Algae-Based Fuel Policy: An Overview

The Algae Imperative

In order to truly transform the energy landscape of the United States, we need a radically new means of energy *production*. We need a green, renewable liquid energy base from which to produce gasoline, diesel and jet fuel. Algae-based fuels present this exact opportunity, and the United States federal government must play a supporting role in bringing them to commercial scale.

Vigorous pursuit of fungible, commercial algae-based fuels is clearly within the national interest. From easing our addiction to foreign crude oil to restoring geopolitical balance to addressing the threat of global climate change, the time has come for transportation fuels that can be produced domestically in a carbon-neutral fashion without using agricultural land, food inputs or potable water and the without significantly altering our $1.5 trillion liquid transportation fuel infrastructure.

The scientific and commercial processes necessary to create biological crude—or Green Crude—from industrial microorganisms and refine it into transportation fuels exist today. The principal barriers to achieving commercial scale are primarily engineering challenges of designing and building the appropriate magnitude of industrial production.

The following incentives and programs can speed the transition to algae-based fuels and other biological crude derived sources while enhancing energy independence and confronting climate change.

Research, Planning & Development

- The National Laboratory system should play a major role in supporting the science of algae-based fuel production as well as tackling the engineering challenges necessary to achieve commercial scale.
- The administration should create national centers of excellence in algal research and discovery. These centers would be located at select academic institutions and work in parallel with the National Laboratories.
- We also foresee the need for government appropriations support to create an integrated, commercial-scale biorefinery program.

Government Incentives

- There must be incentive programs for algae-based fuel development and production, as well as parity for algal biomass and fuels within existing incentive programs (e.g., tax credits) offered to other biomass and renewable fuel producers.
- We envision a system for granting access to certain classes of federal land and water, at free or reduced cost, for the siting of integrated biorefineries.
- We recommend a streamlined, incentivized federal permitting process for integrated biorefineries, regardless of whether these facilities are located on public land.

Government Mandates

- There is an immediate need for technology neutrality for all advanced, next-generation biofuels (such as algae-based fuel), especially in the Renewable Fuels Standard. This neutrality can and should guide federal appropriations and other forms of support.
- Steps should be taken now to establish a federal procurement advantage for any petroleum product which is derived from biological crude within the next five years.
- The Department of Defense should develop a comprehensive, diversified energy strategy that includes algae-based fuels.
- Congress should specifically authorize and fund the United States Air Force to engage in a testing and procurement scheme for algae-based jet fuel with eventual involvement of other branches of the military.

Conclusion

Algae-based fuels can and should occupy a key role in America's sustainable, secure and independent energy future. The viability of the entire process, from lab bench to biorefinery to fuel tank, will be greatly assisted by the targeted government support, appropriations and other policy options outlined in this plan. Sapphire Energy stands ready to provide further detail where needed and ensure all of these measures are fully considered.

#####