



ALGAE.TEC



# ALGAE ENERGY AND HEALTH

A Renewable, Sustainable  
and Emerging Profitable  
Business

# Corporate Overview

Corporate Snapshot	
ASX Code	AEB
Shares on Issue	338,597,845
Share Price Range (12 months)	\$0.094 - \$0.030
Market Capitalisation as at 5 Nov 2015	\$14,559,707
Unlisted Options <sup>1</sup>	96,312,941
Major Shareholders	
Teco Bio LLC (Earl McConchie)	51.68%
Reliance Industrial Investments (India's largest private company)	13.38%
<sup>1</sup> 49,584,334 options exercisable at \$0.75 on or before 13 January 2016 - GEM Capital Markets 28,728,607 options - Reliance Group (exercisable at 16.36 cents) 1,000,000 options exercisable at \$0.20 on or before 1 March 2018 – Cross Border Ventures 16,000,000 options exercisable at \$0.09 on or before 30 June 2019 – Employees options	



# Board of Directors



## **Managing Director and Company Secretary: Peter Hatfull ACA**

- Has 30 years of experience in a range of senior executive positions with Australian and international companies. He has an extensive skill-set in the areas of business optimisation, capital raising and company restructuring.
- Prior to joining Algae. Tec, Peter held senior financial and Board positions in Australia, Africa and the UK. He has particular experience in revitalising business plans, attracting investor funding, and implementing profitable strategies.
- Peter graduated as a Chartered Accountant in the United Kingdom, where he worked for Coopers and Lybrand (now PriceWaterhouseCoopers), and subsequently moved to Africa, where he spent 8 years in Malawi, where he was CFO of the Malawi operation of international trading group, Guthrie Limited. Peter moved to Perth in 1988.



## **Executive Director: Garnet Earl McConchie BSc ME(Chem) RPE AICE**

- Has over 35 years of experience over a broad field of chemistry and associated technologies, including global markets, bulk chemicals and plastics, differentiated commodities and intermediates, specialty chemicals, polymers and interaction with environmental sectors.
- Was employed with Dow Chemical Company for 25 years where he served as Global Director for chemicals and plastics
- Currently, the founding director and controlling shareholder of Teco.Bio LLC. He is based in Atlanta, Georgia to co-ordinated the microalgae development.



## **Non - Executive Chairman: Malcolm Raymond James BBus, FAICD, AAustIMM**

- Has over 30 years of experience in a finance, project development and public company management.
- Involved in over \$2 billion in capital and debt raisings and was the inaugural CEO of the Australian Employment Covenant.
- Currently, principal of MRJ Advisors, a boutique investment, advisory and project development organization.
- Currently non-executive chairman of Anova Metals Ltd.



**Algae.Tec's vision is to be the global leader in diversified quality algae products.**

This is being achieved by:

