THE CITY OF CHICAGO  
AND  
COMMONWEALTH EDISON COMPANY'S  
WATTS FROM WASTE PROGRAM

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ABSTRACT
A discussion of the City of Chicago and the Commonwealth Edison Company's cooperative efforts resulting in the City financing, building and preparing to operate a $14,000,000, 1,000 ton per day metropolitan solid waste processing plant to furnish prepared refuse for use as a supplementary fuel at the Company's Crawford Station.

INTRODUCTION
Presently under construction, the Supplementary Fuel Processing Facility is designed to convert Chicago's household refuse into a fuel suitable for use in large coal or oil burning utility boilers.

Concern for the environment, concern for neighbors and customers, the rising costs of sanitary landfill space, transportation, labor and non-polluting fossil fuels are all factors that helped discussions between representatives of the City of Chicago and Commonwealth Edison Company rapidly move to negotiations that led to a contract.

HISTORY OF CHICAGO'S SOLID WASTE OPERATIONS
The Bureau of Sanitation is charged with the task of disposing of 1.2 million tons of refuse annually. This has been accomplished through the use of successively more advanced generations of disposal technologies. These began with the open dumping of refuse for landfill. Many of the parks and recreational facilities the City enjoys today such as Montrose Harbor were developed on open dump areas. With a growing awareness of the environmental dangers of this practice, the City chose the sanitary landfill as its basic disposal method. The largest of these, located near Lake Calumet, was opened in 1942 and operated for 30 years.

A program to end Chicago's dependence on sanitary landfills began in 1956. The first City incinerator, located at 1633 West Medill, was opened at a cost of $2.5 million. This plant was followed by the Calumet Incinerator in 1960 which cost $5.6 million and by the Southwest Incinerator in 1962, built at a cost of $6.8 million. In 1970, the Northwest Incinerator, which currently is the largest disposal facility in this country, was constructed at a cost of $23 million. A constant escalation in costs for these plants was experienced due to the increasingly more complex air and water pollution controls required on incineration equipment.

Concurrent with the incineration program, the City continued research into new disposal methods. In 1968, under a Federal grant, a study of the potential of high pressure compaction was conducted at Chicago's first solid waste research facility. This project led to a general study of the City's disposal needs conducted by a team from the Departments of Streets and Sanitation, Public Works, and Environmental Control in 1969. The experimental work that was being carried on in
St. Louis, Missouri, was of particular interest. The St. Louis study resulted in the successful burning of 15,000 tons of prepared solid waste [1] in the Combustion Engineering, Inc., tangentially fired, pulverized coal burning, dry bottom boilers at Union Electric Company's Meramec Plant in the period April, 1972 to April, 1973. The processed solid waste was supplied by the City of St. Louis. Financing of the project was shared by the City of St. Louis, Missouri, the Environmental Protection Agency, and the Union Electric Company.

The City of Chicago's engineers had become aware of the preliminary work for this successful installation as early as May of 1970 when J. W. Regan of Combustion Engineering, Inc. described a “coal-fired utility boiler adapted to burn ten percent Metropolitan Solid Waste [2]. Regan said a 125 MW pulverized coal-fired central station utility boiler will consume 10 percent of the total heat input to the unit. A per diem breakdown consists of 250 tons of 6000 Btu/pound prepared municipal solid waste which has been shredded and passed through magnetic and ballistic separating equipment. Advantages cited by Regan were:

a) reduction of the cost of solid waste disposal.
b) a saving in fossil fuel cost.
c) no significant increase in slugging or corrosion.
d) perhaps a minor reduction in potential for low temperature corrosion due to the reduced sulfur input.

Both the three year Federal, solid waste disposal demonstration grant to the City of St. Louis, Missouri, and the City's and Union Electric Company's financial and physical involvement had been observed closely by the City of Chicago and Edison representatives. A number of visits to the St. Louis plant and other solid waste treatment and recycling installations, as well as discussions with major boiler manufacturers, led Edison to propose that the use of processed solid waste as a supplementary fuel for Edison's Babcock and Wilcox Cyclone boilers be studied and tried at Fisk Station in Chicago. Representatives of the City of Chicago agreed and decided to provide sufficient refuse to demonstrate that it could be introduced into the coal handling system and fed into the cyclone burners with the coal and primary air.

