
# The Biofuel Game-Changer We've Been Waiting For

## By Jeff Siegel

*Thursday, June 10th, 2010*

Algae-based biofuel.

It's been a hot topic for a few years now. And certainly the potential for incorporating algae as a key feedstock for future biofuel production is massive.

But the sobering fact is that we're at least a good eight to ten years from seeing any kind of real, commercially-ready product... At least at the volumes that could allow for meaningful market penetration.

So where does that leave investors in the meantime?

**Fortune favors the daring**

Algae-based biofuels are often the target of naysayers who prefer to criticize early industry obstacles instead of looking for a way to profit from the developments and technologies that allow us to overcome those obstacles.

Fortunes are not made by launching criticisms without solutions.

Fortunes are made by those who seek innovation while others hide behind the safety of mediocrity.

Yes, it'll be years before algae-based biofuels are ready for prime time. But that doesn't mean we're going to wait around and ignore all the developments that are happening in the world of algae today.

Because one thing's for certain: When that first big opportunity does present itself, we want to be ready to pounce.

So here are some of the latest developments in algae — developments that will help us hone in on which areas are likely to gain the most momentum in this early stage of the game.

**Game-changing propositions**

This week, European aerospace behemoth EADS (EADSY: PK) unveiled a new aircraft that runs on biofuel made from algae.

Early tests have shown that the algae-based biofuel has resulted in a 5 to 10 percent fuel savings with no loss of performance. The company is now looking to expand the algae fuel tests with Airbus, Boeing, and other manufacturers.

Also this week, Siemens AG (NYSE: SI) announced that it successfully burned algae-based biomass fuel at a utility-scale power plant.

Combining fuel made by PetroAlgae, Inc. (OTCBB: PALG) with pulverized coal, the fuel resulted in emissions that were 20 percent lower than coal alone.

While we're not fans of coal-fired power, we know that it's going to be around for some time. And if we can reduce emissions by 20 percent — and do it economically with algae — certainly there could be a real opportunity here.

**Breaking the cost barrier**

While new developments in algae-based biofuel have been consistent over the past couple years, so have the high costs of production.

So needless to say, we are particularly bullish on any company that can reduce those costs.

One company that's definitely making some progress on this end is **BioEcoTek**. It's been able to reduce costs by placing algae production with existing processes in wastewater treatment.

Essentially, the company's technology combines anaerobic digestion and algae cultivation that results in a net-positive energy gain in wastewater treatment.

Here's how it works:

1. A primary clarifier delivers effluent to anaerobic digesters;
2. The digesters then reduce the organic load of the effluent and produce biogas.
3. The reduced effluent — which is rich in phosphates and nitrates — is pumped from the digesters to algae bioreactors.
4. The biogas is used to generate power while providing CO2 for the algae bioreactors.

And in an effort to close the entire loop, the company is looking into the feasibility of “flash” carbonization of the remaining sludge. This could provide for the production of a charcoal product.

I realize that, for most people, this may not sound like the most exciting thing in the world... But for those who operate water treatment plants, this is extremely exciting.

Because the process I just described can reduce the operating costs of a water treatment plant by as much as 70 percent!

This is huge!

And I have no doubt that this is why American Water (NYSE: AWK) has agreed to the deployment of the company's first pilot system at their Hawaii Kai facility. Commercial-scale systems are expected to follow after test results.

This is innovation, my friends. Cultivating algae for future biofuel demand while simultaneously creating a game-changing process for the wastewater treatment industry.

And the potential revenue streams are not one-dimensional either. We're talking about:

- Power generation from biogas
- Cost share of reduced aeration requirements
- Carbon credits
- Eliminate cost of landfilling sludge
- Charcoal for co-firing at power plants
- Terra Preta for soil enhancement *(Terra Preta is an agricultural grade of charcoal that provides environmental benefits when applied to soils, including improved water retention and reduced fertilizer run-off.)*
- Algae for biodiesel production and biomass
- Algae for high value products, like nutraceuticals, pharmaceuticals, cosmetics and bioplastics

The only downside is that this is not a public company, so we can't load up on it — although an IPO wouldn't necessarily be out of the question for this one. (That's assuming it doesn't get scooped up by some huge wastewater treatment company first.)

BioEcoTek is now in the process of securing additional funding for project development. We will definitely be keeping a close eye on this one.

And if an opportunity presents itself, we'll be sure to pass it along.

To a new way of life, and a new generation of wealth...

Jeff