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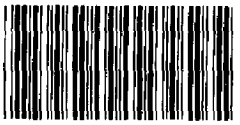

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STATEMENT OF
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BEFORE THE
SUBCOMMITTEE ON TRANSPORTATION AND COMMERCE
OF THE
HOUSE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE
AND THE
SUBCOMMITTEE ON ENERGY DEVELOPMENT AND APPLICATIONS
OF THE
HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY
ON
CONVERSION OF URBAN WASTE TO ENERGY

Mr. Chairman and Members of the Subcommittees:

We welcome the opportunity to be here today to discuss the conversion of urban waste to energy as a means of helping to alleviate our Nation's energy supply and solid waste disposal problems. My testimony is based on our February 28, 1979, report to the Congress which evaluated Federal efforts to develop and introduce alternate fuels from municipal solid waste. 1/ Our report describes the various waste-to-energy conversion processes, the efforts of private and public agencies to implement them, and the benefits they could provide in the near- and mid-term. It also discusses what we

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1/"Conversion of Urban Waste To Energy: Developing and Introducing Alternate Fuels From Municipal Solid Waste," EMD-79-7, Feb. 28, 1979.

perceive to be major barriers to their use and the actions needed to overcome them.

My testimony focuses on three areas:

--how urban waste-to-energy systems relate to the energy supply and solid waste disposal problems facing our Nation;

--the degree of success or failure of Government programs aimed at encouraging development and use of these systems; and

--improvements needed at the Federal level if we as a Nation are to realize the environmental, economic and energy-related benefits of waste-to-energy conversion.

CONVERSION OF URBAN WASTE TO ENERGY CAN PROVIDE MULTIPLE BENEFITS

Urban waste is abundant and growing in volume. The average person generates 3.5 pounds a day, and as a Nation we generate about 135 million tons a year. The Environmental Protection Agency (EPA) estimates that 175 million tons will be generated annually by 1980, 201 million by 1985, and 225 million by 1990. It is collected at central sites and much of it is combustible. Its conversion to fuel could reduce the waste bulk and do much to eliminate environmental, social, and economic problems now associated with municipal solid waste disposal.

The conversion of these wastes to energy has a sound scientific and practical basis.

--Typically about 75 percent of the waste is combustible matter which can be converted into gaseous, liquid and solid energy forms.

--It is a virtually inexhaustible resource and the volume generated is growing.

--It is in continuous supply and is concentrated in cities which require large amounts of energy.

--A ton of municipal solid waste contains about 9 million British thermal units (Btus) of heat energy and could provide as much energy as 65 gallons of fuel oil or about 9,000 cubic feet of natural gas.

--It can be fired as a supplemental or primary fuel in commercially available steam boilers.

--It is low in sulfur and can be burned so that it produces less sulfur dioxide then pulverized coal.

Furthermore waste-to-energy conversion offers other advantages:

--Saleable materials such as ferrous metals, aluminum, and glass can be recovered and by-products such as carbon, char, ash, and glassy aggregate, which can be used in the manufacture of cement and paving materials or for fertilizer, are produced.

--Landfill requirements can be reduced by as much as 95 percent (if materials are recovered) at a time when suitable landfill area is scarce and this method of disposal is being restricted or prohibited.

--Energy recovery can be more economical and more environmentally preferable than conventional incineration systems which have no heat recovery capabilities.

In spite of the benefits, however, use of urban waste-to-energy systems in the United States is not widespread due largely to institutional or economic barriers. In contrast to Western Europe, where conversion of waste to energy is a well established technique and where over 180 plants are operational, the United States has about 20 plants operating. In the past, abundant land, material, and energy resources have made such systems uneconomical in the United States. The economics are now changing, however. Conventional methods of waste disposal--incineration, landfill, or ocean dumping--are being disallowed or becoming more costly due partly to strict enforcement of environmental regulations and the lack of suitable landfill space near urban areas. Also, the rising cost of conventional fossil fuels has improved the competitiveness of alternate fuels.

