"How Public Sector Agencies and Governments Responsible for Waste-To-Energy (WTE) Operations Maintain Cost-Effective and Environmentally Sound WTE Operations Through Active Technical, Financial, and Environmental Oversight"

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Author's Abstract

Whether a given waste-to-energy (WTE) facility is publicly or privately owned and/or operated, and notwithstanding the pluses or minuses of any given Service Agreement or Operations Contract, the public sector can derive great benefit if it establishes a solid understanding of and maintains active oversight role in the technical, financial, and environmental issues associated with WTE project operations. Experience has shown that public sector clients who remain in close touch with the day-to-day operations of these capital intensive operations from the outset also retain a greater measure of influence over the inner workings, as well as the exterior/aesthetic appearances of these capital-intensive waste-processing and disposal facilities. While all parties strive for environmentally sound and safe operations, private sector operators must be concerned with profitability and/or maintaining shareholder value while the public sector entity is more typically focused on ensuring the facility provides reliable disposal services for a heterogeneous wastestream that changes over time, remains a “good corporate neighbor,” and does this at the lowest possible cost to the taxpayers and other facility users.

Introduction

Since the beginning of the modern era of waste to energy facilities starting with the early to mid-1980’s, these technically and financially complex waste-to-energy (WTE) facilities have nearly continuously had to prove that they are capable of providing long term and reliable solid waste handling and disposal services, in a cost-effective and environmentally sound manner, while adapting to ever-changing environmental regulations and their economic consequences. While there has been some serious weeding out of less resilient technologies and economically weak projects over time, the majority of these “modern era” projects survived.

Facilities like McKay Bay and Pinellas County, Florida; Alexandria, Virginia; and Tulsa Oklahoma, have recently undergone major air pollution control device retrofits and/or major boiler retrofits/replacements in order to continue in operation and meet rigorous new environmental standards. In each instance, facility operators worked closely with client communities to keep them informed of project activities and to ensure their support of the retrofits.

Simultaneously, WTE facilities have proven quite adaptive to ongoing changes in the economic climate in that they have remained financially competitive in most cases with traditional land disposal methods during a time period that has seen nearly continuous evolution in air, ash and solid waste management regulations applicable to WTE facilities, and to a different extent, land disposal facilities.

Through careful and ongoing monitoring and oversight of operations, regulatory requirements, costs, service agreement conditions, and essentially all matters concerning facility finance and operations, public agencies and governments have been able to maintain competitive tipping fees for its users.

Interplay Between Client Communities and Operators Regarding Changing Regulations

The ever-changing regulatory history of the municipal waste combustor (MWC) industry is well known and a detailed review of major tax and regulatory milestones during the past fifteen (15) years is beyond the scope of this paper. However, the impact that many of these initiatives have had on client communities and community response to those changes is worth a brief examination. In summary,

- **Clean Air Act Amendments (CAAA) of 1990.** The Clean Air Act Amendments caused the WTE industry to spend some $1 billion nationwide in capital equipment alone for the retrofits needed to meet stringent air emissions, increased stack testing and continuous emissions monitoring requirements.
Long in the vanguard of WTE development, some $400 million was reportedly spent to upgrade facilities in Florida alone (Katie Cullen, Vice President, Integrated Waste Services Association, January 2003). This number does not even take into account the ongoing increased operating costs for pollution control reagents, equipment maintenance, increased record keeping/reporting/administration, along with lost electric revenue due to the required increases in plant power consumption.

Recent regulatory developments in the New Source Review program, and the ongoing debate on control of greenhouse gases, amply demonstrate that the CAAA-induced changes are not over. Typically, these CAAA costs have been passed along directly to the public sector, and they continue to be passed along to this day. Over time, these costs can become woven into the basic payment schedule. Periodically revisiting the basis for these estimates, and determining if adjustments are warranted to reflect operating experience may well serve client communities. For example, if a fixed operations and maintenance fee were established to cover CAAA costs, periodic review may show that actual O&M costs are far lower than anticipated, and the pass-through fees may be reduced.

