

M E M O R A N D U M

To: Michele Young

From: Jaqui Guzmán

Date: 1/6/2010

Re: Lessons Learned in Developing Municipal Conversion Technology Projects

Conversion technologies (CT) use carbon-based waste to produce clean burning fuel to generate electricity or a renewable fuel. These technologies recover more energy than the capture of landfill gas, while diverting the residual carbon-based waste resulting from recycling and composting processes from landfills. Given the City's ambitious Zero Waste goal, the Environmental Services Department is exploring conversion technologies as a key strategy for reducing post-recycling and post-composting residuals.

This memo presents findings and lessons learned from research on municipal waste conversion projects and interviews with lead project staff. These lessons learned will help inform the City's own process as it pursues CT.

Scope

I conducted basic internet research to identify municipalities that were actively pursuing CT projects. This included browsing government websites and reviewing reports related to municipal waste conversion projects. In identifying municipalities, I limited my research to North America and focused particularly on California because these municipalities face similar environmental and political circumstances as San José. In addition, I looked only at projects that used municipal solid waste (MSW) as feedstock. Given that this technology is fairly new and has yet to be developed using MSW on a commercial scale in North America, we identified only 17 municipal conversion projects.

Of the 17 municipalities I contacted, I was able to conduct ten interviews with lead project staff. (See Appendix A for full contact information and Appendix B for interview questions.) The chart on the next page briefly describes the CT projects initiated by the 17 municipalities we identified for this lessons learned memo.

Findings

In researching municipal waste conversion projects, reviewing project reports, and interviewing project representatives, a number of key findings and recommendations emerged.

As you can see in the chart on the following page, every municipality has a unique project and is at a different stage of development; however, I also discovered many similarities in what they described as their motivations, process, and challenges. On page 3, I describe six key findings from my research and interviews with municipal government representatives.

Municipalities Pursuing Conversion Technologies Project

Municipality	Project Description	Development Stage
<i>Interviewed</i>		
City and County of Santa Barbara	Pursuing the development of a conversion facility at Tejiguas landfill. They are open to all conversion technologies.	RFP released
City of Los Angeles	Developing a plan to process MSW with waste-to-energy and conversion technologies.	Selecting vendor, Selecting project site
City of Sacramento	Abandoned plasma arc gasification project. Developing a strategic plan for a waste technology park that will feature multiple conversion technologies that convert MSW into energy.	First project abandoned, Strategic planning for second attempt
City of San Diego	Included a conversion technologies evaluation within Long Term Resource Management Options Strategic Plan. Taking a “watch and see others” approach before taking the next step toward developing a project.	Preliminary evaluation, No project planned
City of Tallahassee	Vendor approached municipality with a plasma arc gasification proposal for MSW. Power Purchase Agreement approved in 6.2007. Currently identifying sites, but estimating that facility will be operational in 2013.	Power Purchase Agreement signed, Selecting project site
City of Toronto	Anaerobic digestion facility using BTA as vendor.	Vendor selected
County of Santa Cruz	Approached by an interested vendor but negotiations fell apart because vendor lacked sufficient data on environmental impact and opposition from environmental groups.	Project abandoned
Lee County Solid Waste Division	Sought a public-private partnership to generate energy from fats, oils, and greases (FOG); however, the project was abandoned. Will possibly continue as private initiative.	Project abandoned
Los Angeles County	Developing demonstration projects with three short-listed vendors—IES (pyrolysis), EnTech (gasification), and Aerobio (anaerobic digestion)—with the goal of developing a commercial-scale project.	Shortlisted vendors, Selecting project site
New York City	Identifying a site for CT project through a siting task force. Planning to release an RFP in 12-18 months. Have yet to identify a technology.	Selecting project site
Saint Lucie County	Developing plasma arc gasification facility on landfill using GEOPLASMA as vendor.	Permitting
Salinas Valley Solid Waste Authority	Exploring projects with two vendors—Plasco Energy (gasification) and Urbaser (anaerobic digestion with gasification).	Initial vendor negotiations
<i>Not Interviewed</i>		
City of Huntsville	Developing plasma arc gasification project.	Unknown
City of Taunton	Developing conversion technology project to process 1,000 tons per day of MSW.	Unknown
East Bay MUD	Developing anaerobic digestion project.	Unknown
Orange County	Completed a comprehensive evaluation of conversion technologies.	Evaluation completed
City of Ottawa	Operating a 100 ton per day pilot plasma arc gasification facility since 2008.	Operational

