

chris gadomski
strategic marketing
7 lewis avenue
hartsdale, ny
10530
914.993.9060
info@smidirect.net
www.smidirect.net



Catch the credits

Biomass, like several renewable energy technologies, has been attracting some interest from project developers and lenders. But construction lead times and the logistics of fuelling biomass plant may conspire to keep it a niche within a niche.

Chris Gadomski reports.

Biomass, like several renewable energy technologies, has been attracting some interest from project developers and lenders. But construction lead times and the logistics of fuelling biomass plant may conspire to keep it a niche within a niche. Chris Gadomski reports.

Catch the credits

Spending billions in the biomass industry may be difficult given the large demand for capital in other power generation sectors as well as the economics that currently favour smaller projects of up to 35MW. Mark Harris and his co-investors in the Biomass Group LLC initially proposed the 148MW South Point project in Lawrence County, Ohio – the largest project in the US – in the 4th quarter of 2003 with a then-anticipated start date of 1 April 2006. That start date was contingent on signing a power purchase agreement by 31 December 2003 – a goal that has yet to be met.

The project, the refurbishment of seven coal-fired boilers at a former ethanol and electrical power facility along the Ohio River where West Virginia, Kentucky and Ohio meet, has subsequently morphed into a larger 200MW facility that received its final air permit from the Ohio Environmental Protection Agency in late 2005. The \$250 to \$300 million project was scheduled to begin construction by the end of 2005 in time for an October 2007 power-up date. Utility customers in Ohio and Pennsylvania were going to buy the power.

According to Rich Haddon at Pace Global, which is advising on the project, the sponsor is still addressing the facility's fuel supply. The consultants are presently preparing reports to assure bankers that there is enough fuel in the surrounding area to power the plant – not surprising given the tremendous appetite of the project. Thomas King, executive vice-president, finance at US Renewables Group, which buys, develops and operates renewable energy and clean fuel assets, estimates the daily requirements of such a plant to exceed 300 truckloads of fuel a day.

Pace's Haddon notes that identifying a secure fuel resource will precede negotiations of a power purchase agreement – a document likely to involve some financial hedges and a collar structure. But delays in finalizing agreements may jeopardize the realization of the Section 45 production tax credits (PTC) of \$0.009 per kilowatt-hour if the power-up date goes beyond the present expiration of the PTC at the end of 2007. Accordingly, Haddon says, "We are approaching financing of the plant without the value of PTC being included and using them only as an upside potential in

the event that it is extended beyond 2007."

Regulatory risk

If the project comes online as its sponsors hope, the size of the US biomass power industry would jump nearly 10%, according to the California Biomass Energy Alliance. It tallied the operating biomass power plants nationwide at about 1,676MW of generating capacity in 2003. At the time, the Alliance counted more than 80 operating biomass power plants, predominantly located in California, Maine, and Michigan – three states that together provide 56% of the US' biomass power generation capacity. The Alliance counted an additional 40 plants that were operable, but currently not operating – a potentially attractive opportunity for developers and lending institutions that see capital and time advantages in redeveloping and refurbishing such stranded assets.

Scott Gardner, also at US Renewables Group, relates

"The problem with green-field sites is that they won't come on line in time to capture the production tax credits that now expire on 31 December 2007. With biomass, we are only doing retrofits of existing cold iron facilities."

that the problem facing South Point Biomass also plagues many other new greenfield projects. "The problem with greenfield sites is that they won't come online in time to capture the production tax credits that now expire on 31 December 2007. With biomass, we are only doing retrofits of existing cold iron facilities."

Besides the regulatory risk associated with the availability of production tax credits, US Renewables' Kings adds that often biomass developers – individuals or small to medium companies – and private equity investors have little tax appetite.

"Developers, who often use private capital from trusts and pension funds have little or no tax capacity to utilize the 45 credit," he reports. "As a result, many otherwise viable projects go un-built because developers cannot use the 45 credits associated with projects."

Fuel risk

Almost without exception developers and bankers agree that obtaining credible fuel supply contracts is the biggest challenge facing biomass developers. Scott Gardner says there is a good reason that biomass projects are typically in the 20MW to 30MW range – adequacy of existing fuel sources. "There is

an economic fuel procurement radius for each facility within which a plant needs to access fuel within an economic hauling radius. Usually fuel comes in by truck," he says, "accordingly there is only so much fuel that can come from a specified distance before transportation costs make the fuel too expensive."

