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Biomass power may not be so green after all

Plants intended to provide cleaner, sustainable sources of energy under fire over pollution levels

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Ronnie Green Center for Public Integrity

Just 12 miles apart in the belly of California, a pair of 12.5 megawatt power plants fouled the air with a toxic brew of pollutants — nitrogen dioxide, sulfur dioxide, carbon monoxide, ammonia and particulate matter. They released thick plumes and visible dust. They failed to install proper monitoring equipment, and failed to file reports on their emissions.

Another instance of coal plants polluting the environment?

Not quite. These are biomass power plants, part of the so-called green wave of the future.

Pitched as a smarter, environmentally friendly way to produce power, the electricity generating stations are spreading nationwide, spurred by hundreds of millions in stimulus dollars and big muscle support from members of Congress and the U.S. Environmental Protection Agency. Generating electricity by burning trees, construction debris, poultry litter and agricultural mass has become a key element in a larger push to develop sources of alternative energy, and popular because it's been around for decades and is reliable.

Yet green energy is not always so green.

Worries about the potential health effects have sent ripples through communities where new plants are being built. The industry and its allies in Washington, meanwhile, have managed to delay for three years finalizing a study into the legitimacy of claims that biomass pollution fouls the air and harms health, perhaps even contributing to asthma and heart disease.

Regulators this year slapped the two San Joaquin Valley plants, owned by Massachusetts' Global Ampersand LLC, with \$835,000 in penalties (<http://yosemite1.epa.gov/opa/admpress.nsf/d0cf6618525a9efb85257359003fb69d/8a0b1b18223656cd85257838005db1eb%21OpenDocument>) for sweeping alleged violations of the federal Clean Air Act and local regulations. The company agreed to pay the fines and clean up its act without admitting to the violations.

“Today's enforcement actions are a victory for human health,” Jared Blumenfeld, the EPA's regional administrator for the Pacific Southwest, said as the fines were announced Feb. 15. “San Joaquin Valley communities can now breathe easier as a result of the significant pollution controls won in these settlements.”

The EPA deems biomass a renewable energy source that benefits the environment and is carbon-neutral. The myriad products biomass plants burn — agricultural wastes, sewage sludge, manure — “are organic wastes that will continue to be produced by society,” EPA literature says.

Biomass plants emit nitrogen oxides and sulfur dioxide, though in lower quantities than at coal plants, the EPA said, and in varying amounts depending upon the type of biomass burned and generator used.

“Although the burning of biomass also produces carbon dioxide, the primary greenhouse gas, it is considered to be part of the natural carbon cycle of the earth,” says the EPA’s clean energy fact sheet (<http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html>). “The plants take up carbon dioxide from the air while they are growing and then return it to the air when they are burned, thereby causing no net increase.”

Wave of U.S. construction

The Biomass Power Association — whose slogan is “natural energy, naturally” — stresses environmental and consumer benefits that include “improving forest health, protecting air quality, and offering the most dependable renewable energy source.”

Such assertions, coupled with big pots of federal money made available to spur the industry’s expansion, have fueled a wave of construction from Georgia to Massachusetts to Washington state — along with a strong reaction from citizens.

Many communities, already wary of earlier industrial growth that fouled their water and air, are pushing back, even as Washington opts to aggressively promote the industry. The growing controversy underscores challenges facing renewable technology that is being pushed by the Obama administration.

“I’ve been an environmental activist over 30 years and I’ve never seen a grassroots movement backlash against anything like this,” said Margaret Sheehan, an attorney with the Biomass Accountability Project, which is fighting plants nationwide.

The pitched battles focus on an industry that counts some 100 plants in 20 states, with critics saying as many as 100 more are on the drawing board. Typically located in rural areas, biomass plants provide some 2 percent of the nation’s energy, the Department of Energy estimates — a share that could potentially reach 15 percent by 2020.

There’s big money behind the science.

