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THE FUTURE ROLE OF MUNICIPAL WASTE COMBUSTION

*What has been happening to the MWC industry and why,
and how can it come back?*

Consider the following:

- Sixty-eight percent of the 188 million annual tons of municipal solid waste (MSW) generated in the U.S. is currently landfilled. Of the remainder, 17% is combusted, and 15% is recycled.

- During the period of 1989 to 1990, more than 28,500 tons per day (tpd) of municipal waste combustion (MWC) processing capacity came on-line. During the period from 1991 to 1992, approximately 16,400 tpd of new MWC capacity is anticipated. This represents more than a 40% decline in start-up capacity (see *Waste Age*, November 1990, pp. 100-159).

- According to the U.S. EPA, 216 million tons of MSW will be generated annually by the year 2000. By that time almost one third of our landfill capacity—what exists today and what will be built throughout the 1990s—will be used up.

- By the turn of the century, if the forecasted recycling rate of 25% is achieved, more than 160 million tons per year (tpy) of MSW will remain to be managed. Even if one assumed that 50% of the MSW stream could be recycled, nearly 110 million tpy would still remain.

A clear message is emerging: While garbage generation will continue to rise in this country, implementation of sufficient management capacity is not going to keep pace. The MWC industry, in particular, is already learning this the hard way. The business boom that it experienced during the 1980s has been replaced by a major slowdown. New contracts have all but stagnated, and companies are having to work very hard to find new business. Why is this happen-

ing in spite of the evident need for combustion? What events led to this ironic state of affairs? What can the industry do to stage a comeback?

Obstacles to MWC

1) The Rise of NIMBY, NIMEY, NIMTO, and NOPE

The Not In My Backyard syndrome (NIMBY) is alive and well. In 1987, NIMBYs in six states prevented the famous Islip, N.Y., garbage barge from depositing its payload. Today, NIMBY has been joined by many elected officials who convey the message Not In My Election Year (NIMEY) or Not in My Term of Office (NIMTO). The battle cry on the horizon is fast shaping up to be Not On Planet Earth (NOPE)! Even though most Americans rank MSW disposal as a top local priority, strong public opposition persists to siting any type of management facility in one's own community. In addition, surveys indicate that public environmental concerns about MWC air emissions and ash are on the decline (see *Waste Age*, January 1990, pp. 36-8). Nonetheless, the MWC industry faces an uphill challenge to convince many Americans that a facility should be built in their backyard.

2) Maturing of the Environmental Movement

April 22, 1970, marked the first celebration of Earth Day. The 20th anniversary revealed the presence of a much more sophisticated environmental movement. Today's environmental organizations: 1) have expanded membership bases; 2) are more active and politically attuned; and 3) creatively participate on consensus-building panels to influence corporate decisions. Moreover, the environmental movement of today is a well-financed, shrewd, growing, and powerful force.

3) Misinformation and Misperception

Those within the environmental movement who are

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anti-combustion typically appeal to people's emotions while striving to present a moral high ground perspective on how MSW should be managed. Many take matters one step further by spreading half-truths and distorted information about combustion. Proponents of MWC projects are inevitably put on the defensive and find themselves in the difficult position of trying to explain why the critics are mistaken. Once citizen's emotions are churned up, the potential for reasonable decision-making is greatly restricted. Often projects are put on hold or canceled, and the community's waste management problem remains unsolved.

4) Tax Law Changes

The Tax Reform Act of 1986 has had a tremendous impact on the financing of MWC projects. Under the Act, tax-exempt financing using industrial development bonds is no longer available for the energy-producing related components of an MWC project. In addition, privately owned MWC facilities financed with private activity bonds are subject to restrictive financial caps (i.e., less tax exempt money available). These and other changes have made municipally owned MWCs more attractive, and private MWC financing more expensive.

5) Recyclamania

Municipal recycling activities are rapidly spreading across the country. During the first half of 1990, 65 recycling laws were enacted in 27 states. Thirty-three states and the District of Columbia have enacted some sort of comprehensive recycling law (see *Waste Age*, September 1991, p. 20). According to *BioCycle* magazine, as of mid-1991, more than 2,800 curbside collection programs were active across the U.S. This is up from 1,050 in 1988.

The immediate impact of what some describe as a "rush to recycle" has been the challenge to states and their local jurisdictions to implement programs and documentation procedures to achieve recycling targets. Major stumbling blocks remain in the way, however. Some examples include: 1) the lack of markets for materials such as newspaper and green glass; 2) high program costs; and 3) the lack of tax credits, rebates, and public purchasing requirements to spur recycling activities.

Impact on the MWC Industry

Many factors have contributed to the hesitancy of local decision-makers in recent years to move ahead with projects. For starters, tough economic times have cut deep into municipal budgets. In addition, pending or anticipated federal regulations facilitate a holding pattern at the local decision-making level. Increased recycling activity has also caused many

communities to reflect upon their MSW management strategies. In some cases, decision-makers are reassessing the size of planned MWCs in light of new recycling objectives; in other cases, a volatile political environment makes it easier for elected officials not to make important immediate decisions regarding their MWC or other management options.

