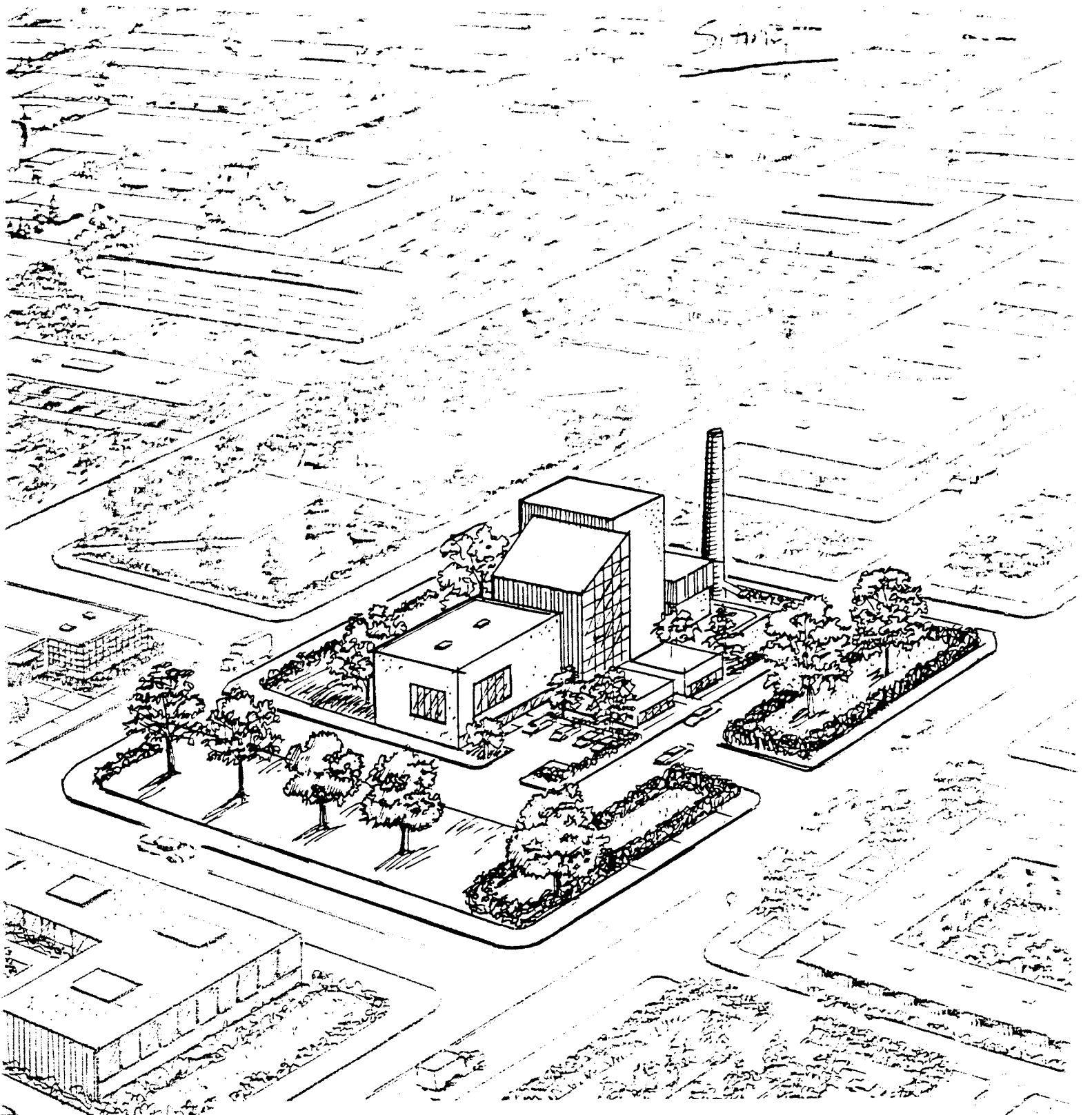


Siting



# Waste To Energy

CALIFORNIA WASTE MANAGEMENT BOARD

Technical Information Series

Chapter 3a

Political Difficulties Facing Waste-to-Energy  
Conversion Plant Siting



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Political Difficulties Facing  
Waste-to-Energy Conversion  
Plant Siting

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## INTRODUCTION

One of the greatest ironies confronting California's waste disposal problem is that the very technology capable of recycling wastes, preserving unused lands, and conserving raw materials is regularly being attacked by homeowners and environmentalists as a threat to the environment. Waste-to-Energy facilities are capital-intensive plants that convert an assortment of waste products into usable energy. Waste-to-Energy facilities either burn wastes directly or process the waste, filtering out various recyclable products such as metals, and creating a fuel. The fuel in turn is either burned alone or mixed with coal or some other fossil fuel. The heat generated is used to produce steam for energy. By using waste materials as a fuel, less oil, natural gas and coal needs to be consumed to produce more energy. The environmental advantages of this process are enormous: an alternative energy source in waste products reduces the amount of land that need be spoiled for landfilling purposes, and metals and other byproducts filtered from the wastes can be recycled. Most importantly, however, the development of an alternative energy source will help lessen the costs and dangers associated with

dependence on oil and coal resources.

The landfill problem in California is immense. Approximately 35 million tons of garbage are landfilled in municipal disposal facilities every year. These wastes have to be "dumped" somewhere, but the state will lose an estimated 50 percent of its landfill capacity by 1985.1/ This means that California must either find new lands in which to bury our trash, or develop alternative means of waste disposal that do not consume the state's lands.

One such alternative is to convert waste into useful energy. Not including modular on-site Waste-to-Energy facilities, 43 Waste-to-Energy projects have been or are being planned in California. If all these plants become operational, more than 7.5 million tons of garbage yearly would be diverted from landfills, a 21 percent reduction from current levels. And, over the long run, the economic benefits gained from the production of energy and the recycling of certain materials, let alone the savings generated by reduced landfill operations, could permit Waste-to-Energy facilities to pay for themselves.2/

Waste-to-Energy facilities are economically and environmentally progressive waste management facilities. The benefits of disposing waste products in a useful, efficient, and safe manner make traditional waste management techniques such as landfilling seem prodigal at best. Nevertheless, most of California's Waste-to-Energy projects are plagued with problems. The initial cost of a major plant is expensive, often encouraging



public enterprises to work jointly with private businesses. But the most formidable obstacle to Waste-to-Energy facilities is public opposition.

People tend to view Waste-to-Energy projects in the same light as any waste disposal facility, and they simply do not want a "dump" nearby. Any type of waste facility will pose some aesthetic problems to those who live close to the facility. However, the community as a whole will receive significant economic and environmental benefits from a Waste-to-Energy facility. The issue becomes a dilemma: while the benefits to society in general are evident, the costs of the proposed facility to its neighbors almost always appear greater.

The focus of this study is on the people who live close to any of California's proposed Waste-to-Energy facilities, and their host communities. What are the issues raised against Waste-to-Energy projects? Who in the community objects most vociferously? And who objects least? And, finally, what decisions can be made in selecting a site that encourage community acceptance of the project?

The methodology used in answering these questions is three-pronged. A questionnaire (Appendix A) has been distributed to city officials and private planners across the state involved in proposing a Waste-to-Energy project. Of the 43 major facilities planned in the state, 33 projects have progressed beyond merely an idea and have actively pursued at least the preliminary stages of project planning. One or more leading

proponents for each project has been contacted initially by telephone, and then mailed a questionnaire. Additionally, there are 13 private businesses (mostly hospitals) and two school systems that have installed modular waste-to-energy systems. They have been contacted in the same manner. At this writing, there has been a 54 percent return rate on the questionnaire.

The information derived from the questionnaires has been supplemented by a second approach to the study. Telephone interviews have been conducted with sales representatives of several of the major manufacturers of waste-to-energy systems, engineers and public relations officers of both private and public Waste-to-Energy facilities, and various key officials in successful and unsuccessful sitings. Finally, an extensive review of the literature has been conducted regarding public attitudes toward waste management facilities and other facilities perceived as "noxious." As a new waste management technique, experiences with public opposition to Waste-to-Energy facilities lacks the historical backdrop available to other waste management facilities.

The results of the study are discussed throughout the text, hereafter referred to as "the California survey," and the results of the questionnaire and interviews are synopsized in Appendix B.

The issues faced by proponents of various waste management projects and energy projects that give rise to public opposition are discussed in the first section. A second section discusses the demographic features associated with public opposition and

support of facility siting, as well as a personality profile of the conflicting sides. Judging from the results of the study, seven political criteria are established for facility proponents for the selection of a Waste-to-Energy site that will tend to offer the least amount of political resistance to the project. Finally, a program has been designed to enhance community acceptance of a proposed Waste-to-Energy project. All aspects of this report relate specifically to the political components of facility siting.

## NATURE OF PUBLIC OPPOSITION

Public opposition to waste disposal facilities is a recent phenomenon. Prior to the rise of the environmental movement in the 1970s, waste facilities aroused little public concern, and rarely were facilities closed due to local opposition. There were several instances in which government and industry abused this general lack of concern, and approached the matter of disposing municipal and industrial wastes with little regard for environmental safeguards. Waste landfills were seen as the easiest means for disposing most wastes, and sometimes these landfills were managed with a general neglect of health safety. With virtually no public interest in waste management, there was not much incentive for government and industry officials to regulate waste management procedures, nor was there much incentive to devise efficient and safe waste management alternatives.

This absence of public interest in waste management did not persevere. The quantity of waste products requiring disposal had grown sharply over the last several decades, largely due to industrial expansion. These wastes increasingly became toxic in nature. During the period from 1974 through 1983, total hazardous waste generation from 14 major industrial groups had been expected to grow by 29 percent.<sup>3/</sup> Unfortunately, waste disposal practices did not keep pace with the growing problem. All kinds of waste,

including toxic wastes, were often disposed of in the traditional manner, using both open landfills and the more modern covered sanitary landfills or lined secured landfills. Over 90 percent of the industrial hazardous wastes produced in the nation had been disposed of in a manner actually or potentially harmful to the environment.<sup>4/</sup> This carelessness led to numerous environmental disasters,<sup>5/</sup> including such episodes as Love Canal where nearby residents suffered chemical burns, chromosome damage, a high incidence of spontaneous abortions, and a cancer rate 30 times the national average from escaping toxic fumes. These disasters were not limited to landfills marked specifically for hazardous wastes. Sometimes regular county landfills and other waste facilities also leaked dangerous contents that were originally dumped there because of an absence of proper government regulations, or were dumped illegally into the surrounding environment. Government and industry's failure to properly dispose of wastes received widespread publicity, which resulted in increasing public anxiety about the dangers associated with all waste facilities.

Even though several states and the federal government have adopted stringent waste disposal regulations, government and industry appear to have lost the trust of sizeable sectors of the public. This distrust of traditional landfilling operations has carried over to a distrust of all waste management techniques, old and new. The creation of Waste-to-Energy facilities, designed specifically to resolve many of the worst problems associated with landfills, has frequently encountered the same public resentments

levied against landfills. The waste management industry and the public both lose from this misperception. A properly designed and operated Waste-to-Energy facility is clean, safe, and a vast improvement over current landfill practices. Litter, odor, rodents, scavenging birds, the potential for infectious disease, groundwater pollution by leachate, and emission of some air pollutants are lessened by orders of magnitude when compared to a landfill or a transfer station.