The biomass industry association launched a \$250,000 marketing blitz in 2009, in part, to push Congress to continue handing tax incentives to plants looking to rise or expand. And members of Congress brought political muscle to bear, pushing the EPA to support the industry last year as EPA signaled a move to reclassify biomass emissions and treat them the same as fossil fuels.

“Recycling wood waste from our national forests to produce local, clean energy and create rural jobs is a no-brainer,” Oregon Rep. Peter DeFazio, a Democrat, said last June (http://www.defazio.house.gov/index.php?option=com_content&task=view&id=589) as 63 members of Congress from both parties, pressed EPA Administrator Lisa Jackson. “But these efforts have been undermined by pressure from misguided environmental groups on EPA to classify renewable biomass as a pollutant on par with dirty coal.”

Democratic Senators Max Baucus of Montana and Jeff Merkley of Oregon were among others to press Jackson.

“In Oregon and Montana, the use of biomass products in energy applications will create jobs and stimulate economic development,” the senators wrote (http://baucus.senate.gov/?p=press_release&id=292) on Jan. 4, 2011. “As you know, we are very concerned that the Agency’s treatment of biomass in the tailoring rule may inadvertently stymie growth in the biomass industry, putting U.S. jobs at risk in the coming months and preventing greenhouse gas emissions reductions that would otherwise be achieved.”

Opponents have managed to halt several proposed plants — including one in Tallahassee whose financial arrangement they said would benefit political insiders. (A grand jury review found no wrongdoing.) Yet the

larger battle has been won by industry, which argues that troubles involving plants such as those in Tallahassee and California's San Joaquin Valley are not emblematic of the industry's record as a whole.

Industry gains delayed study of health impact

The biggest victory for the biomass business came Jan. 12, when the EPA announced (<http://yosemite.epa.gov/opa/admpress.nsf/0/4369C709163915B485257816005971BB>) it would put off, for three years, a decision on whether biomass greenhouse gases should be regulated under the Clean Air Act.

In the meantime, the EPA said, local governments should conclude that "the use of biomass as fuel is the best available control technology for" greenhouse gas. That decision followed the political outcry from some in Congress.

"We think EPA is clearly listening and being sensitive to the science of biomass," said Bob Cleaves, president and CEO of the Biomass Power Association. "They recognized there are benefits associated with that kind of fuel."

That deferral comes as health organizations have raised red flags. The North Carolina Academy of Family Physicians said the "burning of poultry litter and wood wastes creates emissions of particulate matter that research has shown increase the risk of premature death, asthma, chronic bronchitis, and heart disease."

"Burning biomass could lead to significant increases in emissions," the American Lung Association wrote Congress in 2009, "and have severe impacts on the health of children, older adults, and people with lung diseases." In Western Massachusetts the same year, the Hampden District Medical Society spoke out against a wave of proposed plants, noting that the ALA had rated air quality an F. "To allow any extra amount of pollution into our already tenuous air would be similar to throwing gasoline on a fire," wrote Medical Society President Dr. James K. C. Wang.

The EPA will explore the varying viewpoints on an issue so divisive the agency received 7,000 comments in a call for public input, Administrator Jackson announced.

"The agency intends to use this time to seek further independent scientific analysis of this complex issue" involving carbon dioxide emissions, the EPA said. "Seeking advice of federal partners, states, a diverse group of expert scientists including industry and other stakeholders, and an independent scientific panel, will help to determine how these emissions should be treated under the EPA's air permitting program."

As she announced the three-year deferral, Jackson wrote back to members of Congress who had just challenged her agency, reminding each official of "my prior commitment to exercise whatever discretion the Clean Air Act affords to avoid discouraging the use of renewable, domestically produced fuel in power plants and factories."

Substantial subsidies trigger a 'gold rush'

The industry won another crucial fight last year, part of a successful lobbying campaign for Congress to extend construction tax credits that can cover up to 30 percent of a project's cost. The industry's \$250,000 public relations campaign stressed job creation, greenhouse gas reduction — and continuation of the so-called 1603 tax credit program, where tax credits are converted into dollars companies can pour into construction.

