

KiOR (KIOR)

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The Holy Grail is a renewable fuel that no one can tell is renewable. Its price would be similar to that of a barrel of oil. It would be dropped into existing pipelines, refineries and vehicle engines that already process millions of barrels of petroleum a day. -
ClimateWire

There are a couple of companies working on this “Holy Grail” – one of them is KiOR (KIOR) which was featured on 60 Minutes on 5-Jan-14 - it's worth the 14 minutes:

<http://www.cbsnews.com/news/cleantech-crash-60-minutes/>.

Despite the recent negative publicity (see 60 Minutes and [this article](#)), 2013 marked an [historic turning point](#) where for the first time ever alternative fuels began production at commercial scale. And KiOR was one of the companies to make it happen.

KiOR is a Vinod Kholsa backed biofuel company that takes wood chips from yellow pines (or other biomass) and turns it into fuel. The company line is something like, “We do what Mother Nature does, but instead of millions of years, it takes us just seconds.” Most people look at the chart and think, “these guys must be complete failures”. But it's fairly remarkable what KiOR has been able to accomplish – KiOR has gone from an idea on paper in 2007 to demo facility in 2010 to IPO in June 2011 (raising \$150MM) to commercial start-up in March 2013.

What's interesting about Kholsa / KiOR versus a lot of other biofuel companies is the focus on scale. The question, “How can we get this technology everywhere quickly?” has driven much of the decisions the company has made. For example:

- KiOR uses the same proven refining process as traditional oil refiners, with the only difference in the proprietary catalysts they use.
- KiOR's product can be delivered with the same infrastructure as oil (pipelines / gas stations / etc).
- KiOR's product can be used by existing cars / trucks without any changes to the engines (unlike E85 / flex fuel for vehicles).
- KiOR's facilities are designed using “exact copy” principles – meaning they have a standardized modular design that can be assembled fairly quickly (e.g., cheaper to start and operate and faster to deploy).

So as long as these guys can produce it, they can deliver it and sell it without any policy hassles / infrastructure build-out (unlike Tesla charging stations, for example). The real question is: can

they get to economic scale before they run out of financing options? By economic scale, I mean: Can they sell their product at cost parity to oil (or less) without subsidies and still be cash flow positive?

This is a difficult question to answer at this point – which is why I'm not putting capital to work but rather simply writing about the company. But some recent developments have me believing this is a possibility within a few years (but the timescale is very uncertain):

- On 21-Oct-13, KiOR announced they had secured \$50MM in equity from Khosla and Bill Gates, with another \$50MM commitment contingent on the company full funding the \$225MM expansion and buildout of their existing production facility in Columbus, MS. If they get the rest of the financing needed (seeking debt), the other \$50MM in equity will get released.
 - “Khosla Ventures and I have reviewed independent reports on the assessment of the technology and conducted our own significant due diligence as part of this commitment. We are pleased to invest in KiOR with Gates Ventures in this equity financing for the Columbus II Project.” Source:
<http://investor.kior.com/releasedetail.cfm?ReleaseID=798653>
- This project will double their production capacity to 1,000 bone dry tons of wood / day and the company believes will get them to cash flow profitability in 2015 (project will take 18 months). Side note: The process is: dry wood in, 35% gas / 40% diesel / 25% fuel oil out; the goal is 92 gallons of fuel per ton versus the 72 gallon yield today.
- As far as cost parity to oil, I would need KiOR to prove it with their operations before getting interested – these are recent comments they've made, but the proof is still elusive:
 - “Current estimates shows cellulosic gasoline and diesel could be produced at a cost of \$2.60 to \$2.80 per gallon at a yield of 72 gallons per bone dry ton. At a yield of 92 gallons per bone dry ton, the cost would drop to \$2.20 to \$2.30 per gallon.” Source:
<http://biomassmagazine.com/articles/9308/kior-announces-q2-financial-results-discusses-expansion-plans>
 - Per the S-1: “Our proprietary catalyst systems, reactor design and refining processes have achieved yields of renewable fuel products of approximately 67 gallons per bone dry ton of biomass, or BDT, in our demonstration unit that we believe would allow us to produce gasoline and diesel blendstocks today at a per-unit unsubsidized **production cost below \$1.80 per gallon, if produced in a standard commercial production facility with a feedstock processing capacity of 1,500 BDT per day.**”
 - “I expect that cash costs per gallon (excluding depreciation) on an energy content basis at the two Columbus facilities should be lower than today's corn based ethanol.” Source:
<http://investor.kior.com/releasedetail.cfm?ReleaseID=793395>

Any company backed by geniuses and attempting to change the world is one worth keeping on your radar; that's where it'll remain until I see tangible progress through results. In the event of failure, the company holds 2 main assets: their \$213MM Columbus facility and a portfolio of

over 70 patents and 2,000 pending IP claims. The Company is covered by Goldman, among others.

Sources:

IR site: <http://investor.kior.com>

S-1: <http://www.sec.gov/Archives/edgar/data/1418862/000095012311034676/h80686sv1.htm>

Evaluation of the process: <http://www.energytrendsinsider.com/2010/09/05/evaluating-kior/>

Presentation:

http://files.shareholder.com/downloads/ABEA-6B1XEW/2880074443x0x583465/A496719B-2FFC-448A-8C4E-677189E50717/KIOR_Corporate_Overview.pdf

3Q13 CC [here](#).