Nonetheless, fear of environmental and health risks associated with wastes initially provided the thrust for public opposition to all waste facilities. Later, that opposition quickly developed into a more sophisticated approach in attempts to prevent or close waste facilities. Public sentiment against waste facilities often came to manifest itself in forms other than fear, ranging from aesthetic complaints to declining property values.

The complaints of the public against Waste-to-Energy facilities have been used with varying emphases to delay, modify, or prevent the siting of virtually all major projects that affect the public directly. According to the California survey, only three of California's 29 Waste-to-Energy projects that managers have declared as primarily public-owned facilities have successfully progressed into the siting phase of the project, gaining at least passive community acceptance. Additionally, there are 11 project proposals that plan to serve the general public but are privately owned. Of these, two units appear to be

successfully entering the siting phase, and one unit is currently operating. Although the privately-owned facilities have a somewhat better track record in avoiding public opposition, it is because the private enterprises tend to be considerably smaller than the public projects. The two private projects that appear to be progressing well in the siting phase consume 100 tons per day (TPD) or less of waste products; the one unit that is operating is slightly larger (200 TPD), but is operating only on a test basis.6/ In contrast to the private waste-shed capacities, the public projects range in size anywhere from less than 100 TPD to 3,600 TPD.

#### Public Objections.

As noted above, the public tends to view all types of waste disposal facilities with a similar disdain despite actual differences in methods and costs of operation, the purposes of the facilities, and the dangers and benefits inherent in each type of facility. Landfills do elicit the most vocal and sustained public opposition, but all means of waste disposal seem to be unpopular.7/

A review of the literature offered five basic categories of complaints that are voiced by the public against waste management facilities. The responses to the California survey confirmed that each category is also applicable to public objections to

Waste-to-Energy projects. The categories are as follows.

1) Health Risks. Much of the opposition to waste management facilities is attributable to the public's confusion between the old generation of poorly managed and poorly regulated facilities and the new generation of well-monitored disposal facilities. In this sense, image and semantics can be critical factors in affecting community acceptance of the project.

Nevertheless, there will always be some potential health risks posed by waste facilities. The problem of leachate leakage persists for all landfills, even the most well-planned secured landfills.<sup>8/</sup> Ash residue from Waste-to-Energy facilities may warrant landfill concerns. Depending on the type of waste that a given facility consumes, and on the separation process employed in filtering the waste-fuel, there is the possibility of leachate leakage from the ash residue. However, a recent study by Rigo & Rigo Associates found that leachate from ash fills contain a lower concentration of salt and metals than leachate from solid waste landfills.<sup>9/</sup>

Waste-to-Energy facilities also pose a potential health risk in terms of air pollution. Emissions from a plant may include varying amounts of nitrogen oxides, carbon monoxide, sulfur dioxide, hydrocarbons, and particulate matter and other matter for which health standards have not yet been established. Although a number of technological means can be applied to minimize harmful emissions to within acceptable margins, citizens of the City of Berkeley voted 23,530 to 15,842 to place a five-year moratorium on



the construction of Waste-to-Energy projects within the city limits primarily due to fears of air pollution problems. The California survey found that for those among the public who are concerned about the health risks posed by Waste-to-Energy projects, air quality is the key emphasis.

2) Aesthetic Factors. Whereas health risks associated with a Waste-to-Energy project are a complaint frequently voiced by the community at large, some respondents to the California survey stated that the aesthetic impact of such a facility regularly is of greater concern to those living near the proposed or actual site. The aesthetic factors include the facility's appearance, odors, litter, and the noise and congestion accompanying the transportation of waste materials.

The importance of aesthetic concerns in fomenting public opposition should not be underrated. Although the aesthetic factors are the most easily controlled technical problems faced by waste projects, they are also the problems that first come to mind, forming the public's immediate impression of the facility. If unfavorable first impressions are reinforced through the news media, discussions with friends, or previous experiences, it would require considerable time, money, and effort to convince the public otherwise.<sup>10/</sup> Furthermore, aesthetic complaints can work as a very effective means for rallying early opposition into an organized movement among the people living nearest the site.

3) Economic Impact. Since Waste-to-Energy facilities are a relatively new disposal alternative in the United States, the full

economic impact of these projects is not at all clear.11/ Nevertheless, judging from the experiences of other facilities that encounter public opposition--such as landfills, energy facilities, prisons, and airports--a number of reasonable expectations can be drawn regarding the economic repercussions of Waste-to-Energy facilities.

Of primary importance is the effect such a facility will have on property values near the site. Commercial office spaces and residential lands that are at least within visual, hearing, or smelling distance of the waste project will likely experience a decline in property values. To the extent that the real estate market is sensitive to the aesthetic and health factors of the surrounding environment, property values will fall. Perceptions of the environment may enlarge the affected area. For instance, the survey of California facilities found that at many sites homeowners living up to two miles away from the site are concerned about the effect on property values, even when the facility is not in view.

On the other hand, the community as a whole may stand to gain some economic benefits from a Waste-to-Energy facility. In virtually all instances, the community would derive revenues through local taxes and/or tipping fees from the importation of waste materials from other communities. Similarly, some Waste-to-Energy projects also propose reduced rates to the host community for garbage disposal and/or energy use.12/

Occasionally, a waste project can claim to be economically

necessary to the continuance or expansion of the community's industrial activity. However, this argument by facility proponents has rarely been perceived by the public as credible. Only in cases where a specific company forms the lifeblood of the community, and the company is viewed with favor by the community, has this argument helped quell public opposition.<sup>13/</sup> Waste energy facilities in themselves provide relatively few jobs.

Theoretically, a Waste-to-Energy facility offers a differential economic impact on the community: residents living near the facility suffer costs in property values that outweigh the benefits; while the community at large may derive greater economic benefits and suffer little, if any, financial loss. In practice, however, the economic benefits received by the community as a whole have rarely been sufficient or important enough to mitigate other anti-facility sentiments. As long as the siting does not threaten to alter the economic character of the community, the economic impact of the facility typically has not been a primary concern for the community at large. The benefits simply are too modest and too abstract to encourage the support of the general community. Economics does play a major role, however, in encouraging opposition among nearby residents who perceive direct and significant damage.

A final economic impact that may influence public opposition is the benefit derived from a comprehensive recycling program. Oddly, the recycling factor has been given scant attention by project developers, with only one developer among all those

surveyed in California planning to utilize a recycling program to win public support.<sup>14/</sup> Converting waste to energy provides a number of economic benefits for the community. For example, metals, glass, and newspapers can be extracted from the waste material and recycled. Furthermore, the wastes that are either recycled or burned for energy no longer require land space for disposal, thereby extending the life of existing landfills, reducing the need to acquire new lands, and minimizing the maintenance and operation costs of landfills. Although these benefits are of a similar indirect and abstract character as the other community benefits listed above, the concept of recycling may appeal to environmental groups--the very people most likely to lead an opposition movement.

4) Social Perceptions. Judging from the survey results, the feeling of being "dumped on" appears to be the greatest source of opposition to California's Waste-to-Energy projects. This feeling manifests itself in two distinct complaints: the social stigma of living near a waste facility; and the resentment by the host community of serving as the dumping grounds for the garbage of other communities. The social stigma of living near a waste facility is a concern primarily of the local residents. Waste facilities, particularly landfills, regularly are placed in areas that are not developed, have lower property values, and generally are on the "outside" of the community's social world. These perceptions of the type of area in which a waste facility would be located translate into a social stigma. Possibly of even greater

concern than health risks is the mere idea of living near a "dump." Besides the embarrassment of what other people will think, residents may perceive a nearby site as a recognition of low social status. The social stigma problem applies to any type of waste disposal facility.

Although the fear of a social stigma is not likely to be expressed in public forums as a reason for opposition, it may ultimately be the bottom line for many local residents. Of course, rational complaints would be publicly expressed, such as health risks. Regardless of the assurances made and the measures taken to guard against health risks, the facility proponents would be dismissed outright under the pretense of being self-serving and untrustworthy.

For the community at large, the perception of serving as the dump site for the garbage of other communities can be a very powerful source of opposition. The Waste-to-Energy facility planned by San Francisco to be situated in the City of Brisbane was defeated to a great extent because of this reason. With a history of using Brisbane to solve San Francisco's waste problems, San Francisco, in conjunction with the Sanitary Fill Company, sought to place a Waste-to-Energy facility in Brisbane. Brisbane's wastes were not going to be taken by the facility. The issue was placed on the ballot by Brisbane's City Council, and the citizens of Brisbane voted overwhelmingly (907 to 337) against siting the facility within city limits.<sup>15/</sup> Brisbane residents were quite explicit that they did not want to be the "garbage capitol for San Francisco."

The fear of a locality becoming the dumping ground for wastes generated outside the area stretches across the nation. Citizens in Starr County, Texas, fought a landfill proposal mainly for the reason that it was to be used for the disposal of wastes generated in Galveston.16/ Citizens in Puerto Rico opposed a landfill proposal in the City of Ponce partly out of a concern about becoming the dumping ground for the continental United States.17/ A telephone poll conducted by Duke University found that in regard to a hazardous waste landfill, only 7 percent of the respondents would approve of a site being used for the disposal of wastes from out of state, while 38 percent would approve of the disposal of wastes generated within the state. The survey also indicated that 49 percent would approve only the disposal of wastes generated from within the county.18/

## WHO CARES?

### THE PEOPLE WHO FIGHT FACILITY SITINGS

A demographic picture of the types of communities and the types of people that are most likely and least likely to oppose a Waste-to-Energy project would be invaluable to an effective siting program. A great deal of time, resources, and planning could be saved and political problems avoided, if people who are resentful and people who are amenable to Waste-to-Energy projects could be identified before selecting a site. If this information was available, facilities could be placed in areas, if technically feasible, where people do not find them so offensive.

Drawing the demographic picture, however, is hindered by the fact that few of California's Waste-to-Energy projects have progressed beyond the siting phase and there are few concrete cases from which to derive conclusions. Nevertheless, there have been some experiences in which limited amounts of demographic information is available for analysis.<sup>19/</sup> Furthermore, in many of the cases surveyed in California, as well as independently discovered elsewhere, the general nature of the persons who fight the siting of a Waste-to-Energy project is similar to those who fight any kind of waste management or energy facility.<sup>20/</sup> Many of the complaints people have against toxic chemical dumps, landfills, offshore oil rigs, nuclear power plants, and other unpopular facilities reflect similar fears held against

Waste-to-Energy facilities. Understandably, opposition movements in each case would draw from similar circumstances and similar backgrounds.

In this light, survey data of the demographic characteristics of groups opposed to a variety of waste management and energy facilities can serve as an indication of whom, and under what circumstances, is most likely to fight the siting of a Waste-to-Energy facility. Many of the conclusions of such survey data have been reconfirmed by the present survey of California facilities.

