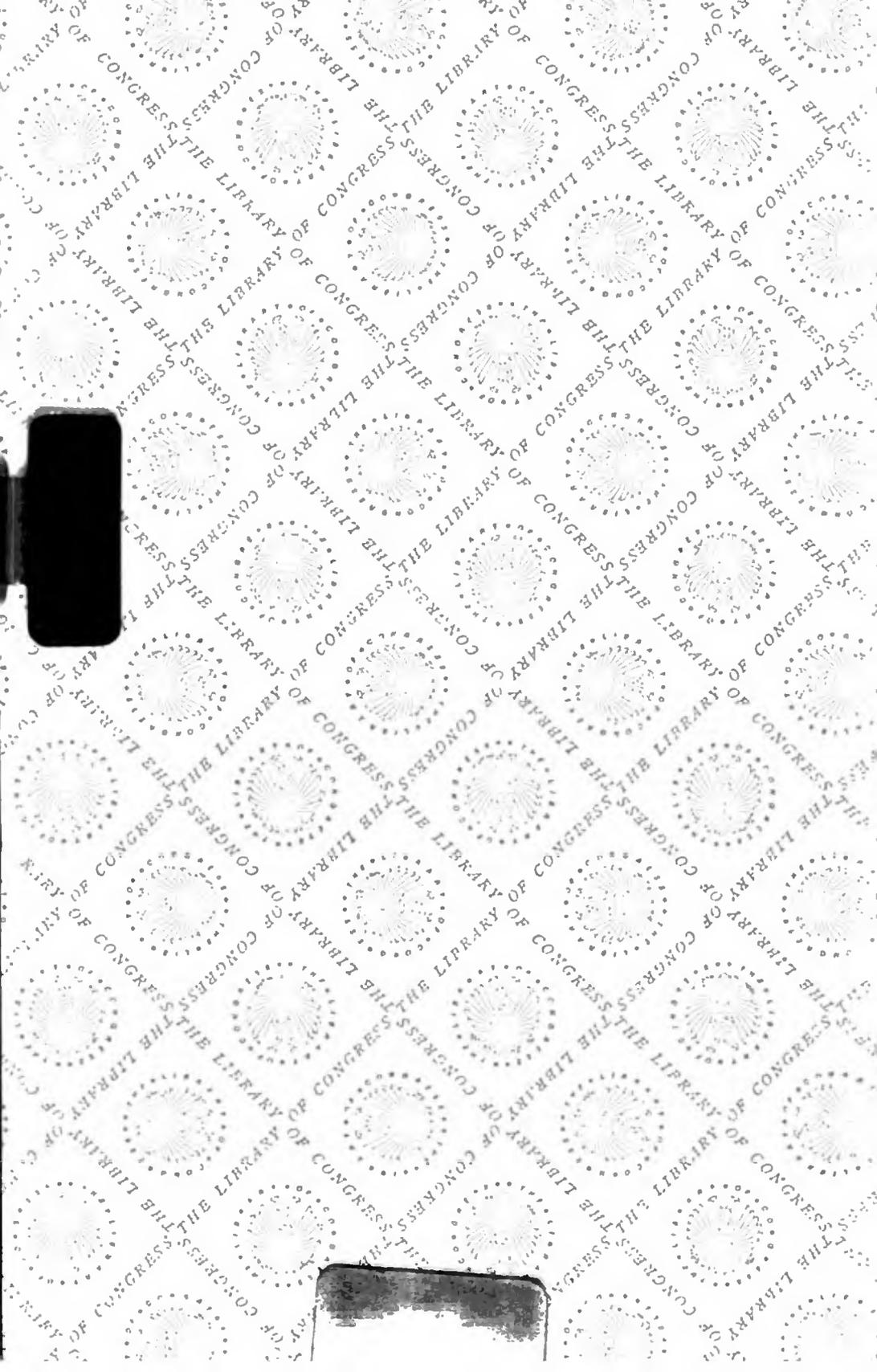
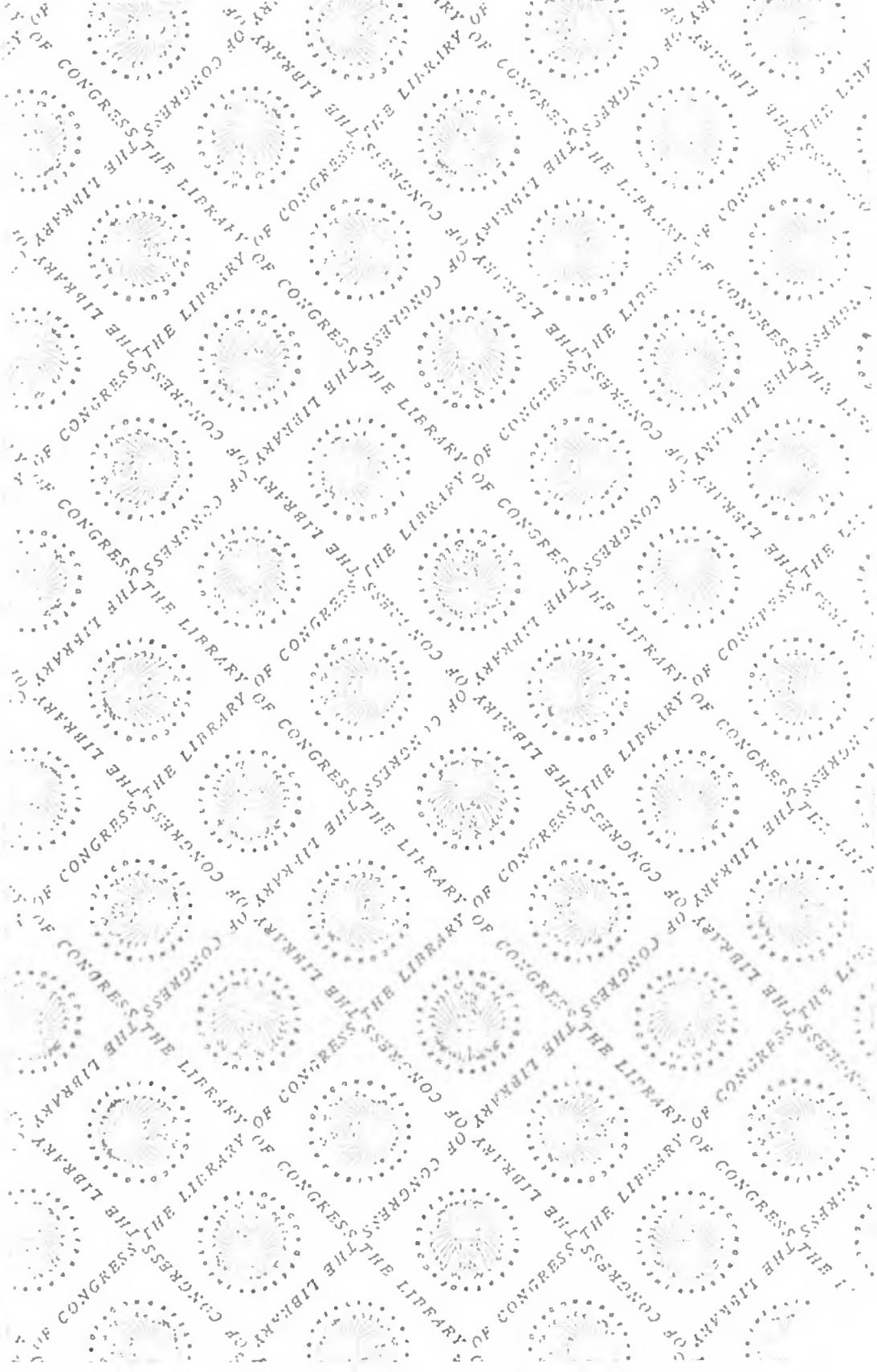


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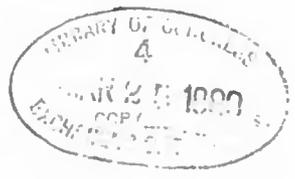
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RECOVERY OF ENERGY FROM MUNICIPAL SOLID WASTE



HEARING BEFORE THE SUBCOMMITTEE ON TRANSPORTATION AND COMMERCE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

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RECOVERY OF ENERGY FROM MUNICIPAL SOLID WASTE

FRIDAY, AUGUST 10, 1979

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND COMMERCE,
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Hackensack, N.J.

The subcommittee met pursuant to notice, at 9:35 a.m., in room 427, Bergen County Administration Building, Hon. James J. Florio chairman, presiding.

Mr. FLORIO. The subcommittee will come to order.

I would like to welcome everyone to this meeting of the Subcommittee on Transportation and Commerce.

At the outset, I would like to express my appreciation to all of the local officials, and particularly the county officials in Bergen County who have been very helpful in making the arrangements for these hearings.

I would also like to officially thank my colleagues for taking part in these hearings: Congressman Roe, Congressman Maguire, and Congressman Hollenbeck. Each of them has a high degree of expertise in this field, and I am sure that the hearings will be better as a result of their having taken part.

New Jersey is uniquely qualified to take part in a solid waste-to-energy congressional hearing. We, in Congress are in a position to benefit from New Jersey's expertise. This subcommittee has held a series of joint hearings in Washington. In fact, this is the third day of hearings that this subcommittee has held. The hearings in Washington focused primarily on the viability of resource recovery systems, with emphasis on their energy-generating capabilities.

It is clear that the recovery of materials and energy from solid waste is technologically feasible. It is equally clear that the economic conditions which exist in this Nation are increasingly attractive for adopting new means of disposing of solid waste and deriving some benefits from such disposal.

With the cost of traditional fuels skyrocketing and the costs of disposing wastes in landfills, and other more traditional ways rising with the enforcement of program regulations, it is time for us to reconsider the economic potential of these resource recovery systems.

Although we are having more favorable economic conditions, I am convinced that there remains an overriding need to stimulate and insure the economic viability of resource recovery systems. We can expedite the growth of private sector activity by removing some of the institutional and economic obstacles which serve to

hinder the development of this economic system. One such obstacle to the development of energy generating solid waste facilities is the availability of markets for the energy produced by resource recovery facilities.

To this end, I have recommended that the New Jersey Board of Public Utilities require utilities within the State to compare the cost of conventional fuels with the cost of fuels and energy derived from municipal solid waste. I feel very strongly that such a cost comparison will force the utilities in this State to evaluate the economic feasibility of such alternative fuel sources.

I think we are all aware of the fact that the existence of the automatic fuel adjustment factor system is not really a great incentive for utilities to look for the least expensive type of fuel, inasmuch as the cost of fuel can virtually be passed on to the consumer.

New Jersey has a unique opportunity to move toward a creative and beneficial solution to alleviate the solid waste disposal problem. We should not pass up the opportunities that these times provide to us. Inasmuch as fuel costs in New Jersey are a major factor in escalating utility rates, the use of fuel derived from solid waste may provide for the potential to stabilize the rapid rise of electric rates.

In addition, I intend to strongly recommend to the New Jersey Department of Environmental Protection that they in turn urge local solid waste planners to evaluate the viability of codisposal systems, that solid waste and sewage sludge to be disposed of together as a means of reducing the volume and magnitude of the solid waste special problem that sewage constitutes.

As we all know, ocean dumping is rapidly coming to a halt, and in a desirable way. We are happy about that. However, that does not detract from the fact that we have to deal with the problem of sludge disposal.

I am looking forward to these hearings, and I know they are going to be productive. At this point, I would like to introduce the other members: First, to my right, Congressman Robert A. Roe, of New Jersey, who has been very active in this field, and is a very important member of the Public Works Committee, which has jurisdiction over certain aspects and elements of this question. I would like to ask Congressman Roe to say a few words.

Mr. ROE. Thank you, my dear friend and colleague, Mr. Florio.

I want to first of all welcome all of the witnesses who are taking the time to participate. I think we know most of the witnesses personally. This hearing gives us a marvelous opportunity to open up the dimensions and get a real response from government officials and people in our State.

Certainly, Joel Jacobson and Pat Sheehan are distinguished witnesses, and I certainly want to thank my good friend from Camden, Congressman Florio, chairman of our Transportation Committee, together with Mr. Maguire and Mr. Hollenbeck.

All the members are from New Jersey, bringing our folks together and saying, "What should we be doing in the State of New Jersey and throughout the Nation on the conversion of so-called trash into energy in the Meadowlands area of New Jersey?"

I am pleased to advise you today that I introduced legislation about 1½ months ago to establish a \$30 million demonstration project in the Meadowlands area. The purpose of that was to convert our garbage into alcohol, as Mr. Florio was pointing out. We find that there are technologies available but some modifications will have to be made. We are dumping about 50 tons, as I understand it, a day of solid waste and garbage disposal into the Meadowlands, which could be converted into at least 3,500 gallons of alcohol.

None of us are suggesting that the solution to all of our energy problems is going to be converting everything into alcohol and from there to gasohol. You know, gasohol is where they have added 10 percent alcohol to gasoline.

Hopefully, we can cut and save about 2 million barrels a day of imported oil when we get to this point.

So, we feel that New Jersey is out in the forefront. I am very, very proud of our New Jersey delegation. They are doing superb work. We are going to break new ground on the environment and energy situation in getting this program really moving solidly in the northern part of our State and southern part of our State, for that matter.

I want to thank you, Mr. Chairman, for inviting me to participate and welcome the opportunity to join with you today in these fact-finding hearings.

Mr. FLORIO. Thank you very much. I now call upon the ranking member of the Science and Technology Committee, which shares jurisdiction with this committee. Congressman Harold C. Hollenbeck, of New Jersey, has been very helpful in planning these hearings, and continues to express a very active interest in this whole field. Mr. Hollenbeck?

Mr. HOLLENBECK. Thank you, Mr. Chairman. I want to thank you for giving those of us from the Bergen County area the opportunity to participate in your hearings today.

As a member of the Science and Technology Committee, I am pleased that your committee is exploring some of the aspects and potentials of solid waste management and resource recovery, and I commend you for holding the hearing in such an appropriate location as this.

As you know, for at least a decade, northern New Jersey and the New York metropolitan area have been facing a crisis in the area of solid waste disposal. The scope and the magnitude of that crisis grows larger every year. The need to find alternatives to the present disposal patterns in this region is most evident as those of you here know.

The Hackensack Meadowlands open landfills will reach their capacity in the early 1980's. The Environmental Protection Agency has announced a ban on ocean dumping effective in 1981. Every day some 8,000 tons of garbage are disposed of in landfills in the Hackensack Meadowlands area. That is about enough to fill a giant stadium once every 6 weeks.

Our neighbors to the east of New York City must dispose of some 20,000 tons of solid waste each day, and to further accentuate the problem, our wasteful consumption problems increase the amount of waste to be disposed of in each successive year, while at the same time the amount of land available has obviously diminished.

In the Hackensack Meadowlands region alone, some 2,500 acres that served as landfills 10 years ago, today only 550 acres are used. After this, the embarrassing fact is that as the cost of producing new energy increases dramatically, we are continuing to buy potentially valuable resources. Approximately 150 million tons of urban waste were discarded in the year 1978 alone.

The potential for converting municipal waste, including sewage sludge, to energy represents a valuable and extensive resource. I believe that we should explore this more fully. Of the various disposal techniques available, as you mentioned, Mr. Chairman, considerable attention has been given to the codisposal of garbage and sewage sludge. In this method, garbage is used as a fuel to dry sewage sludge, the objective of codisposal being to use the heat released by burning the garbage to dry that sludge, which can then be burned along with the garbage.

This process can reduce the total amount of waste which eventually has to be disposed of, and that can help our Nation solve its ever-growing waste disposal problem.

