

## Alter NRG CEO Sets Record Straight on MSW Plasma Gasification

With questions being raised about plasma gasification of municipal solid waste (MSW) for waste-to-energy (WTE) projects (*see related story, this issue*), one of its leading proponents – Alter NRG/Westinghouse Plasma – aims to set the record straight.

“I really welcome the chance to talk about this,” Alter NRG CEO Mark Montemurro told *Gasification News* in an exclusive interview.

Two key questions being raised about plasma gasification of MSW center around whether the technology is commercially proven for MSW at large scale, and whether it has unresolved environmental air-emissions issues.

On the first question – commercial experience – Montemurro pointed out that two commercial Westinghouse Plasma plants have been operating in Japan for more than five years.

The Utashinai plant (200-280 tonnes per day of MSW or a combination of MSW and auto shredder residue at a rate of 165-190 tonnes per day).and the Mihama-Mikata (22 tons/day of MSW including 4.8 tonnes of sewage sludge) both have plenty of commercial experience, he pointed out.

What’s more, these plants are operating in urban environments, in a country with emissions standards that are “equal to or greater than those in the Western Hemisphere.” This experience ought to silence at least some of the more extreme speculations about “toxic” emissions raised in certain news reports in Sacramento (*see related story, this issue*).

One of the Japan plants “takes MSW and auto shredder residue with a higher composition of metals and nasty plastics, and both plants meet Japan emission standards,” without causing the supposed life-threatening emissions cited by a retired professor quoted in a Sacramento news report.

In Japan, Hitachi provides otherwise-confidential emissions data to government authorities to ensure that neither the population nor the environment are threatened by the plant operations, Montemurro points out.

“We’ve got most of that data” thanks to a cooperative agreement between the Canadian Embassy and the Japanese government, he pointed out.

Beyond that, two leading consulting groups – Golder Associates and Juniper Consultancy– have reviewed the data and provided summaries to Sacramento WTE proponent U.S. Science & Technology (USST), he said.

“We don’t give out detailed information because the Japanese government requested that we not,” he said.

Asked whether Alter NRG would consider providing the data to U.S. EPA and California Air Resources Board (CARB) under an appropriate non-disclosure agreement, Montemurro told us: “I’d be supportive of that.”

While CARB has a reputation for enforcing some of the world’s toughest air emissions regulations, Montemurro responded that Massachusetts Dept. of Environmental Protection (DEP) has a similarly tough record. “When NRG Energy got Massachusetts DEP approval [for a plasma gasification repowering project at Somerset, now pending appeals], they were no pushovers either,” Montemurro told us.

“There’s another aspect to this. When we go in and design a project, we’ll meet or exceed regulatory requirements [in the area] and we’ll have appropriate disclosure” on emissions, he said.

As for charges raised in the *Sacramento Bee* story on two independent experts who testified to a Sacramento City panel hearing on the proposed plasma gasification WTE project (which would use Alter NRG technology), “we had a company representative who talked to the [*Bee*] reporter and they chose to ignore our input,” he said.

What’s more, Alter NRG provided “no financial compensation” to Georgia Tech plasma expert Lou Circeo, despite claims in the report of “financial ties” between him and the USST project.

What's more, Alter NRG no longer has a joint venture with Geoplasma, which at one time was in talks with USST on the Sacramento project.

"We mutually decided to wind that down and we were never paid by them [Geoplasma]," Montemurro clarified.

As for the *Bee's* attack on Circeo's credibility, "you get guys who build their career on science and then you get that kind of public slamming. I'm dismayed by all of that," Montemurro said.

As for suggestions that plasma gasification somehow could cause undiscovered, dangerous, toxic emissions, Montemurro said: "We're a publicly traded company. Why would we sell technology that would harm people? It's incredibly important for us to have projects that solve [environmental] problems, not create problems."

As for suggestions that plasma gasification WTE plants lack enough evidence of financial viability, Montemurro said that experience in Japan, plus new plants coming on-line in India and Turkey, will help explain the financial case.

Three crucial variables will affect the cost and profitability of such plants: Waste tipping fees, energy sales revenues and scale, he said.

With smaller-scale plants, higher tipping fees are required, he explained.

With larger plants, lower tipping fees can be possible, assuming the energy sales can also cover costs.

In Sacramento, tipping fees would be around \$50/ton, while power prices would be relatively high in part because of "green" power standards in the state, he said.

While Alter NRG is principally a technology provider of plasma gasification, it's also building relationships with project developers that are "well-recognized internationally," he said.

"We won't build projects that damage their brand recognition," he said. The company hopes to have three to six such projects moving forward in the near future, he added.

On a related front, UK-based consultant Juniper just completed a new report titled "Juniper's Review of the Alter NRG Westinghouse Plasma Gasification Process."

The review, provided by Alter NRG to Gasification News, says that the Westinghouse process and experience "convey a significant commercial advantage relative to some of Alter NRG's direct competitors."

Data generated from the Japan plants plus Alter NRG's pilot test facility in Pennsylvania "means that while others are striving to run that first demonstration of their process, Alter NRG has moved on to design a '2<sup>nd</sup> generation' reactor."

However, "there will be a technical risk associated with the scale-up of the gasification reactor" to much larger sizes, the report cautions.

However, Alter NRG's extensive computational fluid dynamics modeling study combined with tests at the Pennsylvania pilot plant "mitigate the risk" of the scale-up, the report adds.

While Hitachi reports it's pleased with the online availability of the plasma reactor, downstream units haven't been nearly as robust. New designs building on the Hitachi experience aim to overcome those issues, the report says.

As for Alter NRG's confidential economic modeling of an MSW WTE design, Juniper found the model to be "robust" and "realistic for the current market circumstances in North America."

However, "many of the core economic assumptions remain to be validated at an operational reference plant," the report adds.

What's more, there are as-yet-unknown project risks associated with integrating plasma gasification the other portions of a WTE plant, Juniper pointed out.

For MSW WTE, Juniper's analysis "indicates that there is a significant appetite amongst certain stakeholders around the world for plasma gasification plants to process MSW."

While Alter NRG "ultimately wants to implement an IGCC project to maximize energy conversion efficiency, they have stated their intent to use the steam cycle for the first few projects," the report says.

This explains the company's interest in the St. Lucie, Fla., MSW WTE project, which has been "re-focused" on a "lower risk implementation." – *Jack Peckham*