The Nation is beginning to respond to the new situation and opportunities, but we feel the response could be accelerated. Projections show that only small amounts of the urban waste generated will be converted to energy. EPA estimates that currently about 1 million tons per year of municipal solid waste, less than 1 percent of the waste produced, will be processed for energy. By 1985, EPA estimates that 112 million tons annually of solid waste will be available for conversion to energy. Agency projections indicate, however, that based on present trends and policies, only 10 to 20 million tons of these wastes could be processed for energy and material recovery. We believe the amount converted by 1985 could be substantially increased.

We identified 131 urban waste-to-energy projects in the United States, 20 operational, 10 under construction, 30 in the planning phase, and 71 in preliminary study stages. If these 131 projects were all fully operational by 1985, they could process about 36 million tons of urban waste--18 percent of the waste produced. (The energy recoverable by these projects, including the recycling of recovered metals and the extraction of methane from existing landfills, could provide the Nation with annual energy savings equivalent to about 48 million barrels of oil now worth almost $980 million.) By 1995, an expansion of these projects

could realistically be expected to provide annual energy savings equivalent to some 158 million barrels of oil with a current value of about $3.2 billion. These projects could help reduce our growing waste disposal load in an economical and environmentally acceptable way.

FEDERAL AGENCIES NOT MEETING THEIR RESPONSIBILITIES

Existing legislation provides the basis for the Federal role in the development and commercialization of municipal solid waste energy systems, and responsibility for administering the legislation has been assigned to EPA and the Departments of Energy (DOE) and Commerce. We reviewed program elements at each of these agencies and found a Federal Urban Waste-to-Energy Program which appeared fragmented, uncoordinated, inadequately funded, uncertain in its priorities, and lacking in detailed overall strategy. More specifically, we found that:

--DOE and EPA planned their activities largely independently of each other in spite of their similar and overlapping authorities and their May 1976 agreement to coordinate planning and facilitate information exchange.

--Commerce Department efforts to stimulate broader commercialization of proven resource recovery

technologies, develop specifications, and identify markets for recovered materials had been stalled by lack of funds.

--EPA had given regulation of hazardous wastes its top solid waste management priority and had not committed the staff and financial resources required to carry out the overall resource recovery provisions of its mandate.

--EPA and Commerce budget requests for meeting their responsibilities under the Resource Conservation and Recovery Act of 1976 had frequently been cut and in some cases disallowed by Office of Management and Budget.

--DOE funded its urban waste technology program at a level inconsistent with the high priority assigned this technology in its national plan for energy research, development and demonstration, and it lacked a specific strategy for the development and implementation of urban waste conversion processes.

--Loan guarantee programs authorized by the Energy Conservation and Production Act of 1976 and the Department of Energy Act of 1978 had not been funded. At present, there are no Federal economic incentives designed specifically to encourage the use of urban waste-to-energy systems on a broad scale.

State and local governments, working with private industry, provide the prime impetus for the 131 urban waste-to-energy projects in the United States. Many of these governments and other organizations look to the Federal government for technical or financial assistance, advice, and encouragement. We believe an improved Federal assistance program is necessary to accelerate the use of urban waste-to-energy systems in the near- and mid-term.

INCREASED USE BY 1985 IS POSSIBLE IF THE FEDERAL PROGRAM FOR PROVIDING NEEDED ASSISTANCE IS IMPROVED

If the Federal Urban Waste-to-Energy Program were improved to provide needed information, assistance, and incentives, it is possible that many waste-to-energy systems now in a planning or study phase could be accelerated and could be implemented and become operational by 1985. These projects can provide the foundation for what can be a valuable source of alternate fuels for our National energy system.

We believe needed program improvements include:

--A cohesive and specific overall strategy for all involved agencies which takes into account the skills and expertise dispersed through these agencies.

--A more useful flow of information and an expansion of practical outreach service to State and local governments and to public and private researchers to provide

a forum for the exchange and dissemination of technical and economic data and to help identify and resolve institutional problems and concerns.

--An expansion of studies and research on methods of processing and recovering materials and energy and on the development of markets and new uses for recyclable materials. This will help resolve technical, economic, and environmental uncertainties regarding the conversion processes, the energy forms produced, and materials recovered.

In addition, the program should provide technical and financial assistance to communities evaluating or acquiring urban waste-to-energy systems, with appropriate emphasis on encouraging timely implementation of technologies which have been proven in commercial applications. It should also provide incentives to ensure the marketability of energy forms produced and materials recovered, and to encourage investment in urban waste-to-energy systems. This will require the timely determination of which subsidies and economic incentives best foster the use of urban waste-to-energy systems and require advising the Congress as to which are needed for encouraging the use of these systems in the near- and mid-term.