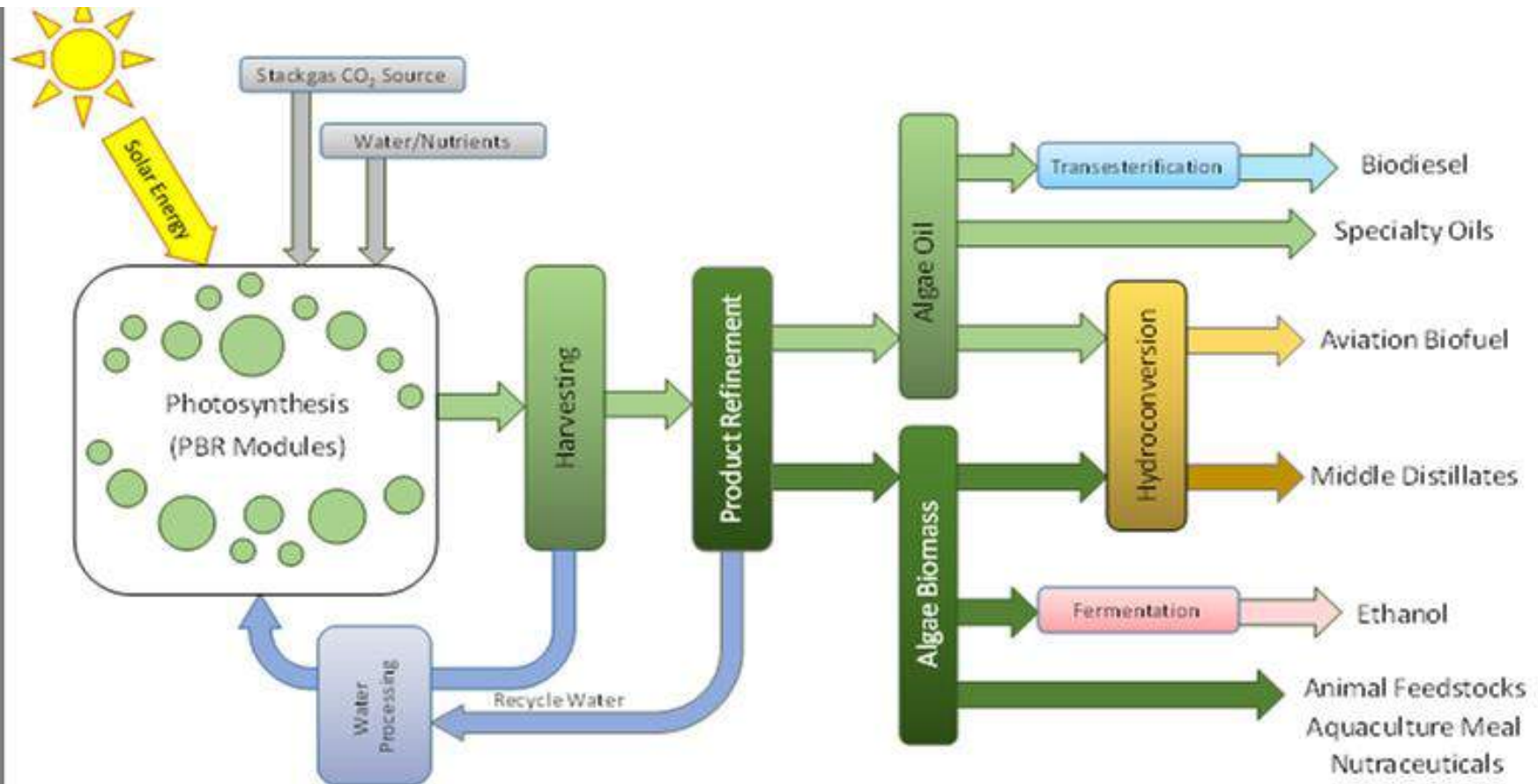
- ✓ Developing and commercializing leading-edge technology for the production of algae through the capture of solar energy and sequestration of carbon dioxide.
- ✓ Targeting key markets for the substitution of fossil fuels with sustainable algae-based biofuels, including renewable kerosene (jet fuel), biodiesel and bioethanol.
- ✓ Producing high quality specialty algae products for nutraceutical, food and specialty markets.
- ✓ Implementing commercial plants for the production of algae and its biofuels with strong economic viability.
- ✓ Focusing on quality products and services, building strategic partnerships to accelerate commercialisation and creating long-term shareholder value.

Algae.Tec has two plants to be commissioned within the next few months. One is in India in conjunction with the Reliance Group for biofuel evaluation. The second is in Atlanta to produce algae for nutraceutical products.



# Technology Overview

The innovative system consists of a modular bio-reactor in which minute plants, called microalgae, are grown (through the controlled supply of light, water, carbon dioxide gas (CO<sub>2</sub>) and nutrients), and related infrastructure used for harvesting and refining into algae products



# Algae Based Biofuels – Reliance Industries

## **Reliance Industries is India's largest company And is Algae.Tec's major strategic partner**

- The initial contract with Reliance was signed in May 2013 with a value over \$5m
- The contract was for equity participation in Algae.Tec by Reliance and for Algae.Tec to complete agreed operational objectives
- Reliance currently holds 13.38% of the Company
- Algae.Tec is contracted to evaluate certain algae for fuel products, to build a pilot plant in Jamnagar, India, and, following successful trials, to build a full size commercial plant.
- Reliance owns the world's largest refinery situated in Jamnagar producing thousands of tonnes of CO<sub>2</sub> which will be the site of the major commercial plant
- The evaluation of specific algae has been successfully completed
- Equipment including photobioreactors has been dispatched and is on site in Jamnagar
- Plant to be commissioned Q1 CY16