- ***Most Projects Driven by Diversion Goals.*** Of the twelve municipalities we contacted, ten either had ambitious diversion goals or sought CT for purposes of waste diversion. These municipalities were generally driven by landfill closings, long-term strategic planning, or vendor interest. Only two municipalities were driven by the desire to produce energy.
- ***Projects Generally Follow Same Development Process But Steps Vary Widely.*** Municipalities have generally followed the same path in pursuit of CT; however, the steps taken along that path have varied widely. Most began with a general review of available CT with some analysis of the feasibility of developing a CT project in their communities. They subsequently moved on to strategic planning and more extensive technical analyses, and then sought vendor proposals. However, municipalities varied in when and if they shortlisted vendors or released a request for information. Some municipalities included public outreach from the onset, while others waited until much later in the process. They also differed in when each identified a project site.
- ***Speeding the Development Process Led to Failure for Some.*** Two of the twelve municipalities interviewed, Lee County and Santa Cruz County, followed very different paths. Regrettably, their attempt to speed the process led to failure. In the case of Lee County, it applied for a grant to develop a CT facility for purposes of generating energy from FOG without carefully analyzing the feasibility of the project. Later staff found that the collection infrastructure did not exist, meaning the county would need to enter the hauling business to make the project work. This led to public outcry and ultimately the county removed itself from the project and instead provided seed money for a private initiative. Likewise, Santa Cruz tried to speed the process by moving straight to negotiations when approached by an interested vendor. When faced with public opposition from environmental groups, it had no CT literature, feasibility study, or data on emissions to quell the opposition and the project was abandoned.
- ***Biggest Challenges Related to Misinformation and Lack of Credible Information.*** The most cited challenge faced by the municipalities I interviewed was misinformation and lack of credible information. Many municipalities faced fierce opposition from anti-incineration groups that claim thermal technologies are “incineration in disguise.” These groups mobilized to spread misinformation in communities considering CT. Some municipalities expressed frustration at not being able to counter claims that CT facilities would emit large amounts of dangerous emissions because good and reliable data on CT facilities is not readily available.
- ***UC Riverside Report Finds Acceptable Emissions.*** Better data on emissions is starting to emerge. UC Riverside recently released a report that found CT facilities worldwide are meeting emissions standards. They also found the vast majority of these facilities meet California’s rigorous emissions standards. Thus, they conclude that CT facilities could be permitted in the state. This study will no doubt help municipalities pursuing CT.
- ***Everyone is Learning as They Go.*** Municipalities pursuing CT are at the forefront and are continuously learning as they go because there is no clear path to success. CT is a very new technology for North America. According to a UC Riverside report released in

2009, there are only a handful of operational CT facilities (operating under research permits) in North America using MSW as feedstock. Of the municipalities I interviewed, none had an operational CT facility. St. Lucie County and Toronto, now in the permitting phase, are furthest along.

Best Practices in Municipal Conversion Technology Project Development

In assessing the feedback I received from municipalities, four messages stood out as the most important lessons that San José should keep in mind as it develops its conversion technology project. Below, I describe these four best practices.

- ***Stakeholder Outreach.*** Most municipalities I interviewed emphasized the importance of educating and engaging the community when pursuing CT. Community involvement was particularly important for municipalities in California, given the concentration of environmental groups concerned with the impact CT could have on air quality and the waste hierarchy. Those municipalities that have been successfully moving forward—the City and County of Santa Barbara, Los Angeles County, and Saint Lucie County—credit their success in large part to their early outreach efforts. Conversely, those municipalities whose CT projects have been thwarted by opposition, like the City of Santa Cruz, lamented not implementing a robust public outreach effort early on in the process.
- ***Realistic and Flexible Timelines.*** Every municipality I interviewed has experienced setbacks in developing CT projects. These setbacks have caused municipalities to extend their timelines, which can cause frustration among stakeholders. Thus, they expressed the importance of developing realistic and flexible timelines, as well as processes for dealing with project problems and delays.
- ***Strong Group of Advisors.*** Several municipalities valued the advice and contributions of advisory groups formed to help guide the development of CT projects. Most advisory groups included technical experts, such as professors or consultants, that provided expert technical support. Some advisory groups also included municipal leadership that could help champion the project and lobby other decision-makers. The City of Los Angeles, in particular, credited a councilmember for keeping the project alive despite numerous delays.
- ***Learn From Other Municipalities.*** More than a few municipalities suggested learning from the experiences of other public entities pursuing CT. Moreover, they suggested using existing resources, like technical work, if feasible, particularly if using the same consultant and/or vendor as another municipality.

Recommendations

The City should consider the lessons learned and best practices gleaned from other municipalities as it moves forward with the development of CT in San José. With this memo, the City is already taking steps towards learning from the experiences of other municipalities and

taking stock of available resources. However, the City currently is moving forward on CT efforts with very limited stakeholder outreach and an undefined project development process, which can lead to difficulties as the City moves forward. Below, I present five recommendations to help the City avoid some of the pitfalls other municipalities have experienced in pursuing CT projects.

