

Energy Asset Solutions, LLC

Market Analysis: The Convergence of Power & Fuel Markets (Part I) – The Coming Competition for Biomass Supply

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In biomass power projects, fuel is always the story. With the advent of RFS2 in the renewable fuels sector, feedstock is taking center stage there, as well. As these two sectors begin to compete for resources, what are the implications? Who wins and who loses?

Read the first installment of our two-part Market Analysis, below.

In biomass power projects, fuel is always the story. Developers can usually tell a good story about the adequacy of their supply & the availability of even more in the “wood basket” (about a 75 mile radius from the plant) and lenders – after the appropriate hand-wringing about “credit worthy suppliers” – generally get comfortable pretty quickly (especially after adding 50 or 100 basis points to cover their perceived risk).

While nomenclatures change as one moves to the renewables fuels sector, feedstock (another name for fuel for these facilities) is also becoming the story. For first generation ethanol facilities, this has largely meant corn, a widely traded, highly liquid commodity. But with the advent of RFS2 (see, <http://epa.gov/otaq/renewablefuels/index.htm>) – EPA’s attempt to push the renewable fuels industry toward “next gen” technology – the game may be changing. Specifically, RFS2 incents the development of second-generation renewable fuels firms to make greener (lower GHG lifecycle) liquid fuels from some of the very same materials that are currently used / slated to be used as supply for biomass power plants.

Aside from the RFS2-created fiasco of tracking the various inputs into each gallon of fuel via a yet-to-be-developed RIN’s compliance system and the massive capital investments (some of which are being underwritten by US taxpayers as we speak) needed to reach the stated renewable fuels goals, the implications of competition for biomass resources – supply, cost, etc. – in the power & fuels sectors seems to have largely escaped attention.

In order to properly analyze the impact, it’s necessary to make some assumptions. First, assume the supply of feedstock continues to grow at a reasonable pace (historically, production has increased about 2% over the last 100 years or so); in other words, nobody finds a way to squeeze exponentially more production from current US arable land (an assumption supported by the [World Bank](#)). Second, assume at least half of the currently announced biomass facilities – including some of the larger ones (100+ MW’s) in the Midwest & Southeastern US – come on-line as scheduled. Third, assume that the trend

toward co-firing of biomass materials in coal facilities – for a variety of reasons – continues apace. (Note: *Between biomass power production & utility-scale co-firing, EIA expects a 500% growth in biomass-related power generation over the next 25 years*). Finally, assume that the next generation renewable fuels companies actually hit (or try to hit) their production targets as set out in RFS2. Blend all of these data points together and you start to get a pretty clear, albeit widely unappreciated, picture of the what's coming.

Think about it. According to one source, almost two (2) million tons of cellulosic material is required to produce 110 million gallons of cellulosic ethanol. While the numbers between competing sources change slightly, there seems to be a general consensus that the ratio of feedstock tons to gallons is around 1:50. For any plant, that's about all the corn cobs, stover, wheat straw and wood waste for a 50 mile radius. Aside from the massive logistics required to harvest all of this material (and the current competing uses & GHG impact), it seems unreasonable to expect that each facility will be able to secure 100% of its feedstock locally – at any price. Invariably, this will force renewable fuels companies to compete for biomass resources in overlapping “cellulose baskets” (our newly-minted term for all cellulosic material in a given supply area).

Of course, new energy-focused crops may come along – like switchgrass – and prove to be more efficient producers – more rotations per year & better heat rates, etc. Regardless, they will at least partially consume land currently used for other purposes; an implicit supply deflator. Crop science may also come to the rescue as it did for food production in the 20th Century (one commentator believes that current dry-ton yields per acre could increase from around 5 to 12.5 by 2050). Certainly, the crop science companies would love to be able to do this – and are working hard to meet the challenge – but this is a long-term solution that is unlikely to quell disruptions in biomass supply markets over the next few years when financing for all of these competing activities is needed (and incited by ARRA). (NOTE: By way of full disclosure, I once worked for the National Agricultural Chemicals Association – now known as [CropLife America](#) – whose membership includes many of these same crop science companies.)

Now, if you're a biomass power industry participant you might be thinking “So what? Renewable fuels firms don't use the same kinds of materials (wood) as a power plant, right?” Wrong! As noted above, RFS2 specifically anticipates using forest residues & other waste woods as feedstock for these renewable fuel facilities. Obligated parties under RFS2 are incited to use these next-generation biofuels in order to manage their portfolio GHG exposure. One of the early companies to take advantage of ARRA funds to develop next generation biofuels, Range Fuels, has their first plant under construction in Georgia, site of numerous existing / proposed biomass power plants. Currently scheduled for COD in the first quarter of 2010, their feedstock of choice is [“wood from Colorado pine beetle kill and Georgia pine and hardwoods.”](#) Scary stuff if you're a biomass power financial participant that made book on cheap, abundant, spot-market fuel supply without an understanding of competing uses for that material or the possible impact thereof (something [EAS](#) is uniquely situated to provide.)

So, what are the implications of this looming feedstock competition? Does anyone even have it on their radar screen? More importantly, who are the winners & losers?

Be sure to read Part II next month for our analysis of the impact & likely outcomes of the competition between power & fuel for biomass resources.