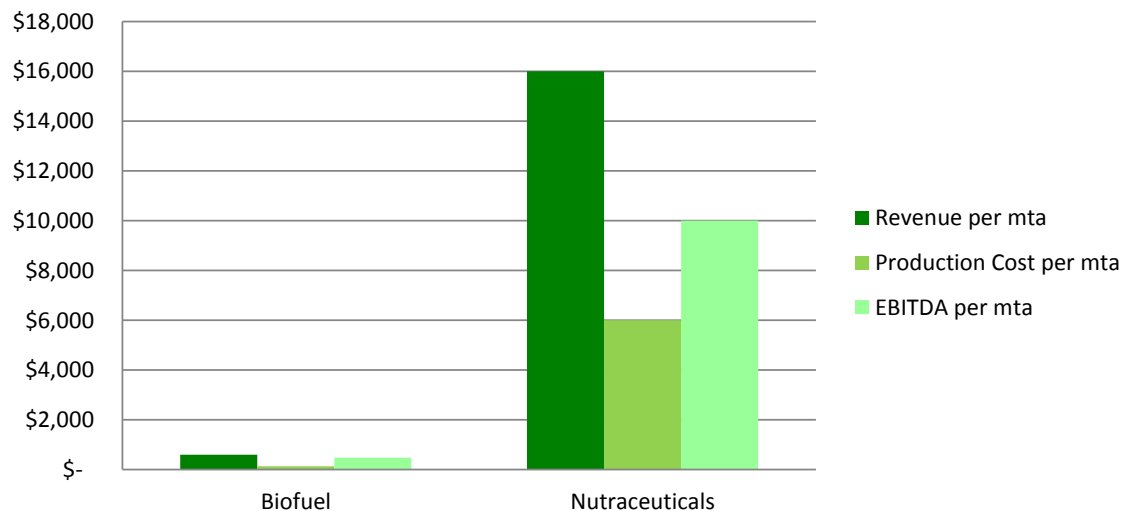


# Nutraceutical Markets

- Algae Oil can be naturally high in Omega3 EPA/DHA and is a direct natural replacement for fish oil also being free of toxins such as mercury and dioxins. Prices for Omega 3 rich algae oil are shown at up to \$95,000 per mta (Frost & Sullivan - Global Analysis of the Marine and Algae Omega-3 Ingredients Market 2011)
- Chlorella,  $\beta$ -Carotene and Spirulina are especially attractive to commercialisation as there is no oil extraction required and very little product processing involved.
- A wide variety of microalgae are commercially produced at present for use as health extracts, food supplements and cosmetics. Market value of existing world production has been estimated at over US\$800million.
- While much smaller than transportation fuel markets, the returns per metric ton of algae are significantly greater, enabling strong profitability from a much smaller operational facility.



## Biofuel / Nutraceutical Comparison



# Nutraceutical Algae Plant

- Algae for nutraceutical and pharmaceutical markets is a rapidly increasing market
- The value of algae for this market can range from US\$15k to US\$95k per tonne
- The initial plant for the commercial nutraceutical market is now being built in Cumming, Atlanta at Algae.Tec's main research and development facility
- The plant will initially generate approximately 60 tonnes of algae per year at a revenue of \$1.5m with a return on equity of over 300%
- The plant will be scaled up to 10,000 tonnes per year
- This will give Algae.Tec a totally new distinct income stream in addition to the fuel division
- Plant commissioning Q4 CY15
- Algae to be sold to major pharmaceutical companies





# Chinese Initiative

- Algae.Tec signed a term sheet with China Finance Strategies Investment Holdings Ltd (CFSI ) in September 2014
- CFSI are experienced at introducing new technologies into China
- CFSI initially subscribed for US\$500k in Algae.Tec's stock via a convertible note
- The convertible note has a coupon of 12% and a term of 18 months with a conversion price of \$0.075
- CFSI also have the right to US\$5m of options convertible at the same price on signing of substantial commercial agreements for the building of algae plants within China. The first agreements need to be signed within 18 months of the subscription
- A delegation of senior Chinese industrialists and politicians is planning a site visit to the Company's development sit in Cumming, Atlanta during November/December 2015