Industry consolidation has also been a factor. From a field that ten years ago included many participants, the industry is now comprised of less than ten full-service companies. In serving their municipal clients, these companies will design, finance, build, own, and/or operate the MWC facility. They also bring the financial strength and project management experience to ensure the success of the project, and must be fully responsive to all environmental concerns raised. The primary players currently comprising the MWC industry include:

- American Ref-Fuel Co., Houston, Texas.
- ABB Resource Recovery Systems, Windsor, Conn.
- Foster Wheeler Power Systems, Inc., Clinton, N.J.
- Montenay Power Corp., Mineola, N.Y.
- Ogden Martin Systems, Inc., Fairfield, N.J.
- Reading Energy Co., Philadelphia, Pa.
- Westinghouse Electric Corp., Pittsburgh, Pa.
- Wheelabrator Technologies, Inc., Hampton, N.H.

And finally, contributing to the consolidation of the MWC industry in recent years has been the all but stagnant market for new business opportunities. Factors such as the government elimination of tax credits, lower than expected MSW disposal fees, and the political popularity of recycling have made market conditions difficult for even the strongest industry player.

MWC SWOT Analysis

Most business assessments include what is called a SWOT Analysis—an assessment of a company's and industry's strengths, weaknesses, opportunities, and threats. The MWC industry's SWOT Analysis is featured in Figure 1.

From the SWOT Analysis it may be seen that the MWC industry has tremendous strengths and opportunities, but also real weaknesses and threats. In order to overcome the latter, a re-doubling of political and public relations efforts will be necessary. Additional financial resources must support these and other essential actions in order for the industry to maximize its short- and long-term effectiveness.

A strategic question faces the industry: How can the MWC industry overcome controversy generated by opposition groups, win the support of municipal decision-makers, and play a more active role in the market place? The following is a recommended course of action.

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MWC Industry SWOT Analysis

Strengths

- **High Quality, Proven Technology.** Modern facilities employ good combustion practice, have continuous emissions monitors, and employ qualified management.
- **Product/Service Reliability.** MWC plants are required to be in compliance with environmental permits over the operating life of the facility. MWCs also perform a necessary MSW management function and help preserve diminishing landfill capacity.
- **Power Generation.** Energy, in the form of steam or electricity, yields revenues that help to reduce the cost of MSW disposal. Power generation also reduces the need for foreign oil and takes advantage of a domestic resource: refuse.
- **Post-Combustion Recycling.** Ferrous metals collected from the MWC ash stream are materials that may otherwise not be recycled (e.g., aerosol cans, food containers, etc.). MWC ash itself can be reused in many ways (e.g., as an aggregate material, landfill cover, barrier reef applications, etc.).
- **Community Good Will/Long-Term Partner.** Facility managers often interact with the community in ways that benefit the area surrounding the facility. Examples include offering educational opportunities to children, providing support for community services, and sponsoring environmental programs.
- **Name Recognition.** The MWC Industry has a strong presence in the federal public policy arena. Its voice has been established on Capitol Hill, within executive branch agencies, and in the courts. The industry is well-positioned to impact legislative and regulatory debates.
- **Strong Financial Backing.** MWC companies are typically supported by *Fortune* 500 and/or multinational parent companies. This allows for guarantees relating to construction and long-term operations, and provides the basis for successful MWC project implementation.

Weaknesses

- **Image.** In many communities, MWC plants are still viewed negatively. Even though this perception may be the result of misinformation, the image of a profit-hungry industry peddling dirty incinerators still persists in some locations. The belief that recycling and MWC are not compatible is another persistent misperception.
- **Marketing Strategy.** While the value of public relations efforts are recognized by the MWC industry, too few resources are allocated to promote the cause. This is particularly true at the local level where the success or failure of projects is often determined.
- **Influence On Grass Roots.** In recent years, the MWC industry has been less successful in promoting its product(s) at the community level. An inability to mobilize grass roots support has contributed to poor marketplace performance.
- **Too Reactive.** The industry has had a track record of reacting to opposition groups and other threats, rather than having a proactive strategic plan in place.
- **Facility Cost.** MWC facilities are capital-intensive and often represent the most expensive project a municipality will undertake. Project financing is typically structured to spread costs over the life of the project, thereby making MWCs competitive with other options.

Opportunities

- **National Energy Strategy (NES).** President Bush's NES identifies MWC as an important component with tremendous growth potential. The NES calls for a seven-fold increase in power generation from MWC operations over the next 20 years.
- **Technological Innovation.** Reauthorization of the Clean Air Act (CAA) will result in more stringent pollution control requirements for new and existing MWCs. This may facilitate the development of new technologies and make

MWC operations even cleaner, from an environmental impact perspective (and popular from a public relations standpoint).