Before looking at specific indicators of support and opposition to such facilities, it is important to fully understand what the terms "most resistant" and "least resistant" actually designate. The overriding conclusion of survey research on public attitudes toward these facilities is that opposition to the local siting of such a facility cuts across all subgroups. Regardless of socioeconomic status or residence, specific cases can be found in which even the subgroup least likely to form an opposition movement became intimately involved in the opposition struggle. And on a related vein, several studies have documented widespread social bases of support for environmental pollution control. Consequently subgroups who may be designated "least resistant" to the siting of facilities in general may in fact also oppose a particular facility, but it is likely their opposition would be less vocal and less persistent than subgroups in the other category.



It is from this base of a demographic picture of those most likely to oppose and support a Waste-to-Energy facility that site selection criteria and a public participation program could be tailored to enhance the chances of a successful siting. A review of survey analyses demonstrated two sets of demographic indicators of support and opposition to major facilities: a set of strong indicators repeatedly found to accurately classify subgroups; and a set of mild indicators often found to typify support and opposition subgroups.

#### Community Locale.

People in the northeast and western regions of the United States have shown a greater propensity to organize opposition movements to projects that are perceived as environmentally noxious. People in the southern and midwestern regions of the nation have consistently demonstrated greater tolerance of such facilities. The State of California ranks high on the list of areas with a record of public intolerance toward such facilities.

Large, urban communities, especially with a population in excess of 250,000, have a consistent history of opposing, delaying, or extensively regulating waste facilities. Small communities with a population under 25,000 are recognized as least resistant to various major facilities, as are rural communities.

There is evidence, however, indicating a need to qualify the

ever-popular urban/rural distinction. For example, a recent survey of attempted sitings of hazardous waste landfills discovered to the dismay of facility sponsors that sites in rural areas encountered a very high rate of public opposition--moreso than the sites in industrial areas.<sup>21/</sup> Furthermore, the present survey of California Waste-to-Energy projects revealed no evidence that a rural community would likely be more willing to accept a Waste-to-Energy facility.

The reasons for this inconsistency are evident. In scanning the issues regularly expressed by Waste-to-Energy facility opponents, the complaint of becoming someone else's dumping ground is among the most frequent and most powerful. Surely, rural communities are least likely to oppose or regulate the way neighbors use their lands or the location of the county landfill. However, having an outside community--and in the case of Waste-to-Energy projects, the outside community is probably the nearby "big city"--take over lands with a waste management facility that provides few visible economic benefits to the host community, the residents will probably find the facility objectionable.

A small rural community probably would be more favorably inclined to accept a Waste-to-Energy facility, if that facility were designed primarily to consume local wastes and provide energy to local markets. If the facility were designed largely to serve the interests of a nearby larger city, attempting to site the project in the rural community would pose significant political

problems.

One of the most consistent findings of the California survey is that every reasonable effort should be made to site a Waste-to-Energy facility within the parameters of its market. Since Waste-to-Energy projects are capital-intensive and require abundant supplies of waste products, the market will usually be a large community. Given this circumstance, the best area for a project site would be a heavy industrial area with little, if any, commercial activity.

Spokespersons for virtually all of the publicly owned and privately owned Waste-to-Energy facilities who reported in the significant progress in the siting phase of the project in the present California survey, indicated that the sites were in industrial areas and would be serving predominantly local markets. The only exception thus far--Tri-Cities Project--is securing a site adjacent to an existing landfill. Tri-Cities Project will serve a predominantly local market.

Most of these apparently successful Waste-to-Energy projects have chosen remote light industrial or industrial undeveloped sites. Each has had to face varying amounts of public opposition, which has not yet turned out to be overwhelming. It should not be forgotten, however, that several similar light industrial or undeveloped site proposals have been delayed or defeated by public opposition. Only two of California's Waste-to-Energy projects proposed siting in an already heavy industrial area: the City of Long Beach, and the City of Commerce. Some residences are downwind of the Long Beach site on Terminal Island, but neither

of the Long Beach site on Terminal Island, but neither site has commercial businesses or residences in the immediate vicinity. Facility proponents in Long Beach secured virtually unanimous public support for the site, even among environmentalists. While in the City of Commerce, no one from the public appeared at the public hearing. Both projects may well be completed without any substantial opposition.

A Waste-to-Energy project undertaken by the City of San Diego, often called the SANDER project, attempted to secure a rather unique site on or near Navy property. The idea of placing waste facilities on abandoned military properties had been earlier hypothesized as a way of ensuring remoteness, and decreasing public opposition. That was not the case with the SANDER project, which faced overwhelming opposition from both the Navy and the affected community, National City. An alternative site in Chula Vista also was defeated by public opposition, and San Diego still has not been able to find a publicly acceptable location.

All in all, the most successful siting attempts of Waste-to-Energy facilities have been concentrated in industrial areas, preferably heavy industrial areas with little or no surrounding commercial or residential vicinities. Landfills and transfer stations may provide some remoteness to the facility, but apparently these are not acceptable locations to the surrounding community if the site will host primarily an outside market.

## On-Site Facilities.

The California survey has found that only one class of Waste-to-Energy facilities has consistently avoided the public's wrath: small (i.e. less than 100 TPD), privately-owned, on-site facilities. In California, this type of Waste-to-Energy project typically is found in hospitals; one motor lodge chain, an aerospace company, and another private business also operate Waste-to-Energy facilities. In every case surveyed, public opposition to the facilities never became an issue. Citizen groups did not fight the siting of the projects and the businesses did not bother with any kind of public relations campaign.

These private, on-site facilities are designed specifically to consume the companies' own wastes, and to produce energy only for business purposes. The siting of such small projects normally does not require zoning changes, and can usually be placed inside the company building or on company land. The public is not directly affected by the facility. In fact, the public in most cases, may not even be aware of the facility.

Schools fall somewhere between the private and public classifications. Technically public institutions, school boards consist of elected members who are held accountable to the public, and are thus often swayed by public opinion. However, a Waste-to-Energy facility in a school would not directly affect the public. It would be limited to consuming school waste products and producing energy for use exclusively by the school. For

example, the Lassen Community College housed the state's first Waste-to-Energy project, and encountered no public opposition. A secondary school system, the Clovis Unified School District, attempted to acquire a modular Waste-to-Energy facility identical to one already in operation at St. Agnes Hospital a few blocks away. The plan was scrapped in its early stages largely due to an expected, but not actual, community reaction. Judging from the absence of public concern about small, on-site facilities, the Clovis Unified School District may have acted prematurely.

#### Facility Impact.

By far the most likely group of people to oppose a Waste-to-Energy facility are the residents who live near the site. The closer the residential area to the proposed site, the more likely the inhabitants will participate in an opposition movement. The range of what constitutes a "near" residential area generally falls within five miles of the site. Residents who live within a one or two mile range are most likely to fight the siting.

Independent studies have found that "old timer" residents who have lived in their residences in excess of 20 years tended not to oppose the siting of nearby major facilities. Residents of five to 20 years, the bulk of any residential area, are likely to oppose the siting of a nearby major facility.

Whether or not the facility offers employment opportunities

may significantly influence people's attitudes toward the project. The proposed facility may provide jobs, or offer a service such as waste disposal that is necessary for the maintenance or expansion of community businesses. People who stand to gain economically by the facility, and those who know others who are or will be employed because of the facility, will generally not oppose the project. Blue-collar workers have historically appreciated the public benefits of capital investment programs and a number of California's Waste-to-Energy projects had union support.

Waste-to-Energy facilities, however, are generally not recognized for providing many jobs. Unlike refineries or other major energy facilities, the employment opportunities of a Waste-to-Energy project are not sufficient to rally strong blue-collar support. Furthermore, the claim that a key business in a community will have to move if adequate waste disposal services are not available will likely be greeted by the community as not credible. Wastes can be disposed of by a number of alternative methods, reducing the economic urgency of Waste-to-energy facilities. Economic necessity for an existing key business has been found an effective mechanism for moderating public opposition usually only in regard to industrial hazardous waste facilities.<sup>22/</sup> A large chemical plant, for instance, could persuasively argue the necessity for a community to expand its hazardous waste disposal facilities in order to stay in business. Nevertheless, if a key industry were actually in a situation in which alternative disposal methods were becoming exhausted, and

there was no room to expand existing facilities, the argument of economic necessity could be an effective means to enlist blue-collar support for any type of waste facility, hazardous or not.

Tax revenues, public parks, and other social services promised to the community by a Waste-to-Energy facility may be too indirect and too ambiguous to mitigate successfully public opposition to the project. However, many elected officials and local government staff are often quite influenced by such economic benefits. In the California sample, city officials routinely expressed support for the proposed Waste-to-Energy projects in the early stages of planning. On a very regular basis, however, official support would waiver when confronted by organized public opposition. City officials in Gardena, Brisbane, Fresno, and San Jose initially supported the concept of Waste-to-Energy facilities, and then either withdrew support from specific sites, turned responsibility over to the voters, or withdrew support from the concept altogether. Government neutrality or opposition to a Waste-to-Energy project in the later stages of the siting process can easily ensure its delay or defeat.

#### Personality Profile.

Independent studies on public opposition to waste management facilities have painted a very clear personality profile of those most likely and least likely to oppose facility sitings (see



Appendix C).

The kind of person who is most likely to oppose the siting of a major facility is young or middle aged, college educated, and liberal. For the purposes of this analysis, liberal specifically designates a welfare state orientation in political philosophy. The person least likely to oppose a facility is older, has a high school education or less, and adheres to a conservative, free market orientation.

Of less importance, but still relevant in typifying the personality profile of potential supporters and opponents are party affiliation, occupation, income, and participation in voluntary associations. Party affiliation as an indicator of support or opposition to various environmental restrictions on business assumes greater strength when the discussion is focused only on party elites or students. Among party elites, Democrats are often more inclined to oppose the siting of waste management and energy facilities and to support environmental restrictions, while Republicans are less likely to do so. Among the general populace, party lines on these issues tend to become obscured.

Middle and high-income groups often will actively oppose the siting and operation of major facilities. Although the lower income groups, including blue-collar workers, less often oppose these facilities, the classification is not a reliable indicator. A Waste-to-Energy proponent could always expect public opposition to the siting of a facility in a wealthy neighborhood, but the facility proponent should also usually expect public opposition in

a low-income vicinity. The experiences in California amply demonstrate this point.

Finally, a person who has a history of active involvement with voluntary associations is somewhat more likely to oppose the siting of a major facility than someone who has rarely been involved in community groups. In addition, a community that has a recent history of public activism against major facilities and support for environmental regulation will probably be aroused and suspicious of any new major facilities. Regardless of whether the earlier struggles of the environmental protection group were successful, the organizational apparatus and the spirit of the group will persist. Furthermore, a community history of environmental activism should be viewed as indicative of adverse community attitudes.

A facility proponent should be hesitant of selecting a site within such a confrontation-oriented community. That is not to say such communities should be ruled out altogether. Local governments and sometimes businesses have no choice but to opt for the home community. City governments have regularly encountered public opposition to landfill proposals and then simply moved the proposed site to some other less offensive area within the same community. Opposition groups to waste facilities are usually local, and do not extend into the community at large. Another approach to gaining the support of environmental groups is to include them as an integral part in the earliest planning stages of the project. Participation of potential adversaries under this

approach must be made into genuine participation; otherwise, the potential adversaries will develop a bitter mistrust of the project and the project's sponsors, and spearhead opposition to the project. Genuine participation generally means involvement from the beginning of the project, and that project plans are indeed influenced by participating groups.