In June, 1972, an initial test was conducted at the Fisk Station in which several truck loads of shredded refuse were fed into the plant furnaces. The refuse used in this trial was collected by a Chicago Department of Streets and Sanitation crew in the normal manner. The loaded collection truck was driven to Madison, Wisconsin, early the following morning. At the Madison Waste Disposal Plant, the Chicago refuse was put through their shredder. Magnetic materials were also removed. The shredded refuse was reloaded on the City of Chicago truck and returned to a storage building at the Calumet Incinerator Plant on Chicago's far south side where approximately four tons of the processed solid waste was hand loaded into plastic bags holding 40 to 45 pounds each. The loaded bags were transported to Commonwealth Edison Company's Fisk Station by City trucks. It was off-loaded onto the turbine room floor then later transferred to the boiler room coal scale floor in the Unit 18 area. The processed solid waste was unloaded from the plastic bags by hand into the four coal scale hoppers to mix with the coal being fed to the four cyclone burners of Boiler 18-1. It passed through the coal scale hoppers into the Redler Conveyors, the storage bins, the hammer mills, the feeders, and they cyclones without any problems. No adverse effects were noted in the cyclone burners, the furnace, the ash pit, the fly ash precipitator or the stack. The processed solid waste was burned on two occasions: May 12, 1972 — 14 bags and June 6, 1973 — 203 bags.

The March 7, 1973 City of Chicago News Release (Appendix IA) is the first public announcement of the cooperative study which had been started more than a year earlier. The release concludes with a statement that most of the solid waste collected can be burned in a power plant furnace, but several problems must be resolved and the City of Chicago and Commonwealth Edison Company studies are being carried on cooperatively to plan a system that is satisfactory to both the City and the Company to burn processed refuse in a power plant.

Chicago is inevitably faced with an inadequate disposal system for solid wastes due to several factors:

1) The peak demand requirements for disposal now exceed the capacity of the existing system.
2) More demanding air pollution control requirements will undoubtedly necessitate extensive modifications on or even the closing of the oldest incinerators.
3) The logic of resource recovery and energy conservation has become inescapable in recent years.
To implement the recommendations of the Disposal Study team, a contract to design a new disposal facility was given to the Parsons-Consoer Joint Venture in August, 1972. Twenty different systems for the disposal of solid waste were considered, including landfill, incineration, pyrolysis, compaction and hydropulping. After detailed study of the seven most promising systems and testing by the following four criteria:

a) technical reliability,
b) environmental impact,
c) resource recovery potential
d) management control,

the Supplemental Fuel Processing System was selected. This process offers several advantages in relation to the other methods considered. First, the potential for expansion is tremendous. Within the Greater Chicago area, there are additional Commonwealth Edison stations and large industrial complexes which could someday use the fuel produced by a plant of this type. It is conceivable that these plants could consume all the solid waste generated in the Chicago area. Second, the economics of this process are extremely favorable. The estimated cost was $14 million. In comparison, a 2,000 tons per day incinerator would cost $40 million. The actual operating cost of the facility will be $600,000 per year less than that of conventional incinerators. In addition, revenue of $700,000 per year will result from sale of the fuel produced as well as over $200,000 per year derived from recovered metal sales. In the near future, the recovery and sale of other material such as glass and aluminum may increase this total. The combination of all of these factors results in a net operating cost which will be significantly less than that of incinerators. Third, due to its location in the Southwest of the City, this facility will have an indirect but significant impact upon collection operations by reducing hauling distances from the areas of heaviest waste generation. Since collection costs account for three-fourths of the solid waste management budget, this advantage is very important. Fourth, reliability of the system is assured by the inclusion of a refuse transfer compactor which can function as a safety valve in the event of any mechanical difficulties at the plant. Finally, in addition to its primary task of providing a disposal system for solid waste, the processing plant will also produce fuel in sufficient quantity to conserve over 100,000 tons of lowsulfur coal annually when burned in the utilities boilers. This is sufficient energy to supply the entire electrical requirements of over 45,000 households.