The outlook for codisposal appears to be promising. I know serious technical problems would be used for the processing at this time, and I am hopeful that this can provide a safe and efficient alternative for handling the growing amount of sewage sludge.

In operating costs for sludge disposal, I think it is low enough and economical enough that we may be able to find a means of disposal through that process and a means for controlling any pollutants.

As a part of its authorization activities this year, the Science and Technology Committee has authorized the construction and operation of a demonstration facility in Pompano Beach, Fla., to convert up to 100 tons per day of solid waste and sewage sludge and methane gas, and I am anxious to learn of the success of that project.

Although solid waste can only ultimately contribute a small fraction of our total energy needs, I feel it might provide cheap industrial energy available to attract industry backing such areas as the northeastern United States, including New York and New Jersey. It has long been my belief that the United States must move toward a more effective use of its resources insofar as possible; complete recycling, and after that recapture of their energy value, is an absolute necessity.

I think that in some regions, particularly the energy-starved Northeast, that the use of waste materials as a source of energy can be an economic boon. This process will take a long time, but a realistic timetable must be worked out and agreed upon. This would require local municipalities and regional organizations throughout the Nation to move forward in resource recovery in an efficient and well-planned manner, and without causing unnecessary disruption.

Thank you, Mr. Chairman. I would like permission to insert this statement.

Mr. FLORIO. Without objection, your entire statement will be entered into the record.

[Mr. Hollenbeck's prepared statement follows:]

STATEMENT BY HON. HAROLD "CAP" HOLLENBECK, A REPRESENTATIVE IN CONGRESS
FROM THE STATE OF NEW JERSEY

Thank you, Mr. Chairman, and I commend you for holding this timely and important hearing in New Jersey, where the problems of resource recovery and solid waste management are vital to this region's economic and environmental viability.

For the last decade, Northern New Jersey and Metropolitan New York have been facing a solid waste disposal crisis, the scope and magnitude of which grows larger each year. The need to find suitable alternatives to the present dumping patterns in this region is most evident in light of EPA'S 1981 ban on ocean dumping and the reaching of capacity of the Hackensack Meadowlands landfills later this year.

In the light of increased energy costs, resource recovery seems to be a necessary alternative to outmoded, conventional, ecology-disturbing means such as open landfills and ocean dumping. The fact is that less energy is used to recycle certain materials than to produce them originally, and it is embarrassing that, as the cost of producing new energy increases dramatically each year, we are continuing to bury potentially valuable resources.

One possible alternative is co-disposal. In this process, which we will hear more about this morning, garbage is used as a fuel to dry sewage sludge. The object of this process is to use the heat released by burning garbage to dry the sludge, which can then burn along with the garbage.

I have long been a proponent of waste to energy proposals and am pleased to be here in Hackensack today to continue an examination of the need for and feasibility of this scientific process—an inquiry into which I began last September in Washington, before my science subcommittee. Present conditions in New Jersey demand that both the private and public sector involve themselves in the search for a solution to the solid waste problem. Likewise, the entire nation must commit itself to finding a solution to the energy crisis. It may be that the remedy to these important problems is closely linked, and I am glad that Congress is taking a leading role in this discovery.

Lastly, I would like to compliment you, Mr. Chairman, on having assembled a panel of public sector witnesses and another of private industry representatives to offer testimony on the potential for converting waste into energy, and I would like to thank the panel members for their interest and presence, and I look forward to hearing from each of them this morning.

Mr. FLORIO. Our next Congressman and colleague is Andy Maguire, who is a very active member of the full Interstate and Foreign Commerce Committee, on which I serve as well, and of the Energy and Power Subcommittee, which, of course, makes his comments particularly knowledgeable and particularly relevant to what we are talking about today.

Mr. Maguire?

Mr. MAGUIRE. Thank you, Mr. Chairman.

Our country is at a unique point right now. We have increased our consumption of oil to 20 million barrels of oil daily, and we must now face the fact that this level of consumption cannot increase further. In fact, we need to find ways to reduce our dependence. We are heavily dependent not only on a finite resource, but on one that is dominated by foreign powers, making our homes, our industries, the whole economy vulnerable to the decisions of foreign producers.

We could go on for a while longer more or less as we have been, conserving a little more or perhaps wasting a little less, putting off in our minds today when we simply will have no choice but to drastically change our habits, but the problem will only get worse. We need to do something now to explore the alternatives to our dependency on a limited and increasingly costly resource.

At the same time that we are exhausting resources that we badly need, we are generating vast quantities of waste materials that we do not want, and we are running out of ways to deal with them.

This is an environmental crisis of almost the magnitude of the energy crisis. Both of these are major problems which we cannot afford to think about in small terms. We are essentially discussing how our society will live and produce, not just until the year 2000, but for decades beyond that.

To date, we have had the luxury of having apparently limitless energy supplies, of having areas available for landfilling, and, regrettably, oceans to pour our waste into. All of this is changing.

There are escalating costs in terms of inflation and our balance of payments. There are also increased costs in terms of water contaminated by landfills, of ugly mounds of industrial waste and garbage littering our neighborhoods, and all too often as Love Canal and so many other examples have shown us, the threat to our health, the extinction of marine life, and the pollution of oceans by our dumped waste.

As these costs have risen, we are finally starting to act positively on both the energy and the environmental problems that we face. It seems too ideal to think that these two problems could solve each other, but waste-to-energy conversion is possible, and as experiments are demonstrating, it is a viable solution to both problems, at least in part.

We are expected to generate 175 million tons of municipal solid waste a year by 1980, of which about three-quarters is combustible, and in one way or another usable to produce energy. All together, this may amount to fulfilling perhaps 3 to 6 percent of our energy needs. It does not sound like much, does it?

However, in the context of the positive effect on our economy and on the environment that this could have, waste-to-energy conversion takes on added significance. The problems that we are discussing call for imagination and sensible responses. We cannot continue to rely so heavily on fossil fuels, and we must look for alternatives. The concept of converting waste to energy is a particularly attractive one, because of the positive side effects for the environment. It is a partial solution and a definite alternative to what we are doing now in our own Meadowlands, in our nearby rivers, and in our ocean waters, and of course, we are doing that now, very shortsightedly.

I am pleased to participate in today's hearings to further explore this important subject. We welcome Chairman Florio and the subcommittee to Bergen County, where the solution of these problems will be particularly important to our citizens.

Thank you, Mr. Chairman.

Mr. FLORIO. Thank you very much.

At this point I would like to recognize the few welcome remarks of Mr. Bennett Mazur, the chairman of the Freeholder Committee on Planning and Public Works.

STATEMENT OF D. BENNETT MAZUR, CHAIRMAN, FREEHOLDER COMMITTEE ON PLANNING AND PUBLIC WORKS

Mr. MAZUR. Mr. Florio, members of this very distinguished panel, it gives us great pleasure to have you here in our chambers.

I will say it is a little unusual to stand on this side of the rail and talk to that.

We are very pleased to have you here in Hackensack today for this hearing on conversion of solid waste into energy. It certainly is a pressing problem.

I have been the freeholder in charge of solid waste in Bergen County for 8 years off and on so I am familiar with the problems that you are going to explore here today. Bergen is an urban county with nearly 1 million residents, so we generate a great deal of solid waste. For many years the landfills in the Meadowlands, which lie in part within Bergen County, have handled the solid waste not only from our own municipalities but also from those in other counties as well as parts of New York.

We have literally built mountains of garbage right here in this county, and the northern sections of neighboring Hudson County. I might take the liberty of joking that you have come from the capital of the country to another capital, that is rapidly becoming the garbage capital of New Jersey.

Discussions of resource recovery are not new in Bergen County. Talk of making use of solid waste to help alleviate the energy problems has been going on here for many years. We are well aware of the conflict between economic growth and protection of the environment, between the need for consumer goods and clean air and water. We face the problems of diminishing landfill space and of the energy needs of industry and of individuals. We are searching for methods we can employ to help with these problems.

We have reached a few conclusions and I would like to make the following suggestions;

One, environmental costs be taken into account in the computation of costs and benefits of any action to extract, transport, process, use, or dispose of any material, and that such principles become a basic element of legislation and administrative practices.

Two, except where social benefits are paramount, the extraction or harvesting of materials be limited to areas where the ecosystem can be rehabilitated or enhanced.

There is insufficient knowledge, awareness, and understanding of the basic interactions in the materials-energy-environment system. Science and technology must provide methods to measure, as an aid to prevention, the deterioration of the environment, as well as develop equipment to cope with noxious effluents.

Three, the Federal Government must support extensive research and development on the dynamics of materials-energy-environment interplay and its effect on human, animal, and plant life.

Four, pursue an equilibrium between the supply of materials and the demand for their use by increasing primary materials production and by conserving materials through accelerated waste recycling and greater efficiency of use of materials.

We recommend that a national resource recovery system be established through public and private sector cooperation to achieve three objectives:

One, discourage dumping and encourage resource recovery as a means of turning waste into a national resource;

Two, encourage disposers to prepare waste for recovery rather than dumping; and

Three, create markets for recovered materials by recycling technology, by Federal procurement policies, and by equitable tax and transportation rates for virgin and secondary materials.

In summary, while the United States is consuming an increasing amount of materials and generating larger amounts of solid waste, the percentage of materials recycled is declining, even though the absolute volume is increasing. Because the principal means of solid waste management is dumping and sanitary landfill, reusable materials are treated as wastes instead of as a national resource. They are, thereby, lost to the economy.

In addition, the disposal of postconsumer waste can imperil public health, degrade land values, create visual insults, and pose a financial burden on municipal budgets and land use.

When the United States began to industrialize, the nation enjoyed abundant natural resources and energy. Since then, taxes, legislation, consumer and industrial practices, and the economics of scale of the primary industries have created a preference for virgin materials over recycled materials. At a period when solid waste management is becoming a national problem and the country is relying increasingly on materials imports, the question is being asked; Why does it not make good sense to treat waste as a resource? The major barriers to greater recycling are the lack of markets for secondary materials, the low level of in-place recycling technology, and difficult technology transfer in the industry.

A functioning recycling system would benefit the economy, environmental quality, land use, and health. Eventually, as the volume of reusable solid waste becomes large enough, recycling may offset depletion of nonrenewable resources, reduce reliance on foreign sources, and improve the U.S. balance of trade and international payments.

Goal; to pursue the opportunity to turn waste into a national resource by returning materials to the stream of the national economy through economic and technological incentives and by changing the linear flow of the materials systems into a circular flow.

Another goal; to formulate materials, energy, and environmental policy in such a way that laws, Executive orders, and administrative practices reinforce this policy, not counteract it.

I would rather like to tell a little story that points up some problems that perhaps have not really been adequately addressed.

Solid waste has traditionally been disposed of on marginal lands. In this area of the country, it is usually deposited on unused marshlands in direct contact with the ground and surface waters of the State and in direct contravention of State laws.

Recognizing the undesirability of this method with its inevitable pollution of those waters over a long time, I attempted 13 years ago to launch a project whereby we would have created an incinerator with a water tube boiler in its throat to generate sufficient steam to create enough energy to power an indoor swimming pool and ice skating rink. That proposal became a political issue and was defeated, and, I might add, so was I.

In retrospect, I am glad that the project never got off the ground for it would have been unused, the reason being simply that the cost to dispose of a ton of garbage in that manner would have been

far more expensive than disposing of it in a private sanitary land-fill, over which we had no control. An iron law of economics would have asserted itself and doomed the project to failure.

There were actually two lessons to be learned. One was economic, the other political. Even if the technology is adequate to accomplish the purpose, the economics of the marketplace must be accounted for. Ways must be found to control that marketplace and force the flow of solid waste into the desirable channel. To some extent, New Jersey is attempting to do that by establishing solid waste disposal as a utility, but New Jersey is the only State in the Union which has done that.

The second lesson is political. What kind of agency or jurisdiction should be encouraged or allowed to perform this task? Should it be insulated from political pressures by requiring an authority to administer such an enterprise, rather than an elected body. New Jersey has, I think arbitrarily, assigned that function to counties, but an elected body is sensitive and open to political pressures which bend its decisions. What community wants to be host to any kind of resource recovery or other solid waste disposal facility? As far as the public is concerned, a rose is a rose is a rose, and garbage by any other name is just as undesirable.

And what size jurisdiction can provide the necessary economy of scale? A municipality? A county? A regional agency? Or a State? Which is best able to provide the enormous capital investment within its bonding limits to construct such a facility?

Bergen County has completed a solid waste master plan which calls for a resource recovery facility 5 years hence. The cost of such a project is in excess of \$100 million, far beyond our ability to reasonably provide for it. Clearly, heavy Federal funding will be required for such an enterprise.

I realize that the purpose of your investigation is to explore technological avenues available, but perhaps my remarks would provide a backdrop to your inquiry which would underscore the reality that technology, economics, and political or institutional realities interpenetrate each other in any decisions that may be made in a field that is far more sensitive than most legislators realize.

I want to thank you once again for coming here and for your interest in this particular matter, and I wish you continued health, success, and whatever else goes with it. Thank you.

Mr. FLORIO. Thank you very much.

I would now like to introduce the first of the two panels we have. I would ask that all three panelists come forward, Commissioner Joel Jacobson, New Jersey Department of Energy; Patricia Sheehan, executive director of the Meadowlands Development Commission; and Herbert Rambo, administrator, Camden County Solid Waste Management Department.

Commissioner, perhaps you could introduce your colleagues for the record.

STATEMENTS OF JOEL R. JACOBSON, COMMISSIONER, NEW JERSEY DEPARTMENT OF ENERGY, ACCOMPANIED BY GARY B. LISS, SOLID WASTE AND RESOURCE RECOVERY PROGRAMS; PATRICIA SHEEHAN, EXECUTIVE DIRECTOR, HACKENSACK MEADOWLANDS DEVELOPMENT COMMISSION; HERBERT R. RAMBO, ADMINISTRATOR, DEPARTMENT OF SOLID WASTE MANAGEMENT, CAMDEN COUNTY, N.J.

Mr. JACOBSON. Thank you very much.

Mr. Chairman, and members of the committee, my name is Joel Jacobson. I am the commissioner of the New Jersey Department of Energy. I am accompanied by Mr. Gary Brian Liss, who has been my expert for solid waste and resource recovery programs. I put that in the past tense because regrettably Mr. Liss is leaving the State of New Jersey for greener pastures and wider horizons as an expert for the U.S. Conference of Mayors. I commend to you his vast knowledge and expertise in this problem, and frankly, he is here to correct any stupid statements that I may make.

May I, at the beginning, express my appreciation of appearing before this distinguished panel? I am very much impressed with the bipartisan, ecumenical spirit manifested by the presence of the four Congressmen here. I also am aware, as you are, and those of us who have the burden of attending political dinners, how dangerous it is to introduce one person at a meeting, running the risk of alienating everybody you left out.

With that as a background, I would like to say it is an honor to be in the presence of this room of New Jersey's next Governor, knowing I am making at least 10 people happy, certainly 3.

Mr. FLORIO. Congressman Hollenbeck has an announcement to make.

Mr. JACOBSON. I will be very brief, because it is apparent to me from your statements that all four of you made that you are well aware of the problem.

New Jersey municipalities generate solid waste in the quantity of 17,000 tons every day. Mr. Liss has taken out his calculator and computed the fact that as a consequence of this generation of solid waste, at the end of 2 weeks we could fill a giant stadium with the waste generated by municipalities. I am not sure whether the contents at that time would be any more than we would normally see during the football season, but the point is, it is obvious that there is a huge quantity of solid waste which is being generated.

