
Newark

*A Case Study of
Economic Development and Resource Recovery*



United States Conference of Mayors
Institute for the Development of
The Urban Arts and Sciences

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UNITED STATES CONFERENCE OF MAYORS
Institute for the Development of
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Case Study of Newark, New Jersey

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Newark



Newark, New Jersey, embarked on an ambitious resource recovery program six years before the surrounding region began comprehensive solid waste planning. During the implementation of its program, Newark developed several innovative approaches, including:

- * Incorporation of a recycling project into its plans to develop a waste-to-energy facility, as part of a comprehensive solid waste management program;
- * Use of economic development objectives as justification for the aggressive pursuit of a resource recovery program;
- * Reliance on potential bidders to refine the procurement process for a full service contract;
- * Use of a Blue Ribbon Advisory Committee to review bids and ensure project feasibility.

Though Newark's innovations were significant, the City has not yet achieved its objective of developing and operating a \$70 million waste-to-energy facility that would stimulate the City's sagging economy. These objectives have not been achieved largely because:

- * The City entered into a full-service contract for a program using RDF (refuse-derived fuel), a waste-to-energy technology yet to be proven feasible by the full service contractor hired for this project. As of October, 1980, Newark's contractor, Combustion Equipment Associates (CEA), filed for financial reorganization under Chapter 11 of the Federal Bankruptcy Code, further jeopardizing Newark's position.
- * Under the full service contract the City signed over to CEA full control of the

energy contract negotiations with potential industrial customers. While minimizing project risks for the City, this approach also forfeited the City's ability to target

the sale of energy in ways that would stimulate economic development. However, given recent developments with CEA, Newark's decision in 1977 to minimize risks seems wise.

RESOURCE RECOVERY PROJECT DESCRIPTION

Newark first developed an overall Solid Waste Plan of Action in 1975. The City established a program that was comprehensive in its scope, ranging from initiation of an innovative urban recycling program, to the development of a sophisticated waste-to-energy facility which it hoped would contribute to the development of a major industrial park.

Newark Recycling

Newark organized "Project Resource" in 1976 to perform recycling services for the City under a grant from the Law Enforcement Assistance Administration. The purpose of the project was to use recycling as a means of assisting former offenders in their attempt to re-enter the labor force. In 1978, the City reorganized this effort as a nonprofit corporation, Newark Recycling, Inc., to perform these services under a performance-oriented contract. Newark Recycling currently operates a commercial office paper collection program in over 80 downtown office buildings, a curbside newspaper collection program in four of Newark's five wards, and a series of drop-off recycling centers throughout the city for glass and metal.

The variety of approaches taken to recycling reflects the diverse needs of different neighborhoods in Newark. Newark Recycling has sought to identify those needs by working with active community based groups, and designing recycling programs to serve those needs. In some cases, Newark Recycling has instituted a "buy-back" recycling center which pays individuals for

aluminum brought in for redemption. In other cases, a neighborhood group assumes responsibility for the center and shares in the revenues received by Newark Recycling for their recycled materials.

Newark Recycling presently employs 30 people in recycling roles: 11 drivers and collectors, and 19 employees who sort and upgrade collected materials to meet market specifications at its warehouse. In addition, 15 other staff are involved in administering the operations, and in providing counseling and placement services for the transitional work force. To date, the project has placed 78 of the more than 260 former offenders in private industry, in jobs ranging from minimum wage to more than \$16,000 per year.



Newark Recycling collects approximately 65 tons per month at present, a rate which will recover 760 tons of recyclables each year. Newark Recycling has been expanding its collections by approximately 150 tons per year since its initial collections

began in 1976. Although some of the recent increases can be attributed to its expansion into the neighboring town of East Orange (under an 18-month demonstration contract), Newark Recycling remains the largest urban recycling program in the State of New Jersey, and one of the longest running urban recycling programs in the nation.

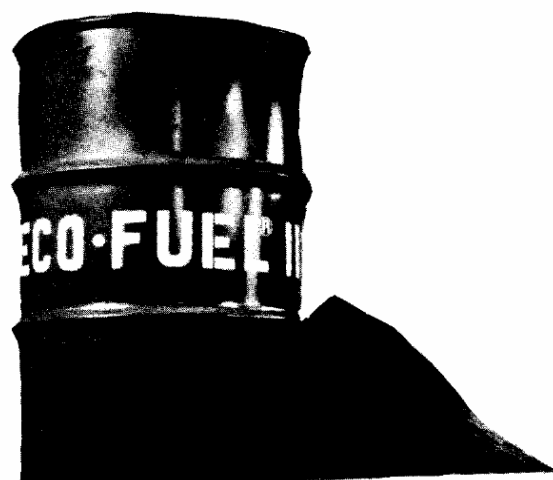
Resource Recovery Facilities

Newark signed a 20-year full-service contract with Combustion Equipment Associates (CEA) on June 1, 1977 for a \$70 million waste-to-energy facility to be financed, built and operated by CEA. Newark pledged to provide a minimum of 550 tons per day of solid waste to the facility, and committed to pay \$3.99 per ton as a "tipping fee." Newark's contract with CEA called for escalation of the operating costs in accordance with the Consumer Price Index. Newark currently anticipates it will pay an adjusted price of \$8-10 per ton in 1983 when CEA's facility is expected to come on line. This price may be adjusted downward by Newark's share in revenues from the sale of energy by CEA, depending on world energy prices at that time.

