

Date of Hearing: May 4, 2011

ASSEMBLY COMMITTEE ON UTILITIES AND COMMERCE

Steven Bradford, Chair

AB 642 (Calderon) – As Amended: April 27, 2011

SUBJECT : Renewable energy: biomass: algae.

SUMMARY: Specifies (1) that the State Lands Commission (SLC) may enter into a lease for the development of algae-producing energy and agricultural products and (2) that biomass includes algae for the purpose of receiving funding from the Renewable Resources Trust Fund (Fund) or the California Alternative Energy and Advanced Transportation Financing Authority (Authority). Specifically, this bill:

- 1) Specifies that biomass includes algae for the purpose of receiving funding from the Fund Authority.
- 2) Specifies that SLC may enter into a lease for the development of algae-producing energy and agricultural products when such a lease appears to be in the public interest.

EXISTING LAW:

- 1) Provides that SLC has exclusive jurisdiction and leasing authority over all public trust lands owned by the state. Public trust lands generally consist of tide and submerged lands and beds of navigable channels, streams, rivers, creeks, lakes, bays, and inlets.
- 2) Protects the public's right to use California's public trustlands for commerce, navigation, fishing, boating, natural habitat protection, and other water oriented activities.
- 3) Requires the California Energy Commission (CEC) to optimize public investment and ensure that the most cost-effective and efficient investments in renewable energy resources are vigorously pursued.
- 4) Establishes the Fund, which is administered by CEC and funded by a charge paid by customers of energy corporations. A portion of the Fund is to be used for programs that are designed to achieve fully competitive and self-sustaining existing in-state renewable electricity generation facilities, such as facilities that use biomass energy.
- 5) Establishes the Authority, which provides bond financing for facilities that use alternative energy sources, such as biomass energy.

FISCAL EFFECT: Unknown

COMMENTS: According to the author, the purpose of the bill is to ensure that if there is an application for algae-producing energy and agricultural products that they can obtain the lease by being explicit that algae is considered biomass energy to qualify for the Fund. The bill may help encourage more businesses to invest in the development of algae fuel.

1) Background: Algae are attracting attention as a renewable energy source because the strains can potentially produce 10 or more times more fuel per acre than the corn used to make ethanol or the soybeans used to make biodiesel. Unlike row crops, algae growth is not dependent on a particular season. Moreover, algae can grow in seawater, but can also thrive in desert ponds, using high-saline water from aquifers that cannot otherwise be used. Many species of algae can even grow in wastewater from treatment plants and water that contains nitrates, phosphates, and other contaminants. Algae are also a consumer of carbon dioxide.

Particular focus has been placed on the use of algae for jet fuel. At least one major airplane has stated that commercial airlines may derive one percent of their fuel by 2015 from biofuels made of plants including algae. There are currently efforts in Mexico to produce one percent of the nation's jet fuel from algae in less than five years.

In California, the University of California, San Diego established the San Diego Center for Algae Biotechnology (SD-CAB) which was established in 2008 as a consortium of researchers from The Scripps Research Institute (TSRI), the University of California, San Diego (UCSD), and Scripps Institution of Oceanography (SIO), in partnership with private industry. SD-CAB selected the San Diego-Imperial Valley region for algae production and research. This area boasts a strong array of scientific, geographic, and environmental resources suited for the research and development of advanced biofuels from algae. They mention that this project "combined with an abundance of sunshine, thousands of acres of desert land perfect for algae-growing ponds, and a world-class biotech and engineering sector, the San Diego-Imperial Valley region can provide green-collar jobs that will boost the economy of our state and nation." Currently, the SD-CAB has a test facility, operated by Biolight and Carbon Capture Corporation, located on 40 acres in California's Imperial Valley. The facility includes, offices, laboratories, and a warehouse, including 11 ponds, called "raceways," each containing more than 200,000 gallons of water, and 30 smaller-scale raceways, with 100 to 60,000 gallons each.

2) How much water? According to SD-CAB, the United States consumes 140 billion gallons per year of liquid fuel. Algae can produce 3,000 gallons of liquid fuel per acre in a year, so it would take 45 million acres of algae to provide 100% of our liquid fuel requirements. For comparison, in 2008 the United States had 90 million acres of corn and 67 million acres of soybeans in production. So growing 45 million acres of algae, while challenging, is certainly possible. Analyzing 30 years of meteorological data, the team determined the sunlight needed for the algae to grow and how warm the ponds would become, enabling the team to calculate hourly algae production at each site. They concluded that 21 billion gallons of algal oil could be produced by 2022 in the U.S. To achieve this production level, algae would have to be grown on land the size of South Carolina. The amount equals 17% of the unrefined oil imported by the U.S. in 2008. In 2009, slightly more than half the petroleum consumed by the U.S. was from foreign oil.