- **Flow Control.** Reviewing solid waste receipts for the past ten (10) years at WTE facilities, and even at government-run transfer stations, dramatically illustrates how elimination of flow control stemming from the May 1994 Supreme Court decision (C&A Carbone vs. Town of Clarkstown, 511 U.S. 383 (1994)) reduced the amount of waste arriving at WTE facilities for a number of years. This single ruling caused governments nationwide to reexamine the fundamental way they managed their solid waste, and brought many communities closer to their facility operators – and sometimes made communities more entrepreneurial – as they both fought side-by-side to keep these facilities economically viable during those tumultuous years, particularly with “put or pay” provisions in play.

In response, many WTE facilities cut tipping fees substantially (e.g., the Lancaster Solid Waste Management Authority, Pennsylvania and the Camden, Union, and Essex County facilities in New Jersey). The flow control ruling also caused communities to spend a lot of money for legal and consulting support. The financial impacts of this ruling on client communities continue to this day.

Other facilities condition the ash residue by increasing lime feed rates or taking other measures to ensure they passed the TCLP test. In any case, wherever possible, facility operators pass along the cost for this increased level of regulation and testing of ash residue, along with capital and operations cost for the additional reagent to client communities since, under standard Service Agreement language, operators neither “own” the incoming MSW nor the resulting ash residue.

Again, it behooves client communities to keep close tabs on residue testing and reagent consumption costs to be sure that the circumstances under which cost arrangements were made back in 1994 or in later years, remain applicable today. For example, adding substantial amounts of lime not only increases reagent cost, but increases hauling cost and consumes additional, valuable, landfill space.

- **Retrofits and Project Refinancing.** Refinancing has been another tool used to keep tipping fees competitive by reducing debt service. Since many projects were financed with low interest loans during the early stages of project development, with substantial increases during “out years,” many client communities took advantage of the window of opportunity created by the need to obtain capital financing for these retrofits. In addition, as Service Agreements near the end of the typical twenty (20) to twenty five (25) year contract life span, this can be an opportunity for communities to renegotiate the basic “deal” set forth in Service Agreements.

- **Title V Air Permits to Operate.** While many of these permits have already been issued, many Title V permits have yet to be issued, and underlying PSD permits need to be amended to coincide with the new operating permits. Most environmental statutes provide that State and local regulations can be no less stringent than their Federal equivalents however, many State agencies take the opportunity of permit updates to include language that is not only more stringent, but sometimes, just different from Federal requirements.

Active client involvement during the re-permitting process can also help the facility operator ensure that the permit update process is done consistent with the regulatory intent of the CAAA. At times, regulatory agency staff have used the opportunity of the Title V operating permit process to seek
Often sweeping updates of underlying PSD permits. During the Title V preparation, and PSD update, process, language can be added or old permit provisions reinterpreted so as to restrict facility operations, increase testing, and perhaps lower allowable processing rates, even though this is not the intent of the CAAA/Title V permitting process.

First, it is important to see that sufficient resources are dedicated to reviewing, understanding, and cooperatively editing these Title V and updated PSD documents with State agencies before they are finalized. Additionally, a few well-timed and well-chosen words from a client community at a meeting with regulatory agencies, can remind them of the significant government investment that was made in order to achieve the major air emissions reductions from CAAA retrofits. This type of client involvement sometimes reassures government agencies and resolves sometimes sticky logjams that can arise between regulatory agencies and regulated industry.

**WTE Facilities as Public/Private Partnerships**

While some WTE facilities are truly "merchant" operations wholly owned and operated by private concerns, many WTE projects are typically public/private partnerships with each party sharing certain goals and each party having some different objectives. While all parties strive for environmentally sound and safe operations, private sector operators must be concerned with profitability and/or maintaining shareholder value while the public sector entity often focuses on ensuring the facility provides reliable disposal services for a heterogeneous wastestream that changes over time, remains a "good corporate neighbor" and does this at the lowest possible cost to the taxpayers and facility users.