Rupert Fraser of Fibrowatt, a Philadelphia-based developer, builder, owner and operator of electricity power plants fuelled by agricultural biomass, has resolved this problem by siting facilities in the midst of growing poultry regions, thus making projects larger. His company is building the first US poultry litter-fuelled power project – Fibrominn – in Minnesota. Fibrominn was developed in response to the Minnesota legislature's calls for Xcel Energy to provide 125MW of power from renewable sources. The 55MW facility will sell 50MW of electricity, generated by burning 700,000 tons of biomass fuels (90% of which will be poultry litter) to Xcel under a long-term agreement.

The strength of the contract allowed the project to raise 90% debt financing, according to John Halle of HH Capital Advisors, which advised on the project. The PPA, for example, allows the project to pass through fuel price increases. The \$202 million in rated (BBB-/BB) debt financing was arranged by McDonald Investments, placed to institutional investors that included Prudential Capital and John Hancock and packaged as a traditional sale-leaseback.

According to Fraser, Fibrowatt has a pipeline of new projects under development in poultry-growing states across the USA – a country that consumes nearly eight billion chickens a year that provide 30 to 40 million tons of manure. "Our niche is poultry refuse," says Fraser. "With 6% annual expansion in the poultry industry, it is easier to get fuel security. That gives bankers a lot of confidence that our fuel will be around in 20 to 30 years. It is easier if you use a by-product of an existing industry, especially one that is growing."

Sponsors should also choose a fuel that has few alternative uses, says Halle of HH Capital. "Within 250 miles of the plant we have five times the amount of poultry litter that we need and there are not many other uses for the product. Burning solves an environmental problem, especially in areas like North Carolina and Maryland where the water table is much higher." This is in contrast to some of the wood chip-burning facilities that have seen fuel prices increase from \$0.40 per ton ten years ago to \$40 per ton today. "At some facilities wood chips are too valuable to burn because there are so many different uses for the fuel, like making press board," adds Halle. "There are many stranded assets." For Fibrowatt, ash that is produced is sold as a fertilizer for an additional revenue stream.

Besides the Minnesota facility, the company is developing a poultry litter-fuelled power plant on Maryland's Eastern Shore that will generate 30-40MW from 200,000-300,000

tonnes per year of poultry litter, and 100,000 tonnes per year of forest residues. A third facility is being developed in Mississippi that will generate 40MW from around 200,000-300,000 tons per year of poultry litter, and 100,000-200,000 tons per year of forest residues and other agricultural biomass. Two other facilities, Halle says, are also being developed in North Carolina.

State incentives

Mike Whiting, President and CEO of Decker Energy, is developing a 30MW greenfield facility in Plainfield, Connecticut that is designed to meet renewable energy goals enacted by the Connecticut Legislature in 2003. It will convert urban wood waste into electricity using a staged gasification system, and as a result, he says it will have one of the lowest emissions from a biomass-powered plant in the US.

Biomass is a niche opportunity, concedes Whiting, who also acknowledges that long-term fuel contracts are problematic. Consequently, the firm looks to identify sites where available fuel is four or five times the annual demand of the proposed facility. "If we need 300,000 tonnes a year, we look for the availability of one to 1.5 million tonnes within 100 miles of the plant," he says. "We don't want to rely on one supplier and want to avoid the worry of future competition for our fuel supply."

To finance the facility, Whiting says he will seek traditional bank debt financing, with a utility equity partner. "There are a lot of new money sources," he says.

"More private equity firms are starting to invest in energy and some of them made a lot of money. There is so much interest in renewables, so hopefully there will be many new sources available for us."

Connecticut provides a particularly good opportunity because the state badly needs the generating capacity and the wood supply is adequate. "There is more wood in the south-east," he says, "however electricity prices are cheaper."

But more important are the incentives from the Connecticut Clean Energy Fund that can pay as high as \$55 per MWh above the market price of power. "The price of electricity is already \$55 per MWh," says Whiting. "Without the incentives we wouldn't look at Connecticut because costs are high there."

According to Connecticut's Clean Energy Fund, "Project 100 is legislation that requires the state's electric distribution companies to enter into minimum 10-year contracts for not less than 100MW of Class I renewable capacity. Pricing under these contracts will include a premium of up to \$0.055 per kWh. These long-term power purchase contracts must be filed by 1 July 2007 and be with projects that receive funding from the CCEF, began operation after 1 July 2003, and are at least 1MW in capacity."

But right now the Connecticut market for Renewable Energy Credits has crashed, according to Louis Bravakis at EcoPower, which is developing two biomass projects in New England with Laidlaw Energy. From a high of \$50 a megawatt

"There are a lot of new money sources. More private equity firms are starting to invest in energy and some of them made a lot of money. There is so much interest in renewables, so hopefully there will be many new sources available for us."

hour, the RECs are now trading in the \$8 to \$10 range. "Developers had a lot of RECs and dumped them into the market, but we anticipate that they will climb again over the course of the current year." Whiting from Decker Energy agrees. "It is supply and demand ... a few modifications to several projects regarding qualifying facilities can have a big impact. We anticipate the values of RECs climbing in the future as the state-mandated required percentage of renewables climbs."