CEA plans to build a 1000 ton per day facility on a 25 acre site in Newark. The firm eventually hopes to triple the facility's capacity. The facility will produce a powdered refuse-derived fuel (RDF) which CEA calls "Eco-Fuel II." This fuel will be sold to the local utility, Public Service Electric and Gas Company, under a 20 year contract. The contract has a one-year test provision that

requires CEA to prove the fuel's effectiveness. The modifications required at the utility's boilers in Ridgefield Park (10 miles away, along the New Jersey Turnpike) will be financed by the project.

Newark also encouraged the private sector to invest in an innovative hazardous waste treatment facility which serves local and regional industrial needs. SCA Chemical Services built a 500,000 gallon per day plant in the summer of 1978, which currently operates at 10 to 20% of capacity, six days per week.



In addition, Newark has proceeded to work with both the County and the regional Port Authority of New York and New Jersey to explore the possibility of constructing a second regional waste-to-energy facility in Newark, as part of a comprehensive industrial development program.* Newark could be the first city in the nation with more than one waste-to-energy facility.

* A related case study has been completed by the Conference of Mayors on the Port Authority Program.

GOALS OF RESOURCE RECOVERY

The initial impetus for development of the Newark Resource Recovery Program was the need to improve solid waste disposal facilities for this basic municipal service. In December, 1975, when the Newark Solid Waste Disposal Plan of Action was published, the situation clearly justified concern. Only two years of use remained in the last landfill located in the City. Additional landfills were available in the nearby Hackensack Meadowlands. They were, however, more distant and fees were expected to increase as State environmental enforcement grew increasingly more stringent.

In its planning, Newark also sought to solve the waste problem in a way which would provide the City with other benefits. The 1975 Plan recommended the development of resource recovery systems, anticipating that they would be more cost-effective in the long-term than landfills:

"Rapid cost increases for disposal, limited landfill areas, increased recognition of the depletion of our country's vast wealth of energy and material resources, and increasing solid waste generation in the region are creating the need for a new cost-effective solid waste disposal system. In light of the "energy crisis" Americans have finally come to realize that our energy and material resources are not infinite, and that steps should be taken now to end the waste of the past and to begin to conserve and better utilize what resources we still have...A resource recovery facility will...dispose of its solid waste problem in a more environmentally acceptable manner than the other alternatives, while restoring confidence in the ability of the local government to respond to this serious problem in an innovative and dynamic manner."

Despite the establishment of a goal of moving toward resource recovery, the City did not include this as part of its bid specifications when it sought the investment of the private sector in 1976. The City did not feel it had the expertise to artificially compare the economics of resource recovery and landfilling in the abstract. Instead, the City sought bids that would enable it to make these comparisons. The City requested proposals guaranteeing a maximum tipping fee for the length of a 5-year landfill contract, or 20-year resource recovery contract. No bid was received on the landfill option. Two bids were submitted for resource recovery. Subsequently, a contract was awarded to the lowest responsible bidder, CEA.

Recycling Compatibility

Maximizing recycling was included as a goal in the 1975 plan, and has been part of official thinking in Newark since. Newark's progressive policies sought to overcome skepticism about the potential for large-scale urban recycling. Newark saw urban recycling as a question of approach--how mass recycling can be done, not whether it can be done.

The first step was to relate recycling to community needs. One way of doing this was to link recycling with job development and the reduction of crime rates. In a community with a high unemployment rate and equally high crime statistics, Newark established "Project Resource" in 1975 to provide jobs for former offenders and youth with criminal backgrounds. The program's goal was to use recycling as a way to provide these people with new opportunities.

Project Resource evolved into Newark Recycling in 1976. Now that it has become established in the community through support by state and federal anti-crime programs, Newark

Recycling has increasingly recognized that it must achieve economic self-sufficiency in order to maintain the programs it has developed. By 1983, it hopes to triple its present level of recycling in order to have sufficient revenues to support a streamlined version of its present operations. This effort has been pursued actively, partially through the support of the U.S. Environmental Protection Agency.

While Newark developed this innovative recycling goal for its Resource

Recovery Program, it also became an advocate in the State for combining recycling with waste-to-energy programs. In 1978, Newark supported the adoption by the State Department of Energy of a goal to recover 20% of the State's municipal solid waste stream through source separation recycling programs. In 1979, Essex County (in which Newark is the county seat) adopted a comprehensive solid waste plan which included a similar 20% goal.