As you know, the existing process of landfilling utilizes something like 10,000 acres throughout the State and an average evaluation of about \$5,000 an acre, a total investment in land of \$50 million for the less esthetic approach of landfilling. It becomes perfectly obvious that because of environmental reasons and evaluation reasons and esthetic reasons, there must be an ultimate means of disposing of our solid waste.

The fact of the matter is that the amount of waste is increasing, our capacity for disposing, diminishing, and on that basis alone there must be an ultimate plan to pursue.

I would set forth from my perspective an additional reason, and that is the reason of creating a liability of a smelly, carcinogenic, hazardous, distasteful, unesthetic disposal of waste into landfills, to convert that liability into the asset of energy resource. For these

two reasons alone, it appears to me that what you are doing here is significant and certainly merits the accommodation of everybody who is concerned with these problems.

We would like to recommend that resource recovery offers the optimum solution for solid waste disposal in our State. As a network of programs for both resource recovery and source separation, which we believe should be balanced properly, and within that context, we will be making that first important step in the proper direction.

Let me just conclude with one major point, with several subcomments. First, there is the question of cost. Congressman Florio, you in your statement referred to the fact that you are asking the board of public utilities to take the proper role with regard to price. The evolution of landfilling to resource recovery in this State is obviously going to be a function of economics and timing.

The average landfill tipping fee in 1979 reached \$3.32 per ton. We estimate that the average tipping fee today at 2,000 tons per day, resource recovery facility, is \$10 to \$15 per ton. In the next few years, we anticipate that landfill fees in New Jersey will probably escalate \$6 to \$10 a ton as a consequence of enforcement of environmental controls and a decrease in filled space.

Obviously, as you indicated in your statement, there is a need to bridge the economic gap.

My only point in emphasizing this is that while it is very nice to recommend to the board of public utilities to increase rates, having served in that position for a couple of years, I know how distasteful it is for any commissioner to do so. My point is not that it should not be done, not that the bullet should not be bitten, and not even swallowed. The point is, if we make these recommendations, we have to make sure, of course, that the consequences for them are faced and that the responsibilities are shared, and hopefully also the benefits are shared. There are important tradeoffs to be made.

Point two, under economics, the Department of Energy in the State of New Jersey has formed a resource recovery financing panel consisting of some several imminent citizens throughout the State representing the resource recovery industry, the solid waste industry, environmental groups, investment communities, utilities, local government, State agencies, and the real estate industry.

This group is currently at work in developing a paper on financing for resource recovery. I have a draft of it here. It is not completed, and it has not yet been voted by the panel, but it indicates several interesting roles in the future, and I suspect at some point the panel will ultimately conclude its report, hopefully end its report.

My point is that the panel is considering the methods of financing and the projects to be financed. Just to give you an indication of the parameters of the problem, here are some of the facilities, they say, in the preliminary draft, which will have to be financed if we are to pursue this road to its ultimate conclusion.

They estimate by 1990 we may have to spend from \$800 million to \$2.2 billion for energy recovery facilities, source separation equipment, transfer stations, and transfer equipment, intermediate processing facilities, the conversion of industrial boilers, the expansion of industrial capacity for materials, the industrial park devel-

opment, landfill, closure, and environmental improvements, planning, enforcement and demonstrations, financing recommendations yet to be agreed, and capital scarcity competition.

Obviously, this is a massive problem.

Now, my last point is, if these are the amounts of money to be raised for those subjects, it appears to me that there is a logical role for the Federal Government, which I presume is one of the purposes of holding these hearings, to hear our suggestions.

If I may be bold, in the past the Federal Government has provided cautious leadership in this field, and they have used scarce resources wisely, but I am afraid in the process that they have set hopes rather high for persons and individuals and agencies interested in this field.

It appears to me that now in the true terms of the vernacular, it is time to fish or cut bait. The Federal Government must assume a more significant role. It must assume full leadership or else decrease the level of expectations for those who are out there looking for it.

That is No. 1. No. 2, I would hope that there would be more significant Federal allocations for research and development, the details of which are well available to you as to anybody else.

Finally, there may be some means whereby the Federal Government can participate through evolving loan funds for high risk project costs through constructing financing or initial feasibility, planning, engineering. Thereafter, project revenues could be self-supporting for a majority of projects. There could be industry loans for high risk portions of investment.

I would offer the rather crass comment that if it is all right for the Congress of the United States to bail out Penn Central, Lockheed, New York City, and maybe even Chrysler, perhaps the time has come for the Congress to do the same with regard to resource recovery, resource separation.

[Mr. Jacobson's prepared statement follows:]

STATEMENT OF JOEL R. JACOBSON
 COMMISSIONER, NEW JERSEY DEPARTMENT OF ENERGY

RESOURCE RECOVERY IN PERSPECTIVE - RESPONSE TO INVITATION

- o Substantial progress to date - over 20 facilities operating in U.S.; many are technically successful; most could have been done better at first
- o Energy prices and need to develop domestic energy sources will be major thrust to move resource recovery forward
- o Major obstacles are institutional, jurisdictional, legal and financing
- o Consumers will be forced to pay more; requires education as to why
- o Federal government has provided cautious leadership, used scarce resources wisely; must either assume full leadership or decrease expectations of country

NJ DEPARTMENT OF ENERGY BACKGROUND

- o ENERGY MASTER PLAN
 - Solid Waste as Energy, Economic and Environmental Opportunity
 - Urban Revitalization through concentrating Energy Benefits
 - Shift from Utility to Industrial/Commercial Energy Markets (Don't Disperse in Grid)
 - 20% Source Separation Goal
 - Energy Production Potential for NJ - 5 billion Kwh/year
 - Energy Conservation Potential for NJ - 2.2 billion Kwh/year
 - Total Energy - Over 50% of electrical needs of all year-round housing units in State
 - Employment Potential - 16,000 jobs by 1990
- o RESOURCE RECOVERY FINANCING POLICY PANEL
 - Assessment of Financing Needs: Clear Problem Definition; must be comprehensive
 - * \$800 million to \$2.2 billion Initial Estimates by 1990
 - o Energy Recovery Facilities
 - o Source Separation Equipment
 - o Transfer Stations and Transfer Equipment
 - o Intermediate Processing Facilities
 - o Conversion of Industrial Boilers
 - o Expansion of Industrial Capacity for Materials
 - o Industrial Park Development
 - o Landfill Closure and Environmental Improvements

- o Planning, Education, Enforcement and Demonstrations
- * Financing Recommendations Yet to be Agreed
- * Capital Scarcity and Competition

NEED TO INTEGRATE INSTITUTIONS

- o Major "institutional" barrier is lack of integration of institutions
- o Federal Agencies - EPA, DOE, DOC, HUD, Labor, GSA, HEW, ICC
- o Federal/State/Regional/County/Municipal - Nested Hierarchy
- o Public/Private Sectors
 - Public: Catalyst, Incentives, Planning, Regulation
 - Private: Technology, Marketing, Investment

ENFORCEMENT OF ENVIRONMENTAL STANDARDS

- o Essential to making resource recovery economically competitive
- o Decreases availability and proximity of landfills; internalizes external costs

CONTINUITY OF PROJECT DEVELOPMENT TEAM

- o Average project takes 5-7 years to develop after approved plan
- o Average term of office - 4 years
- o Lack of Manpower causes "raiding"
 - Develop fellowship program for universities

NEED TO MANAGE RISKS

- o Technology
 - Research & Development (e.g. EPA — RDF)
 - Monitoring of Strengths & Weaknesses; Technology Transfer
- o Markets
 - Tax Credits, Price Supports, Economic Incentives, Entitlements
 - Public Procurement
 - Market Clearinghouse: Ease of entry & Stability

- o Waste Stream Flow
 - Weighing/Composition Analysis
 - "Can't recycle what you don't own"
 - Federal assistance required: Interstate flows (by compact) & legal leadership
- o Siting
 - Host Community Assistance
- o Financing
 - Federal participation through Revolving Loan Fund for High Risk Project Costs, through to construction financing (e.g. initial feasibility, planning \$, engineering \$, construction financing)
 - * Thereafter, project revenues could be self-supporting for majority of projects
 - Interest Free Loans for high risk portions of investment
 - Loan Guarantee Program expanded: Catch 22, USDOE is supposed to be for demonstration of new technologies, not in support of general projects where loan guarantees would be advantageous

FEDERAL ROLES

- o PURPA - example of good idea without specifics to make impact
 - Values of energy should be at levels which reflect the costs of competitive fuels plus the displacement of generating capacity
 - PURPA must distinguish between different types of alternate energy sources
 - * Performance characteristics vary/value should vary as well
- o President's Urban Policy - Resource Recovery Implementation Grants
 - Perfect idea; vacillations on funding have undermined severely
- o RCRA Planning Assistance to State's - Need comparable assistance to State energy offices and economic development departments, either through RCRA or other federal agency
- o Do one thing well if resources aren't going to be provided; environmental enforcement

Mr. FLORIO. Thank you very much.
Ms. Sheehan?

STATEMENT OF PATRICIA SHEEHAN

Ms. SHEEHAN. Thank you, Mr. Chairman.

For the record, I am Patricia Sheehan, executive director of the Hackensack Meadowlands Development Commission, a regional planning agency with the responsibility of orderly development and environmental protection within the 32 square miles which make up the district, which comprise parts of Bergen and Hudson Counties and a portion of 14 different individual municipalities of New Jersey.

We are charged by our legislature with finding a solution to the quantity you mentioned several times already this morning of some 50,000 tons of garbage per week that come into this district from much of northern New Jersey.

The citizens of Bergen and Hudson Counties have been host to this problem, which I hope in the future will become a resource for frankly all people, and we are anxious to work not only with those counties and the individual municipalities, but certainly with this distinguished panel that is here this morning.

I am sure many of you in your travels have heard Mayor Gibson say, wherever the cities are going, Newark will get there first.

Well, I think on another subject it is equally true, whatever we are going to decide to do or not do with solid waste, the Hackensack Meadowlands Development Commission, given the volume and intensity of the problem, also will get there first or will be buried in the process.

The purpose of your hearing, through your invitation, was to present some of our experiences with the conversion of waste to energy. While we do not have any direct experience with waste to energy, I think we are clearly working in that direction, and I would hope sharing some of our experience with you and indicating a little bit of the crisis that we face—which through your introductory remarks each of you are very well aware of—nonetheless, might tend to develop some solutions or ways of assisting you in recognizing and implementing some solutions to the problem.

The Meadowlands landfills are choked with garbage. By many standards, they were filled some time ago, and yet they continue each and every day to receive some 8,000 tons of solid waste.

We have built, through the Federal Public Works Act, a 1,000-ton-per-day garbage baler which will help alleviate the problem. When additional funds are available, we would expect to expand this capacity to 2,000 tons per day, but it is only a very small part of the solution. It buys time and it buys some space. It certainly does not allow for either source separation or energy recovery, but as I say, very significantly, given the intensity and the volume of the problem, time and space is no small gift in terms of the utilization of the baler facilities.

Nonetheless, at the heart of our solid waste management plan is a resource recovery system, actually two of them, which would take the municipal and commercial waste to produce energy and other useful products. It is in this area that we hope and expect a committee such as yours to be most helpful.

Resource recovery takes standard household commercial wastes and reclaims the glass, aluminum, ferrous metals, which can be resold and with the remainder produce what is called refuse derived fuels. When combusted, it has about one-half the Btu content of coal and thus would make an excellent fuel source, either onsite or for major users, either through electricity or steam.

Recently I visited a facility such as this in Long Island where they expect to be able to produce energy onsite, saving some 25 million gallons of oil each year. Energy produced from Meadowlands garbage could save millions of gallons of fuel each year. In addition to the direct production of energy from garbage, there are other advantages.

Aluminum requires about 95 percent less energy to recycle than to produce from raw ore. Steel and iron are recast at substantial savings in energy. Previous actions by the Hackensack Meadowlands Development Commission to implement its solid waste management date back as far as September 1969, at which time we had a study commissioned by the Zern Environmental Engineers, who selected mass burning for a most viable option for solid waste disposal.

This was followed in 1971 by an Arthur D. Little study identifying mass burning as the most acceptable approach to providing solid waste capabilities for the Hackensack Meadowlands Development District. This report recommended the construction of mass burning facilities devoted to combustion of refuse to produce electrical power. This would have the capacity to handle the waste generated within the Hackensack Meadowlands Development District, and, I might add, three to four surrounding counties over and above the district.

After a 1973 study, the solid waste management plan was adopted by the commission based on resource and energy recovery. A preliminary design study was authorized by Burns & Roe to evaluate the feasibility of processing methods. The completion in 1976 resulted in a preliminary design of a resource energy recovery system for the district.

The joint project of the Hackensack Meadowlands Development Commission and Bergen County anticipates that due to further recent advances in the industry, certain modifications, expansions, and revisions in the design may be necessary.

The technical effort to be undertaken will review the alternative technologies, including the onsite power generation, and codisposal of RDF for sewage sludge. Throughout this effort, the goal is the disposal and handling of solid waste.

As far as the commission is concerned, obviously, that is our primary problem. The beauty, as Commissioner Jacobson indicated earlier, is, there is also an opportunity of turning a liability into an asset and a resource. The use of the byproduct of what has been a blight on the landscape, a health hazard, and a waste of a limited resource in a State the size of New Jersey is in fact energy production.

The Hackensack Meadowlands Development Commission solid waste management plan now under review by the State department of environmental protection, like those plans produced by our

counties within New Jersey, see resource and energy recovery as the heart of the solution to the garbage crisis here.

The cost of construction for two resource recovery units would clearly be at least in the area of \$120 million by today's costs. Each year's delay adds tremendously to those costs. So, I would like to suggest, Mr. Chairman, that in finding a solution to the solid waste crisis, it can be linked to finding a partial solution to the energy crisis, saving significant amounts of energy, in some instance as high as 10 percent, by making use of, rather than polluting the landscape with our solid waste, solving environmental and health problems as well.

The funding of such magnitude in an area highly capital intensive, given the state of the art and a great deal of risk, requires some support, not only by the private sector and local and county and State governments, but I venture to say by the Federal Government as well.

I would suggest that one area that this committee might review would be a consideration of the establishment of a trust fund similar, perhaps, to the highway trust fund. For one example, perhaps based on a surcharge of 5 cents per ton of garbage dumped to be used for the capital financing or loan guarantees necessary to build the extremely expensive resource and energy recovery systems.

The Federal Government could provide this same type of backing or support of guarantee such as has been provided over these many years for the national highway network only on a much smaller scale. I believe that the technology and the will and the crisis is with us and we could help solve this problem. Thank you.

Mr. FLORIO. Thank you very much.

Mr. Rambo?

STATEMENT OF HERBERT R. RAMBO

Mr. RAMBO. Mr. Chairman, my name is Herbert R. Rambo, administrator of the Camden County Department of Solid Waste Management and I am appearing before this subcommittee hearing to offer our opinion that conversion of solid waste into energy is in the best interests of our Nation and to urge that the Federal Government embark on a program, not nearly as massive in spending but with every bit as much zeal and determination as has been shown in the area of sewage management, so that we can realize the full potential of solid waste as a natural resource and eliminate it as a serious cause of land and water pollution which can be converted as an energy source.

The United States is far behind countries in Europe which have been converting trash to energy for several years. While we would not wish to imply that this solid waste conversion process is the total answer for every part of our Nation, we do feel strongly that in the urban areas and elsewhere where high population density exists, resource recovery is a viable alternative that becomes more cost effective with each increase in the price of oil.