RECOMMENDATIONS

We recommended that the Administrator of EPA, in consultation with the Secretaries of Energy and Commerce, develop and submit to the Congress by September 30, 1979, a detailed 10-year plan describing the specific strategy for the Federal Urban Waste-to-Energy Program. The plan should be coordinated with other Federal agencies, State and local governments, private industry, and public interest groups, and be updated and submitted annually. This interagency plan should:

--Specify goals and objectives with appropriate emphasis on commercialization and research, development, and demonstration activities which must take place by 1985 if the Nation is to realize the full potential of urban waste-to-energy systems in the 1985 to 2000 time frame.

--Define the specific roles and responsibilities of DOE, EPA, Commerce, and any other Federal agencies involved in this effort, giving full consideration to any organizational realignments or transfers of responsibilities which will minimize overlapping of functions and lead to improved effectiveness of program operations.

--Provide that all relevant interagency agreements are finalized in a timely fashion.

--Establish time frames and resource requirements for accomplishing the plan's purpose, and identify alternative financing options and the specific type and timing of Federal assistance by each agency needed to facilitate completion of projects in advance planning and preliminary study stages.

In addition, the plan should provide for:

--Incentives which best foster the use of urban waste-to-energy systems and their products, including technical and limited financial assistance aimed specifically at encouraging the timely completion of all 131 solid waste energy projects.

--An improved information and education program to furnish States and local governments with a maximum flow of information and practical assistance regarding such matters as system planning, acquisition, and implementation; Federal financial guarantees; sale and use of plant output; and needed compliance with relevant environmental standards.

To facilitate oversight and coordination, the plan should include milestones to measure progress in meeting goals and objectives, and also include appendixes expressing the separate views of the Departments of Energy and Commerce.

The Departments of Energy and Commerce generally agreed with our recommendations but believed that either Energy or Commerce, not the Environmental Protection Agency, should have the lead in developing our recommended interagency plan. Because the Congress has already given EPA responsibility for planning, developing, and coordinating Federal solid waste management programs and the recovery of resources, including energy, from wastes, we believe that the leadership role properly belongs with EPA. However, should the Agency not act responsibly in developing the recommended interagency plan, then a leadership change should be considered by the Congress.

EPA did not provide formal written comments. However, after our report was issued, the EPA Deputy Assistant Administrator for Solid Waste did comment on the report and indicated that EPA has implemented new programs which directly address activities which our report labels as lacking emphasis. It remains unclear to us what these new programs entail. Since these programs were apparently begun after completion of our review, we obviously have not evaluated their relevance to correcting the shortcomings discussed in our report. These hearings provide a good opportunity for EPA to shed more light on this matter.

In summary, we believe municipal solid waste is a promising domestic energy source. Urban waste-to-energy systems

can provide a valuable supplement to the Nation's energy supply and help to resolve material resource and solid waste disposal problems. They could

--produce energy from a new and available source equivalent to 48 million barrels of oil annually by 1985, and some 158 million barrels by 1995;

--recover non-renewable materials such as iron and aluminum, while conserving much of the energy used to process virgin materials;

--process urban waste in an economical and environmentally acceptable way.

Technologies for converting this resource to energy and recovering valuable materials are available. Some have been commercially proven and are used extensively for energy conservation in Western Europe. However, if technologically and economically viable waste-to-energy systems are to be used on an accelerated schedule in the near- and mid-term, a more active role by the Federal Government is required.

The interagency plan we recommended provides for incentives which best foster the use of urban waste energy systems and their products, including technical and limited financial assistance. We believe particular emphasis should be given to those projects employing commercially available technologies. These projects would then serve as examples for other projects

yet to be developed and minimize or eliminate the need for substantive, long-term Federal involvement. We also believe the specific role that loan guarantees should have in support of municipal solid waste projects and the amount of financial risk that might require Federal guarantees should be determined as part of the interagency planning effort.

Mr. Chairman, this concludes my statement. We will be happy to answer any questions the Subcommittees might have.