
A NASDAQ traded environmental engineering, consulting and contaminated waste remediation company. (Formerly Canonie Environmental Services, BCM Engineers Inc. and Riedel Environmental Services)

Roy F. Weston, Inc., West Chester, PA CFO 1989 – 1993
Member of the Senior Management committee for this NASDAQ traded $300 million professional services Company specializing in environmental engineering, and construction for federal, state and Industrial clients.

Envirosafe Services, Inc., **King of Prussia, PA CFO 1979 – 1989**
NASDAQ traded, $50 million environmental services company specializing in the treatment, disposal and remediation of hazardous wastes with multi-subsidiary locations. Directed the initial public offering (IPO) of Envirosafe in 1987

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