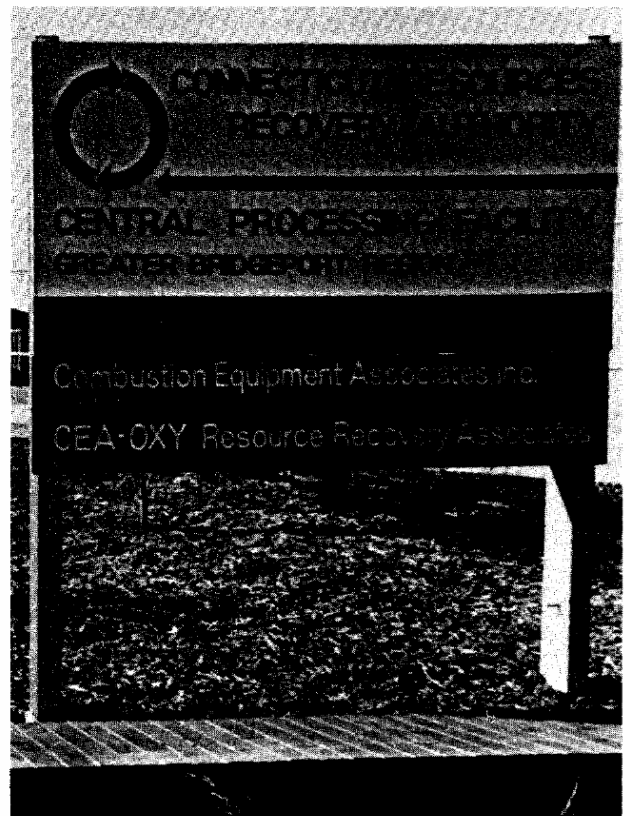
CRITICAL FACTORS AFFECTING RESOURCE RECOVERY DEVELOPMENT

RDF Technology Delays

Newark's contract with CEA provides for CEA to finance, build and operate a waste-to-energy facility in the City. It does not provide specific directives for what type of technology is to be used, nor a specific time frame for its implementation. CEA had indicated in its bid response that it planned to use its patented "Eco-Fuel II" refuse-derived fuel (RDF) technology in the Newark project. However, since signing the contract with Newark, CEA has not yet completed the shakedown of operations of its first commercial-scale Eco-Fuel facility in Bridgeport, Connecticut.*

Rather than begin a second waste-to-energy project in Newark, CEA has chosen to complete its shakedown in Bridgeport to ensure that its technology works. Although a full-scale demonstration plant which CEA built and operated in Brockton, Massachusetts had convinced both the City and CEA that their technology could accomplish its objectives, the Bridgeport facility represents a significant scaled-up version. This would be duplicated in Newark.

* The Conference of Mayors has also prepared a case study of the Bridgeport project.



CEA Bankruptcy

CEA's difficulties in implementing its project in Bridgeport has been instrumental in bringing the company to the verge of bankruptcy. In October, 1980, Combustion Equipment Associates (CEA) filed for financial reorganization under Chapter 11 of the Federal Bankruptcy Code. CEA was forced to pursue this extreme measure

in order to enable it to restructure its debt obligation to continue in business.

CEA's current financial difficulties occurred in significant part because of its investment of more than \$100 million since 1974 in the construction and operation of its Brockton, Massachusetts and Bridgeport, Connecticut resource recovery facilities. In Bridgeport, the company committed to meet the March, 1978 deadline of debt payments on \$53 million in bonds provided by the Connecticut Resources Recovery Authority. Due to strikes and other delays in implementing its technology in Bridgeport, CEA has been paying out \$13,000 per day (over \$10 million since 1978) in debt coverage, with minimal revenues paid back to the company for operation of their facility. The facility is still only operating at approximately 25% of capacity and requires additional modifications to meet its design requirements. However, the fuel produced by CEA has been successfully used by its energy market. CEA anticipates that the project could become a net revenue generator if it could sell enough fuel. CEA estimates that operations at 50% of capacity would provide this margin.

CEA and all of its subsidiaries are still in operation and expect to continue under a reorganized financial situation. All customers, including Bridgeport, are being served without interruption. CEA is still in control of its business and expects to complete the reorganization in a leaner and healthier position.

Implications to Newark

CEA's actions have heightened Newark's concerns about the viability of its contract for resource recovery. Newark recently had felt that it was still years ahead of any other political jurisdiction in New Jersey in implementing a resource recovery program. Although concerned with the delays resulting from Bridgeport, Newark recognized the benefit of waiting for CEA to prove its system. In addition, Newark is currently

paying approximately \$3.50 per ton to dispose of its solid waste in nearby landfills. Because these prices have not increased as rapidly as anticipated by Newark, the City is not anxious to begin paying the higher tipping fees required under the CEA contract until its other options run out.

At this point, the City is not sure whether CEA will fulfill its obligations under the resource recovery contract. CEA has indicated its intention to do so, since the October filing, but the City is no longer certain that CEA will be able to stand behind its intentions. As a result, Newark is reviewing the provision in its contract with CEA which provides a performance bond for approximately \$1,000,000. This bond was established at a level that would enable the City to pursue another resource recovery alternative, if CEA was not able to perform under the contract. This money would probably be sufficient for the rigorous analysis, planning, design and procurement activity that would be required for the City to pursue another resource recovery venture. Further developments will determine whether this course will be pursued by the City.

Regionalization

Newark has attempted to develop a regional program in cooperation with its surrounding suburbs and Essex County since November, 1971, when the City hosted a regional solid waste conference. From 1971 to 1975 the City tried to arrange for an appropriate regional mechanism to develop this major project while minimizing the risks to the City. Unfortunately, these efforts led to little action.

Recognizing the need to make better progress, the City sought bids on its own in 1976. Bid specifications were written to provide the opportunity for other towns in the region to join Newark's efforts later. Newark felt that other communities would be more likely to join the City if there was a hard, firm contract to consi-

der, rather than theoretical discussions and elaborate plans.

The City proceeded with its bid solicitation despite legislation passed in the State Legislature placing responsibility and authority for solid waste planning with county governments (Chapter 326, P.L. 1975). Had it taken effect immediately, the legislation would have made it extremely difficult, if not impossible, for Newark to go ahead with its plans. Fortunately, the effective date of that Act was dependent upon budget authorization for its implementation. The City signed its contract, after

ity over waste stream control under Chapter 326. The courts, however, upheld the City's right to proceed with implementation because its contract was signed prior to the date Chapter 326 went into effect. The County then underwent a major political upheaval and the new government has been more favorably disposed to working with the City. The City, in turn, has participated actively on a County Solid Waste Advisory Council which developed the County's new comprehensive solid waste management plan. In addition, the County has worked with the City in negotiations with the Port Authority of New York



approval by the State Department of Environmental Protection, in June, 1977. One month later, Chapter 326 went into effect.