The metals recovered in the process should exceed 20,000 tons each year. This is equivalent to the recycling of over 400 million steel cans annually.

**EARLY PLANS UTILIZING FISK POWER STATION**

As a result of these early studies, plans were developed for unloading solid waste from the City's collection trucks at a processing plant located south of the Chicago River and west of Fisk Station. Refuse would be shredded and magnetic materials, dirt, and other noncombustible materials would be removed at the processing plant. The processed waste consisting mainly of combustible material, would be fed into an air transport system to be discharged into storage silos on the Fisk station property. Upon removal from the storage silos the air borne supplementary fuel would be fed into the four cyclone burners on each of the two boilers of Unit 18 at the rate of ten percent of the heat input to the boilers provided by the coal being burned.

The plans that resulted from this study were laid aside in midsummer of 1973 and new plans were prepared to install the City's processing facility east of Crawford Station on property owned by the City which adjoins the Station property. The City of Chicago news release dated August 9, 1973 (Appendix 1B) discusses the program planned by the two organizations.

**CHOICE OF CRAWFORD STATION AS A SITE**

The new plans recommended that Crawford Station's Unit 7 and 8, pulverized-coal fired, Combustion Engineering Company, boiler furnaces be equipped to burn the processed solid waste as a supplementary fuel because of the favorable results being realized at Meramec Station. The availability of City property adjacent to Crawford Station for the preparation plant site would enable the supplementary fuel to be transported in air through pipes to storage bins on the Crawford Station property. The storage bins would be equipped with recovery, feeder, and transport equipment to deliver it through pipes with air to the boiler furnaces' burner boxes (Figure 1). Edison's representatives agreed with the recommendations of the City's consultants.
report after studying it thoroughly with their consultant, John Dolio & Associates, Inc. An offer was made to have John Dolio & Associates prepare the designs, drawings and specifications which the City's engineers would use to purchase the equipment and materials to be installed on Crawford Station property. The Edison Company will operate and ultimately own this equipment and material. The savings to the City resulting from the close proximity of both plants enabled them to price the supplementary fuel low enough to ensure that the Edison units could burn it for the proposed ten-year contract period without suffering financial losses. Cost benefits from the supplementary fuel plant remain attractive in spite of Edison's use of low-cost nuclear fuel, which will increasingly supply the base load electrical power during the ten-year contract period.

CITY OF CHICAGO/COMMONWEALTH EDISON SUPPLEMENTARY FUEL PROCESSING FACILITY

The contract has been signed; designs, drawings and specifications have been completed; bids have been taken and the buildings and the systems are being build and erected at the two adjoining plant sites. Completion of construction and trial operation of the plants is scheduled for the third quarter of 1976.

In addition to producing fuel, the Supplementary Fuel Processing Facility will recover and recycle other resources. The ferritic material recovered from the refuse and sold will produce an annual revenue of at least $200,000 for the City. Nonferrous metals and glass will be recovered and recycled to produce additional revenue for the City when the recovery systems reach acceptable levels of reliability and economic feasibility.

Annual savings from the use of the supplementary fuel system to process 1,000 tons of refuse per day should be larger than $1,500,000 annually. This savings is attributed to the revenue generated from recycled materials and the reduction of operating costs presently expended in the incineration process. The construction schedule projects operational status for this facility to be in late 1976.

The proposed Supplementary fuel Processing Plant is composed of the facility building associated truck scales, pneumatic pipelines, and storage bins located near Crawford Station (Figure 2). The facility building, which is approximately 315 feet by 230 feet, houses offices, the
operations control room, a flat floor (commonly referred to as a "tipping floor") on which the refuse collection trucks will discharge their loads, conveyor belts leading to the shredding area, and equipment required for the shredding process. Refuse trucks arriving at the facility will be weighed on a truck scale and then proceed into the building and onto the tipping floor. The trucks will be directed from the control room and they may unload at any spot on the floor. Front-end loader vehicles operating on the tipping floor will push the refuse into either of the two below-grade conveyors which will feed the coarse shredders. The 1,000 horsepower hammermill shredders will reduce particle size and shred all incoming refuse and other bulky wastes to a nominal particle size of eight inches.