Laidlaw and EcoPower are targeting an online start date in 2007 for their 20MW biomass refurbishment project (one of several potential New England sites will be selected) and 2008 for their 20MW Massachusetts greenfield site. The latter will burn certain types of wood waste that will no longer be allowed in the state's landfills after July 2006.

Bigger deals net smaller banks

Dan Goldman, the CFO of New Energy Capital, is another developer retrofitting existing facilities in the northeast, where there are strong renewable incentives. NEC acquired an operating 16MW biomass plant in Greenville, Maine from Hafslund, USA, last August and announced the completion of a \$6.9 million project financing in February 2006. The deal finances an upgrade to a 17MW plant, which would then qualify as a new renewable generating unit under Massachusetts law, and thus earn RECs.

According to Goldman, the credits provide stable revenue streams and make projects more financeable. Could the projects go forward without them? "Possibly, but it would be more difficult without them," he says. "We would have been more concerned if a lot of projects came online."

NEC financed 55% of the Greenville upgrade's \$12 million total cost with a senior secured term loan of six years from Citizens Bank, and provided balance as equity and subordinated debt. Goldman says NEC will look to do something else once refurbishment is completed. "Capital costs and the challenges of converting from coal make retooling facilities more interesting instead of developing greenfield facilities," adds Goldman, who admits they would prefer to do larger projects though they involve more risks both with fuel and off take. For biomass, the 10-25MW range appears most attractive to us."

Supporting this view, he says, is the arrival to the industry of a lot more lenders looking at the renewable space today. They are, he says, a full range of smaller banks doing smaller deals. "Five years ago it would be unusual to look at smaller deals, but now banks are reducing transaction costs by building up some in-house expertise, doing less due diligence, and working closer with developers. It is a positive trend creating a more competitive market.

"What is particular to Massachusetts is the ability to sell RECs at a price set by the market," says Goldman. "Because any utility or power marketer which is selling power to end-users has to have a certain generating proportion from

renewable energy sources, there is a shortage of supply of RECs because electricity suppliers in Massachusetts, Connecticut and Rhode Island need to comply with state-mandated renewable portfolio standards."

At the beginning of 2005, the Massachusetts Technology Collaborative's Renewable Energy Trust committed \$25 million to support projects that could generate 25MW-50MW of renewable energy for the New England electric grid. The first round of Massachusetts Green Power Partnership awards led to \$32 million in funding commitments for six renewable projects that would generate close to 100MW, including a 50MW biomass project with the Public Service Company of New Hampshire. According to Jon Abe, a project manager with the Renewable Energy Trust, there are apparently six biomass projects under development in Massachusetts now, one of which is a 50MW facility.

"Five years ago it would be unusual to look at smaller deals, but now banks are reducing transaction costs by building up some in-house expertise, doing less due diligence, and working closer with

What's not to love?

Although burning wood to generate power has been a practice for many decades, technology risk remains for developers, regardless of whether projects are greenfield or refurbishments. "For starters, you need to reach certain emissions standards," says Curt Whittaker, an attorney with Rath & Young, which has counselled clients that switching from coal to biomass carelessly can lose them money. "With a new facility, you have technology and construction risk and when converting coal to biomass many developers miss the dramatic implications of switching from handling coal and its ash to wood and the subsequent greater volumes of ash."

Although rising and volatile natural gas prices are a big driver for biomass plants, biomass fuel risk can diverge from natural gas and coal price risks. Wood price risk can be tied to paper pulp and pressboard industries – the economics of which can have little to do with electricity. Prices can be asymmetric. While it is good to be on the winning side, says Whittaker, one can also end up losing. "Distortions in the paper industry can suddenly drive wood prices higher."

A solution, smiles Whittaker, is hedging biomass by buying hydro. "A good year for hydro – lots of rain – is typically bad for biomass fuel suppliers, which often need to deal with sloppy, wet and muddy conditions getting biomass fuels to the generating plants." Plus, there is a rising reluctance to use construction and demolition waste and painted materials – even in small amounts. The Greenville plant, which burns 70% to 80% wood chips, can also burn carpet remnants. But there is ambiguity in the laws, and the treasury is examining the regulations to address these issues.

"These plants have historically been good sinks for local waste, but it is increasingly difficult to do that and keep the tax or renewable energy credits. Developers need to be aware of burning unclean or tainted fuels," says Whittaker. "You can't get a tax credit, for instance, for burning Katrina waste."