Since July, 1977, the City and County have attempted to incorporate regional interests into the City Program. In large part, the County would like to locate its own resource recovery facility (in addition to CEA's) in Newark, in order to provide for the rest of the County's needs. In pursuit of this goal, the County sued the City to try to assert its author-

and New Jersey on the development of an industrial resource recovery park.

Host Community Fees

As part of the contract with CEA, the City negotiated a 50 cent per ton host community fee for every ton of waste brought to the facility from outside the City limits. The fee will be paid by CEA to help offset the indirect cost of providing city services to the site of this regional disposal facility (including water, sewers, streets, police and fire

protection). CEA agreed to this provision as a way of ensuring continued City cooperation in regionalization initiatives. The City also viewed this as a key economic incentive that would raise over \$300,000 per year, once CEA developed its regional 3000 ton per day system. This revenue could be used for a variety of purposes, including support for Newark's recycling activities.

Siting

Newark was fortunate in the development of its Resource Recovery Program to have identified a site

The site selected by the City has excellent transportation access. The 25 acre site is located directly on a major Conrail freight line. The site faces the Passaic River, which could provide access to shipping by barge. Most importantly, the site is less than 1/2 mile from an exit of the New Jersey Turnpike. The Turnpike provides easy access to the utility's generating station, 10 miles north of the site, directly along the Turnpike. The Turnpike also connects directly above Newark into Interstate 280. This road bisects Essex County and could provide a natural transportation corridor for



result, Newark designated its meadowlands area as urban renewal lands, to be developed as an industrial area for revitalizing Newark's economic base. City officials viewed the waste-to-energy facility as a tool for stimulating economic development and they welcomed the idea of locating such a facility within this valuable area.

transfer trucks from the rest of the County to use the Newark facility. This transportation system virtually eliminates the possibility of any negative impact of solid waste truck traffic on the City.

Waste Sink

Unlike many metropolitan areas, Newark was fortunate to have the State Legislature provide for its solid waste disposal needs in perpetuity. In 1968, the nearby Hackensack Meadowlands was established as a regional

planning district under the direction of the Hackensack Meadowlands Development Commission (HMDC). At the time of the HMDC formation, over 118 municipalities in 6 counties surrounding the Meadowlands used the area to dispose of their solid wastes. In order to have the District created, the Legislature sought to ensure support by mandating that the HMDC provide for the disposal of solid wastes in perpetuity for municipalities dumping at the time of its creation.

Since 1968, the HMDC has been working to develop alternative methods of solid waste disposal in the District. In 1977, it obtained a grant from the U.S. Department of Commerce (under the Local Public Works Program) for \$6.7 million to construct a 1000 ton per day baler for minimizing the amount of land used for waste disposal. Subsequently, the HMDC has worked with the surrounding counties to develop a number of waste-to-energy facilities in the region.

Newark sought to develop its waste-to-energy facility within its jurisdictional limits to minimize the costs of development and transportation, and to accrue the economic development benefits of that facility. The fact that the HMDC was required to dispose of Newark's waste in perpetuity gave the City the luxury of planning to build an innovative waste-to-energy facility, without serious concern about problems that might develop if the facility did not work. Newark arranged for HMDC to accept solid waste residue from the City waste-to-energy facility, as well as all the City's waste during facility down time. This arrangement minimized the risk to the City, and decreased the political concerns of such a major undertaking.

Minimum Commitment

Newark committed to provide CEA with 550 tons per day of its estimated 700 tons per day municipal solid waste stream. This minimum commitment of what the City believed to be 80% of its waste was based on assumptions by the City regarding accuracy of waste figures and City plans for source separation recycling.

The figure of 700 tons per day was computed by the City Engineering Department from volumetric data provided by the City Division of Sanitation. The City did not have scales to weigh its wastes at the landfills, so Newark collected data on the volume of wastes being dumped (by counting the number of trucks going to the landfill) and the average weights of different types of wastes. By multiplication, the City arrived at an approximate tonnage figure that served the purposes of bidding and contract arrangements. However, the City had little confidence in the accuracy of those figures, and was concerned about commitments to provide waste in excess of what actually was available to the City.

Newark also established a goal of expanding its recycling programs to the maximum extent feasible. In fact, the City encouraged CEA to support the original Project Resource, and supported CEA's participation on the first Board of Trustees of Newark Recycling, Inc. In order to encourage CEA to design the facility with sufficient processing capability for all the non-source-separated City waste, the City committed to provide the maximum amount of waste it felt would reasonably require such service. By combining their tonnage figures (believing they may be high) with their expectation of major expansion of their recycling activities, the City felt that a commitment of 550 tpd, or an estimated 80% of their waste stream would encourage CEA to provide the level of service required.

Since signing the contract, Newark has found that it has substantially less waste available than previously expected. One of the first programs Newark instituted after the contract signing was an on-going quarterly weighing procedure, to establish more accurately the amount of wastes available within the City. This program found that the City produces only 550 tons per day at present--a figure that does not take into account a reduction of the waste stream that will occur through the City's source separation programs.