"Just like every other renewable energy ... biomass plants will not get built without government subsidies, and that includes tax incentives," said Cleaves, who heads the pro-industry group. He said the ultimate success depends on availability of fuel, and the long-term power agreement.

In December, the Biomass Power Association joined the American Wind Energy Association, Solar Energy Industries Association and others in lobbying Congress to continue the program. Without that financial lifeline, “we will experience a significant slowdown in the renewable energy industries, resulting in the loss of American jobs.” The credit could help bring 20,000 new jobs in the wind industry, 25,000 in solar and thousands in the biomass and hydropower sectors in 2011, they said.

Biomass plants have collected \$116 million in federal subsidies to help expand current facilities or build new ones, according to a spreadsheet of allocations provided by the Biomass Power Association. It said two grants were for new plants, and 27 for existing operations, and that biomass comprises a small portion of all 1603 energy awards.

Yet that figure only reflects grants awarded to date, not projects in the works, and the actual federal payout will rise significantly. One Vermont biomass project alone seeks to pocket \$52 million in government aid; failing to land that recovery money, a company attorney wrote, “will significantly complicate the project’s financing.”

“This whole thing has become a sham and at this point is turning into an incredible fraud because we’re going to ask taxpayers to spend a huge amount of money to produce dirty energy which is a health problem,” said Dr. William Sammons, a physician who is part of the Biomass Accountability Project and has traveled the country fighting proposed plants.

Grassroots opponents say more than 100 biomass plants are now on the drawing table across the country, most looking to cash in on the 1603 program. The industry said it did not have a firm figure, but said many more are proposed than will actually be built; the EPA did not respond to requests to provide hard figures on project proposals.

“It’s a huge gold rush,” said Mary Booth, co-founder of the Massachusetts Environmental Energy Alliance. “The 30 percent reimbursement of construction costs is massive.”

Booth co-wrote a report titled Clearcut Disaster: Carbon Loophole Threatens U.S. Forests, (<http://www.ewg.org/clearcut-disaster>) which argues the plants are not carbon neutral. “This Enron-style accounting makes a glaringly false assumption, that burning trees and other biomass fuels produces zero net carbon emissions,” the report concluded.

Booth called the EPA’s three-year study period “a total industry giveaway,” and added: “They’ve got plenty of science right now to do what they need to do.”

The EPA said it needs that time to effectively come to conclusions.

Duke's joint venture faces backlash

The industry sees the issues through a different lens than its critics. “Where some see sticks and debris, we see a sustainable energy solution,” says Adage LLC, a joint venture of Duke Energy and Areva, on its website (<http://adagebiopower.com/>). Duke Energy is one of the country’s largest electric power companies, and Areva, with 50,000 employees, describes itself as a “global nuclear industry leader ... expanding considerably in renewable energies.”

In Florida and Washington State, Adage has been embraced by politicians and chambers of commerce — but has sometimes faced backlash from residents. Two of its three projects have been shelved, and a third is on hold.

Last year, the company withdrew a 50-megawatt facility pitched for Gadsden County, Fla., after concern the

plant would be less than a mile from an elementary school in the mostly black county. “It is unconscionable that incinerators are allowed to be built in close proximity to where we sleep, go to school, church, play and seek medical care,” James E. Maloy Jr., president of the Concerned Citizens of Gadsden County, wrote Florida Democratic Sen. Bill Nelson and others.

Adage secured permits in nearby Hamilton County for a 55-megawatt plant to convert clean woody biomass into electricity. Adage initially wanted to build both Florida projects, spokesman Tom DePonty said, but concluded just one was viable and that community criticism was not why it pulled back in Gadsden. Still, the Hamilton County project is on hold until a power contract is signed.