The City of Long Beach approached the siting of their Waste-to-Energy project in precisely this manner. An influential environmental group had successfully defeated an oil pipeline project just a few years earlier. However, by integrating these same activist groups into the Waste-to-Energy project in a meaningful role, the environmental groups decided that the project was not environmentally objectionable. The groups ranging from homeowners' associations to the League of Women Voters to the Sierra Club voted overwhelming support for the Long Beach facility to be located near the proposed site of the defeated pipeline.<sup>23/</sup>

#### Demographic Picture.

Constructing a demographic profile of the locale surrounding a proposed Waste-to-Energy site as well as the community at large serves two fundamental purposes in the siting process. The first purpose is to assist in selecting a site that offers the least potential of generating public opposition. The second purpose is to identify the affected groups of people, and to tailor a

community acceptance program specifically to these groups.

Facility proponents in Long Beach conducted a demographic survey of the proposed site to identify the type of area, the location of residential pockets, and the educational and income levels of the residents within one-mile, five-mile, and 10-mile radii of the proposed site. Proponents had already expressed preference for a certain heavy industrial area, and so the demographic analysis served the second purpose of identifying likely opponents who the public participation program should address.

A thorough demographic picture should take into account the size of the proposed Waste-to-Energy facility, its economic benefits and costs, the markets for the facility's waste-disposal and energy-producing services, the nature and spirit of the community, including any previous favorable or unfavorable experiences shared by the community and facility proponents, the extent of industrialization at the proposed site, the proximity of commercial and residential areas, and a personality profile of those living nearest the facility, especially the residents' educational level, age, and political ideology.

## SITE SELECTION CRITERIA

Selecting an appropriate site for a Waste-to-Energy facility is a difficult task of finding a workable balance between numerous criteria. There are a wide array of technical requirements for a viable site, such as proximity of a fuel source, accessibility of resources, and an adequate transportation infrastructure. There are physical requirements that must be met, including sufficient acreage and geologic suitability. There are also environmental regulations, and the problem of securing adequate financing.

The above criteria tend to emphasize engineering criteria. Since the 1970s, political criteria have become every bit as important in determining the outcome of a project as engineering factors. The introduction of political criteria significantly complicates the task for the simple reason that political criteria often are at odds with engineering concerns. The best site in terms of financial feasibility and geologic suitability may very well be the most troublesome politically.

The two sets of criteria need to be assessed and compromised in a manner unique for every different Waste-to-Energy project. There is no single model in either set of criteria appropriate for all situations. Each project inevitably will encounter unique limitations, technically and politically, and thus must be evaluated on an individual basis in the quest for an appropriate site. It follows that the balance between the two sets of

criteria will also vary from case to case.

Below is a discussion of the political criteria that should be considered in the site selection process. These political factors are offered in the absence of specific technical considerations, judging from the political problems faced by most Waste-to-Energy projects in California. It is the responsibility of each Waste-to-Energy project to assess the appropriate trade-offs between engineering possibilities and political trends.

#### Timing Public Involvement.

The foremost lesson derived from experiences in siting Waste-to-Energy facilities is the need for meaningful public participation in successfully siting large, off-site units. It is of critical importance that this participation be more than simple appeasement. Efforts to appease the public through unmeaningful or token participation would likely inhibit the open dialogue necessary to gain public approval of the project. Furthermore, if citizen's groups feel that their participation in the project is only to serve as a "rubber stamp," these same groups could become leaders of an effective opposition movement.

This fear of being used as a "rubber stamp" is precisely the suspicion of citizens' groups when first asked to participate in a siting project. Members of the citizens' advisory committee to the Long Beach project were imminently clear that they would serve

the Long Beach project were imminently clear that they would serve no legitimizing function for the facility unless they were convinced that the project is worthwhile. As politically active citizens who defated an earlier energy project, these committee members were already wary of their role in the project, and would have regarded token participation as particularly offensive.

Facility proponents in Long Beach were acutely aware of the need for meaningful dialogue with these groups, and so they set out to involve the public at the earliest possible stage of the siting process. Once it was discerned that sufficient financial and technical resources were available to construct and operate a Waste-to-Energy facility, then proponents investigated possible sites that would have the least detrimental impact on surrounding areas within one-mile, five-mile, and 10-mile radii. These potential sites were then laid before the citizens' advisory committee for rejection, modification, or approval of the sites or the project itself, or recommendations of alternative sites. Facility proponents negotiated sincerely and honestly with the committee, supplying any and all information requested by the committee, openly expressing a preference for the Terminal Island site, and willingly accepting and dealing with the committee's conclusions. A number of modifications were made in the project design, but the project itself was deemed suitable, and the Terminal Island site was accepted.

Public involvement should be timed very early in developing the project proposal. Project plans in almost all cases should

avoid being prepared to the point prior to public participation that would create the impression that the project is already underway, and that the citizen's groups are to serve only a legitimizing function. However, it would be equally detrimental to the project not to have an agenda established for public dialogue. A private sponsor or county or city government must make a number of initial judgments of project desirability and feasibility before consulting the public. These judgments include whether a project could be financed, whether it could be technically feasible, and whether the project would offer any significant benefits.

By balancing technical criteria with political criteria in suggesting certain sites before public involvement, a great deal of unnecessary effort and resources may be saved. Focusing public dialogue on sites that have already been assessed as politically viable could well make the difference between a successful and unsuccessful project. A politically unviable site proposal would likely create anti-facility sentiments that may persevere and hinder future alternative site proposals. Additionally, segments of the public may be activated in an opposition movement who otherwise would not be affected by some other site that is more politically viable. A political analysis in the initial site selection could result in a proposal that affects as few people as possible, and affects them in a politically manageable fashion.

The stages in the siting process that should precede public involvement, then, are the choice of several technically feasible



sites, that are next sifted through for political viability. A short list of three to five candidate sites that conform to a balance of both sets of criteria are finally placed before the public. Only once specific sites are suggested is it constructive to engage a public dialogue. At this point, public discussion would be focused rather than abstract, and the dialogue would include the members of the public who would be directly affected.

These candidate sites should be put on the public agenda via a citizens' advisory committee (discussed below) in the format of a "balance sheet" -- a preliminary analysis of the pros and cons of financial, technical, and political criteria of each candidate site. Facility proponents should be honest and direct with the committee, expressing which site they prefer, but making clear to the committee its autonomy to test the preliminary balance sheet, develop an enhanced balance sheet, reject or modify any of the candidate sites, propose new sites, or reject or modify the project altogether.

#### Political Criteria.

There are several political criteria that should be considered by facility proponents in evaluating initial sites prior to public involvement. Once facility proponents select a few candidate sites in accordance to these criteria, the conclusions

regarding the criteria should then be included in the balance sheet of proposed sites for discussion by the advisory committee. The first group of political criteria are determined by the technical nature of the specific facility.

1) Type of Facility. The survey of California Waste-to-Energy projects clearly distinguishes two types of facilities in terms of political ramifications: small on-site facilities versus all other facilities.

On-site facilities, regardless of size or purpose, regularly face less public opposition than off-site facilities. But on-site facilities that are small (less than 100 TPD) and designed exclusively for private use face virtually no public opposition. Not a single hospital or private company that currently utilizes small, modular Waste-to-Energy facilities for their own waste-consumption and energy-production purposes reported open public opposition.

Clearly, if the proposed facility is of this on-site nature, political considerations may be set aside, with the exception of state and local regulations governing installation and operation.

Publically owned on-site facilities, such as in the public schools, may encounter some public concern upon occasion. Given the small size of such a school facility and the general absence of affect upon the community, an acceptance program should be rather low key. It is probable that, like privately owned on-site facilities, no public acceptance program would be necessary. If school officials believe that some public concern might arise over

the facility, the school should approach the project as being one part of a school-wide recycling program, and as a way to aid the District's fiscal program. Student and parent attention should first be directed toward the virtues of recycling wastes through newspaper collection drives and so forth. The concept of a Waste-to-Energy facility could be integrated into the dialogue of the virtues of recycling; and a final decision to go ahead with the Waste-to-Energy project should be based on the reactions in the dialogue. Most likely, students, faculty, and parents will learn to view the Waste-to-Energy project as a positive step forward in conservation and economy.

Of more relevant concern to managing community acceptance of Waste-to-Energy projects is the larger facility. Large facilities can affect the public in any number of ways. They are usually off-site facilities, displacing additional lands. They also consume significant amounts of waste, often public wastes, and in turn have a greater impact on the aesthetic, health, economic, and social concerns of the public. In regard to this type of major facility, the size and normal operations of the facility should be well understood.

2) Size of Facility. The size and normal operations of the facility will determine the extent of its actual impact upon a host community. The amount of additional traffic the facility will generate needs to be clearly understood in order to evaluate not only the necessary transportation infrastructure of a host community, but also the extent of aesthetic impact upon the

community. A significant increase in traffic congestion and noise will disturb residents of the surrounding area. Potential sites should seek road access that least disturbs commercial activity and residential traffic. This could be achieved by siting near a freeway system or in a remote area.

The larger-sized facility will also produce other aesthetic problems. Odors, litter, and the physical appearance of the structure all may contribute to public opposition. Methods for mitigating these aesthetic impacts include constant housekeeping, litter-fencing, and designing the building for compatibility with adjacent areas.

3) Economic Benefits. In analyzing the type and size of a Waste-to-Energy project, the next step is to understand its economic impact on a host community. Proponents should be fully aware of the employment opportunities, projected tax revenues, possible tipping fees, and other economic ramifications, including its effect on property values. An early awareness of these issues may help facility proponents enlist city/county government support once a community is chosen.

The knowledge of economic ramifications will assist facility proponents in classifying potential bases of support and opposition. Although economic benefits may not be sufficient to influence the attitudes of the general public, the California survey found that support can be expected from chambers of commerce, industrial development committees, utility companies, and, perhaps, labor unions. Communities with a preference for

industrial development would receive the project more favorably. Whether a specific community favors development could be discovered partly through interviews with representatives of the above groups<sup>24/</sup>, and partly through analysis of the community's case history.

Communities that conform to some kind of economic need criteria should be given high priority. If facility proponents believe they can document a credible economic need in a given community, that documentation could be a powerful political ally. Communities where such a need might be documented would probably be near industrial areas that produce increasing amounts of wastes, and which have few available lands for disposal purposes.

4) Community History. It is important to take a good, hard look at the recent history of potential host communities. Case histories can reveal much about the community's needs, character, and spirit. A history favorable to industrial growth is a reassuring factor. Contrarily, a history of environmental activism, especially against major facilities, could be indicative of an anti-growth sentiment. Furthermore, the recent existence of environmental activist groups implies a community spirit that can swiftly and effectively turn into an organized movement.

Several respondents to the California survey noted that facility opposition groups frequently were outgrowths of political groups that originally came into existence for some other purpose. In Long Beach, for instance, potential opposition was expected from an environmental group that organized several years earlier

to fight a proposed oil pipeline.

A case history may also reveal a favorable or unfavorable previous experience shared by the community and facility sponsor. Some waste facility proposals were effectively defeated by public opposition born of resentments against the sponsoring company.