Newark could have been in serious economic trouble if it were the only source of waste in its region. The City, under "put or pay" provisions is required to reimburse CEA if the minimum commitment is not honored. As it is, over 6000 tons per day are dumped in the region, and the City and CEA are both confident that CEA will be able to attract additional customers to fill the facility, whatever its capacity. CEA also offered Newark a very competitive tipping fee (\$3.99 per ton) in order to obtain a contract. As a result, CEA may not be upset at all if Newark is unable to meet its minimum commitment. CEA would then be able to obtain other customers at higher tipping fees to fill the facility. Given the area's large waste stream, Newark will also be able to pursue its aggressive source separation program which will, no doubt, decrease waste devoted to the CEA facility.

CEA Marketing Strategy

CEA has been straightforward in its participation in the resource recovery industry. In a recent report of the G. Tsai & Company, Inc., CEA notes that its market strategy revolves around "entrepreneurial risk." This strategy calls for the systematic securing of territories within Connecticut, New York and New Jersey metropolitan areas. The territories are secured by building plants in areas where no other waste-to-energy plants exist, thereby providing CEA with a de facto franchise. (Unlike most waste-to-energy firms, CEA will build its plant without long-term solid waste contracts for all of the waste to be processed.) Once built, it assumes that no one else would invest in the area on a similar degree of risk, because of already existing competition. CEA notes:

"We have no obligation to finish any of these plants in any particular time frame. We have no obligation to third parties. We will proceed with these projects at an expeditious pace based on our ability to manage and finance them, and based on terri-

torial attractiveness. When the projects are completed, we will own half of them, all of them, or some fraction of them. We will either have entrepreneurial partners, as a means of raising capital during construction, or institutions will be lending us money, based on understanding the business. We could also do it alone, and do it slower. We have these options, plant-by-plant, month-by-month. In the meantime, we are going forward, building this base."

Although this is not a typical position of the waste-to-energy industry, it may be an indication of future trends if CEA is successful. It must be remembered that the financial community in the past has required the guaranteed waste flow into a waste-to-energy facility, on the assumption that this security is necessary to assure the economic viability of the project. As the industry matures, however, a greater degree of risk may be assumed in less dense waste sheds than the New York metropolitan area.

In Newark's case, CEA appears to be using the guaranteed tonnage of the City as leverage for a much larger facility than would be justified by just the City's contract. CEA's initial plans were to build a 1000 ton per day facility to provide for the 700 tons of Newark waste, plus some additional capacity for private haulers to deposit on a first-serve basis at the door. Due to regional politics, and the possibility of state and federal assistance, CEA is now contemplating using the City's guaranteed tonnage to leverage financing for the entire 3000 ton per day plant.

Urban Development Action Grant

One of the key federal funding sources which has contributed to CEA's consideration of expanding its initial investment in Newark is the Urban Development Action Grant (UDAG) program of the Department of Housing and Urban Development. Newark applied in 1979 for an Action Grant to contribute to the financing of this

project. UDAG requires a leveraging ratio of private to public investment of at least 2 1/2 to 1. UDAG also has a variety of specific requirements to ensure the viability of its projects.

The City and CEA were rejected in their initial attempts to obtain UDAG assistance. CEA had not yet obtained sufficient private financing due to cash flow problems. UDAG considers requests from communities on a quarterly basis and has just adopted regulations this year which encourage the application of UDAG grants to projects such as waste-to-energy facilities. The City and CEA have both indicated their interest in resubmitting their UDAG application in the near future and believe that they will be able to structure their project to obtain this attractive federal participation.

Planning and Bid Process

Newark minimized its use of consultants in developing this major contract. Most projects have required up to \$1 million for consultant feasibility studies and design reports, in addition to staff analyses. Newark developed its project solely using internal staff resources, amounting to approximately \$100,000 in salaries over the course of 4 years.

Two exceptions should be noted: in the beginning of the project, John Kolb, a local free-lance solid waste consultant and writer, was hired to assist the Engineering Department in writing and editing the plan developed by City staff. Later in the project's development, the U.S. Environmental Protection Agency also provided essential consulting services.

The City was able to reduce its use of consultants by minimizing risks in developing the project's bid specifications. Newark had very few details in the specifications initially issued. The City relied on a bidders conference for questions to be raised of particular concern to interested bidders. City staff prepared a consolidated detailed written response

to those questions. This response was sent to all potential bidders, as a bid addendum, wherein the City continued to place the responsibility on the bidders for developing market relationships, acquiring the site, and assuring that sufficient wastes would become available for whatever size facility was built. The only risks the City assumed were the commitment of all its waste that was not source separated, and the corresponding tipping fees for its disposal.

This process placed a large burden on potential bidders. Most bidders at that time were spending approximately \$50,000-100,000 for developing and submitting a bid response to many cities that were requesting proposals. By the time Newark issued its request in 1976, a number of resource recovery firms that had been unsuccessful in similar exercises with other cities were not sure whether this request was a "fishing expedition" or something serious. As a result, Newark only obtained 2 bids. Although it is not clear how much Newark's procurement process might have been altered by the use of more extensive consultant assistance, it is clear that Newark's program was developed on a very low budget, an example that will probably not be replicated by many communities.

EPA Technical Assistance

At a critical point in the development of the Newark project, the U.S. Environmental Protection Agency (EPA) adopted a new program of technical assistance. This program evolved into the "Technical Assistance Panels" program, which is now available through EPA's regional offices. Newark was one of the first beneficiaries of what has since become a very successful program.