- ***Use Existing Negotiations and Planning to Begin Community Outreach.*** Understanding that the City has limited resources, the City should consider requiring Greenwaste Recovery to hire a public relations firm or fund a part-time community outreach position as part of the lease negotiations. This requirement should also be considered for any CT RFP. Additionally, the City should take advantage of the current Plant Master Plan process to educate the community on conversion technologies that could be located on the Plant in the future. To minimize efforts, the City could borrow from existing outreach campaigns from municipalities identified in this memo.
- ***Consider Forming a CT Committee.*** The City should also consider forming a CT Committee to help champion and guide the City's CT efforts. This committee should be composed of ESD staff, CMO staff, Councilmember staff, and technical experts in CT. Such an advisory committee could help the City face bureaucratic, political, and technical challenges.
- ***Further Develop the City's Conversion Technology Strategic Plan.*** Rather than move forward with grants and vendor negotiations, the City should step back and fully develop its Conversion Technologies Strategic Plan. While staff already has a draft, this could be the CT Committees first task. Having a well defined strategic plan backed by leadership will help facilitate stakeholder engagement and guide how the City pursues CT.
- ***Create a Project Development Manual for CT Projects.*** Prior to pursuing CT, the City should create a project development manual to help guide the development of CT projects. This manual should include step-by-step instructions, including local, state, and federal requirements for these types of projects. It also should link these requirements with appropriate lead departments. Such a manual will require substantial staff time and collaboration with relevant departments like the City Manager's Office, Attorney's Office, General Services (Real Estate), Planning, etc. This manual could be developed as the City navigates through the current 9-Par negotiations.
- ***Use Existing Technical Analyses, If Feasible.*** Extensive analysis of CT technologies, permitting issues, and other CT-related issues already exists. The City should avoid duplicating these existing resources. For example, many of the vendors submitting proposals for a CT project in San José may have submitted proposals to other municipalities. If a technical analysis of these vendors' technology already exists, there is no need to hire a consultant to duplicate that analysis. The City can simply review the existing analysis.

Appendix A: Contact Information

Municipality	Contact	Phone	Email
City of Los Angeles	Miguel Zermeno	(213) 485-3611	miguel.zermeno@lacity.org
Los Angeles County	Coby Skye	(626) 458-5163	cskye@dpw.lacounty.gov
East Bay MUD	Sophia Skoda	(510) 287-1542	sskoda@ebmud.com
Salinas Valley Solid Waste Authority	Susan Warner	(831) 775-3002	susanw@svswa.org
City of Huntsville, AL	John "Doc" Holladay	(256) 880-6054	doc@swdahsv.org
Lee County Solid Waste Division	Keith Howard	(239) 533-8917	
City and County of Santa Barbara	Carlyle Johnston	(805) 882-3617	cjohnst@cosbpw.net
City of Sacramento	Edison Hicks	(916) 808-4949	EHicks@cityofsacramento.org
New York City	Venetia Lannon	(212) 312-4229	vlannon@nycedc.com
County of Santa Cruz	Melodye Serino	(831) 454-2160	
City of San Diego	Barbara Lamb	(619) 236-7789	BLamb@sandiego.gov
Orange County	Don Reeves	(714) 834-4000	
Saint Lucie County, FL	Ron Roberts	(772) 462-1768	robertsr@stlucieco.gov
City of Tallahassee, FL	Ben A. Cowart	(850) 891-6893	Ben.cowart@talgov.com
City of Taunton, MA	Steven Torres	(508) 821-1036	
City of Toronto	Brian Van Opstal		bvanops@toronto.ca

Appendix B: Questionnaire

Questions for Municipalities with Conversion Technology Projects:

Strategic Planning Process:

1. How did this project emerge? What were the goals/objectives of the program? (Was the main goal of this project to divert material from landfill or to create energy?)
 - a. Would you share your planning documents with us (initial work plan)? Timeline?
2. Which, if any, consulting firms did you contract with to help devise or execute the project?
 - a. What types of tasks were asked of your consultants?
 - b. Would you share the scope of services with us?

Analyses Completed:

3. What types of feasibility or other analyses related to the project were conducted? (feedstock, diversion potential, energy generation potential, funding, etc)
 - a. Would you share any analyses or other studies related to the project with us?
4. Was community input requested or a communication plan established as part of the pre-project work?

Lesson's Learned:

5. Did you release an RFI and/or RFP?
 - a. Would you share your project description and/or RFI/RFP with us?
 - b. Looking back, would you have made changes to the RFI/RFP?
6. What criteria did you use to evaluate the RFI and/or RFP responses?
 - a. Would you share your evaluation criteria with us?
7. What worked well for you in the process?
8. What were your biggest challenges/obstacles?
 - a. Looking back, how would you have approached these challenges/obstacles?
9. What advice do you have for cities who are contemplating a conversion technology project?