We feel there is a need not to overreact during this energy crisis by launching massive capital funding programs to build resource recovery facilities in every town and village. For now we must proceed cautiously, we must first demonstrate the ability to build

resource recovery plants that work, are manageable, and most importantly, cost effective.

We have all read of the waste that has existed in many of the programs funded by 201 moneys. We must not allow ourselves to make the same mistakes twice. Pouring in Federal dollars in massive amounts is not the answer to this, or to any other problems. Selectively targeting areas after careful research will allow us a better chance of success.

Here in EPA region II, there are some 18 awardees of cooperative agreements under the President's urban policy for resource recovery and we are among some 68 nationally. I feel strongly that these 68 projects may be the seeds of the successful establishment of a national effort in resource recovery. While we don't know how others feel, Camden County is pleased that the EPA officials with which we are dealing have realized that "big is not necessarily better." These EPA officials are no longer talking about 2,000-ton-a-day plants as being the starting point on an Uncle Sam shopping list.

They seem to have a good grasp of the issues and realize that to date, there is not a single "big" resource recovery plant in this Nation that can truly be called efficient and cost-effective.

They are counseling us to size plants that have a reasonable chance of succeeding. But we also feel that EPA is mistaken in assuming that we can have a national system of resource recovery facilities financed through private or local and/or State resources. As you well know, the cost of these plants can range from \$5 million to \$50 million. A joint public/private effort is needed.

It is unrealistic to expect that given current economic conditions, that we can achieve this goal of building cost-effective resource recovery facilities if we include the debt services on multimillion-dollar expenditures.

If we had used this strategy in sewage management, I doubt that we would have anywhere near the current number of planned and operational treatment plants.

We strongly suggest that you continue the President's urban policy for resource recovery planning, do the investigation and then, and only then, provide Federal funds to construct facilities that have a high chance of success. If this procedure is followed, we can eliminate marginal plants and naturally, those plants that are reported as unfeasible.

Additionally, we are convinced that much of our solid waste problems can be dealt with by expanding the scope of eligibility under the 201 funding program, to include solid waste facilities using incineration.

Presently, capital funding is available for the portion of the resource recovery facility used to handle sludge that will be burned with trash through incineration, to create energy. We believe the funding under this program should be enlarged. If this funding formula can be liberalized to include a greater portion for resource recovery at a facility, it would be beneficial and we would support the committee's efforts to make it come to pass.

However, it is imperative that Federal legislation be enacted for funding of solid waste resource recovery facilities and that we fully make use of all opportunities offered through incineration.

The coincineration of solid waste and sludge may well offer us the opportunity to be in that proverbial position of killing two birds with one stone. What we particularly desire is that the purchase price of that stone not bankrupt the taxpayer.

Certainly, I think it is safe to say that we have finally realized the evils of landfilling solid waste as a cause of pollution to our ground waters, but I have frequently wondered why we are spending so many millions of dollars on sewage treatment facilities to clean up our water, and at the same time virtually ignoring solid waste as such a serious problem that also needs our attention.

I have often thought of sewage pollution and solid waste pollution as being similar to two fully opened faucets running into a bathtub filled with our drinking water. We have turned off the sewage faucet. When will we turn off the other?

Up until quite recently, we have ignored solid waste, both hazardous and nonhazardous, as a serious cause of pollution. The incident at the Love Canal in New York State has shown us quite visibly that we have been mistaken, but in addition to making the commitment to resource recovery for environmental reasons, our friends in the Arab nations are making us take a look at our own energy needs. This examination must include solid waste as an alternative energy source.

In Camden County, we like the concept of coincineration of solid waste and sewage sludge. We think it has strong possibilities. While there is a great deal of study necessary before Camden County can discuss concrete scenarios, our very preliminary thoughts indicate we could size a resource recovery plant that would generate enough energy to provide all of the sewage treatment facilities electricity and then be used a second time to power some of the machinery and perhaps a third time to further dry the sludge before incineration.

We estimate that we could use trash to replace a little over 200,000 barrels of oil each year in our area alone.

In conclusion, we urge the Federal Government to expand its commitment to resource recovery funding for both environmental and energy reasons, but we also urge caution and careful planning to avoid any grandiose white elephants.

Mr. Chairman, I thank you for the opportunity of offering this testimony, and if you will excuse me for being just a little provincial, I would like to tell you that we in the First Congressional District of New Jersey are quite proud of your accomplishments in Washington and we are particularly pleased with the leadership role you are playing in the field of solid waste.

Thank you. I would be happy to answer any questions you may have.

Mr. FLORIO. Thank you very much.

I think by way of housekeeping, the committee will proceed under what we speak of as the 5-minute rule, under which each member will present questions for five minutes. We hope the responses would be as succinct as possible, and then we will continue to go around until the committee members have exhausted their need for further questioning.

Just by way of an introductory observation, perhaps I would ask the panel to respond. I know I speak for my own committee, and

the full membership—we have discussed this in some detail—in saying that the committee is virtually of one mind in that the experience with sewage treatment facilities is not able to be duplicated. Perhaps identifying with some of the comments of Mr. Rambo's, we have not the inclination, the desire, or the feasibility to come up with a multibillion-dollar program to finance solid waste facilities. We do not think it is possible; we do not think it is desirable, at least the full subcommittee does not.

We also think, as I indicated in my opening remarks, that the economics are such that we can induce the private sector to play a much more active role. As the cost of energy rises, as the cost of landfill dumping goes up, as the technology comes on line, there are already viable technological options as to how we want to approach this problem. In terms of operating costs, it is virtually comparable at this point.

The big problem, of course, is the initial capital outlay. The hearings that we have held have convinced me that this is the major problem we have to face in terms of getting the private sector more involved. The major factor that will induce the private sector to become involved in the financing of the large capital outlay at the front end is the security of the market for energy generated at the back end of the entire process.

I would just like to ask the panel to respond to an observation that our committee has made: That to a degree we can assure a secure market at the back end in terms of the energy that is generated, to that degree, we can induce the private sector to come up front with the money.

There have been two approaches suggested. One approach is being pushed by the Port Authority of New York, and that is the industrial park approach, which proposes the use energy of generated generally in modular plants for steam, for industrial parks.

The point has been made, however, that this is a bit speculative in the sense that we are hopeful that we can attract industry. We are hopeful that there will be this continuing long-term commitment, and therefore to the degree that it is in any way speculative, it detracts from the certainty that private investors will need to put a large amount of money into the process.

An alternative which would provide, we think, a higher degree of security is reliance upon public utilities. Public utilities are obviously in business on a long-term basis. They are here to stay, to the degree that they can agree to accept energy generated by solid waste, so it is on an ongoing basis, to provide that measure of security needed to induce private people to become involved in solid waste facilities.

The Federal Energy Regulatory Commission is already in the rulemaking process for requiring small amounts of energy to be accepted by public utilities from small generators of solid waste derived fuel. I have made the suggestion that the New Jersey Public Utilities Commission, the board of public utilities, should require the utilities to at least do comparable cost analysis to find out what it costs to convert over, to be able to accept solid waste derived energy, and how that compares with the utilization of traditional fossil or nuclear fuels. I would just like the panel to respond as to what they think the prospects are for a greater,

perhaps even mandatory use of solid waste-derived fuel or solid waste-derived energy, for our public utilities in New Jersey.

Perhaps I would ask the commissioner, with his extensive background in the public utilities field, to make an observation.

Mr. JACOBSON. If you do not mind, I would like to ask Mr. Liss to give his perspective on this. He is an expert in this field.

Mr. Liss. I am glad you asked the question. The question of utility versus industrial energy markets is clearly one of the largest issues in the evolution of resource recovery today. The implications of going to the industrial energy market is that not only at the same time we are solving energy problems and environmental problems, we can contribute to economic development as well.

Clearly, the Congress has to address that issue, whether economic development issues, and particularly urban economic development is a key concern which can be addressed to resource recovery.

One of the problems in stressing the utility energy market is that utilities, as they presently are regulated, do not have any economic incentive for using resource recovery derived energy. In fact, there have been a number of reports documenting many institutional barriers which have to do with the way the utility industry is structured. Although under PURPA, Public Utilities Regulatory Policy Act of 1978, there were goals established by the Congress to shift directions, to use alternate energy sources, they were, one, not specific enough; two, not tailored to different types of alternate energy needs; and three, was not by any means far enough into restructuring the entire utility economic framework.

Now, if you want to revise the entire economic framework under which utility companies are regulated as the basis for then getting them involved in resource recovery, you might be doing a good thing, but it is highly questionable whether such a major change is warranted in this case, particularly if the needs of industry could be met through the use of energy derived from resource recovery contributed to economic development in our urban areas.

The issue, therefore, is one in which we would strongly urge, and in our energy master plan adopted last year, urged a shift from the utility market to the industrial energy markets, and that the security in the marketplace that you talked about as being necessary be helped by congressional and State action in providing an energy market and also having a matching of industrial energy markets, a clearinghouse mechanism by which in the event that one industry moves on or goes bankrupt or has any other problems, you would have another matching industry able to fill the need in a given area.

You can do this where you have a highly developed industrial complex such as the Northeast. Around the country, we need to look at the viability of doing it that way.

Mr. JACOBSON. Could I just add one word? With regard to the public utility approach, you are aware, of course, that the obligation of the public utility commission is to guarantee a utility, a rate of profit determined by the competition on the market for security. While this is a proper method for regulating monopolies, the point is that there is built into this absolute guarantee a sort of cost-plus.

What concerns me, Congressman, is the problem at the time we were all concerned with controlling inflation whereby we talk of providing incentives and guarantees for the private sector and a built-in profit for the public utility. The consequence is perfectly obvious. We cannot make this fly until we raise rates on consumers.

This apparent paradox is one of the things that we must wrestle with.

Mr. FLORIO. I observed that there is some suggestion that refuse derived fuel can provide energy at costs that are comparable to and perhaps even lower than traditional sources of fuel for utilities. So, in a sense, we are not jeopardizing the ability to have the utility earn an appropriate rate of return on its investment. All we are saying is that the existing system of the automatic fuel adjustment pass-through will provide an incentive for the utility to initiate a new or cost-effective or possibly even cheaper way of utilizing fuel.

It has no bearing on their rate of return, and therefore the suggestion has been made that maybe there is a need for the appropriate governmental entity, which in this case is the Board of Public Utilities in this State, to require at least that cost comparative study to be done so the decision can be ultimately made by the public body as to whether or not there should be some further exploration.

Mr. JACOBSON. What I am doing is projecting myself beyond that consideration to indicate what the consequence is. There is no question we are going to have to raise rates of the consumers, and everybody is unhappy about that.

Ms. SHEEHAN. Congressman, I just wanted to add that in addition to the question of the ultimate market, whether it is steam or electricity or powder or pellets or whatever, in terms of refuse derived fuel or a fuel supplement, that I think another key issue in terms of getting together the financing at the front end is the control of the garbage.

There is a little bit of a mystique in this world that if we can just wait until tomorrow, there is going to be some magic solution that does not require a lot of money or pressure, and so there is a hesitancy, if you will, to sign up for 10 years or 5 years or 20 years to provide a guaranteed garbage stream to help assist in the financing.

So, I think that it is not only the back end but the front end that has caused some problems in getting together the capital needed to move forward.

Mr. FLORIO. Those are the points that Mr. Rambo and I discussed as the political problems in terms of getting everyone to participate.

Mr. LISS. If I may, I would just like to echo director Sheehan's comments. The other issue, when you look at utility versus industrial markets, is the question of concentrating energy benefits. When you talk about having energy derived from resource recovery provided to the utilities, you are basically dispersing the energy benefits derived from resource recovery in the grid and the energy benefits are diffused throughout a vast system, although it would have virtually a negligible impact on the system, whereas, if you concentrate those energy benefits in the industrial marketplace

where it can have a significant contribution to stimulating the decisionmaking by industry to either expand their operations or to come to a new location, particularly our urban centers, you will have contributions to economic development rather than dispersing those benefits.

Mr. FLORIO. Congressman Roe?

Mr. ROE. Thank you, Mr. Chairman.

I would like to first compliment the members of our distinguished panel on a very knowledgeable, well thought out, coordinated presentation. Therefore, I do not believe that we have to dwell and take our time today on what the problem is. We know what the problem is. The question is, "What is the solution?"

I have participated with my very distinguished colleague, Mr. Florio, on these hearings we have been holding in Washington as a member of the Science and Technology Committee. Unfortunately, or fortunately, whatever the case may be, we vary in our observations of how this type of program should be funded. It seems to me that there is a school of thought that maybe private industry can achieve these goals.

Then we have to go back a little bit in history, and we have to look at the problems. When it came to providing a water supply in the State of the Nation, the water supply was supplied by the government because there was not any private enterprise that could take that responsibility. I think when we talk of the transportation aspects, we can talk possibly of an alternative method of funding, maybe to provide for 5 cents a ton or something of that nature to create a trust fund.

It is absolutely apparent that no State or private industry could put together a transportation industry. That is a major problem we are faced with now.

We have learned, at least from what I observed recently, that the State has to consider taking over the buslines because private enterprise could not really get the job done with all of the problems they are faced with.

Sewage disposal, it would have been impossible for any State economically to be able to go in and provide the funding that is necessary to clear up our water supplies in rivers and so forth. That is why the multi-billion dollar Clean Water Act program was developed, to provide aid for the State to develop a sewage disposal program.

There was just no other way of doing it.

Now, when you look, in fact, upon the solid waste disposal problem, and I admire the testimony by Bennett Mazur in his opening remarks, it is very clear that we have been working on this for the last 25 years. This is not a new problem. All of the rhetoric and all of the discussions notwithstanding, the only substantive work we have done in the State and throughout the Nation at all, other than the point of the landfill aspect referred to in the testimony of Mr. Rambo from Camden, are these demonstration programs going on by government, whether it be a combination of State and/or Federal sponsorship.

So, I believe that unless we move with the greatest of dispatch, with a national commitment in this area, we are just not going to achieve the resolution of the problem.

One of the problems of the Environmental Protection Agency in implementing the Clean Water Act for sewage disposal was that the institutional mechanisms in the respective States, between the States, we might say, and within the States and between the States and the Federal Government were constantly contravening as to the policy direction and the goal to be achieved in the first place. This has been part of the major problem. That is exactly what exists in these States today.

I would assume that in any industry, they are going to come in and say, OK, this is a great bonanza, and it is. It is a treasure that belongs to the people of the States. Garbage, as it is, can be another form of energy. How do we convert it? How do we use it for the optimum yield? That is what it amounts to.

But to assume that industry is going to come in with a magic wand, with or without Federal guarantees or particularly with Federal guarantees of loans, and have to circumvent all of the institutional problems that exist—whether it be the rate structure, how do you put it back in the grid, whether you generate the ends of the process—we are generating energy that is not just free energy coming back in the grid. There has to be a profit end to it for industry.

What I am trying to get at is, we were able to do something through our local public works bill a couple of years ago, and one thing that the Meadowlands commission wanted to get achieved was to get something in here. We had our design work going on, the bailer. We could at least get that much moving.

So, the fundamental question to ask is, one, do you believe, any of you collectively or individually, that, first of all, the State of New Jersey per se has any visible mechanism they could use financially to put a statewide program into effect similar to the green acres open space land conservation program from the point of view of 50 percent State-Federal matching funds aspect?

Two, did we come to say, well, we think that if we are dealing with private industry, with long-term guarantees from the Federal Government, that that is the direction to go?

Three, would it be necessary that we start thinking along broader lines in invoking the program as we did with EPA on providing substantive 70, 80 percent grants or better for regional sewage disposal plants?

I think to get to the heart of the mechanism as to what roles Government should play, one way or the other, is the nub of the question.