City/county governments and some private sponsors may not have the freedom to choose a host community. Case histories can still be valuable information sources in that potentially controversial issues could be identified, and likely supporters and opponents could be targeted in a public relations campaign.

5) Facility Market. Respondents to the California survey widely agreed that a critical criteria in proposing a site is the market of the facility. A Waste-to-Energy project designed to consume primarily nonlocal wastes and/or produce energy for nonlocal markets stands a great chance of causing a public furor. A facility designed to service local markets will more likely be seen as a necessary evil.

A reasonable attempt should be made to site the facility in the area that benefits most from it. The popular idea of shipping the wastes out to some distant rural community has not proven effective for any type of waste management facility, including California's Waste-to-Energy facilities. People resent being somebody else's dumping grounds, and rural communities have demonstrated a willingness to fight encroachments by the "big city."

Multicounty Waste-to-Energy projects may be one way for a

community that cannot manage the disposal of its own wastes to secure a site in another community. The Tri-Cities project of Fremont, Newark, and Union City are trying this approach, and thus far with acceptable results. Additional compensation measures should be granted the host community in such an arrangement.

6) Location. In industrial communities, heavy industrial areas with little or no commercial or residential clusters have been found by independent studies and the California survey to be the most successful sites. Light industrial areas with a minimum of commercial or residential clusters have demonstrated some success as facility sites. The greater the concentration of commercial businesses and residences, the greater the likelihood of community opposition.

The survey has shown that nonindustrial communities only have successfully progressed into the siting stages of a Waste-to-Energy project situated on or adjacent to an existing landfill or transfer station. Zoning changes to heavy industry have often served as the focal point for opposition.

The objectives in both the industrial and nonindustrial situations are to achieve land use compatibility and remoteness. Heavy industrial areas are fully compatible with Waste-to-Energy facilities. Landfills are not fully compatible, but potential opposition may be moderated if the Waste-to-Energy facility is perceived as serving primarily local markets. Light industrial areas with mixed commercial or residential activity are problematic.

Respondents agreed that remoteness from the normal routines of the populace is also an important element making certain sites preferable over others. Heavy industrial areas tend to be quite remote from commercial activities and the lifestyles of the populace. Landfills usually are not situated near commercial areas, but there often are residences within the vicinity. The remoteness of light industrial areas vary from case to case; but the siting potential of an undeveloped light industrial area, thus being reasonably remote, is greater than the potential offered by exporting industrial wastes out to a rural location.

Remoteness can and should be measured. The one-mile, five-mile, and 10-mile radii system developed by proponents at Long Beach fits the bill. Commercial and residential clusters within each radius are counted and weighted heavily in the closest radius. A high concentration of residences in the five-mile radius with no residences in the one-mile radius would rate more favorably than a moderate and low mix. Information on the location of a city's commercial and residential clusters can be gathered from U.S. census data and city planning data.

7) Personality Profile. Certain types of people are likely to participate in politics, either by virtue of their issue awareness or their financial resources, or both. Members of middle or higher-socioeconomic strata (a composite index of level of education, occupational prestige, and income) are more likely to organize into effective groups to express their political interests and views. All socioeconomic groupings tend to resent



the nearby siting of major facilities, but the middle and upper-socioeconomic strata possess better resources to affectuate their opposition. Middle and higher-socioeconomic strata neighborhoods should not fall at least within the one-mile and five-mile radii of the proposed site.

As shown in Appendix C, although environmental concerns cut across all subgroups, people with a college education, young or middle-aged, and liberal in philosophy are most likely to organize opposition to the siting of a major facility. Older people, people with a high school education or less, and those who adhere to a free market orientation are least likely to oppose a facility. A thorough demographic study of the residential clusters falling within the radii would reveal the characteristics of the inhabitants in terms of the above features, as well as the features of secondary importance--namely, party affiliation, community involvement, and occupation. Technically feasible sites could then be rated in accordance to the composition of the nearby residential clusters, weighting the "strong personality indicators" of opposition greater than the secondary features.

A personality profile can help identify the residential clusters most likely to oppose a Waste-to-Energy facility. It should be kept in mind however, that adverse sentiments tend to cross subgroups, and that the most important determinant motivating a person to action is the proximity of the project. There is a strong possibility of public opposition to the siting of such facilities regardless of educational level and social

class among those who live within one mile of the project. Remoteness within the first radius is most important in managing community acceptance, which can then be accentuated by the "least resistant" personality profile.

#### Expect Opposition.

The frequency with which California's Waste-to-Energy projects encounter public opposition makes it evident that in most situations even the best formulated siting strategies will have to deal with public concerns. The only exceptions to this rule appear to be small on-site facilities and, perhaps, larger facilities located in an ideally remote heavy industrial area. The City of Commerce--with no recent history of environmental activism, a conservative pro-growth orientation, and few residential or commercial clusters in the vicinity of the proposed site--has had no public opposition to its project. As noted earlier, the Environmental Protection Agency also found that a low-profile approach to the siting of a hazardous waste facility (though not comparable to a Waste-to-Energy facility) is warranted under ideal siting conditions.

Most Waste-to-Energy facilities that are to be sited in California will not have the convenient opportunity afforded to Commerce. There are exceedingly few locations that could fit all seven political criteria; and most projects are bound within the

parameters of a given locale. Opposition, or at least public fears, will be expressed in virtually all Waste-to-Energy projects.

Facility proponents, nevertheless, can select sites that are both technically feasible and least offensive to the community, and thereby reduce the extent and perseverance of opposition. These siting choices can then be enhanced by a well-planned and targeted community acceptance program.

## ENCOURAGING COMMUNITY ACCEPTANCE

After evaluating possible sites in terms of both feasibility and politics, facility proponents should then direct attention to securing community acceptance of the Waste-to-Energy project.

Community acceptance is defined as "the support or neutrality of local government and citizens' groups toward a proposed facility as evidenced by the local governments' issuance of needed permits and as evidenced by the citizens' groups' lack of opposition through administrative or judicial channels."25/

The first decision facility proponents need to make regarding the encouragement of community acceptance is whether a public relations campaign may even be necessary. In terms of small, private on-site facilities, past experiences suggest that a community acceptance program would not be necessary. However, in virtually all major facilities that directly affect the surrounding community, public opposition should be expected. Only in the very rare case of finding an ideal heavy industrial site beyond the parameters of most residential and commercial activity, and in a host community with demonstrably little or no environmental activism, should a low-profile approach be considered.26/

Upon deciding that a public relations campaign would be necessary to secure community acceptance of a project, facility proponents should prepare a balance sheet of a few preferred sites

that outlines the pros and cons of each site in accordance to the criteria listed above, and seek meaningful public participation in the siting decisions. Local government support should be secured both informally and officially through a council resolution or motion. The resolution or motion should emphasize favorable aspects of the project, such as its environmental value, and establish a citizens' advisory committee to evaluate the project. Other aspects of a public relations program can also help secure community acceptance. Each of these steps for a meaningful public participation program are discussed at length below.

There are a number of methods that citizens' groups and local governments can employ successfully to halt the siting of a major facility. These include: prohibitive legislation,<sup>27/</sup> exclusionary zoning,<sup>28/</sup> recall elections, restrictive regulatory practices,<sup>29/</sup> litigation, and even civil disobedience. Exclusionary zoning and litigation are the most common forms of opposition. However, other forms of opposition may be more creative. There have been instances across the nation of lowering road weight limits to prevent construction or future waste hauling. One Wisconsin town purchased a proposed site and turned it into a park in order to undermine county condemnation efforts. More frequently in California, site selection issues have been placed on the ballot.

The objective that must be achieved by facility proponents is to direct the public involvement that will almost invariably arise over a Waste-to-Energy project into channels that are less confrontational. Many of the public's complaints against the

facility are unwarranted and based on emotionalism. Many other complaints can be alleviated through proper planning. By incorporating the public into an early, constructive participation program, it is quite possible to avoid the confrontational modes of involvement described above.

#### Traditional Approach.

Under California state law, each county is required to establish a solid waste management plan. County governments are given considerable leeway in formulating collection and disposal strategies, including turning waste management services over to private companies. There are some state requirements governing the waste management programs, including environmental standards and compatibility with land use plans. The California Environmental Quality Act (CEQA) also requires the involvement of the public in the site selection process. But this involvement usually takes the form of public hearings in the permitting process.

The environmental review hearings provide a forum at which views from a large number of people can be gathered in a short time. By their very nature, however, these public forums tend to produce an adversary situation. By the time of the permitting process, facility proponents have invested a great deal of time and money into the project, and have decided upon a site.

Developers already have a vested interest in pursuing the project as designed, and will be reluctant to make any changes. Project proponents, then, are placed in a paternalistic position known as "decide-announce-defend" (DAD), and will not welcome public input at the hearings, discussing mainly technical issues. The public, like the developers, has already made up its mind that the project must be stopped, and the hearing is likely to become a platform for verbal assaults. In the California survey, public hearings generally were not viewed as an effective means in themselves of managing community acceptance.

In order for citizens to approach the project with an open mind, they must believe that their concerns will be reflected in the project proposal. This mandates public involvement before final decisions are made, and in a manner such that public concerns have a real possibility of influencing project development.

#### Getting Ready.

Before any public announcement is made of the proposed Waste-to-Energy project, several preliminary steps should be first taken. Of course, as discussed earlier, specific sites should have already been evaluated for feasibility and political desirability in accordance with the criteria listed in the previous section. Although preferable sites have been evaluated

by facility proponents, care should be taken to avoid presenting the image to local government officials and the public that one site has definitely been selected. It is absolutely essential that public participation means more than merely rubber stamping the decisions of facility proponents. A rubber stamping public forum will activate public interest over the project, and then serve as the focal point of public accusations of project "steam rolling," charges of manipulation and self-serving goals on behalf of facility proponents. Public input must be of a meaningful nature--approving or rejecting the project itself, selecting alternative sites and eventually the final site, and recommending mitigating measures that the facility should incorporate to alleviate potential problems. Facility proponents should be ready to approach local government and the public with a give-and-take attitude.

The second preliminary step is to secure local government support. Informal discussions should be initiated with elected officials of every district and their deputies, as well as relevant government agencies. And official support for further study of a nonspecific Waste-to-Energy project should be formally secured.

The survey indicated that official support in the form of a council resolution or motion should be worded in a manner to emphasize the recycling aspects of the project. If possible, it would be desirable to have a council resolution calling for creation of a community-wide recycling program, of which the study



of a Waste-to-Energy project is one part.

The next preliminary step is to identify the cast of characters that may have an interest in the project. Potential supporters and potential opponents should be clearly identified, especially those within the parameters of the 1-mile, 5-mile, and 10-mile radii. A list of probable interest groups includes: the developer; facility contractors; county and city government; labor; waste generators; utility companies; organized proponents of lower taxes; community organizations; activist groups; homeowners associations; and environmental groups. In addition to identifying the cast of characters, facility proponents should also identify the perspectives of these interest groups to determine what will be the likely issues.

Most of this information should already be available to the proponents from the earlier stage of evaluating sites. Community case histories should have been conducted, complete with interviews with development organizations and industries who have attempted previous sitings. National and city census data should have been scrutinized for information on potentially affected groups.