In Washington State, citizens launched a recall petition against two political supporters of a planned 58-megawatt Mason County project, saying the Adage plant would trigger the release of greenhouse gases and toxic chemicals. “This is a very small group led by certified kooks,” one of the targeted politicians told (<http://www.theolympian.com/2010/05/02/1225448/mason-biomass-project-generating.html>) The Olympian. “I think most people in Mason County are very interested in what Adage can do for our community.”

In March, Adage said it was canceling the project because of market conditions. “In each situation there’s always going to be a vocal portion of the population that may make noise in opposition to a project, but really it’s about understanding what the fundamental purpose of the project is,” DePonty said.

In Tallahassee, a biomass plant proposed by another company was withdrawn in 2009 as a grand jury planned to review the financial ties between the wife of Florida State University President T.K. Wetherell and Biomass Gas & Electric, which planned to erect its facility on university property. Virginia Wetherell, who had previously served as a state legislator and headed the Florida Department of Environmental Protection, had formed a company with a project backer, public records show.

“It became apparent to the Wetherells that an appearance of impropriety was evident,” the grand jury wrote. Ultimately, Virginia Wetherell withdrew her financial interest in the BG&E project, and her husband withdrew from negotiations. The grand jury determined no laws were broken.

A month before that ruling, the \$150 million BG&E project was abandoned. That postscript chagrined the Greater Tallahassee Chamber of Commerce, but was endorsed by residents of the mostly minority neighborhood for which the project was targeted. “The community where it was going was very much opposed, and the city commissioners were feeling the heat, and the company just decided they weren’t welcome here,” said David Ludder, a Tallahassee attorney who helped residents fight the project.

The industry’s Cleaves said plants now operating “are enthusiastically and universally embraced.” But he acknowledged opposition has been mounting against others proposed.

Critics rally to 'debunk biomass'

North Carolina’s Blue Ridge Environmental Defense League this year launched a multi-state tour to “debunk biomass,” coinciding with the January release of a report entitled *Smoke and Mirrors* (<http://climate-connections.org/2011/01/28/smoke-and-mirrors/>).

One of its key case studies: A sludge and wood-fired plant planned in Valdosta, Ga.

There, Wiregrass Power LLC is pressing ahead with a \$110 million plant that received hearty support in 2009 from Georgia’s then-Gov. Sonny Perdue. The 40-megawatt facility would create 25 jobs and invest \$110 million over three years, announced (http://www.georgia.gov/00/press/detail/0,2668,78006749_148266833_148727759,00.html) the governor, who said Georgia’s “business-friendly environment” welcomed Wiregrass Power.

The facility is rising on 22.1 acres next to a wastewater treatment plant, with commercial startup eyed for 2013. Electricity will be sold to Georgia utilities, with the plant powered by “clean wood waste that would otherwise go unused and sludge from the nearby wastewater treatment plant. . . . Wiregrass will prevent disposal of that same volume of sludge in landfills, creating an additional environmental benefit,” the company said.

Leigh Touchton, president of the Valdosta-Lowndes NAACP, said the plant would harm a county already choked by toxins and on the EPA’s watch list of polluted communities. Her NAACP chapter has called the plant “a clear-cut example of environmental racism.”

“The incinerator is sited within 2 miles of 2 predominantly black elementary schools, 7 large black churches, a predominantly black assisted living facility which serves over 60 families, 2 predominantly black Head Start programs, two huge apartment complexes that are predominantly black, and Valdosta’s most upscale black residential community,” she wrote to President Obama in September.

Touchton said the community, there first, has been powerless to stop industry’s expansion. “There is no question these pose an enormous public health risk,” she said.

“Ultra-fine particles released from these plants, they cannot be captured by the scrubbers. They are too tiny, they pass through,” Touchton said.

Bob Turner, Wiregrass’s director of project development, said the project will be as green as advertised. “We’ve addressed all those issues in public forums many times. And I guess you just say we disagree with what they say,” Turner said.