Mr. JACOBSON. Congressman, one of the areas in which the panel is considering—again I have to emphasize, this is not a final report—is that a loan grant program be established through the New Jersey Economic Development Authority, and the initial capital is provided through the tipping tax, a special legislative appropriation, or through a general obligation bond issue of the States.

It appears that the panel favors a tax on tipping that would raise approximately \$20 million a year to pay the interest on a revolving fund of \$300 million to be established by the State and loaned on a proportionate no interest basis to projects authorized by State-approved county solid waste.

Mr. ROE. Are you talking about any input from Federal Government at all?

Mr. JACOBSON. That would be in addition to that. I thought you asked the question about what New Jersey was doing. This is one suggestion that New Jersey could offer.

Mr. ROE. Could New Jersey go it alone?

Mr. JACOBSON. No, of course not.

Ms. SHEEHAN. Congressman, I was just going to add that I think that all of us at various levels of Government have recognized, if you will, the limits, the finite limits, on both the Federal and the State purse and do not look necessarily to large bonanzas, hand-outs, no-strings-attached grants, and all the rest of it that perhaps some of us had an opportunity to participate in at one time or another.

What we are trying to do is solve a very real problem and at the same time reap some advantages in terms of the energy. So, I believe that two things that are happening in New Jersey that relate to this, and a third would be a suggestion for the future.

The two things that are happening that relate to it are, first we are establishing a new set of guidelines, a new arena through the State Solid Management Act, which in effect says to the 21 counties of the State and the HMDC, "Hey, gang, get your act together. What are you doing now? And what can you reasonably do over the next 10 years?"

The implementation of that State law, I think, has brought better information, if you will, to the fore. We have had to look at what is going on, what it costs us and so on. It has dispelled some myths and gotten some hard facts on the table. It also leads to the commissioner of the department of environmental protection having final approving authority over these plans, some latitude and certainly some discretion as to what his or her power might be in determining what we do with solid waste.

That may begin for the first time to give someone other than the disposers some control or regulation over the flow of garbage. I think that that will be of some great assistance.

Second, I think that there is a role for the private sector. I for one do not believe that we in Government have to keep learning how to do things we do not know how to do. If someone in the private sector already knows how to do it and can do it very well, I would look toward joint arrangements, both at the county and in our case the regional level, with industry if there were some way not to guarantee them a free ride or an excess profit, but at least to accommodate itself to the very real problem of high risk and high capital intensive needs.

Mr. RAMBO. Assuming we can find a way of coming up with a capital cost through private industry or through some kind of combination of State and Federal Government, I think one of the serious problems we are facing, as the director has pointed out, is the control of trash coming in. The Federal Government is involved, as well as the State of New Jersey is very actively involved. They have passed legislation giving this responsibility to the county.

Unfortunately, the county is not paying for the disposal of trash. The municipalities are controlling it, and it is very difficult from a

political standpoint, from just the facts of economics, to tell one town what to do when that town is paying the freight. It is very difficult to convince them to go from a \$3 landfill to a \$10 research recovery station.

The way the cap laws are written now, until there is some kind of contractual arrangement between two units of Government to get outside the cap, there is no way a town of any reasonable size can afford to add that kind of increase to its local purpose budget.

I think there are a lot of things that we can do. I think we are starting to make some headway. Commissioner Jacobson's panel is the first serious effort here in New Jersey to try and address that issue. I think that the Federal Government is going to have to play some kind of role.

Mr. ROE. Are we not saying in these hearings today that basically with the fundamental institutional problems we are faced with in the State of New Jersey, that it just is not possible to put that together? You cannot get two towns to agree on anything, and I do not mean that unkindly, so some place along the line, we must move with dispatch to make the decision which was so well testified by all of you. Every day that goes by is critical—never mind the tipping fees, because that is just part of the whole. When you get into the whole picture with disposal areas being closed up all over the State, what is going to happen when you get to the 1981 mandate of no sewage sludge dumping in the ocean? What are you going to do with it?

Now the question is going to be, can we dump it on the land instead of polluting the water supplies? So, I consider the sludge to be a viable economic element of the whole system that we are talking about.

It seems to me that we should move with dispatch in the way the commissioner is now moving, or at least coming out with a policy position and something that is feasible and workable in the State of New Jersey, bringing all of these things together. If we were to wait for 10 or 15 years to come to grips with the sewage disposal end of it, we would be literally drowning in our own swill, and in some ways we are.

I hope with the leadership of my good friends at today's hearings that as we go around the State and the Nation, let us not nitpick who is going to play what role or whatever. Let us get together and say that these are the realities of the facts that we are faced with, and what direction do we go from there?

Thank you, Mr. Chairman.

Mr. FLORIO. Congressman Hollenbeck?

Mr. HOLLENBECK. Thank you, Mr. Chairman.

I might remark, Ben, that you have been vindicated after all of these years.

Mr. MAZUR. Yes.

Mr. HOLLENBECK. I think that the panel is beginning to focus in on some of the shorter range problems and the everyday problems that we are facing right now. We do all agree on the scope of the crisis. I think that we have had some discussions, some good ones, as to how to meet that in future years, 5 and 10 and 15 years down the road.

I would like to, if I may, ask the panel to comment on the everyday problems, issues, barriers that we are facing now. Mr. Rambo alluded to the problems that have apparently arisen because the individual counties have jurisdiction over solid waste disposal, those possibly creating insurmountable barriers.

There have been statements made on the role of the Federal Environmental Protection Agency, the Department of Commerce, and the U.S. Department of Energy. I would like the panel to comment, if you will, on the frustrations that you are facing now with regard to this problem and what we may do in the Federal Government to begin to cope with those frustrations and those everyday barriers so that we can go forward with some of these far-reaching and possibly sound solutions that we have heard.

Mr. JACOBSON. I grabbed for the microphone, Congressman, because I am an expert on frustrations. Apparently I have no monopoly on that either. I think I can probably summarize it in one or two sentences. Congressman Roe also just referred to it. We have institutions of government; we have examples of the private sector and of individuals, all of whom share a proliferation of authority of interest, of risks and burdens, and the problem is obviously getting this heavily contentious group to move in the same direction.

While Congressman Roe was talking, it just occurred to me, and I do not know that this is the answer, but it struck my mind while he was talking about it, you are currently in the process of considering for a resolution of our national energy problems an Energy Mobilization Board with the authority to take direct action, perhaps some time in contravention of local governments, and maybe that is exactly what we need here.

Mr. ROE. There is no possible way for any President to implement an energy program unless he moves in that direction, because of the institutional constraints.

Mr. JACOBSON. I am drawing the same parallel, Congressman. That is precisely what we should do here with this matter.

Mr. FLORIO. If the gentleman would yield, at the last hearing, we had officials from the Federal EPA before us. They testified that they had an elaborate system of tracking a proposal, and stated that it would take anywhere from 3 to 5 years to complete the planning phase before beginning of the work. So, it will be a 3- to 5-year period to plan for the existing mode of operation, and as we all appreciate, that is a long period for a problem that needs an immediate response.

Ms. SHEEHAN. If I could just add to that, perhaps on behalf of the mayors, the 567 in our State and countless others across the country, I think that they are prime candidates to share the frustration that Commissioner Jacobson referred to, because although they have to deal with the cost, they really do not control any part of this situation. In some communities, yes, there are local department of public works trucks that do the pickup, the hauling, but they generally rely on privately operated landfill sites.

In other communities, they rely exclusively on contracts. Generally, at least in New Jersey, they get one bid at one price that is always higher than the price before. So I do not think that you can leave the feeling that the mayors control the situation or control the flow of garbage. I think that part of the service that this

committee can provide is some real factual information as to what are actual costs now and who is paying the costs and who is profiting by those costs.

Mr. ROE. Will the gentlelady yield for a moment on that point? One of the things that became apparent in our hearings down in Washington was when they talk about costs, they do not put all of the costs together. They will come along and they will say, well, here is what the input capital is to be, and try to minimize it with what the output will be to those cost-related factors.

When you take into consideration that we allow them to keep dumping the material in the Meadowlands and it continues to pollute the ground water—and we are still using some groundwater from that area—the very same thing is occurring that we are trying to cure by expending billions of dollars to correct sewage disposal outflow going into the bays and so forth. We are dumping the garbage and the rain is coming down and it is going right back into the same area.

There are a great many intrinsic costs that are not factored into the social costs that are there. The problem is there, and we are spending the money on it, but it is not factored into the mosaic of the problem from the cost-effective point of view.

Mr. RAMBO. Assuming that there is no Federal aid or no State aid, I think the thing we have to do, the agency or unit of Government is going to have to be responsible for building and running those facilities and is going to have to be the one that has it in its budget. If it is going to be a county, that means that the cost of disposal, not collection, but disposal, comes off the local purpose budget and is transferred to the county budget, and it is paid for on a countywide basis.

One of the things that we have to remember here in New Jersey, I think our own county, is, we are talking about a 600-ton-a-day maximum, probably more on a 3- to 4-ton a day maximum. There is 1,200 tons of trash each day in this county. How do we go to those towns comprising 300 tons and say, OK, next year your cost is going to be \$10 a ton, and the town next door, they are going to stay at \$3 a ton?

By transferring it to the overall unit of government, those costs can be levied over the entire county. It is important also to get it out of the cabinet, treat it as a true utility, make it accountable to the board of public utilities or some other agency to justify its costs, but it cannot be paid for within a 5-percent cap.

The last thing that I think is important is, we are trying to bite off more than we can chew. I think we should leave private industry alone for now. Our first attempt should be to control municipal trash, get that under control, show them we can do it, and I think industry will be a lot more cooperative.

I do not think it is logical to say that a landfill across the county line should not be used and a county facility 10 miles away should be used. The political boundaries of the county are not the logical way of disposing of trash.

I realize the State had to make some representation, some units of government had to be assigned to it. I would like to see the State keep it, but if it is assigned to the county, I think there have to be variations of what is being done. We have provisions in the 326 law

that talk about franchising, rate averaging, and it is difficult, impossible to get answers from the State agencies that are involved on how this is to be done. Is it legal? Nobody wants to talk about these things.

I am a member of the New Jersey Solid Waste Officials' Association for district people in each of the counties, and we asked the solid waste administration over 1 year ago to ask the attorney general to tell us how rate averaging would work and franchising would work. There still is no reply, and I think there are some 1,000 licensed trash haulers in the State. How are you going to franchise the State? Who are you going to put out of business. There are so many things that sound nice on paper, but when you try to apply them there are a lot of unanswered questions.

Mr. HOLLENBECK. I will just wind up the questioning in the interest of time. The thought came to my mind that Connecticut for one, and I think Puerto Rico, have established State resource recovery authorities. I do not know how this would square with the panel that Mr. Jacobson has discussed, the resource recovery panel, which I am sure is not a body with any legislative or rulemaking authority, but do you see any benefit in possibly converting that concept into a statewide authority, sort of reversing the trend that we have had?

Mr. JACOBSON. First, as you pointed out, the panel is just an advisory panel to the commissioner. Frankly, there are political considerations attached which always present a real problem. At the present time, I am determined to await this report and hope there will be a unanimous vote and it will pave the way for us.

Ms. SHEEHAN. I would say that the question of controlling the flow of waste at the front end and establishing firm markets at the back end, as this subcommittee has clearly identified, are the basic problems, that a new structure is not necessarily needed. Sometimes I think we get ourselves too tied up with form and forget about the substance.

While we may have been kind of creeping along in New Jersey, I have perhaps too high but nonetheless high expectations for seeing this Solid Waste Management Act implemented. We are at the very early stages of that, and I would rather see that system put into place and see if we cannot make that work rather than establish another new authority.

Mr. RAMBO. I think maybe there is merit to having an authority that crosses lines based around towns that have common interests in rural areas, bringing them together, or urban areas, not making use of county boundary lines. I am impressed, and I think there are 53 towns that are in that project, that they can get 53 towns to sit down in the same room and come up with a consensus on anything.

Mr. FLORIO. Congressman Maguire?

Mr. MAGUIRE. Thank you, Mr. Chairman.

In Palos Verdes, Calif., methane gas is tapped from existing landfills and they provide gas there to 2,500 homes. Some 500,000 cubic feet a day of gas is recovered. Is this something that the State of New Jersey has looked at with respect to the Meadowlands or other landfill sites in the State? Is this the sort of thing that could be done across the country?

Mr. JACOBSON. This is something that was recommended and encouraged in our master plan. I am happy to inform you that the public service elected to take an experimental step in this area.

Mr. MAGUIRE. You see, one of the things that is interesting about this as far as the Meadowlands are concerned, is that it is very close to the interstate pipeline. So, presumably the gas could be taken right out of the landfill and put in the pipeline. Ms. Sheehan, did you have a comment?

Ms. SHEEHAN. Yes, Congressman. As Commissioner Jacobson indicated, public service is now conducting that kind of experiment in Cinnaminson to in effect trap, if you will, mine I guess is a better phrase, the methane gas following along on the experiments that you indicated are in the demonstration that is in place in California. A lot of it depends on the configuration. One of the problems with methane gas is, it travels everywhere, and what we have been trying to do thus far is vent it so that it would not build up, not explode, not cause fires, and not pollute the atmosphere, and so on.

We are hoping, and our engineering staff is following quite closely the P.S.E. & G. experiment in Cinnaminson, that in some of the landfill area now in the Meadowlands. This demonstration will have some applicability. We have been fortunate enough to have a foundation grant to do some architecture and landscape planning, to convert those mountains of trash, as Congressman Roe referred to it as, into DeKorte State Park. And because of the height of so much of it, it appears, and we certainly do not have any way of knowing that yet, that rather than establishing an elaborate methane venting system, that the technology that you suggest may well be a resource.

We like the idea not only because of the safety and environmental factor and the energy, but over and above that it would provide some funds, if you will, to further develop DeKorte State Park, which we think is something that the citizens of Hudson and Bergen Counties are entitled to.

So, we are following it very, very closely, but no, we are not mining methane gas at the moment.

Mr. MAGUIRE. Mr. Rambo, have you given any thought to that in your area?

Mr. RAMBO. We think it is a good proposal, and we have a grant in now before the EPA to do that along with some other things, to aid abandoned landfills in Camden County. The city of Camden yesterday announced that they were going to do it in urban areas. We think that if there are large industrial customers near these landfills, that there is a good possibility that we can get that methane and sell it to the industry.

Mr. MAGUIRE. You tie it directly to the industries using it rather than putting it into the pipeline first?

Mr. RAMBO. From what I understand, and I am not an expert on it, the cost of cleaning up the methane so it can be mixed with the natural gas almost makes it prohibitive. Now, that was before all this nonsense started with the oil, so that situation is probably changing daily, but we are looking to bypass that step and set it up with a sole customer, so it will not be a danger to anybody.

Mr. MAGUIRE. I think codisposal is regarded by many experts as perhaps one of the best ways to go. In our area, we have the problem of having to phase out of ocean dumping. We have all this sludge from the sewage treatment facilities. We have all the garbage stacked up in the Meadowland. It just so happens that in our area the Meadowlands are right next to the existing sewage treatment facility and right next to that, very close by, is the Ridgefield generating plant, P.S.E. & G.

So, I wonder if that does not make a very nice triangle there for the development of a codisposal facility. I know Ms. Sheehan mentioned this in her statement, that this was one of the things that the State is considering. Specifically, can you tell us whether that arrangement in Bergen County and the Meadowlands area recommends itself to you, having looked at that one specifically?