Further identification of constituencies and activist groups should be obtained from interviews with city, state, and national elected officials or their staffs. City council members in particular will be helpful in compiling a list of key actors in the community--individuals as well as groups.

Finally, the facility management staff needs to create a

public affairs budget, complete with a trained public affairs coordinator. It is important that funds for community acceptance efforts be included early in the original project budget. Community acceptance efforts should begin in the earliest stages of project conception, and an explicit public affairs budget will establish a cost center for these activities. The appropriate size of a public affairs budget will vary from situation to situation. As one sample, the Long Beach Waste-to-Energy project, expected to cost \$165 million, allocated \$26,000 for its public participation program. Given the success of the Long Beach project, its public participation program should serve as a model for future projects.

#### Recycling Program.

The concept of a Waste-to-Energy project should be introduced to the public at the onset as part of a recycling program. Typically, the leading opponents to Waste-to-Energy projects in California are environmental groups. Other potential opposition groups also share fears that such a heavy industrial project will damage the environment and pose health risks.

Waste energy projects can stand on their own merit as environmentally progressive projects. The environmental benefits of recycling wastes,<sup>30</sup> converting wastes into useful energy, and

preventing open lands from becoming dump sites are powerful factors in environmental concerns. When the best available emission control program is a central part of the project, the benefits to the public far outweigh environmental costs.

Environmentalists have consistently led opposition to waste energy facilities because they are initially introduced as heavy industrial projects. Heavy industry frequently is stereotyped as harmful to the ecology of the area. The failure to distinguish the environmental impact of Waste-to-Energy facilities from other heavy industry forms an initial negative impression of the proposal. This impression need not be formed.

The formal city resolution calling for a city-wide recycling program and further study of a Waste-to-Energy project should specify the establishment of two advisory committees. The first committee should focus on a general recycling program. The committee's members could include city staff, officials of the school district, business representatives, environmentalists, and concerned citizens. Its purpose would be to develop a practical recycling plan by first creating recycling centers for newspaper, glass, and aluminum. An educational outreach program on the merits of recycling and the location of recycling centers could then be advocated in community organizations, churches, and, most notably, in the schools. The committee should be maintained as an ongoing group of volunteers spearheading community-wide recycling efforts.

A second advisory committee should be created in the same

1 resolution calling for the evaluation of the concept of a Waste-to-Energy project, and if meritorious, the selection of a suitable site from two or more feasible alternatives. If only one potential site is to be considered, obviously the mandate of the committee would be to judge the conceptual merits of the project.

Waste Project Advisory Committee.

Of primary importance in the public participation program is the citizens' advisory committee. The committee constitutes the barometer of community acceptance. With an appropriate membership, committee decisions can be interpreted as representative of reactions of the community as a whole. The committee will also provide the vehicle for a dialogue between facility proponents and the community that is so critical to ultimate community acceptance.

1) Determining Membership. The size of the citizens' advisory committee needs to be small enough to not hinder the free expression of ideas, and large enough to be representative of industry, potential opponents, and the community. The Long Beach Citizens Advisory Committee numbered 13 members and two alternates. That size worked well, with the two alternates providing continuity in case any members resigned. In most instances, then, an odd-numbered committee of roughly 13 or 15 members, plus additional alternates, appears to function best.

The people chosen to serve on the committee ought to have surfaced from the earlier interviews with elected officials and an analysis of the community's history. It is vital to include at least some of the very people who are most likely to resist the facility and who are in a position of strength to actualize their interests. Representatives of recently active environmental and homeowners groups should especially be included on the committee. So, too, should representatives of growth-oriented groups such as labor unions, and the chamber of commerce. And community groups and service organizations with sizeable constituencies also should be represented.

Letters should be sent to all the important interest groups in the community soliciting candidates for possible appointment to the advisory committee. From the names of individuals received from all sources, candidates should be pared down to fill the committee according to the degree of interest each group has in the project, each group's relative strengths, and the number of times an individual's name appears on lists from all sources. A wide representation of all affected parties is the goal. If there are large numbers of individuals interested in serving on the committee, a further paring could be achieved by requesting resumes from a smaller group of finalists. These resumes could then be used to assess each individual's involvement in the community. In order to establish an air of legitimacy to the committee, final appointments should be approved by the city council.

It is important that the project management team attend every meeting of the advisory committee, supplying the committee with requested and unrequested information, and establishing a favorable rapport with committee members.

2) Structure of the Committee. The project management staff should appoint its public affairs coordinator as leader for agenda items and to ensure that minutes are recorded and each member is amply informed. The committee should elect its own officers, who should not include members of the management staff, and order agenda items according to the committee's own priorities.

Each committee member should be informed by the specified management staff person of the time schedule of the study, the number of meetings per month, the time of each meeting, and the time duration of each meeting. More meetings could take place if the committee so designated.

The committee should be allowed to operate in any manner they deem appropriate. Hearings, testimony, and research are all recommended procedures of operation. Even with the guidance provided by the management staff's steering person, the committee must be permitted to select their own materials of interest and to pursue their own topics of concern.

The committee should be designated with responsibility for offering recommendations regarding siting, choice of technology, health effects and mitigation measures, markets for waste disposal and the generation of energy, financing, traffic, and public participation. All in all, the committee should be the focus of

public dialogue.

3) Trust. A mistake that happens all too often is to expend considerable effort in selecting the perfect advisory committee, and then ignore their recommendations. "Sell jobs" become obvious to active members of the committee, and will quickly backfire. Once the committee is formed, facility proponents have a responsibility to give the committee its due respect, provide it with timely and pertinent information, and seriously evaluate the committee's recommendations.

The committee is a critical element for managing community acceptance, and it should be treated as such. The facility management team should be candid in discussing the relevant issues of the project. Many projects will attract the attention of highly competent attorneys, professionals, and natural scientists. It is unlikely that potential disadvantages will escape the attention of the informed public. If project proponents decide that some information on the project cannot be released for competitive or other valid reasons, the category of confidential information should be as small as prudently possible.

Furthermore, preliminary data and information are frequently subject to change as the project develops. As estimates change, facility proponents should be the first to announce the changes. Credibility and trust are best gained by project proponents being the first to bear bad news in an honest and realistic manner. It is extremely risky for proponents to withhold such information in the belief that it will not be revealed in the course of project

development.

Finally, the greatest compliment the facility management team could give to the advisory committee is serious consideration and, possibly, application of the committee's recommendations. Project management staff should provide written responses to each of the committee's formal recommendations, whether or not they are accepted. And incorporating various mitigating measures recommended by the advisory committee into project plans will grant the committee's efforts an air of legitimacy and help members recognize their contribution to the project. The committee will then come to feel a stake in the project, and believe that project proponents also have the community's interests in mind.

4) Committee Operations. In exploring the merits of various aspects of Waste-to-Energy projects, the advisory committee should be given guidance by the project's public affairs coordinator, but also should have a free hand to study pertinent topics of interest.

One program that was successfully implemented by the Long Beach Citizens Advisory Committee was a well-attended public seminar and workshop, through joint sponsorship of the workshop by the Sierra Club, League of Women Voters, and the committee. Basic questions of the direction and design of the project were asked at the workshop, and the feedback was used to help formulate project policy. The workshop also helped the advisory committee gauge overall public attitudes.



Any recommendations made by the committee should be expressed in a quasi-formal manner--by vote of the committee and in written form. Management responses to the recommendations should also be written.

The citizens advisory committee should be asked to support the project's feasibility and environmental impact reports prior to certification hearings. In the event of a split committee, provisions should be made for a minority report for inclusion in the final EIR.

#### News Media.

With the advent of the citizens' advisory committee, the Waste-to-Energy project will become newsworthy. News coverage will probably focus on the negative aspects of the project and the controversies with the public. This is understandable given that consensus makes for boring news. The key concern is that the news coverage is not ignorant of the facts.

The public affairs coordinator should strive for favorable relations with the news media. This also is best achieved with media through an honest and complete dissemination of information. The news media should be initially introduced to the project as part of a recycling program, perhaps including the city council resolution, and a complete description of future directions. Since it is easier to attack a program than sell one, the "anti"

forces tend to get more news attention. The initial news release, and all subsequent releases, should counteract this tendency by bluntly attacking the current system of waste disposal for its negative features (water pollution, land consumption, and so forth) while offering the new project as a positive program for change.

News releases should emphasize facts and figures rather than opinions, and briefly discuss both sides of relevant issues. Too many opinions in news releases can cause a loss of credibility to the reporters.

Many television and radio stations have locally produced programs concerning community affairs. These programs may be talk shows, human interest spots, or news reports. Project proponents should talk with the program director about the interesting aspects of the project that would be relevant to such a program.

Most of all, project proponents should make special efforts to have frequent and personal contact with the relevant news reporters and editorial staffs of the local news media. Honesty, accuracy, and accessibility of project information are essential to well-rounded news coverage.

Although it is good policy to employ a diverse range of media for the dissemination of information, people who are better educated and more active in public affairs tend to rely on newspapers more heavily than television and radio for information.<sup>31/</sup> Newspapers have the room to treat news items more fully and those who read newspapers have demonstrated higher rates

of information retention. Furthermore, local newspapers are more likely to cover news items that affect a limited locale.

Television and radio news programs often focus on subjects that appeal to a wide audience.

Nevertheless, those who read newspapers also tend to gather information from the electronic media, while those who indicate the electronic media is their primary source of news information do not tend to read newspapers regularly. Newspaper reports will best reach the community's opinion leaders and political activists, but newspaper reports will tend to miss the lower socioeconomic strata. This is an important point for projects that may be attempting to site in areas that contain residential pockets of the lower classes. Close proximity to the proposed facility may make these people highly likely to participate in the siting decision. Information dispersion by the electronic media becomes particularly important to reach this group that could become a potent opposition force.

#### Public Relations Campaign.

A public relations campaign can provide a welcomed compliment to the dispersion of news information. There are an assortment of standard public relations techniques that can contribute to a balanced understanding of the proposed Waste-to-Energy project. These include speakers bureaus, slide presentations, site visits,

brochures, newsletters and position statements.

Speaking engagements and slide presentations, usually done in concert, are the most effective means of carrying a public relations message. Unlike the activities of the advisory committee and news stories, speaking engagements emphasize one-way communication. Of course, dialogue can and should be encouraged, but the primary message is the proponent's. The personal contact afforded these presentations is their greatest value. In spite of reaching limited audiences, a survey of sources of information in a community on water resources issues found that personal contact with involved professionals ranked as the most influential source.<sup>32/</sup> And the value of personal contact cuts across all socioeconomic groupings.

Speaking appearances must be sought actively. The citizens' advisory committee and project proponents should contact every organization to let them know speakers are available. All kinds of service clubs, PTAs, schools, and professional associations can be approached. Representatives from these groups should have been working with the advisory committee all along, and as a result there should be few problems arranging the appearances.

Brochures, newsletters, and position papers can help provide a convenient and immediate source of project information. Their distribution can enhance any personal appearance. Furthermore, distribution through the mail or at information outlets can disperse information to concerned individuals who may not otherwise be reachable. Mailing lists should include nearby

residencies, opinion leaders, elected officials, and community organizations. Position papers could also be sent to the editorial staffs of news media and the staffs of newsletters of community service organizations.