Complex service agreements establish financial and operational responsibilities, that include risk sharing. As noted earlier, changing regulations can result in substantial pass through costs to the public sector; these changes-in-law can provide the private sector operator with an opportunity to exercise its profit motive. Depending on your perspective, payment to operators to accept the risk of making retrofits comply with new and stringent permits or "environmental" guarantees may or may not justify these risk payments.

It is well recognized that as service agreements for many facilities are approaching the end of their terms, public agencies and governments overseeing WTE operations at these facilities must now evaluate end-of-contract options. There are numerous contracts and sub-agreements within an overall Service Agreement Contract that can affect overall project costs. As noted above, effectively planning for the contract renewal process and the prudent use of legal and financial advisors to assist in loan structuring, repayment schedules, and in minimizing the cost of borrowing money can greatly reduce community costs when major retrofits and/or facility capital projects are undertaken. Contract extensions can also be an opportunity for communities to eliminate "put or pay provisions," eliminate complex service fee formulae, or to reduce other payments.

**How Client Communities Can Offset the “Corporate Headquarters Advantage”**

In order for a public authority or client community group to be sure that they understand what is happening at the facility from an operations and maintenance standpoint. Operating companies routinely generate an ongoing stream of performance and financial data for each operating unit, some of which is legitimately confidential business information, but some of which can readily be shared with clients. It is essential that public participants receive key operations information from the operator on an ongoing basis. It is equally important that the client community either have trained in-house professionals to understand and analyze these documents, or to retain the services of an independent advisor, or advisors, who are equipped to get a good grasp on the fair and reasonable costs of operating and maintaining new and existing capital equipment.

Oftentimes, Service Agreements contain “response to notice” provisions with deadlines where client communities have a fixed time to reply to notices regarding cost increase notices due to “uncontrollable circumstances” or “changes in law.” Upon receipt of such notices, it is incumbent on client communities to respond in a timely way and to analyze the issue to ensure its best interests are served.

Due to the winnowing out of non-competitive technologies and companies that has occurred over the years, WTE operators typically run a network of facilities (i.e., spokes) and rely on a corporate headquarters to serve as a clearinghouse (i.e., hub). Parent corporations typically have a core group of financial, legal, operations, environmental, and other professionals familiar with issues and solutions at other WTE facilities. These corporate groups can effectively advise individual facilities on crosscutting topics, such as common operating problems (boiler corrosion, legal precedents, etc.), as well as regulatory, financial, and legal issues, including new Service Agreement language.

While many operators share a lot of the purely technical information with client communities, the corporate incentive to share business insights regarding key service agreement elements, such as revenue sharing, or divulging information regarding actual costs for installing and operating new technologies, and profit margins is less clear. Absent a
similar “spoke and hub” arrangement, individual client communities can be at a distinct disadvantage when negotiating with corporate entities on certain technical/operational (e.g., when major capital equipment is damaged or unanticipated/extended downtime occurs) or when negotiating on substantive financial issues.

Different communities address this in different ways. Some have their staff contact equipment vendors directly to benchmark pricing. Other communities handle the procurement and oversee installation of capital equipment themselves, although this can be difficult without having staff with the particular training and required expertise. Others retain technical advisors and legal counsel of firms that work with many different WTE facilities, ideally in different states, to provide client communities insight into technical and financial precedents from these other venues. Being active in statewide (e.g., SWANA Chapters) and national industry groups (Integrated Waste Services Association – IWSA) can be helpful. Some vendors have offered nationwide “partners conferences” to create an atmosphere where client communities can meet face to face and engage in cross-talk and engage in informal dialogue with the operating vendors.

The Importance of Monitoring Operating Performance Over Time

There are any number of operating parameters that warrant tracking over time as they can directly translate into potentially lost revenue or increased cost unless the client communities keep close tables on a project. As with many things in life, “an ounce of prevention is more than worth a pound of cure.” In other words, since operating a waste disposal operation is a continuous process, project slippage is more likely to occur incrementally, rather than “catastrophically.”

Maintaining an active oversight of operations can deter, or at least slow down, incremental deterioration in performance and/or facility appearance. For example, simply doing routine and thorough interior and exterior facility “walk downs,” and documenting major repairs/maintenance activities with date and-time-stamped photographs can provide a valuable portrait of historical facility conditions. And from time to time, client communities should consider investing in special, if limited, test programs to verify continued compliance with baseline contract provisions.