Ms. SHEEHAN. Yes, indeed, Congressman. We think that that probably has the best potential for us and for Bergen County over the long term. We have been working closely with the staff of the Bergen County Board of Freeholders as well as the Bergen County sewage authority. Frankly, in both the Bergen County solid waste management plan and in the HMDC solid waste management plan, it identifies the Ridgefield site, which is directly across, as you so aptly pointed out, from the generating station of Ridgefield, as a site that makes sense for the needs of both meeting the sludge ban in 1981 and also meeting the disposal crisis for the county.

What I think we do not see enough of, and I am proud to report to you, is that the HMDC as a regional body and Bergen County, as a county entity, have jointly applied for and have been successful, although I might add parenthetically we do not have the check yet, nonetheless we are going to receive a grant under the EPA planning proposal to do the financial and engineering update, if you will, with regard to a resource recovery unit which conceivably could include cogeneration at the Ridgefield site.

So, we are looking forward in that regard.

Mr. LISS. If I may, Congressman, on the point of codisposal, our energy master plan clearly supported the idea of codisposal as a good mechanism for dealing with two problems at once. However, we did have a caution that I would like to mention, that a careful analysis must be made in each location to determine whether this would be the best utilization of valuable waste resources.

The question is, again, one of whether we are going to use the energy drive from resource recovery for economic development. If that is our primary goal, then by using energy from solid waste to dry sludge, which is being subsidized to a large degree, particularly in the capital expenditures and basically artificial economics, you will have an area where you are essentially throwing good waste after bad sludge.

The issue becomes one of, again, not getting the most economic development benefit out of your solid waste, which we have a unique opportunity to do today.

Mr. FLORIO. Will the gentleman yield?

Mr. MAGUIRE. Yes.

Mr. FLORIO. It is my understanding, however, that the dried sludge with a high organic content is in and of itself an energy generating potential vehicle.

Mr. LISS. Exactly, so that the point is, a careful analysis has to be done in each situation to make sure that the net energy benefit of combining the two waste resources, the sludge and the solid waste, yields a net energy benefit that can be productive for the total region.

In a given area that is rural, where you have just your sludge and solid waste and you really do not have industry, that would be a perfect solution. In an area where you have high industrial concentrations, the net energy benefit might be to have the waste energy go directly to the industrial customers.

Again, you are correct that there can be a net energy benefit, but it is not necessarily so, because what happens to get that net energy benefit, you have to get the sludge first to a level, autogenous level, where it is energy producing, which means you have to dry the water out of the sludge, and that takes energy to dry that water.

So, if you are taking the sludge at the point that it is autogenous, at the point that it is producing energy, and then you combine that energy resource with the solid waste resource, you have a package that works, but I am concerned, and our energy master plan expressed that concern, that that may not be the approach being taken or being suggested at this time.

Mr. ROE. Will the gentleman yield?

Mr. MAGUIRE. Yes.

Mr. ROE. The fact still remains, however, that where the Bergen County sewer program is involved, and the Passaic County regional program is involved, they are already moving ahead with their sludge disposal facilities. They are being funded right now. I know that as a fact. So, the tragedy of the discussion is that the Federal Government, and others, including the State governments, are not going to be spending \$150 million, which they are, to get rid of that sewage situation.

So, there is just no possibility, almost, at this point of cogeneration vis-a-vis what is already being done. In other words, government is moving in five different directions, and their time frame is not there to put it together.

Now, conversely to that point, I might add, there are processes now—and I am well aware of this technology engineering wise—where in order to mix the sludge material with solid waste, it pays you not to dry the material, that you need a certain amount of hydrous material to be able to make that system work vis-a-vis the production of methane.

One more point. The problem is that government fiddles while Rome burns. All three of my colleagues have done splendid jobs on the floor of the House of Representatives fighting to resolve the energy problems we are faced with. When we were all done with the great debate that was held just a week or so ago, many of us got up and observed, including Andy and Jimmy, and said, my God, we have been talking for 6 months, but not one kilowatt of energy has been provided for in the 6-month period of time.

Pardon my enthusiasm, but I am just trying to get across the point that we do not have our act together in the State. How can one department, and I do not mean this critically, go in one direction, spending \$150 million on solving the sludge problem in those

particular areas, when we are sitting over here on the top of Mount Trashmore with an enormous resource of value to the people, and the cost to us is constantly increasing? How do we put it together? Where does the authority institutionally lie, where you say, this shall be done, rather than the point of view that everybody play their own games because we are all playing to a different drummer?

Mr. MAGUIRE. I think the gentleman makes a very good point. The present situation, as I understand it, the waste treatment facilities are managed by one set of regulations and one set of departments at the Federal and State level. If we are going to go the codisposal route, it is going to mean we have to do some talking across these traditional jurisdictions.

Let me go back to the problem, if I may quickly, Mr. Chairman, to how we are going to get our hands on the garbage in the first place. Obviously, we have to have someone use it at the end of the process. In Ames, Iowa, they have 25-year contracts with the municipalities to turn the garbage over, and they produce something that looks like this, and it is useful.

This is Ecofuel II. This is the same outfit that hopefully is going to come into Newark and do a 3,000-ton-a-day—you have yours, too?

How are we going to get our hands on the garbage? There are clearly legal issues, as Mr. Rambo says, which have not been solved. We are not going to get municipalities legally to do the job unless somebody comes crashing down on them, are we? We are not going to resolve the financial differences of what we are doing now and what we are going to do to have these social economies built into our calculations.

Who has to make what people move in order to get our hands on the waste so that we can put it into all of these schemes that have been so thoughtfully presented by the panel?

Mr. JACOBSON. I have a real quick response. In New Jersey, you simply do it by directing the flow to franchise territories for solid waste disposal.

Mr. MAGUIRE. But you have 68 or 70 municipalities per county with their own disposal contracts. What do you do about that?

Mr. JACOBSON. You can establish a franchise territory.

Mr. MAGUIRE. You have to come crashing down on the municipalities, do you not?

Mr. JACOBSON. That is right.

Mr. MAGUIRE. Who does that? Do we need a Resource Recovery Commission on that?

Mr. JACOBSON. Under the existing regulations, it probably can be done by the board of public utilities. On the Federal level, you might want to have an interstate contractor. We sometimes resent being the dumping grounds for out-of-State garbage, but the point is, if we were able to get a handle on this, we could very well convert that and use it for our own.

Mr. MAGUIRE. We are not going to get this until we get the legal problems resolved. That is my point.

Ms. SHEEHAN. I think, Congressman, one hope that we have is in terms of controlling that flow, because as you indicated, the municipalities do not control it, either. I think we have all been

victims of the industry for a long, long time, and they have been in charge. One of the concerns now is power and control. Through the Solid Waste Management Act, at least some of us believe that upon review by the Commissioner of Environmental Protection, that he or she will then have the ultimate say in terms of directing the garbage within the communities or within the counties if the communities within that individual county have not been able to come up with a viable plan themselves.

What it has done, as I indicated earlier, is force all of us—all of us being the 21 counties plus in the district—to look at what was happening and for the first time to recognize that we did not know what solid waste was costing us or who was being paid or how it was being controlled. Now, we do have that choice coming before us.

Mr. MAGUIRE. Thank you very much, Mr. Chairman.

Mr. FLORIO. Let me just raise another observation that perhaps makes a complicated problem even a little more complicated. We have emphasized energy generations and all too frequently that is regarded as almost synonymous with combustion, and yet in the larger sense, we should be talking about the resource recovery. That, of course, connotes extraction. So, what we are talking about, to a large extent, is burning versus extraction of some materials which can be very energy efficient to extract; aluminum, for example.

If we recycle aluminum, we are saving tremendous amounts of electricity by virtue of not using raw materials and converting them into aluminum rather than using the recycled aluminum. All that I am suggesting to you is that we have to deal with the planning process in a way which will maximize the benefits, the energy benefits, as well as the overall social benefits, from using recycled materials.

However, if we take all the solid waste we have now and put that into an energy generating facility, emphasizing combustion, and at a later point in time decide that there are materials in that stream that should not be burned, you are jeopardizing the stability of the source of supply, and that puts into question the financial ramifications of these facilities.

Is anyone—perhaps the Commissioner might be the appropriate person to respond—doing any option planning at the State level and rather than exclusively relying upon combustion as energy generation, looking at the extraction components?

Mr. JACOBSON. First, in terms of markets, if you will pardon our bureaucratic lack of modesty, New Jersey can really be considered a recycler's paradise. Over 150 of the 567 municipalities have some program. We have the third largest number of programs in the country, according to the EPA. We have over 30 curbside collection programs, some at 10 percent of the solid waste recycled.

Within our department, we have provided, from the very capable leadership of Gary Liss, as you have already observed firsthand, technical assistance, regionalization, recycling awards, recycling briefs, conferences, workshops, speeches. We have jawboned significantly, and I really regard the program that was developed in New Jersey, and let me say under Gary's leadership, as one of the most significant in the Nation.

Mr. FLORIO. That is really an interesting thought, because the prevailing wisdom in Washington is that voluntary efforts nationwide are not going to work very effectively in terms of source separation. People are not inclined to want to take those extra measures designed to separate sources at the outset. I think that it is fair to say, based on the testimony we have heard in this committee.

An alternative approach is perhaps one which was taken in Pompano Beach, where source separation takes place. Magnets are used to extract metals and glass is separated from the mechanical work.

Mr. LISS. If I may respond to that, clearly the question of source separation versus resource recovery is the one that has been debated for many years, 5 to 7 years throughout the land. I believe there has been developed within the technical establishment some consensus that the two can coincide.

The two can be in fact developed together. It just is a question then of whether you believe source separation is important.

If you look at the cost of resource recovery and you see that there is a capital investment required of \$50,000 on the average today per ton of waste per day to be processed through resource recovery facilities, if you take that ton out and recycle it, you are saving on the cost of capital necessary to build resource recovery facilities, which means if you meet our Department of Energy's master plan goal of recycling 20 percent of the solid waste, the municipal solid waste, that means you can have a facility sized at 80 percent of the total, saving 20 percent on the total capital cost for that facility.

Now, if you look at the energy conservation, the environmental benefits of resource depletion, balance of trade, in our energy master plan we cite that 62 percent of this country's newsprint is manufactured in Canada. This is a flow of money just like the flow of oil money which is going out of this country, that the materials that could be recovered through recycling are of an important benefit to the economy, and because of those benefits, it is essential as well and should be supported in a balanced approach in conjunction with resource recovery.

Mr. MAGUIRE. Mr. Chairman, would you yield for just a moment? I think the question of reasonable size of the plan also enters in at this point. Mr. Rambo indicated that EPA in the past has talked about 2,000-ton per day and up, but now they are talking about reasonable size. My understanding is, the bigger these things are, the more difficult it is to solve all the technical problems.

I wonder if anybody has some notion now of what reasonable size would be. We have problems going from pilot experimental designs to commercial projects that actually are producing energy. Ames, for example, where the Ecofuel II is produced, has 400-tons per day passage, as I understand it. The Newark plant, which is under discussion, would be 3,000-tons per day. What is the optimum size for these plants?

Ms. SHEEHAN. Congressman, in our review of resource recovery, we also are looking at the 3,000-ton per day unit as a reasonable size. I think that this whole question ties in with the question of Congressman Florio. There is in each instance almost a modular

type of component so that you can size them to fit both the supply at the front end and the demand at the back end, and as Mr. Liss indicated, you can reduce the size somewhat because source separation has worked, and because conversion has worked.

I think that you have reduced the cost, but we use 3,000-ton per day as a reasonable and manageable size.

Mr. MAGUIRE. I thought Mr. Rambo was implying that less than 2,000-ton per day facilities were unreasonable and not to be considered.

Mr. RAMBO. I think it depends on the given situation in any particular area, depending on what your market is, how many tons you have to dispose of. If you have an industry that can handle a 15-ton a day plain steam production, that is very beneficial.

We have scenarios that run along those lines, too, but we cannot look anywhere in this country with big plants that are working every day for 6 or 7 months at a clip without a breakdown. We want smaller because we want to see how cold the water is before we put it all together.

Mr. LISS. Mr. Chairman, I would just like to comment on one further point about recycling. In your remarks, there was a comment on the fact that people do not believe that the general public wants to participate in these recycling programs. I just want to say that I believe that in part that is a moot point, because we do have 150 programs throughout this State in New Jersey, which should be an indication that there is significant interest in the public to participate in these programs.

Mr. FLORIO. Excuse me, is the type of program you are talking about for bottles or cans?

Mr. LISS. Exactly. One type of program or another, either recycling centers where you ask people to bring their materials to, or curbside collection programs where they have newspapers and bottles, put them at the curb, that type of program. The point is that the public not only is not adverse to doing this, but in fact they are looking for a way that they can make a contribution.

If you look at the motivating force behind recycling programs, you find that so many people are looking to contribute to meeting our energy and environmental and economic problems, and they see recycling as a way of contributing in their own way.

New Jersey, as you travel around, it is a potent political force. The constituency of all of those people who want to have recycling programs is amazing, and all it is looking for is some leadership from Government to provide just those programs.

Mr. FLORIO. For a final comment, Congressman Roe.

Mr. ROE. Maybe it is unfair to ask this question, but I think it has to be asked. In view of the discussion this morning on the interrelationship and interaction among all levels of Government, and being aware of its institutional problems, why did the State decide to establish the solid waste program on a county-by-county basis? What was the underpinning rationale of that whole decision?

Mr. JACOBSON. You see, I have been informed that this was as a result of a direct suggestion from the Moscow Commission. That was the Commission that strengthened the county government. That was the rationale behind it.

Mr. ROE. Under that legislation do the 21 counties have the total authority, and the responsibility, and the jurisdiction under the, State laws?

Ms. SHEEHAN. No. The final authority rests with the Commissioner of the Department of Environmental Protection. The responsibility for developing a plan for today and the needs of the next 10 years rests with each of the 21 counties and the Hackensack Meadowlands. They are at the front end of that process now, Congressman, in that the northern end of the State, region 1 or district 1, I guess they call it, has submitted their plans to the Commissioner of Environmental Protection, and they are under review.

What they are looking for, obviously, are interlocking cooperative agreements or complementary plans as opposed to competing plans among the counties, and they look to the Commissioner to resolve those differences where they exist. In fact, we have been party to several meetings, because, as you might guess, there are some differences.

Mr. ROE. Can the State of New Jersey provide any aid whatsoever under the State law? Is there any funding or financial aid provided whatever?

Ms. SHEEHAN. There have been minimal dollars, I think something like \$50,000 for the whole 22 districts, a little bit of xeroxing help.

Mr. ROE. Does New Jersey have any legislation now that provides for any financial aid to the counties or any other public group responsible for these kinds of implementations?

Mr. RAMBO. Under the law that allows under franchises and allows under rate average, it also allows them to provide money. It is in the legislation. They can do this, but like the first two items, it has not been done.

Mr. FLORIO. Will the gentleman yield for an observation? I was in the State legislature when it worked on this matter, and though it is correct that the State DEP has the ultimate monitoring and coordinating authority of the State and county planners, there is great discretion and authority on the part of the counties to come up with these plans, sometimes in a way that is not in accordance with the objective evaluation as to what is appropriate.

For example, in one county there is now a political controversy over including one of the existing private recycling facilities in a particular plan because it is part of a controversy over some recycling that is going on. If the chosen board of freeholders decide that they do not want to include this facility for whatever reason, and sometimes it involves reasons that have nothing to do with the appropriateness of the facility, they are excluded from this plan. It then remains a question of whether or not DEP can override or overrule it. Perhaps the plan will be approved and you would have eliminated one of the prime recycling facilities in the area from being included as part of the countrywide approach.

