

## Algaculture Policy Brief

### *The Essentials*

- Algaculture is the farming of algae to convert into biofuel or food products.
- Algae are microscopic plants that use the natural photosynthesis process to create biomass, from which oil can be extracted.
- AZ recently passed 2 algaculture laws that support the potential growth and advancement of the algaculture biofuel industry in the state.
- As of July 2012, Congress is considering a provision in the 2013 U.S. defense budget that would prohibit the military from buying and using biofuels if costs are greater than costs for fossil fuels. This provision could hinder growth of the biofuel industry in AZ.

### *What is algaculture?*

Otherwise known as algae farming, algaculture is the process of growing microscopic organisms that create biomass from photosynthesis and then converting that biomass into biofuel or food products. This can be done on a small-scale (backyard/citizen scientist) or on large-scale (10sq.mi. farms). Algae research is gaining momentum with projects at ASU ([Az Center for Algae Technology & Innovation](#)) & UA ([ARID Raceway](#)), as well as businesses like [Heliae](#). Algae also factors into the renewable energy debate with its potential for biofuel production and widespread, per capita potential as a citizen-produced transportation fuel.

### *New state laws affecting algaculture development*

The AZ State Legislature passed 2 bills addressing algaculture during the 2011-2012 legislative session. Both bills were sponsored by AZ State Representative Matt Heinz. HB 2225 amended the A.R.S. § 37-101 State Trust Land classification to allow algaculture on state trust lands. HB 2226 expanded the algaculture in the tax definitions of agricultural property in A.R.S. § 42-12151. For algaculture, the commercial property tax rate is 20%, agricultural is 16% and residential is 10%. By lowering taxes, businesses are provided an incentive to produce algae for biofuels. While they also encourage citizen science production in backyards, the lower residential tax rate compared to agricultural and commercial indicate greater support for larger algaculture enterprises.

In Arizona, algae commercialization may create a new economic hub with jobs that cannot be outsourced. Many of these jobs will be in urban areas but some will be located in economically depressed rural areas, spurring rural economic development. Algae cultivation will create a major new energy crop market, primarily on non-arable land, increasing overall agricultural production and economic activity. Algae can supplement livestock feed, and pharmaceutical companies use algae to design new drugs and nutritional supplements. Algae also utilizes waste water and nitrogenous waste in its

cultivation, reducing the burden of disposal by other means. ASU and other institutions are researching algae's carbon capture and sequestration capabilities to reduce carbon emissions from coal plants and converting them into biomass.

### ***Potential policy roadblock to technological advancement & eventual price parity***

Currently, algal biofuel technology is still in its infancy and deployable commercial-scale cultivation is untested, creating a high cost per volume. The Navy recently purchased 450,000 gallons of biofuels at roughly four times the price of petroleum for testing purposes across the fleet. Congress is considering H.B. 4310, the Department of Defense budget for 2013. A controversial provision in the bill prohibits the military from procuring any fuel (except coal or natural gas) at a higher cost than petroleum. Because the military has a history of supporting early-stage technologies into technological maturity and cost competitiveness (such as the computer microchip), industry in AZ is concerned that the prohibition could hinder eventual biofuel competitiveness.

### ***Learn more***

*Read HB 2225 (this bill has not yet been codified in the A.R.S.):*

- [http://www.azleg.gov/DocumentsForBill.asp?Bill\\_Number=HB2225&Session\\_ID=107](http://www.azleg.gov/DocumentsForBill.asp?Bill_Number=HB2225&Session_ID=107)

*Read HB 2226 (this bill has not yet been codified in the A.R.S.):*

- [http://www.azleg.gov/DocumentsForBill.asp?Bill\\_Number=HB2226&Session\\_ID=107](http://www.azleg.gov/DocumentsForBill.asp?Bill_Number=HB2226&Session_ID=107)

*See H.R. 4310 bill information and status here:*

- <http://thomas.loc.gov/cgi-bin/bdquery/D?d112:1:./temp/~bdCMV3:|/home/LegislativeData.php?n=BSS;c=112|>

*Read about the proposed ban on military spending for algal biofuels if costs rise higher than fossil fuel costs:*

- <http://www.renewableenergyworld.com/rea/news/article/2012/05/house-armed-services-committee-proposes-ban-on-biofuels>