

Entrepreneur finds Brownsville perfect for algae-to-biodiesel development, production

By Steve Clark

The Brownsville Herald

And God said, "Let there be light: and there was light," according to the Book of Genesis, although He might have added, "especially in South Texas."

The Lower Rio Grande Valley is sunshine-rich, a major factor behind Brad Bartilson's decision to relocate to Brownsville from New Jersey. Bartilson is not working on his tan. He's president and CEO of Photon8, a start-up company researching economically feasible methods for turning algae into biodiesel as an alternative to fossil fuel. For algae to produce the oily "lipids" required for biodiesel, it's got to be bombarded by sunlight — lots of it.

"From a photonic standpoint, New Jersey had 30 percent less photons per square meter falling than here," Bartilson says. Photons are the elementary particles that make light, thus the company's name: Photon8. As it turns out, it takes eight photons to "fixate" one hydrocarbon molecule, something that



Photo by courtesy of UTB News & Information

Brad Bartilson, President & Founder of Photon8, accepts the award for \$1 million from the Texas Emerging Technology Fund from Texas Gov. Rick Perry.

has to happen in order for algae to make biodiesel. Seven won't cut it. In addition to photons, Bartilson needed proximity to seawater and vast expanses of cheap land on which to build an algae farm. He found what he was looking for online.

"I looked at where could I find large tracts of land close to the ocean, and South Texas came up," Bartilson says. "That was

the start of my looking around down here."

An associate tipped him off about the Texas Emerging Technology Fund, from which Photon8 recently received \$1 million — another big incentive. Until the first ETF check arrived, Bartilson had to use his own savings to keep his team of researchers together. Plus, the Greater Brownsville Incentives

Corporation stepped in with \$300,000.

The Brownsville Economic Development Council originally recruited the business.

Bartilson's core team members, each lured from outside Texas, are Dinesh Arora, the chief technology officer, Stephen Greer, an expert in algae genetics and chemical

-- Please turn the page

ecology, and Lance W. Riley, an expert in algae nutrients and growth system development.

UTB-TSC students in various departments are also taking part in the research.

“I should mention, too, this innovation center (ITEC) here has been a blessing to us,” Bartilson says.

Photon8 isn’t the only company researching algae-to-biodiesel, though it may be more focused on economic feasibility than some others. In order words, it has to turn a profit. Studying other researchers’ methods and claims, Bartilson found that the cost of production far exceeded projected revenue because of capital costs: the physical equipment necessary to do the work.

“Regardless of what anybody does with genetics or anything else, this capital cost has to be down in single digits,” Bartilson says. “That’s when I invented this photo-bio reactor and started developing it, because nothing else matters if I don’t get the capital costs down.”

Grossly oversimplified, Photon8’s method calls for a closed, transparent infrastructure spread out over a large land area and containing a circulating algae “broth” that’s exposed to sunlight in order to produce the oily lipids, which are then harvested for



Theresa Najera / The Brownsville Herald

A scientist checks on test tubes at the Photon8 laboratory in the International, Technology, Education & Commerce Campus (ITEC) in January 2010. Photon8 is one of the R&D companies recruited by the Brownsville EDC to the greater Brownsville area.

biodiesel production.

University collaboration was one of the conditions for receiving money from the Texas Emerging Technology Fund. Bartilson’s team is working with University of Texas at Brownsville and Texas Southmost College faculty members Tamara Pease, a professor of chemistry and

environmental science (who just happens to be an expert on algae growth dynamics and lipid analysis), and Danielle Provenzano, a professor of biological sciences assisting Photon8 with genetics.

Pease says the Photon8 project is a “tremendous opportunity” not just for her chemistry and envi-

ronmental science students but also business and engineering students to get hands-on experience with a high-tech start-up company. The timing of Photon8’s arrival is perfect, since her department was already developing a master’s degree program in sustainability studies with the departments of engineering and business, she says.

Pease thinks Photon8’s presence in Brownsville points to the fact that the region is a natural incubator for the development of sustainable energy technology — thanks to the abundance of sun, wind, land and seawater.

“I think we’re going to see some real changes toward that direction and really see some economic growth around that area,” she says. “It’s very exciting.”

Bartilson said as much during his remarks earlier this month, when he accepted the ETF award during a ceremony at UTPA: “That’s basically what I said in my speech with the governor: I look forward to the day when South Texas, and Texas of course as a whole, is known as the leader in algae-based biofuels,” he says.

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