Newark had gone out to bid in March, 1976, requesting bidders to respond by August, 1976. After completing the consolidated response to bid questions in May, 1976, the City explored with the EPA the possibility of obtaining some assistance in the

review of bids that were to be submitted. The firm of Anderson and Schoor was brought in by the EPA to give the City some direction on how to structure the evaluation process. When the City agreed to those recommendations, the EPA then provided the consultant as part of the "Blue Ribbon Solid Waste Advisory Committee" which reviewed the bids submitted, and other disposal options of the City. After the bid was awarded in November, 1976, the EPA agreed to a request by the City for the consultant to provide assistance in negotiating the contract with CEA. Anderson & Schoor was involved intensively for the next 3 months in developing this contract. Several of EPA's top personnel from Washington headquarters staff also participated actively.

Without this EPA assistance in the bid review process and contract negotiations, Newark would have been unable to find how many of these issues had been approached in other areas of the country. Newark's program was dramatically enhanced by this partnership with the federal government.

Blue Ribbon Advisory Committee

One of the most important recommendations of Anderson & Schoor was the establishment of a Blue-Ribbon Solid Waste Advisory Committee. The City invited representatives from a variety of regional agencies, including the Hackensack Meadowlands Development Commission and the County, to participate as part of the Committee. It also invited noted regional

experts to participate, and other persons involved in developing resource recovery programs. This Advisory Committee worked with an "Evaluation Team" which the City established for all interested City departments who wanted to participate in the review of the City's options.

This advisory process served three major functions for the City. First, it broadened the expertise of the Department of Engineering and provided valuable new perspectives on a variety of issues that were confronted in the review. Secondly, the process enabled all those who might be affected by a decision of the City to express their concerns or desires within the context of an informal setting. This process stimulated a greater understanding of how the Newark program would fit into the regional context. Finally, it enabled other city officials to have input into the development of an innovative program.

The Advisory Committee served a critical role when the Municipal Council reviewed the ordinance to award the contract to CEA. Although the Council members respected the judgement of the Engineering Department, they still wanted to know what type of outside review had been done to ensure that the City was proceeding in the right direction. The Engineering Department was able to call upon its Advisory Committee and Evaluation Team to allay fears and concerns about the need for another independent review.

LESSONS LEARNED FOR ECONOMIC DEVELOPMENT AND RESOURCE RECOVERY

Newark's resource recovery program is one of the few programs in the country developed to realize the economic development benefits of resource recovery.

Industrial Recycling Park

Newark established a goal that the energy and materials recovered from its solid waste should be used, if possible, to attract new industries to Newark. In Newark's Solid Waste Plan of Action, the City called for the establishment of an "industrial recycling park:"

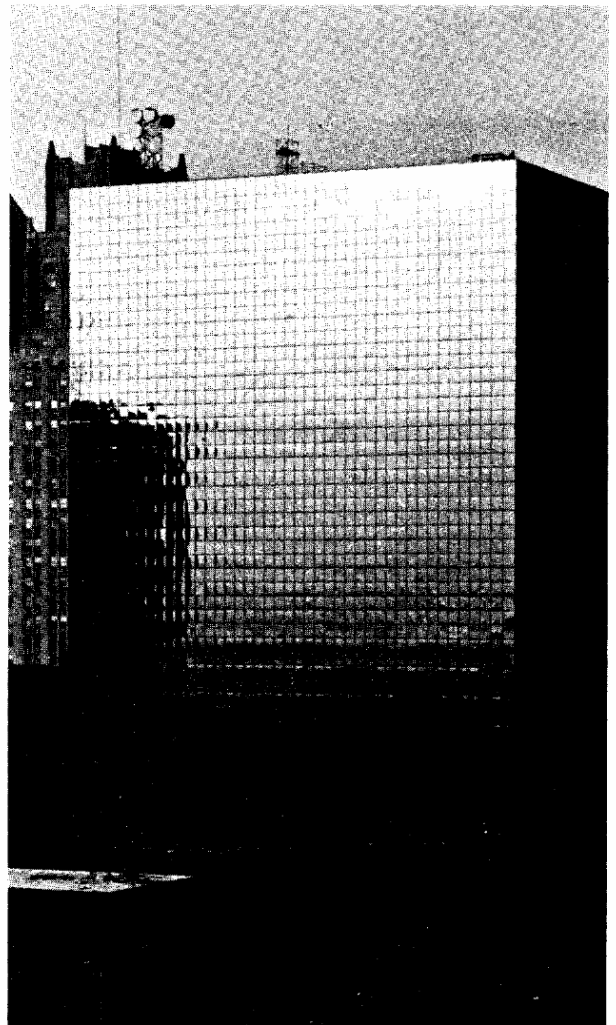
"This is a key development concept of the Plan that maximizes the benefits of resource recovery development by attracting industries that will use the recovered resources as the input to their manufacturing processes."

In its contract with CEA, the City included a provision requiring CEA to give the City the "right of first refusal" to purchase materials (not including energy) recovered by CEA. This agreement was intended to allow the City to become a broker for these materials as industrial feedstocks in an industrial recycling park, with the City subsidizing these costs as an economic development tool.

Energy Markets

In developing its approach to resource recovery, Newark sought to minimize its risks and to rely on the private sector to be aggressive in developing the best arrangements for sale of energy and materials derived from Newark's solid waste. In its bid specifications, Newark called for the private sector to develop the necessary agreements with markets initially identified by the City in its Plan of Action.