Escorted tours of the proposed site area and/or of existing waste energy facilities should be an on-going invitation. Public concerns can sometimes be alleviated by familiarity with the facility and site. If the site is compatible with adjacent land uses, or an existing facility well maintained, many fears of the public could be eliminated. A facility open to the public would also help to bolster the image of trustworthiness.

## CONCLUSIONS

Although Waste-to-Energy facilities have little in common with hazardous waste landfills, the public often does not perceive it that way. Public opposition has become the greatest single obstacle to the successful siting of Waste-to-Energy projects in California. Many of the reasons for this public concern are rooted in previous experiences with poorly managed waste facilities, especially hazardous waste landfills.

Such misconceptions may be difficult to overcome. But a concerted public participation program, justifiably wrapped in some of the very pro-environmentalist arguments used against landfills, can be a highly effective tool in educating the public as to the true nature of Waste-to-Energy projects. Waste energy projects are environmentally progressive facilities, and this point should be emphasized in an education program, and used extensively to secure public support.

Other complaints by the public are not so easily resolved. The most problematic of these complaints is oriented around the inconveniences and displeasures a waste facility gives to nearby residencies. There are methods of alleviating the costs imposed on local residencies. The most important, of course, is selecting a site that least offends the surrounding community. A heavy industrial site that is a considerable distance from residential and commercial activity, that supplies a local market, and is

compatible with the spirit of the host community is favored. If no industrial site is possible, as in the case of rural communities, the objectives that project proponents should strive for in selecting a site are remoteness and compatibility with surrounding land usage. In fewer words, this usually means an existing landfill or waste transfer station. Outside communities, however, should not attempt to situate a Waste-to-Energy project in what they perceive as a remote rural community.

A personality profile of those who are most likely to support and oppose Waste-to-Energy projects provides a valuable working framework for project proponents. Candidate sites can be suggested partly on the basis of neighborhoods least likely to express opposition--older, conservative, and lower socioeconomic neighborhoods. Meanwhile, the people most likely to express opposition to a Waste-to-Energy project--residents in the vicinity, liberal, and higher educated persons--can be targeted in a public participation program and public relations campaign.

If a participation program is deemed appropriate, citizen concerns from likely activists can be channeled into a nonconfrontational process comprised of an independent citizens' advisory committee established as one part of a community-wide recycling program. The citizens' advisory committee should be viewed not as a "rubber stamp" for the project, but as a barometer of community acceptance of specific sites and the project itself, as well as an educational forum for both project proponents and the public. Concurrently, the media, especially newspapers, and

other public relations tools should be employed to keep a check on the dispersion of inaccurate and damaging information and rumors, and also to serve as a tool for the citizens' advisory committee to maintain dialogue with the community.

The siting of major Waste-to-Energy projects will probably always remain a difficult task. But many of the sources of opposition are unnecessary at best; and many others can be alleviated. With the proper political considerations, there is no reason that these projects should have such a poor track record in gaining community acceptance.



APPENDIX A

QUESTIONNAIRE:

Site Selection of Waste-to-Energy Facilities

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Please provide the following preliminary information.

Name of city agency or company who sponsored the proposed waste-to-energy facility: \_\_\_\_\_

County/City of the proposed site: \_\_\_\_\_

Approximate county/city population: \_\_\_\_\_

Land use adjacent to the site (e.g. industrial undeveloped, residential): \_\_\_\_\_

Approximate size of the proposed facility site: \_\_\_\_\_

Projected market for the facility's waste disposal services (on-site, predominantly local, predominantly nonlocal): \_\_\_\_\_

Projected market for the facility's energy generation services (on-site, predominantly local, predominantly nonlocal): \_\_\_\_\_

Was the siting successful? \_\_\_\_\_

\*\*\*\*\*

In answering the following questions, feel free to use additional sheets of paper if needed.

1. Was the proposal for a waste-to-energy facility initiated by the local county/city government? \_\_\_\_\_

If not, at what stage of the siting process were local government officials consulted regarding the proposed facility? \_\_\_\_\_  
\_\_\_\_\_

2. Did local officials at any time approve of the proposed site? \_\_\_\_\_

If yes, did local government support waiver between the earlier and later stages of site selection? \_\_\_\_\_  
\_\_\_\_\_

3. At what stage of the siting process was a public announcement made of the proposed facility? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Were community groups involved in the site selection process? (Please list the groups, if applicable)  
\_\_\_\_\_  
\_\_\_\_\_

5. Were community groups involved in the site development process? (Please list the groups, if applicable)

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6. Did the governmental agency/corporation sponsoring the facility have any other previous involvements with the proposed host community? (Please describe)

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7. Did your agency/company establish a public relations office, complete with a budgetary allocation, prior to selection of the proposed facility site? \_\_\_\_\_

If no, did your agency/company ever establish a public relations office designed to promote community acceptance of the proposed facility? \_\_\_\_\_

8. What criteria, if any, were used in the site selection process to determine community reaction to the proposal?

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9. Which groups--government, environmental, community, and so forth--spearheaded opposition of the proposed site?

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10. What reasons for opposition were usually expressed, and which reasons were of primary importance? \_\_\_\_\_

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11. Which efforts to encourage community acceptance were most effective? Least effective? \_\_\_\_\_

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12. Did your agency/company offer any concessions or compromises to community groups in attempting to secure the proposed site? \_\_\_\_\_

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13. Is public participation in the site selection process and/or the development planning stages an important element in gaining community acceptance of the waste energy project?

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14. Upon reflection, how could your agency/company have further enhanced community acceptance of the waste-to-energy facility site? \_\_\_\_\_

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15. Which community groups, including business and labor unions, supported the proposed site? \_\_\_\_\_

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APPENDIX B

California Waste-to-Energy Projects:

A Survey

There are currently 43 major Waste-to-Energy projects in various stages of planning development in California. Of these, 33 have progressed, with or without success, beyond the first preliminary stage of concept formulation. Additionally, there are 13 private institutions in the state and two schools that have constructed small, modular waste-to-energy facilities or are planning to do so. A questionnaire concerning public attitudes toward these facilities and other relevant information has been sent to leading proponents of the latter 48 projects. The results regarding major aspects of these projects are given below. There is a 54 percent return rate thus far.

Apparently Successful Projects. The following six major projects have indicated significant community acceptance.

NAME MARKET**	LOCATION	SITED*	SITE AREA	
Contra Costa County	Richmond	P	Industrial	PL
City of Long Beach	Terminal Is.	Y	Heavy Industrial	PL
City of Commerce	Commerce	P	Heavy Industrial	PL
Lassen College	Susanville	Y	On Site	PL
Guadalupe Disposal	San Jose	Y	Undev. Industrial	PL
Tri-Cities Project	Fremont	P	Landfill	PL

Delayed Projects.

NAME MARKET**	LOCATION	SITED*	SITE AREA	
San Francisco	Brisbane	N	Landfill	PN
SANDER	National City	PN	Naval Base	PN
Gardena	Gardena	N	Freeway	PN
Berkeley	Berkeley	PN	unknown	unknown
Pleasanton Garbage	San Leandro	PN	Transfer Station	PL
North Santa Clara County	Cupertino	PN	unknown	PN

Early Projects. It is unknown at this time whether the following projects will be sited.

NAME	LOCATION	SITED*	SITE AREA	MARKET**
Alameda	Alameda	UN	Industrial	PN
County of Sacramento	Sacramento	UN	Industrial	PL
Central Contra Costa County	Concorde	UN	unknown	unknown
Santa Clara	Santa Clara	UN	Landfill/Mixed	L/N
County of Santa Cruz	Santa Cruz	UN	Stopped because of finances	
San Jose	San Jose	UN	unknown	unknown
Fresno	Fresno	UN	Heavy Industrial	L/N
County of Fresno	Sanger	UN	Industrial	PN
Visalia	Visalia	UN	unknown	unknown
County of Riverside	Riverside	UN	unknown	unknown
Central City Resource Recovery	Los Angeles	UN	Industrial	PL
County of San Bernardino	Ontario	UN	Landfill	PN
South Gate	Los Angeles Co.	UN	unknown	unknown
Puente Hills	Los Angeles Co.	UN	unknown	unknown
Vichy Hills Power	Ukiah	UN	unknown	PL
Humboldt Bay Power	Eureka	UN	Transfer Station	PL
Modesto	Modesto	UN	unknown	unknown
Stockton	Stockton	UN	unknown	unknown
Raven-Vicon	Fresno	UN	unknown	unknown



NAME	LOCATION	SITED*	AREA	MARKET**
Central Valley Bio Energy Company	Sanger	UN	unknown	PL

- \* "P" designates significant progress into the siting stage with manageable levels of public opposition.  
 "Y" designates community acceptance of the site.  
 "N" designates the site has been rejected.  
 "PN" designates the site is facing overwhelming opposition.  
 "UN" designates unknown.

- \*\* "PL" designates a predominantly local market.  
 "PN" designates a predominantly nonlocal market.  
 "L/N" designates both a local and a nonlocal market.

NOTE On-Site and School results are not included

APPENDIX C

SURVEY ANALYSES:

DEMOGRAPHIC CHARACTERISTICS OF SUPPORT AND OPPOSITION TO MAJOR FACILITIES

STRONG INDICATORS:

Demographic Characteristic	Group Resistance to Major Facilities	
	Least Resistant	Most Resistant
Region	South; Midwest (Gallup, 1976 and 1979; Kamlet, 1979)	Northeast; West  California (Kamlet, 1979)
Community Size	Small, usually under 25,000 population (NACORF, 1977)	Large, especially over 249,999 population
Community Location	Rural (Calvert, 1979; Althoff and Greig, 1977; Buttell and Flinn, 1978)	Urban
Distance from Facility	Geographically beyond aesthetic affect (Kamieniecki and Milbrath, 1978; Harris, 1970; Koenig, 1975)	Near the facility
Facility Employment	Employed or knew person employed by facility (Kamieniecki and Milbrath, 1978; Sharma, et al., 1975)	No association
Economic Impact on Community (Perceived)	Significant economic benefits (Gallup, 1976; Kamieniecki and Milbrath, 1978)	Insignificant benefits
	Facility placed on existing landfill site (Loguidice, 1976)	New site

STRONG INDICATORS, Cont...

Demographic Characteristic	Group Resistance to Major Facilities	
	Least Resistant	Most Resistant
Political Ideology	Conservative (Constantini and Hanf, 1972; Dunlap, 1975; Weigel, 1977; Buttell and Flinn, 1978; Calvert, 1979; Van Liere and Dunlap, 1980)	Liberal
	Free market orientation (Mazmanian and Sabatier, 1981)	Welfare state orientation
Age	Above middle age (Hetrick et al., 1974; Hornback, 1974; sharma, 1975; Grossman and Potter, 1975; Althoff and Greig, 1977; Buttell and Flinn, 1978; Hart, 1980; Van Liere and Dunlap, 1980)	Young and middle age
Educational Attainment	High school or less (Hetrick et al., 1974; Buttell and Flinn, 1974; Grossman and Potter, 1977; Althoff and Greig, 1977; Buttell and Flinn, 1978b; Calvert, 1979; Van Liere and Dunlap, 1980)	College*

MILD INDICATORS:

Demographic Characteristic	Group Resistance to Major Facilities	
	Least Resistant	Most Resistant
Party	Republican** (Springer and Constantini, 1974; Dillman and Christenson, 1972; Koenig, 1975; Buttel and Johnson, 1977; Grossman and Potter 1977; Buttel and Flinn, 1978; Mazmanian and Sabatier, 1981)	Democratic  Inter-party competition in government (Lester et al., 1982)
Occupation	Rancher/Farmer (Calvert, 1979)  Business related (Buttel and Johnson, 1977; Constantini and Hauf, 1972)  Technology related (Malkis and Grasmick, 1977)  Nature exploitive (Harry, 1971)	Professional***
Income	Low (Buttel and Flinn, 1974; Althoff and Greig, 1977; Buttel and Flinn, 1978; Van Liere and Dunlap, 1978 and 1980)	Middle and High
Religion	Catholic (Hetrick et al., 1974)	Other
Issue Awareness	Not concerned (Hetrick et al., 1974; Kamieniecki and Milbrath, 1978)	Concerned****

MILD INDICATORS, Cont...