The coarse-shredded material will be conveyed to density-type separators to remove the heavy noncombustible material from the lighter material. The heavy material will be conveyed out of the building where a magnetic separator will segregate ferrous metals and nonferrous material for deposit in individual enclosed storage bins. The light material will continue along the process stream to fine shredders to reduce the material to a maximum particle size of 1 inch. Two 1,500 ft. long pipelines will pneumatically carry the processed refuse, identified as the supplementary fuel, from the processing plant to storage bins located at Crawford Station. The supplementary fuel will be supplied by means of pneumatic pipelines to each boiler unit in an amount equal to approximately 10 percent of the heat value of the total fuel supply.

The facility site is part of a ten-acre plot currently owned by the City of Chicago. The site is bounded on the north and south by West 34th and West 35th Streets respectively, while South Hamlin Avenue and South Lawndale Avenue border the site's west and east sides respectively. The Chicago Sanitary and Ship Canal is approximately one-tenth of a mile south of the site.

On the Company's side of the common property line (figure 3), the airtransported processed waste fuel will enter two storage silos. The City will process 1,000 tons of MSW per day, for five days each week, operating on a one shift basis. It is expected that the combustible material will amount to about 700 tons per day for 5 days each week. The contract calls for the Company to burn 500 tons of this fuel each day for seven days,
FIG. 3 ARRANGEMENT OF PREPARED MSW SUPPLEMENTARY FUEL TRANSPORT PIPING, STORAGE BINS AND FIRING SYSTEM FOR UNITS 7 AND 8 LOCATED AT CRAWFORD STATION, COMMONWEALTH EDISON COMPANY.

each week \((1,000 \text{ tons/day} \times 0.70 \times 5 \text{ days} = 500 \text{ tons/day} \times 7 \text{ days})\). Its generating units normally are operated 3 shifts per day. The processed solid waste will be removed from the storage silos, weighed, sampled and transported in air to the corner burner boxes of the 2 units' 4 furnaces at a rate which will be no more than 10 percent of the heat input to the furnaces in the range 50 percent to 100 percent load on the steam generating units. The airborne waste fuel will be blown into the furnaces through tilting burner pipes which can be operated in parallel with, or independently of, the tilting air borne pulverized coal nozzles. The processed solid waste will be weighed and sampled with the sample being analyzed by the Company to determine the fuel value received in the process. The company will base its payment to the City on the fuel value generated by the processed refuse.

It has been agreed that at any time the City processing plant is unable to deliver waste fuel to Crawford Station the Company will burn coal in its boilers and no penalty will be incurred for failure to provide supplementary fuel. Conversely, during any time that the Company is unable to burn supplementary fuel from the City’s processing plant, the City will divert the solid waste to one or more of its other disposal facilities with no penalty being incurred for failure to use it. The parameters of this agreement are subject to discussion at all times.

PUBLIC RELATIONS

The City of Chicago Press Releases, Appendices 1A, 1B and 1C from the Office of the Mayor, Richard J. Daley, issued to the major and community newspapers in the Chicago area were effectively supplemented by personal meetings in the Crawford Station neighborhood. Church, social, political and business leaders attended these meetings at which an explanation of the purpose of the proposed solid waste processing facility was presented.

The City's consultants, Parson-Consoer Townsend designed the preparation plant to be enclosed in a building which will enhance the local area and successfully screen it from the unloading of trucks as well as the entire refuse processing operation (Appendix 1C). Noise will be minimized by absorbent panels. Dust and fume emission will be controlled by the plant ventilation, exhaust, and filtering