So, I think there is really a need for the State legislature to review the basic statute that authorizes the counties to come up with these plans, and perhaps review it with an eye toward a higher degree of coordination and authority on the part of the State to play a more active role in directing the objective consider-

ations, paramount concern being the formulation of the requirements.

Mr. ROE. When was that law passed, what year?

Ms. SHEEHAN. It was passed in 1976, but it was held in limbo for at least a year, if not longer.

Mr. ROE. The law passed in 1976. The second part of that question, has any county of the 21 counties moved ahead in any way to finance and establish a new program?

Ms. SHEEHAN. Could you take out the finances part of that question?

Mr. ROE. It is not going to be implemented if it is not financed, that is for sure, no matter what they put on paper.

Ms. SHEEHAN. Many of them have moved forward in terms of adopting a plan, and those plans are before the Commissioner. Implementing the plan, no, we are not in that time frame.

Mr. ROE. Is it part of the requirements, without belaboring this, when a county adopts a plan under the existing legislation statewide, that they also have to provide an economic analysis as to how they are going to put the plan into effect?

Ms. SHEEHAN. They have to provide an analysis of the current situation. Whether that ends up in a solution as to how they can implement the plan has still not been answered.

Mr. ROE. That was a 360-degree turn from the question that I started out with in the beginning of this hearing. What I am trying to get at is, to your knowledge, and believe me, I am not pinning anyone down, it seems to me that unless we have some methodology of implementing the plan vis-a-vis the power to finance or how it is going to be financed, it is only an exercise in review. Is that reasonable or unreasonable? We have to figure some way to finance it.

Mr. RAMBO. Just one thing you might not be aware of. Since so many of the members of the committee are from New Jersey, the Department of Environmental Protection is now in the process of demoting the Solid Waste Administration from administration status down to bureau status, which it was a few years ago. I think that if that connotes the purpose that Government is putting on solid waste, we are in trouble in the future.

I would hope that members of this panel would express their interest to strengthen the administration and not water it down.

Mr. ROE. I think, as the chairman pointed out, our purpose today is to do indepth review. Also, it seems to me that we should individually and jointly present our views to EPA when our solid waste proposals are presented even for demonstration grants. It seems to me that some place along the line, if I may say this, that we have to get our own house in order to determine exactly what the thrust is going to be.

In other words, what is the State policy and what direction are we going to go, and how can the New Jersey congressional delegation and Congress itself help to bring it to fruition?

Mr. FLORIO. Let me conclude with the panel by making an observation that this committee has looked at other States. As much as we lament the situation in our State and feel a sense of self-criticism, New Jersey, and this may be more of a commentary on others than on New Jersey, is one of the States in the forefront of

addressing this problem. So, you can rest assured that though we may be a bit critical of ourselves, I think there is also a need to appreciate the fact that we are far ahead of many other States in this Nation.

I therefore would like to express my appreciation to this panel. I speak for all the members when I say they have been very helpful, and that the information provided to us will be used in an appropriate way.

Our last panel of distinguished representatives is comprised of Mr. Basil Snider, president of Garden State Paper Co.; Mr. Alvin White, chairman of the New Jersey Chapter of the Solid Waste Management Association; and Mr. Douglas Nichols, vice president of Widmer-Ernst. I would ask that the gentlemen come forward.

Your prepared statements will be entered into the record in their entirety.

You may feel free to proceed in the fashion that you see fit to do so. I would ask Mr. Snider to identify himself and proceed.

STATEMENTS OF BASIL SNIDER, JR., PRESIDENT, GARDEN STATE PAPER CO., INC.; ALVIN WHITE, CHAIRMAN AND VICE PRESIDENT, NEW JERSEY CHAPTER, NATIONAL SOLID WASTES MANAGEMENT ASSOCIATION; AND DOUGLAS R. NICHOLS, VICE PRESIDENT, WIDMER-ERNST, INC.

Mr. SNIDER. Thank you, Mr. Chairman, and Congressmen. My name is Basil Snider. I am the president of the Garden State Paper Co. We certainly do appreciate this opportunity once again to appear before you, especially Congressman Florio, as we did last March on a similar discussion.

The waste to energy issue is vital because current emphasis on the energy production potential, as we have heard a great deal about here in the last hour or so, of municipal solid waste threatens the life of important segments of American industry, and that includes us, who recover and reuse approximately 17 million tons of wastepaper annually.

I am speaking of the total recycling industry who uses wastepaper. The significance of this statement, Mr. Chairman, rests on the proposition that the energy conservation and or economic benefits of recovered wastepaper far outweigh the net energy that is derived from burning wastepaper as garbage in an energy recovery system. Moreover, wastepaper recovery programs operate in a free competitive market while energy recovery systems are proposed to be heavily subsidized.

In the matter of the energy conservation benefits of recycling newsprint, for example, it has been determined that fossil fuel savings range from 12 million Btu's per ton to 20.3 million Btu's per ton compared with fossil fuel consumption of virgin newsprint mills. On the other hand, net recoverable energy as steam produced from burning newsprint in an energy recovery facility amounts to 8.58 million Btu's per ton. Recycling of newsprint, therefore, represents a net energy gain ranging from 28.5 percent to 57.7 percent over the process of producing energy from burning newsprint as a fuel.

Moreover, the energy value of the recycled newsprint remains for later recovery when the paper ultimately enters the solid waste

stream as a result of consumer contamination. Attached as an appendix to this statement is a four-page summary prepared by Franklin Associates, a well-known consulting firm in the field, which provides background data on the energy values noted above.

It is in the matter of proposed subsidies for energy recovery facilities which has fueled the mounting concern of the wastepaper recycling industry about maintaining continuing economic access to the municipal solid waste stream for raw materials. The plethora of legislative proposals for encouraging the domestic development and production of synthetic fuels invariably include solid waste in the definition of synthetic fuels. These proposals, together with pending rulemaking proposals of the DOE, under existing law, include the entire range of financial incentives such as direct grants, loan guarantees, and price supports.

Even the Department of Energy's crude oil entitlements program is under consideration, in a pending rulemaking proposal, for extension to energy recovery facilities. We are concerned that granting entitlements to energy recovery facilities would burden wastepaper recyclers, such as ourselves, with an unfair economic disadvantage. We would be competing, in effect, against a public subsidy ranging from \$12 to \$15 per ton. Because of this apparent threat, Mr. Scudder, who is the chairman of the board of our company, testified before DOE in opposition to the granting of entitlements to energy recovery facilities.

It is not only the threat of subsidies and other economic devices which threaten the future availability of valuable energy efficient waste material resources. There is the further and equally serious threat of the economy of scale syndrome as applied to energy recovery facilities. Facilities are being designed in contemplation of receiving every pound of solid waste in the area covered by the contract. Participating communities are bound under the terms of the contract to provide a guaranteed minimum volume of solid waste or suffer the assessment of penalties for their failure to comply.

How does this affect wastepaper recyclers? In Dade County, Fla., for example, recyclers could be foreclosed from entering into contracts with municipalities for the collection and purchase of waste newspapers. County officials are concerned that the removal of recoverable used newspapers from the municipal solid waste stream will create a shortfall in available solid waste to feed an energy recovery facility now under construction. Here we have an educational problem. There is a prime market for used newspaper in Dade County, Fla. Long-term guaranteed floor price contracts are now being offered to the county's municipalities, yet their participation could be foreclosed in 2 years by an unfortunate edict of the county government.

What is the effect on the local taxpayer of a facility that is overdesigned? The Bridgeport, Conn., resource recovery facility has a contract with nine municipalities which requires that they furnish to the facility a minimum of 1,500 tons of refuse per day. The municipalities are penalized in higher tipping fees than would otherwise be assessed for this 27-percent shortfall in garbage generation.

Mr. Chairman, in this brief overview we have highlighted concerns which we reviewed with you last March during the course of hearings on the reauthorization of the Resource Conservation and Recovery Act of 1976. At that time we reviewed with you our perception of the lack of overall direction and coordination in the Federal Government of agency plans and programs for resource recovery. We were gratified by the response of yourself and other members of the committee to these revelations.

Approved committee amendments to the RCRA will have the effect of tightening up the Federal Government's structure for increasing effectiveness in operations and achieving greater cohesion, hopefully, among the several agencies in resource recovery planning. A key element is the proposed authorization to the Department of Commerce for activating its statutory role for identifying and assessing markets for recoverable waste materials. The Department's proper exercise of these functions would be of invaluable assistance to municipalities and the energy recovery industry. There would be a sound basis for scaling waste to energy facilities in consideration of marketable waste material resources required by recyclers operating in that market.

The orderly and balanced approach envisioned by RCRA to maximizing the materials and energy conservation potential of municipal solid waste would be negated by the imposition of anticompetitive devices such as subsidies which interfere with the operation of free market mechanisms. This would threaten the survival of the recycling industry and be disastrous to the Nation's economy.

If subsidies are to be granted to energy recovery facilities to make them economically viable, then restraints should be placed on their application and use so as to protect from incineration waste material resources which would otherwise be recovered for reuse and recycling. This would apply to construction subsidies, operating subsidies, and price supports for the energy product of the energy recovery facility. Legislation which provides any form of financial incentive for the development and production of fuels from solid waste should require the applicant who seeks such incentive to certify that his process will not interfere with the marketing of recoverable waste materials. The legislation should provide appropriate civil or criminal penalties for any improper certification.

As you may know, Mr. Chairman, Garden State Paper Co.'s principal recycling mill is just a few miles from here in the State of New Jersey, and we are very pleased that the State has provided an environment in which we can exist.

New Jersey's energy master plan sets goals for the recovery for recycling of 20 percent of the solid waste generated annually and for processing the remaining 80 percent for its energy value. This forward-looking program could well be emulated by other States to substantially enhance the growth of the national economy by maximizing the conservation of its materials resources.

Parenthetically, in Bergen County, I believe we have one of the highest, if not the highest, recycling rates of used newspapers in the United States. It runs between 40 and 50 percent.

We hope our testimony today has been responsive to the committee's request for information on the experience of the Garden State

Paper Co. with the waste to energy issue. Our testimony has drawn upon material that is contained in a statement dated August 1, 1979, by Richard Scudder to the Department of Energy on the extension of crude oil entitlements to solid waste and a news clipping of the Bridgeport Post, dated July 18, 1979, which discusses the status of the Bridgeport resource recovery facility. We would appreciate it if these materials would be incorporated in the record of these hearings.

We will be pleased to answer any questions you may have.

[Testimony resumes on p. 71.]

[Attachments to Mr. Snider's prepared statement follows:]



GARDEN STATE PAPER COMPANY, INC.
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RICHARD B. SCUDDER
Chairman of the Board

August 1st, 1979

Department of Energy
Economic Regulatory Administration
Office of Public Hearing Management
Washington, D. C.

Re: Docket # ERA-R-7928

Gentlemen:

The enclosed papers are:

1. Tables and a brief analysis by Franklin Associates comparing the energy efficiency of recycling versus virgin newsprint mills.

The entire report by Franklin Associates will be submitted when completed.

2. An extension of the statement by Richard Scudder, Chairman of the Garden State Paper Company, before DOE July 17th.

These documents illustrate that recycling of waste newspapers into newsprint saves more energy than can be derived from burning them.

Further, they show that most of the time recycling old newspapers into newsprint does not materially reduce the amount of old newspapers available for burning.

Source separation, recycling and then burning, provide the maximum energy return from old newspapers. Entitlements would disrupt this process by pre-empting waste for burning before the recycling use. Entitlements to burners of waste newspapers would subsidize a waste of energy.

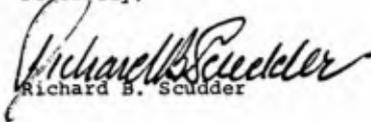
Because recycling into newsprint is Garden State's field of expertise, these studies are confined to that area. The points made, however, will apply in varying degrees to other recycling specialties making up this 17,000,000-ton industry.

It is argued that entitlements to burners of waste paper would:

1. destroy the 17,000,000-ton paper recycling industry;
2. subject the country's economy to an intolerable burden;
3. place demands on our forests which they cannot meet;
4. waste energy.

In view of the above, Garden State opposes entitlements to those who would burn recyclable waste paper. We suggest that the emphasis of government be on source separation prior to burning.

Sincerely,


Richard B. Scudder

Page two.

August 1, 1979

"Proposed Amendments to Include Additional Petroleum Substitutes
in the Entitlements Program," Docket No. ERA-R-79-28.

There is no dependable, up-to-date and objective study of the energy efficiencies of newsprint mills, recycling or virgin. The DOE sponsored Research Planning Associates study, intended to set recycling goals, also includes energy efficiencies. These, however, are taken from an ADL study done for EPA in 1975. Some of the data in this part of the study is five years old. Some of it was inaccurate to begin with. Some elements are omitted.

Five years ago, virgin newsprint was 70-80% groundwood produced by the mechanical groundwood process, and 20-30% chemical fibre. However, no mechanical groundwood mill has been built in the United States for more than two years. Today's conditions are quite different. The new virgin mills, or paper machines built or being built--Weyerhaeuser and Publishers on the West Coast, Bear Island in Virginia, Calhoun (Bowaters) and DeRidder Boise in the South, Southland (pulping only) in Texas--are thermo-mechanical pulp mills. Most of them add a minor percentage of chemical pulp (10% maximum).

One new recycling mill, Southeast, in Dublin, Georgia, has been built; recycling capacity is being added at Publishers.

DOE decisions should be based on today's conditions and

biased toward tomorrow. They must be based on uniform analysis by an objective outsider.

There are thirty-eight newsprint machines in the United States. Four of them use 100% recycled newspapers. One (SE) uses 90% old newspapers. Two others use 30% \pm recycled fibre. Five of them are TMP. Almost a fifth of the newsprint to be produced in the United States in 1980 will be TMP.

TMP yields a better fibre than does mechanical grinding. It is, however, about 50% more energy intensive than the mechanical groundwood process. To the extent it is substituted for kraft (chemical) fibre, it is even more energy intensive. TMP mills are 50 to 80% more energy intensive than the mechanical groundwood mills studied in the ADL report, depending in part in the amount of kraft fibre replaced.

New virgin newsprint mills, for the immediate future at least, will surely be TMP mills, because the economics are favorable in spite of the cost of fuel.

Whole tree chipping was also not a factor at the time of the ADL study. Progressive mills are now chipping the whole tree in the field and using the branches for pulp, not energy. The RPA report gives virgin mills credit for energy "recovered" by burning branches, etc., and kraft liquors.

With these factors in mind, Garden State Paper asked

Franklin Associates, recognized authorities in the field, to study use of energy in both virgin and recycling mills today, and to compare their energy efficiencies. Their preliminary report is enclosed herewith.

* * *

Garden State manufactures newsprint from old newspapers. Together with its associates, it makes 13% of the newsprint manufactured in the United States. It lessens our balance of payments deficits by reducing imports of both newsprint and oil. It supplies hundreds of jobs. Garden State is, nevertheless, very small indeed compared with other companies dependent on waste paper. Waste paper made up about a quarter of total United States paper production in 1978--about 17,000,000 tons. The companies using this waste paper are a major segment of American industry.

We feel that entitlements to companies which will burn waste paper for energy would seriously damage the waste paper market and threaten the existence of those companies which are dependent on it.

The Franklin report demonstrates, for newsprint at least, that recycling waste paper is more energy efficient than burning it for energy. It is a waste of energy to burn old newspapers which might otherwise be recycled. We assume that the points the

Franklin study makes about the energy efficiency of recycling newsprint will apply in varying degrees to the manufacture of other grades of recycled paper.