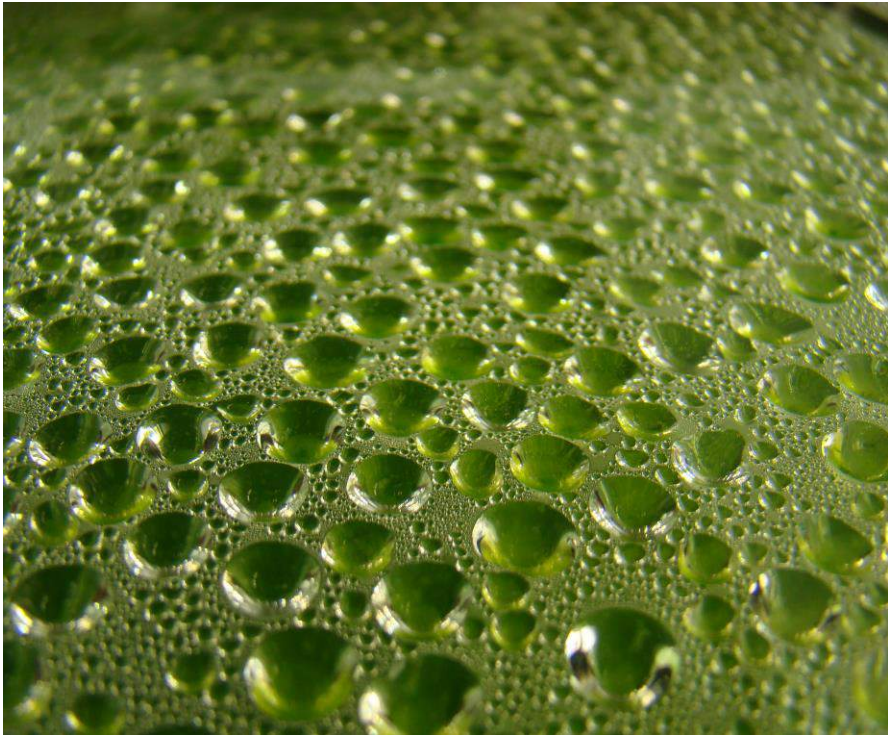


# Other Initiatives

- Algae.Tec has a collaboration agreement with Lufthansa
- Algae.Tec is in continuing discussions with a number of other major international airlines regarding investments to reduce down their carbon footprints
- Algae.Tec has signed a mutual collaboration agreement with Larimar Energy SRL, a company based in the Dominican Republic, to provide an algae plant for capturing the CO<sub>2</sub> from a new coal fired power station.
- Algae.Tec has a binding agreement to provide an algae solution for the CO<sub>2</sub> emissions from a proposed waste to energy plant being built in WA. The waste to energy plant should have financial close during the first quarter 2016
- The Company is in discussions with various other parties regarding carbon capture and usage initiatives



# Benefits of Microalgae



- Nature's oldest and most efficient process for capture of solar energy and atmospheric CO<sub>2</sub>
- Produces orders of magnitude more oils and hydrocarbons per land mass
- A sustainable source for renewable kerosene (jet fuel), biodiesel and bioethanol
- Provides direct environmental solutions for air/water and end-use emissions
- Source of high nutritional value (Super Food) including omega 3, protein, β-carotene, selenium, zinc, vitamins B-12, C and E.

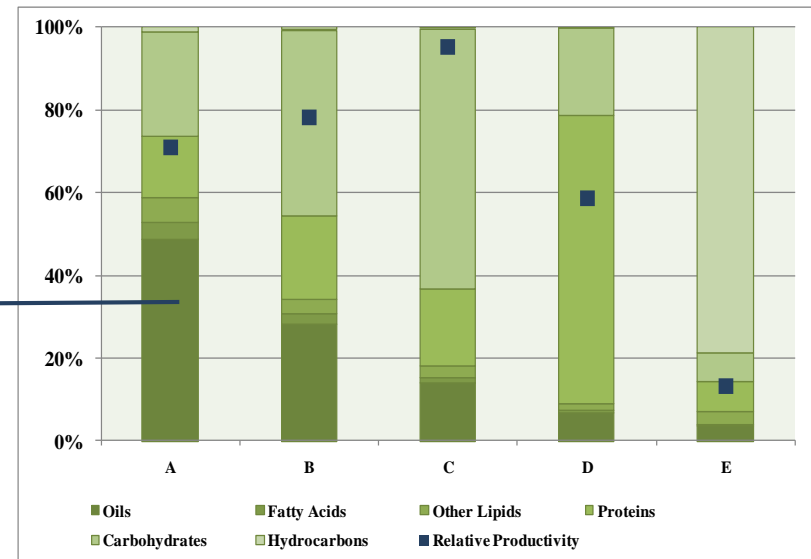


# Performance

- Algae.Tec has evaluated productivity and product yields for over 50 microalgae species for biofuels production, representing a broad range of microalgae compositions of lipids/oils, carbohydrates, proteins and hydrocarbons with carbon contents ranging from 45% to >75%.
- Overall technical and economic performance of the photo-reactor modules, harvesting system and product refinement operations are dependent on the specific algae species and its optimum cultivating conditions to maximize productivity and product yields to desired products.

