Energy Asset Solutions, LLC

Market Analysis: The Convergence of Power & Fuel Markets (Part II) – Implications of Biomass Supply Competition

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Last month we outlined the case for a coming competition in biomass supply as power & fuel markets continue to converge. In this month's follow-up piece we delve into the implications and likely outcomes as these two sectors compete for resources.

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

In a market economy, competition almost always brings change – some good, some bad – & opportunity. In order to get at the opportunity component, we'll focus first on the assumptions around supply availability, review losers & winners (in that order) and discuss the changes wrought by coming energy industry dynamics.

On the supply side, last month we argued that the current supply would continue to increase, but not at the rate necessary for forecast demand. We also believe that the switch to dedicated energy crops – touted by many as the panacea to supply constraints – will take longer and cost more than people have been led to believe. As a result, current Ag waste crops, forest residues & municipal solid waste will dominate the cellulose markets for the next 3 – 7 years. That said, government could step in to facilitate the transition of some current CRP and food crop parcels (one wonder's how that would figure into GHG calculations, etc.) to energy crops, but that would take more than their current efforts around providing a crop insurance substitute. The private markets could also push that change along (maybe in reaction to escalating waste & residue pricing) by providing similar supports & subsidies in their offtake agreements (many of which already contain conservation payments & the like).

Of course, supply is wholly dependent on logistics. Here, much is left to be done to assure that even the forecast supply is available. For instance, cellulose markets will require new equipment – for harvest, packaging, shipping, sorting, handling, etc. – almost none of which is on the market or even ready for commercial manufacture. Another key element will be storage and related risk. While most power & fuel companies will likely store most if not all supply at their plants, thereby accepting the related risk & responsibility of supply management, others will choose a distributed storage system, shifting their risk to suppliers. Representing the latter model, at a recent renewables conference in Kansas, the Abengoa spokesperson discussing their Hugoton, Kansas project mentioned that they will have only a small portion of their feedstock needs stored at their plant with the rest stored onsite at their suppliers. Unknown is

how the supplier will manage & mitigate the risk – both financial and physical – associated with solid fuel storage and where the ultimate cost will settle.

Shifting gears, let's look at the possible downside before addressing the upside and who will capture that.

With the dawn of escalating competition, early entrants in both the fuel & power sectors that have failed to lock-in their supply through long-term contracts with reputable suppliers, will take a beating. This includes virtually everyone with an asset in the market or coming into the market over the next three (3) years. Next, due to the nature of the underlying supply markets – small, fragmented, "Mom & Pop" operations – it's likely that at least some of the suppliers (including those who agreed to long-term contracts with early entrants) will either fail as their spot-market purchase obligations get ahead of cash flow or simply renege on their obligations when they see a better opportunity somewhere else. Of course, later entrants could have it even worse given that as supply prices rise and returns fall, projects won't get built largely because banks will – eventually – either refuse to lend into these markets or pull back lending as they get smart about the coming supply shock. *[I'd note here that the entirety of the next–generation renewable fuels projects currently in planning or construction are funded via a combination of equity & government grants, not project-level debt.]*

Lenders, because they too are very siloed, probably end up taking some bad early losses before they realize what's happening. In that regard, some of what they've currently funded is likely already at risk for dramatically higher fuel cost due to these competing policies and developing markets. It's also clear that the new energy paradigm will mean a change in the type of lender involved in biomass-related projects. While Farm Credit banks were responsible for the bulk of the lending in the ethanol industry until the last few years, it's hard to see them having the ability to lead a deal sized for the new reality. Whether it's a $500 million dollar biomass plant or a $500 million dollar cellulosic ethanol facility, it seems unlikely that they could go this route alone, especially on terms that equity would find palatable (higher leverage, etc.). Rather, the club deal – long the bane of developers – seems a more likely route. Of course, the club will likely include not just Farm Credit participants, but more traditional, well-heeled project finance firms. That blend of Ag expertise and deep-pockets with global reach seems most likely – and particularly well-suited – to be at the forefront of tomorrow's biomass lending.

As between the power & fuel sectors, at least in the short run, power should have a better hand to play with the reputable supplier class – if for no other reason than credit quality. Sure, various government efforts exist to support new–build in the fuels space, but if you're a supplier looking at long-term risk, then a firm that can lock its revenues twenty years into the future with credit-worthy offtakers (read: utilities) offers a vastly better risk profile than one that depends on government largesse and a limited forward market (say, three months?). As a result, the best supply at the best terms should end up with power plants, rather than fuel firms. Of course, this means that the economics for renewable fuel only get worse in the short-to-medium term – an outcome that subverts most of the stated goals around fuel flexibility, GHG reduction, etc. (maybe even more than the Fed's failure to require 100% flex fuel vehicles, but that's for another article).

And, of course, in purely hard-dollar terms, the American consumer loses in almost every way – power or (and?) fuel likely ends up costing more either directly (price at the pump / meter) or through government incentives necessary to tip the scales. I say "almost" because there is

certainly some benefit to be gained by increased use of renewables in the Country's energy mix – energy security, ecological, etc.

So who wins?

From our perspective, over the short to medium term, we can identify only one core participant that looks to be on the winning side: ***cellulose suppliers***. If the scenario plays out like we think it will, the biggest opportunity lies in the supply source itself – lowly milo stubble, corn stover, wheat straw, forest residue, municipal solid waste and the like. While some of these materials are certainly better suited for specific applications – fuel rather than power – all of them will have new demand creating and create new opportunity and new wealth.

Exactly where prices will stabilize – from today's current $9 / dry ton (crop residues in the field) to $25 / green ton (wood waste, delivered) – is anybody's guess. Given the emerging nature of these markets, the lack of good hedges available and the logistical hurdles surrounding mass collection, sorting & distribution, it's a fool's game to try to predict pricing. Ultimately, regardless of short-term winners & losers, the markets will find the path forward for themselves. Supply will mature, commoditize, become capable of hedging and, eventually look just like any other ag crop market, likely categorized by highest and best use according to btu, moisture and lignin content, etc.

But what will likely change dramatically and forever will be the energy markets themselves as convergence makes us all aware of each other in a truly global, integrated and systemic sense. Gone forever will be the rigid lines between Oil & Gas, Power and Fuel. That change will spread across owners, lenders, developers and even consultants and encompass more than just a view of supply. No longer will being a power expert be enough; it will be necessary to be true energy experts (or find some third-party that fits that bill).

While it's folly to predict the future with its myriad twists & turns (hence the repeated use of "likely" throughout this article), this much is certain: as either a supplier or buyer in biomass supply markets of the next three-to-seven years, you'll need an expert at your side to guide you, to make sure that risk is properly allocated, compensation justly fixed and both flexibility & certain captured. As a firm with almost 35 years of combined solid fuel and renewable markets experience, we hope you'll choose EAS to walk that path with you.

To learn more about how EAS can help you maximize your biomass supply market experience, contact us at info@energyassetsolutions.com.