CEA worked with the local utility, Public Service Electric and Gas Company to negotiate, in 1976, one of the first long-term (20-year) contracts with utilities in the resource recovery business. CEA's contract with Public Service provides for the utility to purchase the fuel produced by CEA at a rate of \$1.50 per million BTU's of energy, plus half the difference between the current prices of fossil fuel and \$1.50. This provides Public Service with an ongoing dis-



count of approximately 30% as an incentive for its participation, while providing CEA with the potential for a large profit if energy prices continue to climb. Public Service estimates that it will conserve 700-3500 barrels of imported fuel per day under this

contract, assuming the construction of a 1000-3000 ton per day waste-to-energy facility.

In retrospect, Newark recognizes that its decision to rely on the private sector for marketing the energy of resource recovery traded away potential economic development benefits for a reduction of project risks. CEA's sale of fuel to the local utility will pump this energy value into a state-wide electric grid, which is regulated to treat all energy customers equally. Although CEA will benefit by obtaining a good price for its energy product, no other industries in Newark will benefit directly. Given the state of project development at the time in 1977, Newark chose a prudent course. Many cities today, however, may not want to forfeit their ability to use cheap energy as an economic development tool.

Although the City included a provision in its contract for partial control of recovered materials (not including energy), it did not recognize how economic development benefits could accrue to the City through the sale of energy. Today, Newark recognizes that energy markets are the key to providing economic development benefits for energy intensive industries.

As a result, the City has indicated its interest in the potential for a second resource recovery facility to be constructed in Newark by the Port Authority of New York and New Jersey. The Authority is developing a billion dollar program for two industrial recycling parks in New York and New Jersey, and had preliminarily identified Newark as the site for one of their 200 acre parks. Newark is well versed now in what to negotiate for in agreements with the Port Authority regarding these developments. If an industrial recycling park is built in Newark, the City will probably assume more risks than before in order to participate in and control the economic development benefits of the project.

Hazardous Waste Facility

Newark's highly sophisticated hazardous waste treatment facility was also viewed by City officials as an economic development tool for local industries. As stringent State and Federal regulations are increasingly enforced, many chemical processing plants and related industries had extreme difficulty in identifying alternative means of hazardous waste disposal. When EPA regulations, promulgated under the Resource Conservation and Recovery Act of 1976, went into effect earlier this year, this problem became even more serious to many of Newark's important industries.

Newark recognized these problems in 1977 and sought to provide a service which other locations could not offer. They saw the attraction of a hazardous waste treatment facility as a future marketing tool for Newark's economic development activities, both to retain existing industries and to attract new ones. The plant employs 80 full-time people and provides both taxes and additional business activities for the City. It was built through the rehabilitation of a former organic chemical manufacturing plant in a key industrial area of Newark.

Affirmative Action

Newark recognized the employment opportunities that would result from both construction and operation of the waste-to-energy facility. As a result, in the contract with CEA (based upon bid specifications), the City negotiated a provision that would ensure CEA's use of the City's affirmative action plan for hiring during construction and operations. This is one of the first, if only, examples in the country when the issue of affirmative action was included as part of the development of a waste-to-energy facility.

Approximately 500 construction and 100 permanent jobs will be created from the Newark project. Although this facility in itself will not have

a dramatic impact on the City's 14.6% unemployment rate (1980), it will make a contribution. In addition, if Newark is successful in developing the concept of an industrial recycling park, several spin-off industries could be formed that would contribute significantly to the City's employment and training programs.

Low-Skill Employment Opportunities

The majority of workers at Newark Recycling, Inc. are low-skill former offenders working in a special "supported work" low-stress environment. Funded by the Law Enforcement Assistance Administration to reduce the rate of "recidivism" (return to

prisons by second offenders), the program seeks to attack the root of crime by providing economically and psychologically fulfilling work.

At Newark Recycling, former offenders are first trained in basic work habits and then given increasingly responsible work as they prove their ability to assume added responsibility. Counselors are on staff to advise them on both work and personal problems. Significant efforts are made to help the employees manage the few financial resources they are able to earn. A placement office then assists the employees in finding work in the "conventional" public and private sector.

CONCLUSIONS

Newark, New Jersey is an example of an aggressive development of a local resource recovery program within a regional context. Despite difficulties in regionalization, Newark pursued the development of a comprehensive waste management program which included the goals of stimulating recycling, developing a waste-to-energy facility, and linking these developments with economic development goals of the City. Newark's successes and difficulties to date offer many insights to other cities:

- Urban recycling programs can work effectively if tailored to the unique needs and diversity of neighborhoods within the city. Recycling programs offer tremendous opportunities to provide low-skill workers with jobs and career development;
- Recycling and waste-to-energy facilities are compatible developments if planned together. Recycling programs can be implemented quickly to have an immediate impact on waste disposal concerns, while waste-to-energy facilities can provide for disposal of the remainder of materials not recycled;
- Large-scale regional programs may be easier to develop on an incremental basis, with the central city in a region committing sufficient waste to enable a project to be developed. Once the technology is operating and proves its merits to the region, actual cost data will be available for consideration of expanding the facility to accommodate additional regional participation. This requires sufficient advance planning, or back-up landfill capacity to allow for such a phased approach to development;
- Cities relying on innovations in technology to be demonstrated successfully, such as refuse-derived fuels (RDF), should be cautious about the levels of risks assumed by cities. These technologies may be suitable in locations which are not under immediate pressure to landfills, and which are able to tolerate delays in implementation schedules;
- Technological problems and commitment to meet optimistic deadlines can result in severe financial problems; in Newark's case, requiring their resource recovery firm to file for financial reorganization under Chapter 11 of Federal Bankruptcy Code;
- Cities seeking to minimize risks in project development may also be able to decrease the amount of consultant assistance required if that goal is established early. Cities could place the burden for most of the project packaging on a full-service contractor with performance guarantees established as a basis for evaluation; and
- Cities willing to bear more of resource recovery risks in order to obtain a greater share of the energy, financial and economic development benefits may need to be more actively involved in negotiating with energy and material markets and structuring the entire resource recovery project. This activity could be enhanced by the active participation of local, state and federal economic and community development staff.