434
FIG. 4 CHAIRMAN AYERS, MAYOR DALEY AND COMMISSIONERS SULOWAY AND McDONOUGH BREAKING GROUND AT THE PREPARATION PLANT.
systems. Glass enclosed viewing galleries will be provided for anticipated visitors. The exterior of the building will be architecturally attractive and the surrounding grounds will be suitably landscaped. Figure 4 shows the Ground Breaking Ceremony on March 14, 1974 at which Mayor Richard J. Daley, Acting Commissioner of Public Works Marshall Suloway, Commonwealth Edison President and Chairman of the Board, Thomas G. Ayers, and other community leaders were present. The formulation of the “Policy with respect to the Use of Municipal Refuse in Generating Plants” (See Appendix 2A) was the first major step in the Company’s public relations work. The second step taken by the Company was to provide speakers to discuss the City’s and the Company’s cooperative effort with environmental, political, social and business groups. The third step incorporated the use of a picture of E. C. Bailey sitting in the Edison Carwford Station turbine room (figure 5) as a public relations focus to express Edison’s interests in the community. (A “conversational type” of P. R. approach). The fourth step was filming and showing a one minute commercial at Crawford Station and the preparation plant site again using E. C. Bailey to emphasize the City’s and the Company’s work to benefit their taxpayers and customers. As a result of these efforts, requests for information and speakers were received from communities and organizations throughout the Company’s service area which is a large part of Northern Illinois. Discussions were conducted with groups as far south as Peoria and Danville, Illinois; as far east as Hammond, Indiana; and as far north as Lake County, Illinois. It has become increasingly evident that citizens, taxpayers, and customers are watching the Company’s and the City’s cooperative work closely. It is anticipated that additional information requests will be forthcoming once operation of the system has commenced.

CONCLUSIONS

The evidence of human activity throughout peoples long tenancy of earth is to be found in their used and discarded clothes, tools, utensils, weapons, records and toys and the discarded inedible and unused parts of their foods. Archeologists working their way down through the many layers of deposits in hill country caves, in river valleys and prairie mounds to learn about their and our ancestors are sifting and studying our predecessor’s garbage [3]. Refuse, rubbish, trash or solid wastes may be more desirable names for these residues, but call it what we will, human activities have generated it in the past; they are generating it today and they will generate it in the future.

There has, however, been a major change in our attitude toward solid waste. Previously, people put it out of sight and out of mind; or if this could not be done, they moved away from it. People have burned it, baled it, buried it and even bagged or boxed it and dropped it along their highways. Today, however, we realize that solid waste is a valuable resource containing reprocessable materials and energy in several fuel forms. Many of the recoverable or recyclable materials such as iron, steel and aluminum can be reformed into useful articles of great value and thereby reduce the use of our diminishing mineral ores. The energy in the fuel forms can be converted to heat, electricity or other fuel forms and used to reduce the growing demands our growing populations are making on our rapidly shrinking fossil fuel supplies.

Agreements between communities and utilities can provide for the use of solid waste as an energy source in at least three ways:

1. The utility accepts the solid waste, processes it, uses the fuel, sells other products, and arranges for the disposal of residuals. EXAMPLE: Union Electric Company (St. Louis, Missouri).

2. The utility accepts or buys prepared solid waste that has been processed by a community or a private company. EXAMPLES: Commonwealth Edison Co. (Chicago); Wisconsin Electric Power Co. (Americold, Inc./Milwaukee); Rochester Gas & Electric Company (Monroe County).

3. The utility purchases steam or electricity. EXAMPLES: Baltimore Gas & Electric Co. (Baltimore); Long Island Lighting Co. (Hempstead, N. Y.).

Many factors influence the final choice of details of any agreement, including what body has collection responsibility and whether it is public or private; and the location of electric generating plants and waste processing plants.

Prices of solid waste derived energy should be tied to the price the utility pays for alternative (fossil) fuels on the basis of Btu's replaced. This should be modified (discounted) by the incremental costs to the utility for firing the prepared waste fuel. In at least two cases (Milwaukee and San Diego), the price that the utility pays will be
FIG. 5 "WHEN GARBAGE CAN RUN YOUR GENERATORS AND LIGHT UP YOUR LIVING ROOM, IT'S NOT GARBAGE ANY MORE."
determined after a six-month trial period, during which a history of operating and maintenance costs will be established. Contracts should be re-examined periodically to update cost and price terms. Both parties should be prepared to provide maximum, long term operability of the jointly-chosen system without threatening the future operations of either party. Neither party should expect to make a profit. The benefits should be passed on to the taxpayers and the utility company’s customers.