Fouling the air in California

In California’s agricultural belt, the two Global Ampersand plants opened in 2008 with the promise of environmental benefits through the burning of woody waste from farms and cities.

Yet even before their opening, allegations of shoddy workmanship dogged the refurbishments of plants that had long lain dormant before their new lives as biomass facilities, according to a lawsuit Global Ampersand LLC filed in 2007 against its general contractor.

That suit, filed in federal court in Fresno, cites an eye-opening series of breakdowns in the \$12.6 million renovation projects. In all, Global cited 26 “failures, breaches, and misrepresentations” by contractor Crown Engineering and Construction, Inc., the lawsuit shows — listing them from A to Z.

Among them: Crown failed to properly pour cement when setting the foundation at one plant. “Substandard” welding and other work caused delays and more repairs. Wires were improperly labeled, compressed air connections improperly installed. Unskilled workmen were hired, including an electrical foreman “who had no prior experience in the kind of work required.” Crown intentionally concealed the deteriorated condition of one plant’s economizer, forcing it to “rebuild the economizer on the fly.” Global Ampersand said it had to hire another contractor to finish the job, pushing the opening back to 2008.

Crown denied the allegations and contended problems were the result of Global’s “negligence.” In November 2009, the case was settled. Crown attorney Michael A. Peters said the settlement included confidentiality provisions and that he could not discuss the case.

Even with that legal matter closed, problems festered under Global’s watch. Court papers filed this year by the U.S. Department of Justice and San Joaquin Valley Unified Air Pollution Control District paint a portrait of sister plants fouling the air and flouting environmental protection laws.

The plants emitted nitrogen dioxide, sulfur dioxide, carbon monoxide, ammonia and particulate matter in levels exceeding permit requirements many times, court records show. All the while, they failed to submit a proper emissions control plan, emissions source tests or audits to the California pollution control district. They didn't install systems meant to control emissions of harmful pollutants, and failed to submit quarterly reports detailing "the data and magnitude of excess emissions at the facility."

The air pollution district filed 38 notices of violation against the plants in a two-year stretch from 2008-10, 23 against Merced Power LLC and 15 against Ampersand Chowchilla Biomass LLC. Under consent decrees, Merced Power paid fines of \$492,000, and Ampersand Chowchilla \$343,000. Each must install improved air monitoring devices and minimize emissions.

Earlier this year, Global Ampersand sold the two California plants to Akeida Capital Management, LLC, which had been among the complex's investors.

"We no longer own the company," Eric Shumway, who was Global Ampersand's chief operating officer, told iWatch News. "I think I'm just going to take a no comment here." Pressed about the violations, Shumway said: "There's a lot of misinformation that has been painting biomass in a bad light." Asked in a second call about the lawsuit, Shumway said: "I would like to be able to talk to you. I don't think it would be helpful."

"Unfortunately, we didn't own the plant at the time of the violations, so we don't have a comment," said Akeida Capital Management spokeswoman Marisa Harary.

The Biomass Power Association portrayed the fines as an isolated incident involving plants not in its organization. "Like any other industry, you will occasionally see a few cases where rules are ignored or not followed explicitly. These cases are by no means indicative of the larger industry," said spokeswoman Carrie Annand.

Yet to others, the Clean Air Act violations pose real questions. What made the plants green, said environmental chemist Wilma Subra, was the fuel source — burning wood as opposed to coal or gas. But with the pollution controls lacking, Subra said, the case shows that biomass plants can be equal polluters.

"The emissions were over the limit, and as soon as they are over the limit that means they are having an impact, definitely, on the communities around them," said Subra. "They are using wood as opposed to coal, yet the emissions from these facilities are comparable to emissions to plants that would use coal or natural gas. They're not doing their due diligence unless the agencies lean on them."

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your two cents

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A site in St. Paul, Minn., uses yard and lumber waste to create energy (2006 photo).