- **Time.** The green wave now sweeping the nation will invariably diminish over time, once municipalities have had the chance to determine the true potential of recycling, composting, etc. With this will also come the realization in many communities that combustion is a necessary part of the MSW management solution. Local and regional capacity shortages may also spur MWC.
 - **MSW Quantities/Limited Management Alternatives.** By the turn of the century, there will be much more MSW to manage and much less disposal capacity to manage it. With recycling expected to account for one quarter of the total, and available landfill capacity fast becoming a scarce commodity, there appears to be ample growth potential for MWC.
 - **Legislation/Regulations.** Federal actions, such as the reauthorization of the Resource Conservation and Recovery Act (RCRA) and implementation of the CAA amendments, may help to clarify requirements for MWC ash management practices and air emissions, and thereby help spur lax decision-makers into action.
 - **Recycling Activities.** To demonstrate a strong commitment to recycling, MWC companies can manage on-site materials drop-off areas, compost operations, and implement office recycling efforts. Printing company letterhead, promotional materials, and business cards on recycled paper offers another opportunity.
 - **New Products.** The MWC industry can offer alternative MSW management options as part of an expanded service. Providing clients with a fully integrated facility (i.e., one system encompassing the best combination of the options) would help to best meet local needs. Pursuing such efforts on a merchant basis (i.e., totally private arrangement) may allow for more flexibility and control over the program, while minimizing financial risk to the community.
 - **Education/Marketing.** The MWC industry can take its message to grammar schools, think tank institutions, the media, etc. Strategic development and placement of materials on the role of combustion as part of the MSW management solution would likely yield positive results for the industry.
 - **Foreign Markets.** With market conditions currently flat in the U.S., business opportunities in Europe, Asia, and elsewhere may be more attractive. MWC companies can market strong management skills, and a proven, clean technology.
- ### Threats
- **Economy.** The recession has limited the ability of local decision-makers to initiate major new projects. At a time when it is difficult to balance municipal budgets, capital-intensive MWC projects are not likely to be implemented quickly.
 - **Environmental Activists.** Environmental organizations are well positioned to spread negative sentiment about MWCs. The sophisticated approach taken to deliver this type of message leaves the MWC industry in a vulnerable position.
 - **Legislation/Regulations.** Current federal activity has the potential of imposing strict requirements which could threaten the economic viability of the MWC industry. State activity also poses a threat in cases where moratoriums and other anti-MWC bills are proposed.
 - **NIMBY.** The Not-In-My-Backyard syndrome continues to be an issue. Siting new MWC projects may be especially tough given the publicity surrounding these efforts and long implementation time frame.
 - **Competition.** In spite of the need for a combination of options to manage a community's MSW, an "either/or" mind-set still widely persists. Given the political popularity of recycling, the positive perception associated with other "green" options like MSW composting, and the need for landfills as a backstop option, MWC may be viewed as being at a short-term competitive disadvantage.

Recommendations

1) Strengthen Public Policy Efforts

- Network effectively, establish coalitions with trade associations, public sector groups, and health care organizations.

- Identify and work closely with community leaders to help them better meet their political, economic, and environmental needs.

- Build grass roots support.

- Actively participate in the public policy debate at the federal, state, and local levels.

2) Fully Embrace Recycling & Other "Green" Options

- Actively demonstrate industry support of recycling through actions such as providing drop-off services, using recycled materials, and maximizing post-combustion materials recovery.

- Promote flexible contracts which do not penalize municipalities for diverting recyclables from MWC plants.

- Implement on-site composting activities.

- Initiate community waste reduction efforts.

3) Expand Marketing/Public Relations Activities

- Strive to overcome the major emotional stumbling block associated with NIMBY. Start with more effective communications addressing any environmental concerns.

- Demonstrate through actual example that MWC is a complimentary, environmentally sound option.

- Emphasize MWC benefits (e.g., sound MSW management, clean technology energy generation, and landfill preservation).

- Impress upon decision-makers how MWC is consistent with their needs.

- Stress industry knowledge/skills and product innovation.

- Pursue an aggressive education program.

- Establish an environmental credo based on innovation in action and make it widely available to the media, public officials, and citizens at large.

- Solicit grass roots support via media campaigns, local interaction, and other means.

4) Offer Fully Integrated Systems

- Broaden product offerings to include materials recovery facilities, battery recycling, composting, and disposal.

- Remain flexible to best meet community needs.

- Consider privatizing services through merchant plant arrangements. Emphasize benefits to clients during tough economic times (e.g., not obligated to finance project, up-front risks covered, just pay disposal fee).

5) Broaden Goodwill Programs

- Sponsor community environmental clean-up events; initiate household hazardous waste awareness programs; promote energy conservation; and embrace other activities linked to a renewable energy theme.

- Work with community leaders to establish off-site reduction, recycling and composting programs.

- Offer work day programs at the MWC facility for students.

- Be a creative community partner.

6) Explore Foreign Market Opportunities

- MWC companies have strong operations capabilities

and have a competitive product, from an environmental standards perspective.

- MWC is well recognized and already used throughout Europe, Asia, and beyond.

- There is a demand for proven waste management technologies like MWC in many foreign countries.


7) Be Patient

- Time is on the MWC industry's side.

- Once the true costs and potential of recycling, composting, and other "green" activities are recognized, the value of MWC as an important service will re-emerge.

- Local and regional capacity crises may trigger the call for MWC as well.

- There is too much MSW to be managed in the future and too few quality options like MWC to manage it. ■



***The MWC industry
needs to be patient.
Time is on the
industry's side.***