Goodwill and cooperation between supplier and user are essential if agreement on details is to be reached. The support of top management of both sides is equally important. Both sides must understand the economic, technical and political priorities and concerns of the other. For example, the utility must be permitted to refuse to accept MSW derived fuel at any time for good cause, such as emergency maintenance on the boiler or boilers designated to fire the supplementary fuel. Conversely, the municipality must be permitted to refuse to furnish processed solid waste when problems with collection, preparation or transport systems and equipment prevent the delivery of prepared solid waste fuel to the utility. While goodwill and cooperation by individuals and organizations are essential, they do not obviate the need for precise contract terms to specify the responsibilities and entitlements of each party.

REFERENCES

APPENDIX 1A

FOR IMMEDIATE RELEASE

March 7, 1973

Major Richard J. Daley today announced that the City of Chicago and Commonwealth Edison Company are studying a new way to dispose of household refuse which could result in a substantially lower cost for the City and contribute to the lessening of the national energy crisis.

Under consideration, the Mayor said, is a process in which household refuse collected by the Department of Streets and Sanitation is shredded and burned as a supplementary fuel to generate electricity in local power plants. This process, the Mayor said, is being evaluated by a technical task force composed of engineers from the Commonwealth Edison Company and the Departments of Streets and Sanitation, Environmental Control, and Public Works.

Commissioner of Streets and Sanitation James J. McDonough said that last June an initial test was conducted at Commonwealth Edison's Fisk generating plant, 1111 W. Cermak Road, in which several truck-loads of shredded city refuse were fed into the plant's furnaces. "The results were very satisfactory," he said. "They indicated that the energy content of household refuse is approximately two-thirds that of the low-sulfur coal now being burned by Commonwealth Edison."

The Department of Streets and Sanitation collects and disposes of 1.2 million tons of refuse annually. Three city incinerators presently are used for this disposal.

McDonough said that the burning of refuse by power plants is one of several alternative methods of solid waste disposal now under consideration by the city.

"While there is no doubt," he said, "that most of the refuse we collect can be burned in a power plant furnace, several problems must be resolved. These problems include the proper preparation of the refuse, certainty regarding environmental protection and the power company's responsibility to maintain electric service reliability. The purpose of our investigations is to solve these problems and devise a system that is satisfactory to both the city and the electric company."
FOR IMMEDIATE RELEASE

Mayor Richard J. Daley today announced that the City plans to sell residential solid waste collected by the Department of Streets and Sanitation to the Commonwealth Edison Company to be used as a fuel to generate electricity.

He said this will substantially lower the city’s cost for solid waste disposal, improve air quality by reducing the amount of coal burned for electricity, and provide a much-needed new source of energy.

To carry out this program, the Mayor said, the city plans to build a solid waste processing plant in the vicinity of Commonwealth Edison’s Carwford generating station at 34th St. and Pulaski Rd. The processing plant, which will have a capacity for handling 1,000 tons of refuse a day, with a capability for expansion, will cost approximately $14,000,000. Plans call for 250,000 tons of solid waste to be processed annually.

A proposed ordinance authorizing the issuance of general obligation bonds to finance the plant construction will be submitted to the City Council, the Mayor said.

Also to be presented to the Council for approval is a proposed agreement with Commonwealth Edison which would enable the city to receive $3.60 for the sale of each ton of the shredded portion of the solid waste. This would produce approximately $700,000 in revenue each year for the city, the Mayor said.

An additional $200,000 annual revenue will come from the sale of the re-cycled metals which will be separated from the other refuse at the processing plant.

In addition to this $900,00 a year total revenue, the Mayor said, the city will save approximately $600,000 annually in operating expenses at the new solid waste processing plant when compared with the cost of existing methods of waste disposal.

Overall, he added, construction of the processing plant will enable the city to lower the cost for waste disposal by approximately fifty per cent per ton.

Participating in the announcement in the Mayor’s office was Thomas G. Ayers, Chairman and President of Commonwealth Edison.

“We are pleased,” Mr. Ayers said, “to cooperate with the City of Chicago in this important experiment which we believe will help to provide the three-fold advantages of helping to solve the growing problem of waste disposal, supplementing our energy resources, and improving the environment. We are confident that this effort will lead to benefits not only for our customers, but also for everyone in the community.”