## High Lipid/Oil Algae

- *Harvesting & refinement of algae provides approximately 50% yield to algae oil product with high purity product quality, targeting production of algae-biodiesel.*
- *Algae biomass contains high carbohydrate and protein contents of up to 80% for animal food supplements or conversion to bio-ethanol or renewable distillates.*
- *Algae production of 250 metric tons of microalgae per year per module and upon conversion equivalent to 55,000 gallons of end-use sustainable biofuels per year per module.*



Select algal species A-E with product distributions based on inorganic and moisture-free weight basis

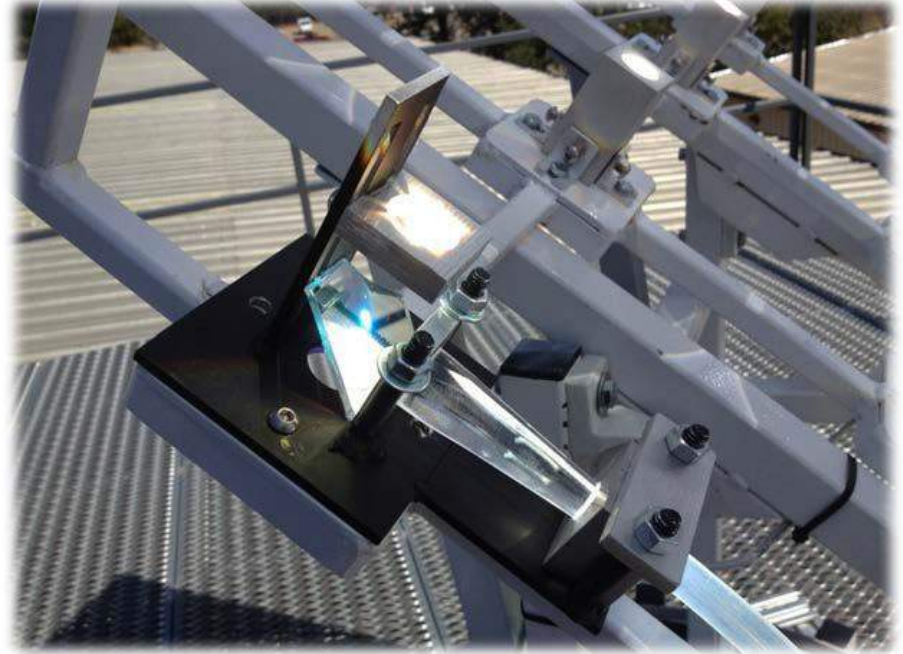
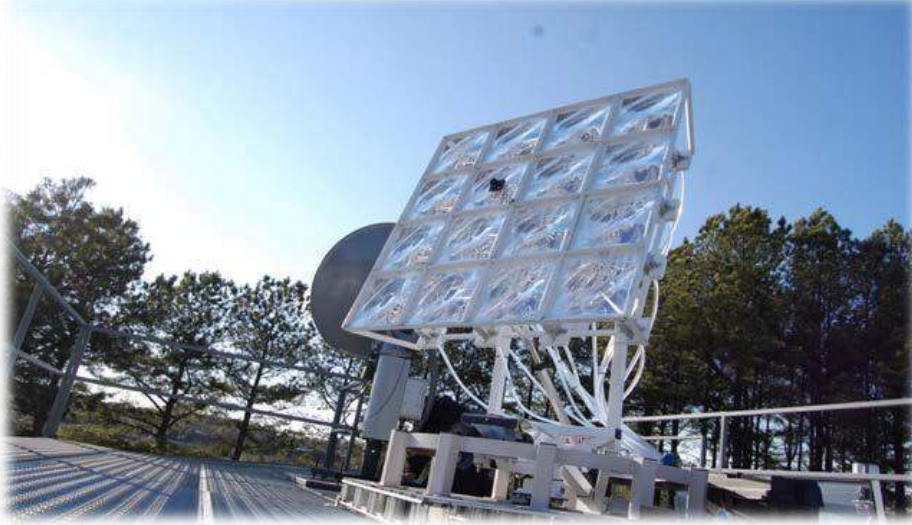


