FDC Enterprises – Building the Perennial Grass Energy Supply Chain

By Pamela Porter
December 2015

FDC Enterprises, perennial grass biomass processing facility near Fort Pickett, Virginia.

This month, CenUSA Bioenergy sat down with Tom Schwartz, Vice President of Marketing for FDC Enterprises to talk more about the company and the business case for perennial grasses. Tom has been with FDC Enterprises since 2006. He has a M.S. degree in Conservation and Wildlife Biology and formerly served as Illinois Director of Conservation for Pheasants Forever.

FDC has been at the forefront of national efforts to commercialize next generation fuels. The Ohio-based company, a leader in perennial grass systems, has worked with growers and industry partners in Iowa, Tennessee, Kansas and Virginia to develop new and more efficient production, harvesting and processing methods. The company has a unique conservation mission and understands that finding markets so farmers can generate profits is key to reestablishing perennial grasses in the Midwest.

Over the past 5 years, FDC Enterprises has planted more than 280,000 acres of native grasses, collaborating with biofuel and industry partners including DuPont, Abengoa, Genera, Monsanto, Poet and Vermeer. FDC Enterprises' goal is to offer a turnkey system, leasing land from landowners and then growing, baling, storing, processing and distributing locally grown, native perennial grasses.

Their work has not gone unnoticed. Over the last five years, FDC Enterprises has been awarded 2 USDOE cooperative agreements to fabricate and test new equipment and develop systems that can reduce the costs of harvesting, delivering and processing biomass fuel. In August 2015 the USDOE Office of Energy Efficiency and Renewable Energy announced that a team led by Antares Group including FDC Enterprises was selected for $9 million in federal funding to advance and demonstrate sustainable landscape design

practices for improving biomass supply chains. The project, *"Enabling Sustainable Landscape Design for Continual Improvement of Operating Bioenergy Supply Systems"* aims to demonstrate opportunities for a supply chain that incorporates perennial grasses strategically into a corn-stover supply chain.

In addition to biofuels, FDC Enterprises has also been working to build a grass-based biofeedstock supply chain for the heat/steam market in the Southeast U.S. In many parts of the Southeast, biomass systems (commonly wood chips) are a cost effective alternative to heating oil.

The Commonwealth of Virginia Piedmont Geriatric Hospital in Burkeville, Virginia has been running its boiler on perennial grass biofuel feedstock provided by FDC Enterprises; and has reported the switch is saving taxpayers an average of over $1300 a day in winter fuel costs. The hospital, located in a rural part of the state doesn't have access to natural gas and had been heating with biomass (sawdust from local mills) for decades. In collaboration with Virginia Tech's CMI and FDC Enterprises, the geriatric hospital converted to perennial grass biofuel for winter heating in 2011. By utilizing warm season grass biofuel feedstock as part of its solid fuel feedstock mix, the hospital is enhancing its sustainability reputation, and grass-based biofuel energy is seen as a way to add a perennial crop that requires few inputs, while reducing soil erosion and diffusing surface water runoff; thus reducing nutrient loading into the Chesapeake Bay. The grass is annually harvested, stored then processed to a boiler friendly specification, then delivered and conveyed into the boiler.

The boiler of the Piedmont Geriatric Hospital is now fueled with switchgrass, producing steam to heat the facility and saving the hospital $1300 a day compared to heating oil.

Can you give me a short description of FDC Enterprises?

We're a conservation-focused company that is involved in responsible, sustainable bioenergy projects. We work sustainability into the cost/benefit equation. The sustainability part is really an important part of our description. We have a vision for developing eco-friendly products and systems. We're not just about removing material at the cheapest rate and highest volume.

What kind of feedstocks are going to drive bioenergy? What progress have you made so far?

I think it's going to be a combination of crops. The crop residues [are] *readily available and there is a lot of them. Abengoa, DuPont and Poet have built their business model around collecting corn residues, but I think they'll find a way to incorporate perennial grasses, especially if we can get ecosystem services.*

Over time I think native grasses will make a lot of sense, [as a nutrient catch plant], planted on land that is environmentally sensitive or on marginal, less profitable crop acres. Native perennial grasses like switchgrass are easy to manage, and don't need much water. They have a great chance to be used widely across the country.

What boots on the ground, with switchgrass as a feedstock, is FDC Enterprises working on?

A key one for us is expanding at Piedmont Geriatric Hospital in Virginia, a project that has gotten national attention. At the hospital, we're using perennial grasses grown on nearby farms, harvested and used for direct combustion, replacing No. 2 heating oil. The most efficient system is to harvest grasses, chop them to a 1" spec and feed them into a boiler or co-fire it with wood or coal.

The oil-heated facilities in Virginia are excited about grass feedstocks for heating because they are saving real money – about $1300 a day. We estimate that the hospital save $531,000 over five years and avoided the use of 361,000 gallons of fuel oil. We're going to be adding additional facilities nearby and are planning for a 10-fold increase.

What does the future look like?

Pollinator habitat may be part of the future. We're doing quite a bit of work with transmission companies, helping them establish pollinator habitat in rights-of-ways. I just got back from a I-35 corridor meeting hosted by USFWS and DOT in Iowa to explore what could be done to reestablish pollinator habitat from Minnesota to the Mexico border. The meeting was really good – the first of its kind – and brought together folks from Texas, Oklahoma, Missouri, Iowa and Minnesota to figure out what could be possible.

We've got to work on reducing the costs. Using perennial grasses will depend on competing fuel costs. One thing grasses are doing for our customers is allowing them to lock into a fixed cost, which means no surprise price jumps. That helps with budgets. With fossil fuel costs, prices are all over the board.

Can you tell us a bit about the new USDOE project? I understand USDOE only made one award for the entire country, that must be a real honor?

We're excited about the USDOE grant. We've been working with this same group for the last 10 years and are planning a kick-off meeting in December to talk over strategy, how, where and when to put in bioenergy crops, how to procure acres etc. We're planning on continuous CRP type programs to help establish the perennial feedstocks.

We see perennial grasses playing a key role to help maximize profitability on less productive areas, or on borders or odd areas. Rather than farming field edge to field edge, we see biomass as a bottom line opportunity for the farmer and the farm.