Commonwealth Edison officials have estimated that the use of the city’s processed waste will serve as a substitute for burning approximately 100,000 tons of coal a year and will supply energy for the electrical needs of about 45,000 Chicago homes.

The Mayor said the decision to provide solid waste for fuel purposes is the result of a six month study in which twenty methods of waste disposal were thoroughly examined by a task force consisting of the Departments of Public Works, Environmental Control, Streets and Sanitation, and a consulting firm. This was followed by several months of experiment and discussion with engineers of the Commonwealth Edison Company.

The Mayor said that the City of Chicago’s sale of solid waste to the Commonwealth Edison Company will result in the largest effort in the nation by a municipality and a power company to use solid waste to generate electricity. An experimental program in the St. Louis area has been using up to 300 tons of refuse a day for this purpose.

The Department of Streets and Sanitation disposes of about 1,200,000 tons of refuse each year in three city incinerators. Department officials have estimated that if the city were to build a fourth incinerator to meet future needs, it would cost approximately $40,000,000.

The Mayor said the city hopes to begin building the solid waste processing plant by the middle of next year and have it in operation by mid-1975.
CHICAGO
for innovation in
Service • Environment Control • Energy

Artist's Conception of the nation's largest Solid Waste Processing Plant
34th Street and Pulaski Road, Chicago, Illinois

$14,000,000
CITY OF CHICAGO, ILLINOIS
GENERAL OBLIGATION SOLID WASTE PROCESSING PLANT BONDS
DATED: JULY 1, 1973
DATE OF SALE: NOVEMBER 30, 1973

RICHARD J. DALEY, MAYOR • OTTO H. LOSER, CITY COMPTROLLER
The present offering of $14,000,000 Solid Waste Processing Plant Bonds are General Obligation Bonds supported by the full faith and credit of the City of Chicago, and are payable from ad valorem property taxes. A levy of taxes sufficient for the payment of principal and interest is irrevocably pledged. Chicago has never defaulted on either principal or interest of its previous full faith and credit issues.

The City of Chicago uses conservative fiscal practices which ensure that adequate funds are available for payment of principal and interest.

In addition, Chicago ranks quite favorably in any comparison of debt of cities with populations of one million or more. The City's revenue system has become more diversified in recent years and an increasingly larger portion of revenue is derived from sources other than property taxes.

In accordance with the provisions of the new Illinois State Constitution, effective July 1, 1971 (Section 6, Powers of Home Rule Units, of Article VII, Local Government) the City Council of Chicago will adopt an ordinance authorizing the issuance of these $14,000,000 non-referendum full faith and credit bonds and will provide for the levy of taxes for the payment of principal and interest on such bonds.

These bonds are for the purpose of paying the cost of designing, constructing and equipping a solid waste processing plant in and for the City of Chicago.

Persons interested in additional information pertaining to these bonds and the finances of the City of Chicago are invited to write the City Comptroller.

Otto H. Loser
Acting City Comptroller
Room 504 - City Hall
Chicago, Illinois 60602
ABOUT THE SOLID WASTE PROCESSING PLANT

HISTORY

The City of Chicago and the Commonwealth Edison Company began their investigation of converting municipal refuse into a fuel resource in 1970. Two years of research into the feasibility of the concept, coupled with a constant study of competitive solid waste disposal processes, led to the conclusion by the Department of Streets and Sanitation that this was the best available system.

However, to confirm this fact, a study was commissioned to a joint venture of the Ralph Parsons Company and Consoer, Townsend and Associates by the Department of Streets and Sanitation and the Department of Public Works. All methods for the disposal of solid waste were considered. Twenty different systems were studied, including conventional incineration, high temperature incineration, pyrolysis, gassification, composting and landfilling.

Ultimately, fourteen variations of the original twenty were selected as worthy of further study. These were subjected to economic, technical, environmental, and resource recovery analyses by the study team. The Supplemental Fuel System was rated the best of these fourteen by a considerable margin.

RESULTS

On August 9, 1973 the Mayor of Chicago, Richard J. Daley, announced plans to sell Chicago's residential solid waste collected by the Department of Streets and Sanitation to the Commonwealth Edison Company to be used as a fuel to generate electricity.

