

California Energy Commission  
Dockets Office, MS-4  
Re: Docket No. 10-ALT-1  
1516 Ninth Street  
Sacramento, CA 95814-5512

**DOCKET**

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DATE

RECD. JUNE 03 2011

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Dear Commission Members,

The draft report provides a good understanding of the status of various technologies available today. However, with rapidly advancing changes in the field of gassification technology and newer forms of syngas conversion technology the indication of opportunities for greater gains are not as current as they could be. The energy conversion capabilities of gassification are much greater than the 500kwh/ton indicated and are now reaching levels of 1.5MWh/ton depending on feedstocks used. In addition the immediate by-products in addition to the electrical generating potential include carbon char, molecular hydrogen and methane both derived from carbon neutral resources. These by-products are deliverable today but could be greatly enhanced by more adequate and cost effective delivery systems.

Improvements in syngas conversion technologies are also lowering the cost of fuels produced by these processes. Improvements in Fischer-Tropf based processes are greatly increasing the efficiency of these systems in the production of diesel type fuels that are inherently much cleaner than petroleum and bio-based products. Depending on the process used, more highly refined products such as cleaner burning jet fuel can also being produced. In addition, processes on a commercial scale exist for producing very sweet (low sulfur) green crude that is much sought after as a blending agent by any existing oil refinery.

The barriers to deployment of advanced technologies come more from the political landscape than the technological arena. Many of the advanced technologies inferred are available today, are immediately deployable on a commercial scale, and in most cases are self supporting even without government funding or government mandated or encouraged incentives that are commonly available to other "renewable" energy technologies.

Some of the difficulty as regards delivery of electrical energy to major utilities is their reluctance to use de-centralized sources of electrical energy that create noise in their transmission systems and create bookkeeping headaches that are not such a large problem when dealing with giga-watt generating facilities. The cost point that they seem willing to pay is not reflective of the environmental cleanliness and benefit of these resources. Gassification technologies besides being carbon neutral and a great means for handling other waste disposal issues, is proven cleaner than natural gas yet the price to be paid by electrical transmission companies and larger utilities is more like that paid for coal.

However, the greatest barriers lie at the legislative level and any efforts to advance technologies must correct for the influence that defeated AB 222 two years ago. The vested interests of landfill operators are at risk with the disruptive technology that gassification represents. Cellulosic fermentation, anaerobic digestion, used vegetable oil conversion and even agricultural waste and silage conversion pose little or no challenge to their business plan. Gassification, however, does. Nearly every amount of landfilled material especially in California can be diverted to gassification systems. If it's organic it can be converted. That includes plastics that can be recycled but need not be if the by-products of gassification prove to be a more efficient and affordable use. Sewage sludge, wet organic waste, paper soiled or otherwise, tires, agricultural waste, wood construction waste, green garden waste and even plastic elements of e-waste can be processed. If the material is separated before processing, the conversion process can be engineered to operate more reliably but in fact is not absolutely necessary. When factoring the costs of transporting and separating waste streams cities and counties can approach zero landfill almost immediately without expensive infrastructure changes.

With all these advantages, why aren't cities and counties pursuing the technology? Partly they are not fully aware of the advancements in gassification, and partly they hold to prejudices that equate gassification with older forms of incineration technology. The facts and data clearly show the emissions of gassification, the economics and the advantages to diversion as better than any other alternative approach available. Still, local agencies and state legislators have been aggressively lobbied to turn away from these technologies partly because they have not been as well proven commercially as technologies that have been deployed for decades. Still, that is the way with every emerging technology and it is prudent for state and local agencies to be cautious in supporting such advances.

However, the investment market is ready to support these technologies and is willing to build, operate and maintain these systems at no cost to the local governing bodies. The only commitment needed is to dedicate a reliable waste stream to the conversion facilities and everything else is taken care of. No bonding requirements, no power purchase requirements, and no funding guarantees are needed to establish and advance these types of projects. All that is needed is a dedicated waste stream and the local jurisdictions get nearly 100% diversions from landfill, they can be provided with alternative fuels usually at a discount, and there is a substantial reduction and even capturing of carbon entering the atmosphere.

What's not to like. Well, if you're a landfill operator, a great deal. If you have invested billions of dollars in land purchases, earth moving equipment, engineering expertise and you happen to be enjoying significant profits from those investments you can see where this type of disruptive technology could threaten your business plan. You would dedicate a great many political, public relations, and legal resources to protecting your investments and they have.

I would argue that waste conversion technologies be advanced to the most important means for developing alternative fuel and energy resources. Based on the currently commercially available technologies that are available from waste conversion, how it can create alternative

energy more effectively and more efficiently than any other means possible (except large scale solar thermal), can help solve other significant environmental problems from carbon capture and CO2 methane reduction, to minimizing landfill disposal, there are few technologies that deserve to be championed as much as these.

Like with many other critically needed technologies, California has lost a leadership position in the development and fostering of waste conversion. Our hearts have long been in the right place in focusing on recycling and other expensive ways to minimize landfill disposal, but we have been blinded by such efforts to the virtues of simpler solutions. The reality is that waste conversion need not compete at all with existing diversion efforts. It can handle whatever is left. However, I believe that, in time, the efforts to recycle may prove less cost effective, cannot provide as many benefits and needed products and is more easily adopted by agencies that have not yet made as extensive a commitment that conversion will win out over other efforts to divert. Still, I am not against recovering any resources, but simply think that converting them effectively and efficiently to products increasingly in demand is more sustainable. The costs associated with these efforts are also taxing our States citizens with higher than average collection and disposal fees. If we could find a way of reducing that burden, wouldn't that also be in their long term interests.

I have written this response as a broad brush position and many statements have been made in its support. I have a significant amount of detailed support data and information to validate these statements and I would be happy to provide it to you. My only hope is that you give these arguments some consideration in advancing the interests of all Californians.

Sincerely

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