# Nutraceutical Algae Plant

Algae produced in Atlanta



# Direct Solar Light Energy

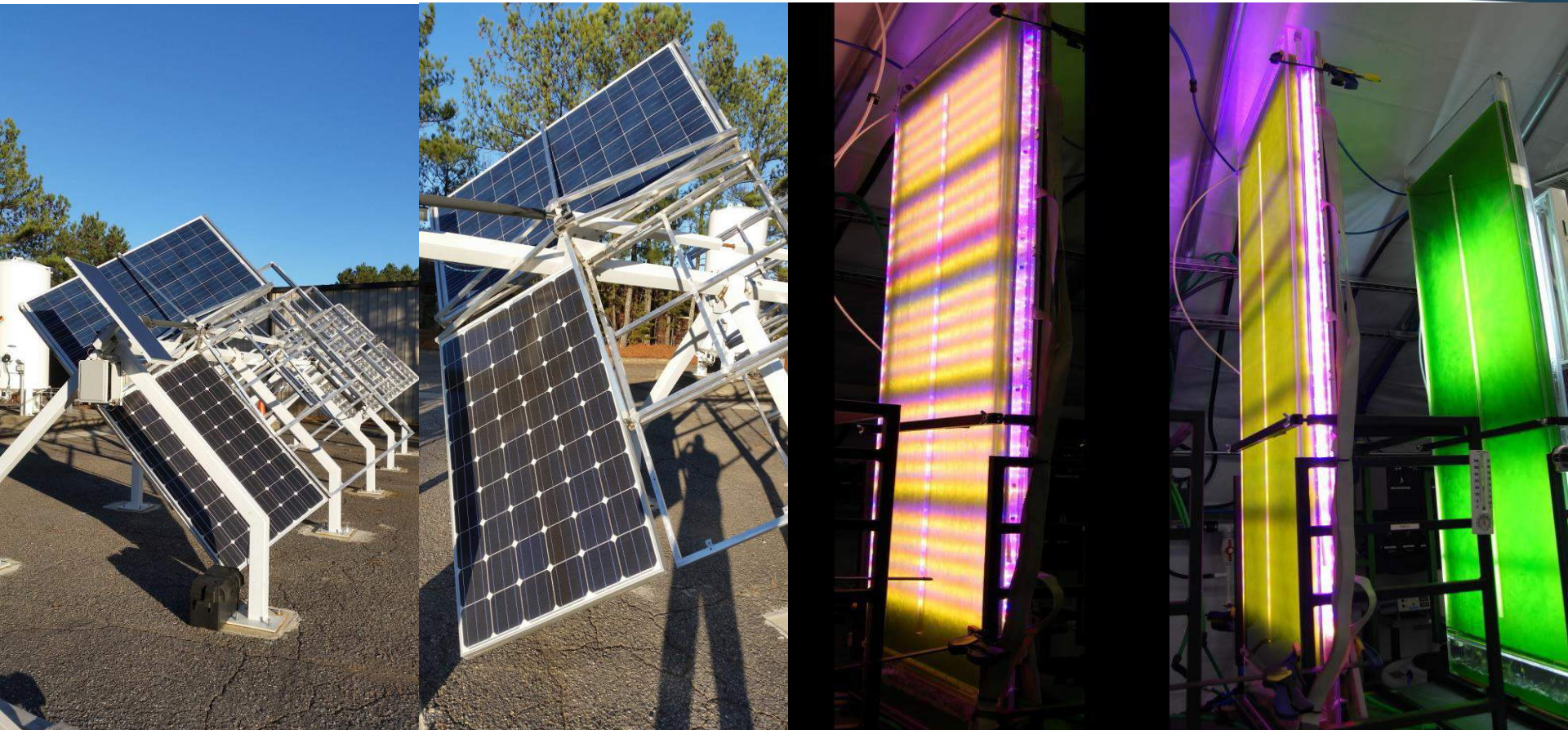


## Algae.Tec's proprietary light system in Atlanta

- Direct Visible Light Energy Solar Collector System
- Proprietary 2-axis flat-plate Fresnel technology.
- Fiber optics transmission to PBR Module



# Indirect Solar Light Energy



## Indirect Light Energy Solar Collector System in Atlanta

- Proprietary 2-axis flat-plate photovoltaic technology.
- PBR Module light panels with optimal intensity and wavelengths