Commonwealth Edison officials have estimated that the use of the city's processed waste will serve as a substitute for burning approximately 100,000 tons of coal a year and will supply energy for the electrical needs of about 45,000 Chicago homes.

The proposed solid waste processing plant adjacent to Commonwealth Edison's generating station will have a capacity for handling 1,000 tons of refuse a day, with a capability for expansion and will cost approximately $14,000,000.

An experimental program in the St. Louis area has been using up to 300 tons of refuse a day for this purpose. Chicago plans to process over 250,000 tons annually. The proposed agreement with Commonwealth Edison will enable Chicago to receive $3.60 per ton of the shredded portion of solid waste. In addition, the City would realize another $200,000 annually from the sale of recycled metals which will be separated from the other refuse at the processing plant. This amounts to a total revenue of $900,000 per year.

COMMENTS

Excerpts from Chicago's major newspapers:

Chicago Tribune Editorial of August 13, 1973 -

"Mayor Daley has announced a plan to sell residential solid waste - more commonly known as garbage - to Commonwealth Edison Company for use as a fuel to generate electricity. Could anything be neater?"
Chicago Today Editorial of August 13, 1973 -

"The Plan will save the City some money on waste collection and disposal, but its value lies mainly in protecting the environment. The waste is a substitute for coal but will contain much less sulfur, the ingredient in coal that dirties the air."

Chicago Daily News Editorial of August 14, 1973 -

"It isn't often that an opportunity comes along to solve two problems with one move, so the deal worked out by the city and Commonwealth Edison Company is particularly welcome. According to the plan, garbage and trash collected by the city will be sold to Edison as fuel for producing electricity, and everybody wins.

At the same time, of course, we're running short of electricity and the fuels needed to produce it. Turning waste into electricity is about as near to an ideal solution as anyone could imagine."

Mayor Richard J. Daley said, "Chicago's sale of solid waste to the Commonwealth Edison Company will result in the largest effort in the nation by a municipality and a power company to use solid waste to generate electricity."

The Plant will be located on City-owned property adjacent to Commonwealth Edison's Crawford generating station at 34th Street and Pulaski Road.
APPENDIX 2A

COMMONWEALTH EDISON

POLICY WITH RESPECT TO THE USE OF MUNICIPAL REFUSE IN GENERATING PLANTS

GENERAL POLICY OF COOPERATION

It is the policy of Commonwealth Edison to reasonably accommodate its operations to the overall interests of the communities and area it serves. Restrictions on this policy are those imposed by the available technology, environmental regulations, the need to maintain the high quality and reliability of the vital service the Company provides and the nature and extent of any resulting costs.

REQUESTS TO BURN REFUSE AS FUEL

The Company has been approached by a number of municipalities seeking help in resolving a major and growing problem, the disposition of collected refuse. By and large, these materials are combustible. When properly prepared and combined in an appropriate mix with the fossil fuels usually used by generating plants, they can be burned as fuel.

REFUSE FUEL POLICY

In harmony with the policy described above, to the extent its power production operations permit, the Company will accept ready-for-use refuse collected and delivered to it at designated generating plants by or in behalf of certain governmental units. What constitutes ready-for-use refuse will be determined by the Company.

GENERAL PRINCIPLES

1. The use of such refuse by the Company will be accomplished under arrangements with governmental units (suppliers) or their agents which will result in no impairment of Edison facilities and operations and which will impose no cost burdens. Edison will be the sole judge of the applicable criteria in these considerations.

2. The costs of any capital additions and modifications, as well as any additional operating, maintenance, tax and other inputs required to permit use of refuse will be recovered by the Company from the suppliers or their agents.

3. The Company will accept only such quantities of refuse as are equal to its current capacity to use them. It will make no attempt to assure equitable distribution of its refuse use between and among any suppliers or their agencies.

4. Collection and storage of refuse intended for use as fuel, pending processing and use, will be the responsibility of the suppliers or their agents and not the Company's.
5. With the exceptions of certain large municipalities, the funding and construction of refuse processing and delivery facilities may be beyond the practical capabilities of many individual communities. Within the operating and cost restrictions described above, the Company will cooperate in a consultative capacity either directly or through third parties with those designing and building such facilities in behalf of individual communities or consortiums of communities.