Despite the amount of water needed for biofuel production, algae sources offer several advantages over other biofuels. Algae can produce more than 80 times more oil per hectare per year than, for example, corn. What's more, algae are not a widely used food source and are CO₂-consuming organisms, making them a carbon-neutral energy source. Additionally, algae can feed off the CO₂ emission from power plants and digest common water pollutants such as nitrogen and phosphorous. Environmental concerns and rising oil prices are boosting research and investment in algal oil. Many observers consider algae the best feedstock for producing biofuels.

Over 100 companies have announced plans to use algae as a fuel source; some have already completed small manufacturing and refining centers.

3) SLC Leasing Land Policies: SLC has jurisdiction and management control over those public lands of the State received by the State upon its admission to the United States in 1850 ("sovereign lands"). Generally these sovereign lands include all ungranted tidelands and submerged lands, beds of navigable rivers, streams, lakes, bays, estuaries, inlets, and straits. The SLC manages these sovereign lands for the benefit of all the people of the State, subject to the Public Trust for water related commerce, navigation, fisheries, recreation, open space and other recognized Public Trust uses. In addition the State manages lands received after Statehood including swamp and overflowed lands and school lands. The SLC's Land Management Division in Sacramento administers the surface leasing of these lands, sand and gravel extraction from these lands, and dredging or disposal of dredged material on these lands.

The lands managed by the SLC vary widely in character and utility. The SLC maintains a multiple use management policy to assure the greatest possible public benefit is derived from these lands. The SLC will consider numerous factors in determining whether a proposed use of the State's land is appropriate, including, but not limited to, consistency with the Public Trust under which the SLC holds the State's sovereign lands, protection of natural resources and other environmental values, and preservation or enhancement of the public's access to State lands.

Article 2 of the SLC's regulation code for leasing public land states that leases or permits may be issued to qualified applicants and the SLC shall have broad discretion in all aspects of leasing including category of lease or permit and which use, method or amount of rental is most appropriate, whether competitive bidding should be used in awarding a lease, what term should apply, how rental should be adjusted during the term, whether bonding and insurance should be required and in what amounts, whether an applicant is qualified based on what it deems to be in the best interest of the State. More importantly, leases or permits for tide or submerged lands shall generally only be issued to riparian or littoral upland owners or use right holders, provided however that such leases or permits may be granted to the best qualified applicant irrespective of riparian or littoral status. When the lease agreement is negotiated between the applicant and the land manager from the SLC it has to be approved by the Lieutenant Governor, the State Controller, and Department of Finance who ensure that this lease agreement complies with the Public Trust Doctrine. Furthermore, all applications need to be California Environmental Quality Act (CEQA) compliant and there is a public hearing to listen and address any concerns anyone might have with regards to the lease agreements.

Applicants are advised that the SLC is under no obligation to approve any application submitted to it. The SLC may approve, condition, or deny any application, based upon the above referenced factors or other issues raised during the application review process.

4) Does Algae Fuel Qualify for Funding? Under SLC's general leasing authority, it may enter into a lease for algae-producing energy and agricultural products as long the lease does not conflict with the public's right to use California's public trust lands (i.e. the Public Trust Doctrine), the constitution, or state laws. The state is also authorized to utilize the Fund and the Authority for qualifying projects involving algae—algae fuel is considered biomass energy. The bill's intent is to explicitly reference algae in the relevant SLC, Fund, and Authority governing statutes.

As mentioned above the SLC general leasing authority does include a lease for algae-producing energy as long as the lease does not conflict with the public's right to use California's public trust lands. Something else to consider is that SLC has mentioned that until now there has been no applications for a lease for algae-producing energy. There is currently nothing in law that prohibits a lease for algae-producing energy, therefore, it is unclear what the author intends to accomplish since there are no examples of algae project applications being denied by SLC and algae is already considered a biomass energy to qualify for funding.

This bill passed out of Assembly Natural Resources Committee (8-0) on April 26, 2011. Technical amendments in that committee uncodified the specification that biomass energy includes algae and instead of placing this language within the Public Resources Code this bill if enacted, will be placed as an annotation at the bottom of the Public Resources Code.

REGISTERED SUPPORT / OPPOSITION:

Support:

None on file.

Oppose:

None on file.

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