APPENDIX A—NEWARK PROJECT SUMMARY

PROJECT BENEFITS

Recycling Compatibility

Incorporation of recycling with a waste-to-energy facility. Creation of not-for-profit recycling firm that provides jobs and collection services, recycling people (former offenders) while recycling materials.

Disposal Solution - Newark's municipal solid waste disposal problem resolved for 20 years in an environmentally & economically sound manner.

Revenue Sharing - Newark will receive 25% of fuel revenues as price of fuel oil rises.

Host Fees - Newark will receive \$.50 per ton from solid waste delivered to the facility from outside of Newark.

Taxes - Newark will receive property and payroll taxes from the facility.

Jobs - 500 construction jobs over 20-30 months. Over 100 jobs when operating at full capacity.

Energy Savings - PSE&G will conserve 700-3500 barrels of imported fuel oil per day under this contract.

Industrial Recycling Park - Newark is seeking another facility for attracting industry to Newark industrial park.

TECHNICAL FACTS

- Newark Recycling, Inc. collects at a rate of 760 tons of recyclables a year; currently employs 45 people.
- Newark has a contract signed with Combustion Equipment Associates to build, finance and operate a waste-to-energy facility to service Newark's minimum of 550 tons per day of solid waste for a \$3.99 per ton "tipping fee," escalated from 1977 by Consumer Price Index.
- CEA initially will build a 1000 ton per day facility on a 25-acre site, with plans to triple the capacity thereafter.
- CEA will pay 50 cents per ton as "host community fee" to the City for every ton of waste brought to the facility from outside City limits.
- Waste-to-Energy facility investment estimated at \$70 million.
- "RDF" (Refuse-derived fuel) technology to be used by CEA currently being demonstrated in Bridgeport, Connecticut. CEA financial difficulties resulted from implementation delays and required payment of \$13,000/day in debt service since March 1978 without needed energy revenues.

PROJECT HISTORY

- 1971 Newark hosted a regional solid waste conference.
- 1975 Newark first developed a comprehensive Solid Waste Disposal Plan of Action.
- 1976 Project Resource is organized to perform recycling services.
- 1976 City seeks investment of the private sector to build waste-to-energy through request for proposals.
- 1977 Newark signed a 20-year full-service contract with Combustion Equipment Associates for a RDF waste-to-energy system.
- 1977 Newark reorganizes recycling as not-for-profit corporation, Newark Recycling, Inc.
- 1978 CEA Environmental Impact Statement approved by N.J. Department of Environmental Protection.
- 1978 SCA Hazardous Waste Processing Facility built.
- 1979 Essex County adopts comprehensive solid waste plan.
- 1979 CEA acquired site and began site preparation work.
- 1980 CEA filed for financial reorganization under Chapter 11 of Federal Bankruptcy Code

APPENDIX B—REFERENCES

- Solid Waste Generation and Management. A Report on Essex County. Essex County Department of Planning, Economic Development and Conservation. November 1971.
- Proceedings: First Essex County Solid Waste Management/Recycling Conference. Newark College of Engineering, November 29-30, 1971.
- Solid Waste Disposal & Collection Study for Essex County, New Jersey. Planners Associates, Inc. September, 1972.
- Industrial Recycling Parks: Opportunity for Regional Economic Growth. The Port Authority of NY & NJ. June 1973.
- Industrial Recycling Park Development Proposal. City of Newark, April 1975.
- Bid Specification, Contract 76-06. "Disposal of 700 TPD of municipal solid wastes from the City of Newark, New Jersey." City of Newark, NJ, March 1976.
- Fuel Purchase Agreement between Public Service Electric and Gas Company and CEA Inc., June 1976.
- "Proposal for long term disposal of solid waste," Contract 76 - 06. City of Newark, by Combustion Equipment Associates, September 21, 1976.
- City of Newark Combustion Equipment Associates, Recycling Contract. June 1977.
- Summary: Refuse Processing Facility for the City of Newark, New Jersey. CEA-OXY Resource Recovery Associates.

Newark Resource Recovery Program. Newark
Office of Environmental Services
(brochure).

Environmental Impact Statement - Refuse
Processing Facility, Newark, NJ. CEA-
OXY Resource Recovery Associates,
November 1977.

Solid Waste Disposal - A Plan of Action.
City of Newark, Department of
Engineering, December, 1975.

"UDAG application to HUD for \$5
million." April 1979.

Ayers, Tom, "Newark's Recycling Program
May Become National Model for Waste
Disposal," The Aquarian, November
22-29, 1978.

Essex County, Solid Waste Management Plan.
July 1979.

DePalma, Anthony, "Newark Plant Recycles
Lives as well as Paper," New York
Times, September 21, 1980.

Beningson, Robert M., et al. Presentation
to G. Tsai & Co., Institutional meet-
ing held at The Regency Hotel, New
York, New York, April 5, 1979.

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