

I find this puzzling at best as European emission standards are much more stringent than U.S. ones.

I am not quite sure what this means to Local Energy's efforts or the Santa Fe environmental community. As a professional engineer with extensive experience in emissions from combustion systems, I am certain that a biomass-fueled cogeneration plant can be designed that is environmentally acceptable as far as both gaseous and solid emissions. As I said earlier, the devil is in the details, and I urge Local Energy and the Santa Fe environmental community to sweat the details.

A second concern regarding biomass-fueled cogeneration plants regards the total-cycle energy efficiency of this process. When one considers all the energy inputs into cutting, harvesting, chipping, transporting and burning biomass, it is not immediately obvious that it would not be more efficient to simply fire the cogeneration plant with Wyoming low-sulfur coal, as was done in my father's time. I urge Local Energy to take a total-energy cycle look at the implementation of biomass-fueled cogeneration in this locale using the methodologies pioneered by Tillman Gerngross of Dartmouth. It may well be that a wood-chip-fired central heating plant is a wise choice for Santa Fe and local energy independence, but I would like to see the analysis before investing. Total-cycle energy analysis frequently results in contraintuitive conclusions such as the conclusion that fuel ethanol is a net energy waste.

In conclusion, thank you for your informative publication. I hope I have added some light to the study being conducted by Local Energy.

- Edward E. Timm, Ph.D., P.E., retired senior scientist, Dow Chemical Company

LOCAL ENERGY'S RESPONSE TO TIMM

Thank you for your letter and for sharing your concerns regarding dioxin emissions and life-cycle energy from our proposed biomass energy plant in Santa Fe.

It is first important to highlight the difference between trash incineration, which could loosely but correctly be termed "biomass combustion," and our proposed utilization of forest biomass for high-efficiency heating. The problem you cite of dioxin formation while burning trash and urban wood-waste using single-stage, low-efficiency combustion processes is well known. Comparing such a process to our project, however, is misleading. Dioxin formation during the combustion of untreated forestry wood can occur, but only in quantities that are orders of magnitude lower than for urban waste, even before optimization of the combustion process.

To ensure that our project will provide the greatest possible environmental benefits, we have selected Dr. Ingwald Obernberger and BIOS Bioenergiesysteme of Graz, Austria, to design and optimize the combustion system. With their depth of experience on more than 500 biomass energy systems and Dr. Obernberger's 13 years of postdoctorate research on optimization of biomass combustion, we believe we have chosen the world's most capable firm for the task. Obernberger's work with computational models of biomass-combustion processes is known to be one of the most significant achievements ever for improving our understanding of biomass combustion. His models have enabled optimization of two-stage combustion techniques, in which primary and secondary combustion-air is injected to ensure complete combustion of the fuel. Complete combustion is essential for maximizing energy efficiency and limiting the formation of toxic emissions, including dioxins. More than 400 references to Dr. Obernberger's work in this field can be found with a Google search on the keywords Obernberger, biomass and combustion.

Your second point regarding life-cycle energy is an important one, and I have studied, written and lectured on this topic at length. The biomass project in Santa Fe was created, in fact, in response to the problem of declining net-energy production from oil and natural gas. As these industries mature, we

expend ever greater effort to obtain less and less useful energy, and the implications are sobering. Since the decline is inexorable and it accelerates as these resources deplete, it is clear that we must find alternatives. Yet renewable energy technologies tend to require a relatively large expenditure of effort in proportion to the useful energy they produce, which hinders their effectiveness as substitutes. Biomass energy from forest thinning turns out to be one of the more promising alternatives, however, with life-cycle energy analyses showing high net-energy production - even accounting for the energy you speak of to cut, chip and haul the fuel. We will further this research during the demonstration phase of our project, for which we have teamed up with a research group at Boston University that has been involved in such net-energy analysis for more than 20 years.

I hope that this additional information has helped to allay your concerns and that you will continue to follow our progress by visiting www.localenergy.org. Thank you again for your interest in this vital topic.

- Mark Sardella, P.E., executive director, Local Energy

MAD COW, GMOS AND FOOD

The public response to the recent Mad Cow scare indicates to me that we are not informed about the situation. Most of this is due to the media and the corporations that would have us believe that we are safe. This is a blatant falsehood. Why is it that the European Union boycotts U.S. beef and labels genetically modified foods and most other countries on the planet are more informed about GMOs and either boycott or label them? Our food system in the U.S. is in a continual process of being assaulted by corporate profit-centered production, and we are the guinea pigs. We pay for this oppression in the supermarket, and these conditions will open the way for medical complications for which we will pay a second time, as we have in the past. We deserve better; our children deserve better.

- Layne Hartsell, Santa Fe

PROFILES IN DECEIT

If we were to engage in some profiling and believed that George W. Bush as a boy burned alive and tortured frogs; gave his college girlfriend an abortion; paid people to take his college tests for him using his SSN; used his dad's influence as a congressman to get into the "Champagne Unit" of the Texas National Guard, then deserted; failed or bankrupted every company he started; unfairly profited from land deals of the Texas Rangers; suffered brain damage from years of alcohol and cocaine abuse - then the following fits this pattern of deceit: the War with Iraq was planned by the Project for the New American Century in 1998; the intelligence briefing of August 6, 2001, on Al Qaeda that went to the president was deliberately ignored; the woman Air Force lieutenant colonel in charge of intelligence information on Iraq was removed and replaced with Dick Cheney's people; and as Paul O'Neil says about starting the war on Iraq in his book, *The Price of Loyalty*, "It was all about finding a way to do it. That was the tone of it. The president saying 'Go find me a way to do this.'"

- Enrique Montoya, Santa Fe

[return to home page menu](#)

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