A few examples of parameters worth tracking follow.

Capital Projects. There is a well-recognized concern that over time, as WTE facilities age, they demand increased maintenance, sometimes in the face of decreased operating efficiency and reduced revenue. It is important that the public participant ensure that necessary capital investments continue to be made in a timely manner and that they monitor the maintenance and operations required to maintain reliable operations and optimize return on public sector capital investments.

Revenue Sharing. Depending on the nature of the financial arrangements in a Service Agreement, an individual facility manager may or may not have incentive to maintain the facility in satisfactory condition, or operate it to maximize financial return to the client community. For example, contracts may not provide operators a financial incentive to process more than a set amount of municipal solid waste, reopening the contract and actually increasing payments to operators in return for higher processing rates may cost communities less than other bypass/disposal methods.

Or perhaps the operator may choose to “ramp up” MSW output at certain times of the day when demand for electricity - and electric revenues - are at a peak. However, if there are no such financial incentives for such optimizing behavior, absent direction from client communities, operators may or may not change their operations during these peak demand times.

If operators reduce unit downtime or receive peak hour incentives from electric sales, is this added revenue being shared back to client communities, or retained by the operator as additional profit? Are electric guarantees pegged to the higher heating value (HHV) of incoming wastes - and as the fuel HHV changes over time, is this guarantee being met continuously? When special handling wastes (e.g., secure document destruction, out of date pharmaceuticals, etc.) are processed, are the client communities sharing this increased revenue?

Again, the Service Agreement is a key tool, but vigilant oversight is needed (by all parties) to ensure that the changes that occur over time have not altered the basic cost and revenue sharing arrangements. For example, experience has shown that, given the large annual cash flow at major facilities, incremental differences in escalation factors, by as little as 0.15% annually, can over a period of ten (10) years or more, result in discrepancies totaling hundreds of thousands of dollars of difference in annual fee payments.

Metals Recovery/Residue Generation. Public sector participant can also benefit from a sustained effort to maximize revenues/minimize costs from handling of WTE byproducts (ferrous and non-ferrous metals; ash residue). The revenue from metals sales can help reduce tipping fees and reduce the amount of material being land disposed. There is also a trade off between
waste processing and ash residue “unburned material” content; basically, as waste processing rate increases, the efficiency of the combustion process can decrease. It is therefore recommended periodically to visually examine the ash residue for unburned material and also to periodically sample the ash residue for compliance with Service Agreement guarantees regarding unburned and putresible materials in the ash residue stream.

**Staffing.** Finally, ensuring that the operator maintains staffing levels and keeps a qualified operational and financial management team in place for the life of the facility, are of critical concern to the public sector. As it is, these highly automated operations can be run with as few as three (3) or four (4) operators during the “small hours” of the night. When a WTE facility has chronic openings of key management (chief engineers, instrumentation and control technicians, and environmental scientists/engineers) or operations staff (loader operators and crane room/control room operators), the result is a work force that may not able to get and stay ahead of operational challenges. This circumstance can create an operating atmosphere where largely cosmetic items can lead towards more serious operational, safety, morale, and/or environmental concerns.

**Conclusions and Recommendations**

Ideally, informed client involvement in and oversight of a WTE project begins with the initiation of Construction Agreement negotiations and continues throughout the life of the WTE facility. However, it is never too late in the life of a project to strengthen this oversight role. An ongoing dialogue not only fosters a sense of partnership between the facility operator and client communities, but can reap tangible benefits for all parties in terms of strong project finances, as well as a safer, environmentally sound operation.

It is recognized that responding to the inquiries from public sector clients and providing them and their advisors with documentation of facility operations on an ongoing basis can be time-consuming for WTE managers who must report to many interests – from regulatory agencies to corporate managers to local citizenry. Even so, the failure to do so can allow operational, environmental, financial, and other issues to build up to the point that it will take a truly major effort to understand the root cause of the issues that can develop over time and to implement an effective corrective action plan.