Demographic Characteristic	Group Resistance to Major Facilities	
	Least Resistant	Most Resistant
Personal Activism	Not involved in voluntary associations (Hetrick et al., 1974; Althoff and Greig, 1977)	Activist
Age of Community	"Old-timer" residents of 20+ years (Hetrick et al., 1974; Sharma, 1975)	Residents of five to 20 years

NOTES

- \* A national opinion poll conducted by Gallup in 1979 found educational attainment not to be an indicator of support or opposition to the construction of a nuclear power plant within five miles of residence. Gallup, however, appears to be alone in underestimating the value of educational attainment.
- \*\* Though the dominant finding of attitudinal surveys places party affiliation as a mild indicator of support or opposition to environmental restrictions on business, some studies have found party affiliation to be a strong indicator. Many of these studies that value party affiliation are concerned with elites, either legislators, congressmen, or students (See Dunlap and Gale, 1972; Dunlap and Gale, 1974). But many other such studies have also focused on the general public (See Tognacci et al., 1972; Gallup, 1979; Calvert, 1979).
- \*\*\* One occupational classification has consistently demonstrated itself as a strong indicator of opposition to the siting of noxious facilities, especially nuclear power plants -- housewives (Kamieniecki and Milbrath, 1978).
- \*\*\*\* A national opinion poll conducted by Gallup in 1976 found a reverse trend. Issue unaware persons were the most vocal in their opposition to the siting of a nuclear power plant within five miles of residence.

ENDNOTES

- 1 California Waste Management Board, Progress and Challenge: Waste-to-Energy Projects--1982 (Sacramento: California Waste Management Board, 1982)
- 2 Ibid, p. 2.
- 3 Subcommittee on Transportation and Commerce of the House Committee on Interstate and Foreign Commerce, 94th Cong., 2nd Sess., Materials Relating to the Resource Conservation and Recovery Act of 1976 (Print No. 20, 1976: 22-25).
- 4 U.S. Environmental Protection Agency, Draft Environmental Impact Statement for Subtitle C (January, 1979: V-36).
- 5 Examples of environmental disasters include Nockamixon Township, Pennsylvania; Pennsylvania Township, New Jersey; Galena, Illinois; Kent County, Maryland; Denver County, Colorado; Issaguah, Washington; and Olney, Illinois.
- 6 In a telephone conversation, a representative of the Guadalupe Disposal Company noted that the experimental conditions of their Waste-to-Energy facility use permit was an important element in alleviating the initial surge in public opposition to the facility.
- 7 Centaur Associates, Inc., Siting of Hazardous Waste Management Facilities and Public Opposition (Washington D.C.: U.S. Environmental Protection Agency, 1979), p. III.
- 8 The Monsanto Chemical Company constructed a well engineered secured landfill in Bridgeport, New Jersey. The landfill has a double-liner system in a special subsoil. Leachate is now leaking.
- 9 Rigo & Rigo Associates, "State-of-the-Knowledge Report on the Disposal of Incinerator Ash," August 1982.
- 10 Previous experiences include a knowledge of other poorly managed waste disposal systems, or an adverse reputation of the facility sponsors. Companies that are known by the community as having a history of inadequate management of waste disposal sites routinely face public opposition to expanding existing sites or creating new ones.
- 11 The actual impact of Waste-to-Energy facilities on property values has apparently never been measured. Some studies have demonstrated an adverse effect on property values from landfills, airports, highways, and other noxious facilities. It is reasonable to assume a similar affect by a Waste-to-Energy facility.

## ENDNOTES

11 (continued)

There is a second point, however, that needs to be considered. Facility proponents often claim that the economic benefits that will accrue to the community as a whole in the form of additional tax revenues and reductions in waste disposal and energy bills outweigh the costs of lower property values burdened by some residences. The accuracy of this claim depends on the number of residences affected, and the extent of the effect. Lower property values will directly translate into a lower tax base for the community. It is possible that the resultant loss in residential property taxes may be greater than the new tax revenues from the Waste-to-Energy project. The National Conference of State Legislatures, in Hazardous Waste Management: A Survey of State Laws 1976-1980, suggests the latter may be the case in regard to hazardous waste facilities.

Furthermore, a major Waste-to-Energy project may well alter the character of a community, and thereby influence its economic development. The zoning of heavy industry could discourage commercial development in the area, especially commercial office space, that in turn would limit the growth of a white collar labor force. A demographic shift toward a blue collar labor force would structurally also lower the tax base. The structural impact of a Waste-to-Energy project on any given community obviously varies depending on the community's current zoning plans, the nature and area covered by any necessary zoning changes, the existing dominant economic bases of the community, and the competency of the local government in planning future development.

12 Offering various economic incentives to the host community in an attempt to balance the social costs of the facility is a common practice, especially by Waste-to-Energy facilities that produce sufficient profits from energy production and tipping fees. In the present survey, however, such incentives appear to have had little impact on community attitudes in California.

13 For the most part, the argument of economic necessity has only demonstrated a reasonable track record for hazardous waste sites. A chemical industry often does form the lifeblood of a community, and the business requires adequate waste disposal services. The hazardous waste landfill acquired by the Monsanto Chemical Company in Bridgeport is one such example.

## ENDNOTES

- 14 Gary Liss, Coordinator of the Solid Waste Program in San Jose, is planning on introducing the city's proposed Waste-to-Energy facility as one part of a complete recycling program. San Jose's project is still in the preliminary stages of project development. Consequently, there is as yet no confirmation of whether such a recycling approach will be effective in easing public concerns.
  - 15 The Sanitary Fill Company had narrowly won approval by Brisbane voters on an earlier waste facility referendum. The company barely received approval to construct a waste transfer station that currently serves both cities' needs. Besides being useful to Brisbane, the transfer station is commonly viewed as less offensive than an actual waste disposal site. Given the amount of opposition that arose against the transfer station, it was unrealistic to expect a successful siting of a Waste-to-Energy facility that provides only modest royalties and modest savings on energy bills for the host community.

Even had the company made the facility a joint San Francisco/Brisbane venture, the project probably still would have failed. Brisbane had no pressing need for the facility and the perception of being used as San Francisco's dumping ground had already received considerable adverse publicity in the earlier referenda. In addition, some of San Francisco's previous landfills in Brisbane were poorly managed. The proposed site for the Waste-to-Energy facility also was near a residential area (and adjacent to the transfer station) and the siting would have required a zoning change from light industrial to heavy industrial. Public opposition to the plant was so strong that even a group of people least likely to become involved in environmental disputes--senior citizens--were in the forefront of the opposition movement.
  - 16 Centaur Associates, Siting Hazardous Waste Management Facilities, pp. 210-215.
  - 17 Hazardous Materials Intelligence Report, February 13, 1981, p. 7.
  - 18 Hazardous Materials Intelligence Report, July 24, 1981, p. 3.
  - 19 Frank Blaszcak, Public Information Coordinator of the Southeast Resource Recovery Project in Long Beach, conducted a demographic survey of the area surrounding the proposed site. In what has been the most comprehensive public parti-
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## ENDNOTES

- 19 (continued)  
cipation program to date, the Long Beach facility has gained the public's enthusiastic approval.  
Another source of demographic information that has yet to be explored is the referenda results expressing voter dissatisfaction with Waste-to-Energy projects in Berkeley, Gardena, and Brisbane. A precinct by precinct tally of the votes, contrasted with the predominant demographic characteristics of the precincts, would reveal some useful trends.
- 20 Smith and Mahoney, an Albany-based engineering consulting group responsible for the construction of Albany's Waste-to-Energy facility, noted that the same groups of people opposed to any kind of "garbage dump" also stand opposed to waste processing facilities.
- 21 "Sites which do not conflict with surrounding land uses include those located in clearly defined industrial areas and those in truly isolated areas. However, many sites which appear to facility sponsors to be remote or not in conflict with surrounding land uses are not perceived in the same way by local residents. Most of the sites visited which were located in rural areas faced opposition for this very reason. The four sites visited which faced little or no opposition were all located in industrial areas."  
Centaur Associates, Siting of Hazardous Waste Management Facilities, p. 24.
- 22 Centaur Associates, Siting of Hazardous Waste Management Facilities, p. 21.
- 23 Frank Blaszcak, "Southeast Resource Recovery Public Participation Program of the Sanitation Districts of Los Angeles County," mimeo, August 1982.
- 24 Representatives of business groups have a vested interest in promoting development. The answers they provide in interviews should be taken somewhat skeptically, and independent confirmation should be sought.
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## ENDNOTES

- 25 Ronald T. Luke, "Managing Community Acceptance of Major Industrial Projects," Coastal Zone Management Journal, Volume 7, 1980, p. 280.
  - 26 There have been cases of successful sitings in ideal locations using the low-profile approach. Nonetheless, there is a danger that public opposition could materialize regardless of the location, and organize for the required public hearing. Public discussions at the hearing phase of project development tend to be confrontational in nature, and could easily persist as an uncompromising attitude toward the project. If facility proponents opt for the low-profile approach, care should be taken to avoid the detrimental image of "power politics" at the hearing. Steam rolling through the permitting process in the face of public opposition may result in winning the battle but losing the war. Other means of opposition besides defeating the permit applications are readily available to individual citizens, particularly litigation. Unexpected opposition should be greeted respectfully and cautiously. The permitting process should be postponed, and facility proponents should discuss the issues with whoever expresses sufficient interest to attend the hearing.
  - 27 Langier, "Voluntary Approach to Hazardous Waste Disposal," Boston Globe, July 7, 1980, p. 13.
  - 28 William Bulkeley, "EPA's New Rules Don't Solve Problem of Scarcity of Sites," Wall Street Journal, November 18, 1980.
  - 29 Lawrence Bacow; and James Milkey, "Overcoming Local Opposition to Hazardous Waste Facilities: The Massachusetts Approach," Harvard Environmental Law Review, Volume 6, 1982.
  - 30 Project designs should attempt to incorporate plans for recycling non-combustible components of the waste product, especially metals. Perhaps, plans could be made to imitate the operations of other Waste-to-Energy facilities in different countries and utilize the ash residue as structural landfill for road building.
  - 31 Borton and Warner, "Water Resources Planning," Environment and Behavior, September 1971, pp. 294-295.
  - 32 Ibid.
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