Garden State and other companies are now competing in the purchase of waste paper with companies which do, and will, burn waste newspapers for energy. The Entitlements proposal would subsidize their purchases, thereby burdening us and other recyclers with an unfair economic disadvantage. We feel this would be harmful to the economy, and would stimulate a less efficient use of energy itself.

Entitlements to burners of waste paper may destroy the 17-odd million-ton waste paper recycling industry by subsidizing other purchasers of the raw material they need. It is essential that this possibility be considered with the most grave concern, for the implications go far beyond the fate of this very important and very large segment of American industry.

Extensive destruction can occur even if only a small percentage of the material now available to recyclers is pre-empted. Most paper recycling ventures are not high profit enterprises. Removal of a substantial part of the material in a finite market (there would be no way to replace the missing tonnage) would cause dramatic price increases. The waste paper market has always been volatile. Supply short falls estimated at 5% have caused extreme price

increases on many occasions. But in those cases, higher prices "brought out" more paper, eventually providing a cure. That would no longer be possible.

Should this industry be destroyed in whole or in part, it seems unlikely that Americans and American businesses will reduce their use of paper products--writing papers, packaging, building papers, newsprint and all the rest--substantially. It is doubtful that they can. Where, then, will the wood come from to substitute for this huge environmental saving which recycling represents?

Certainly American woodlands do not have this capacity. What would happen to the price of lumber? The cost of housing? And indeed, the cost of paper products?

Newspapers and magazines would be severely damaged. Most of the nation's major newspapers are dependent, in part at least, on recycled newsprint. They have been suffering for a year now from a shortage of newsprint. They cannot afford to have it worsened.

Surely no decision by DOE will entirely wipe out the recycling industry. Nevertheless, DOE's decision on entitlement must consider both the effect of their action on the economy and the true place of wood in our future economy. Wood, itself, is a major part of the biomass. It is a source to which we can look for fuel substitutes. It is hard to believe that our wood resources will not be fully used. While woodlands are a renewable resource, they are also approaching limits of use under present management practices.

To push use beyond those limits would be disastrous on many levels.

The demand potential of wood is very large. A recent study by the New England Congressional Caucus Energy Task Force estimates 9% of New England's energy needs can be met from wood by the mid-1930's.

Energy considerations, particularly energy cost, have always determined the availability of other raw materials basic to the economic strength of the country. The United States has almost unlimited supplies of all the essential materials, except phosphorous and chromium. Their extraction, however, is energy-limited. Copper, lead, zinc, iron, aluminum--all of these--have a point at which the energy needed to extract them exceeds their intrinsic value.

Hitherto, these thresholds have seemed more remote. Rising energy costs and scarcities are changing this picture. Wood will play an essential part as part of a total energy component. It cannot be regarded as expendable or disregarded as a fuel.

There is legitimate debate about the place of wood burned as fuel by manufacturers of virgin newsprint. Should the BTU's from burning wood be deducted from the energy requirements of virgin mills when comparing their energy use with that of recycling mills?

A few newsprint mills are adjuncts of huge lumber operations. Scrap from these operations can supply a large part of their energy needs.

Recycling mills can burn scrap paper in much the same way.

They can burn the cut-throws from their sorting processes, and other waste paper, to any extent desirable. Indeed, the Homosote Company has contracted with Mercer County, New Jersey, to fuel its recycling mill with solid waste. Economics indeed favor this option, while economics do not favor burning of wood by virgin mills except for some scrap and some hard wood.

Garden State feels that the burning of wood waste by virgin mills to save fossil fuel, or burning of unrecyclable waste paper by recyclers, to the same end, serve a vital national purpose. However, we do not feel they should be considered in comparing the energy efficiencies of virgin and recycling mills. To do so is to play a numbers game in which the numbers can be altered at will.

About half the wood used in the manufacture of virgin newsprint comes from small holdings and private wood lots. Some comes from national forests. Conversion to pulp is by no means its most energy-efficient use. Steel joists are 50 times as energy intensive as wooden ones. Aluminum framing and uprights are 20 times as energy intensive as wood. Lumber, sugars, butanol, and methanol are among possible end products.

It also seems inconsistent, as other studies have done, to credit virgin mills with energy saved by burning wood, and not to credit recycling mills with the energy potential of wood they save.

If recycling of paper is materially reduced because the paper is being burned, the resultant demand for wood fibre will

Insure that no wood resources are wasted.

Franklin Associates present tables comparing the energy used by virgin and recycling newsprint mills on both bases. One table credits virgin mills with energy saved by burning wood, and credits recycling mills with nothing. The other considers the total fuel requirements of each.

In both cases, recycling is shown to save more energy than is available from burning old newspapers for fuel.

An additional factor in comparing the desirability of recycling or burning old newspapers is that 80% of the time recycling into newsprint returns into the burnable pool of waste paper all but 9% of the fibre it takes out.⁽¹⁾ Most of the time, in other words, only 713,835 BTU's can be subtracted from the energy saved by manufacturing recycled newsprint; the average deduction would be 2,157,368 BTU's⁽²⁾.

The Franklin report shows the number of BTU's required to make a ton of newsprint at three locations as:

<u>Garfield, New Jersey</u>	<u>Pomona, California</u>	<u>Dublin, Georgia</u>
23,800,000	17,800,000	22,100,000

The Franklin report shows the number of BTU's required to make a ton of virgin newsprint containing 22 to 30% chemical fibre, as follows: (The figures are for mills nearest to Garfield, Pomona

(1) See Page 14

(2) See Pages 16 and 17

and Dublin.)

<u>Mill nearest</u>	<u>Garfield</u>	<u>Pomona</u>		<u>Dublin</u>		<u>TMP</u>
22% chem fibre	30%	22%	30%	22%	30%	
	39.6 M to 40.8 M	42.1 M to 42.8 M.		42.4 M to 43.1 M		42.2 M

Deducting fuel generated internally, the fossil fuel requirements are shown as:

	36.0 M to 35.8 M	38.6 M to 38.1 M	38.9 M to 38.3 M	42.2 M
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(1)
All these figures include most attributable fuel costs including energy used to refine fossil fuel burned.

The energy value of burning a ton of waste newspapers is calculated at 93% of the bone dry BTU value of a ton of newsprint multiplied by a conversion factor of 54.7%. This is 7,931,500 BTU's. Most of the time, however, recycling of newsprint returns to the waste stream almost as much waste news as it takes out. On the average, recycling newspapers, per ton produced, takes only 2,157,368 BTU's from the waste stream, while saving several times that amount.

(2)
(3)

(1) Delivery of newsprint, calculated at one million BTU's per ton per thousand miles is not included. Use of this figure would adversely affect the virgin mills serving California and New Jersey.

(2) See Tables Page 12

(3) See Page 17

The RPA report uses 8,400,000 BTU's as the energy value of a ton of waste newspapers in the solid waste stream. Taking 16,000,000 BTU's as the energy value of bone dry newspapers, and 12,000,000 BTU's as the energy value of a ton of old newspapers containing 10% moisture, they apply an efficiency factor of 0.7 and arrive at 8,400,000 BTU's.

There is validity in using a theoretical approach to the BTU value of burning paper in garbage. Paper absorbs more water than the wood or plastics or rubber, etc., in garbage. Accordingly, the BTU's recovered by burning garbage or the combustibles in garbage do not accurately reflect the BTU's in the paper fraction. So far as we know, no empirical figures exist showing the BTU value of newspapers extracted from garbage.

There are several things wrong with the 8,400,000 figure, however.

1. The Engineering Handbook lists 15,600,000 as the BTU's in bone dry paper, not 16,000,000.

2. Newsprint coming to publishers, and subsequently entering the solid waste stream, is 93% fibre and 7% water, not 100% fibre. Unless newsprint is considered on this basis, there is an exaggeration of the number of tons of fibre in solid waste. Accordingly, the energy value of a ton of newsprint entering the waste stream is $15,600,000 \times 93\%$, or 14,508,000 BTU's minus the

energy needed to burn off 140 pounds of water, 154,000 BTU's, leaving a total of 14,346,000 BTU's.

3. Ten per cent is the average moisture content of clean, bundled, sorted newspapers, known as "super news" in the waste paper trade. This is what is used by mills which recycle newspapers. Ten per cent is the minimum possible moisture content of waste newspapers in the garbage stream. Thirty-two per cent is a minimum reasonable figure for waste news in garbage. Waste newspapers exposed to 100% humidity will absorb a 32% moisture content.⁽¹⁾ Water is 20-40% of the content of the nation's garbage streams.⁽²⁾ Paper is the most hydrophillic major component of garbage, and newspapers are the most hydrophillic part of the paper component. In addition to water, they absorb coffee, orange juice and other liquids in the garbage. This is why it is difficult to recycle old newspapers once they become part of the garbage stream.

Failure to recognize the water content of the garbage has led many garbage burning facilities to miscalculate their potential yield of BTU's and therefore their profitability. Water content in daily samplings of the Americology plant in Milwaukee, for example, averaged 32% for a full year. Moisture values vary by season and by area. Grass and leaves add to it materially.

(1) Edwin Sutermeister - "Chemistry, Pulp & Paper Making."

(2) EPA Office of Solid Waste Management Programs--"Recovery and Utilization of Municipal Solid Waste" SW 10C, Page 5

4. For old newspapers as a component of garbage, it is valid to deduct from 14,346,000 BTU's only that energy required to burn off 25% additional moisture (500 pounds @ 1100 BTU's per pound), or 550,000 BTU's, leaving 13,796,000 BTU's.

5. From this figure must be deducted energy required to prepare garbage for burning, haul residues to landfills, etc.

6. The conversion rate of 70% used by RPA can now be replaced by more precise figures. The figure under "Net Energy Available as Steam" below are the most accurate data on this subject available at this time. They come from EPA's "Mixed Waste Processing for Materials & Energy Recovery"--4th Report to Congress, 1977, page 59, Table 21, reproduced below.

TABLE 21
COMPARISON OF ENERGY RECOVERY EFFICIENCIES FOR SELECTED
SOLID WASTE ENERGY RECOVERY PROCESSES
(Percent of higher heat value contained in input solid waste)

Process	Net energy in fuel produced **	Net energy available as steam
Fluff RDF	74	58
Dust RDF	80	63
Wet RDF	76	48
Waterwall combustion furnace	-	59
Purox gasifier	64	58
Monsanto gasifier	78	42
Torrax gasifier	65	37
Occidental Petroleum Co-pyrolysis	26	23
Biological gasification		
With use of residue	29	24
Without use of residue	16	14

** This is the higher heating value of the fuel product

less the heat value of the energy used to operate the system (in the case of electric power consumption it was assumed that the electricity was produced on site using the system's fuel product), expressed as a per cent of the heat value of the input solid waste.

In order to compare all the processes on an equal basis, the net energy available as steam was calculated using the boiler efficiency for each fuel product.

Includes energy recovered from sewage sludge."

The waste news market of Garden State Paper's mill at Garfield, New Jersey is the location for three waste burning plants: one water wall combustion furnace, 1200 tons at 59% conversion efficiency (Saugus, Mass.); one wet RDF plant, 3000 tons at 48% efficiency (Hempstead, L.I.); and one Dust RDF plant, 1800 tons at 63% efficiency (Bridgeport, Conn.). The average conversion rate (per ton) is 54.7%. Alternatively, it could be assumed the area would be served by all energy systems in equal numbers. This would give an energy conversion rate of 42.6%

Applying the 54.7 figure to 14,500,000⁽¹⁾ BTU's, the average BTU's realized by burning a ton of waste newspapers in the North East is 7,931,500 BTU's per ton⁽²⁾.

The only burning facility in GSP's California market is the Occidental pyrolysis plant with a conversion efficiency of 23%. Applied to 14,500,000, the result is 3,335,000 BTU's from burning a ton of waste newspaper.

Southeast will compete for paper with the Wet RDF plant being built by Dade County, Florida, by Parsons & Whittemore. Conversion efficiency of this plant will be 48%, yielding 6,960,000 BTU's

(1) The EPA table on page 12 uses "higher heating values" a theoretical procedure in which there is little or no heat loss in burning off water. For simplicity, the bone dry BTU value of the fibre is used.

(2) It would be equally valid to use 42.7%.

per ton of waste paper burned.

From the above, it is clear this is not the simple matter visualized in the RPA report to DOE. It emphasizes that entitlements, if there are to be any in this area, should be based on energy conserved.

The RPA-ADL study used a factor of 1.25 tons of waste paper to make a recycled ton of newsprint. This is not an acceptable figure. Garden State's fibre loss is 9%. Its water loss--the difference between the 10% water content of typical waste news and the 7% water content of its newsprint--is 3 per cent. Two per cent of the weight loss is ink. Paper clips, staples, steel bale strapping, and debris, are a per cent or so. Total loss in production at Pomona is averaging 15%. Fibre loss is 9%.

Existing studies, including a recent one for DOE, and the figure above, do not take cognizance of the difference between a recycling use which returns a burnable product to the market, as does newsprint, and one which does not, such as paper used in construction. Yet, it must be considered. It is a major factor in the energy equation.

Whenever the supply and demand figure is in balance, or when demand for newsprint exceeds supply, as has been the case for about a year not, and was the case in 1973 and 1974, the manufacture of recycled newsprint is a net addition to the newsprint market.

Assuming, for example, that 11,000,000 tons of newsprint are consumed by American newspapers, about 10,800,000 tons would enter the waste stream. About 600,000 tons of this paper is newsprint produced by recycling mills. If recycling mills were to be deprived of their raw material, there would be only 10,400,000 tons of newsprint available for newspapers, and only 10,200,000 tons of waste news in the waste stream, and theoretically available to burners. In such times, recycling does not reduce the amount of newsprint produced by virgin mills. Virgin mills are operating at capacity.

In times when supply and demand are in equilibrium, or when demand exceeds supply, therefore, recycling does not materially decrease the amount of waste paper available for burning. It removes 600,000 tons from the waste stream and returns 541,000 tons after a deduction of a 9% fibre loss in production.

To deprive recycling mills of their raw material would not materially increase the amount of waste newspapers available for burning whenever this marketing condition exists. It is not appropriate, therefore to deduct from the energy savings in recycling the total energy derived from burning a ton of waste news: The ton would not have been there except for recycling. The correct figure would be 9% of that energy, representing the fibre loss in producing a ton of recycled newsprint, or 713,835 BTU's. when supply does not exceed demand⁽¹⁾.

(1) The average energy recovered by burning a ton of waste in the Garfield mill's market - 7,931,500 BTU's - is the base figure used.

The recycled newsprint will eventually be burned, however. Waste news has many uses. More than 50% of it usually remains in the waste stream.

Recycling and burning for energy can co-exist, therefore, provided the recycling use comes first. Source separation, in which clean waste newspapers went direct to a recycling mill and were burned later in the chain after reaching an unrecyclable form, would provide society with the greatest energy benefit.

When supply is in excess of demand, recycling may displace some virgin newsprint which otherwise would flow to the market. To the extent, but only to the extent, that this occurs, would it then be appropriate to measure the energy efficiency of recycling against burning for energy. Only if a market condition should occur in which recycled newsprint totally replaced 600,000 tons of virgin paper, thus shrinking the pool of waste newspapers available for burning, would it be appropriate to deduct the energy value of burning a ton of waste newspapers from the energy advantage in recycling.

It is estimated that supply exceeds demand about one-fifth of the time.⁽¹⁾ Assuming that supply exceeds demand by 600,000 tons during this period (which it clearly would not do) and using the

(1) Dr. John Udell, University of Wisconsin economist, and newspaper statistician for the American Association of Newspaper Publishers, estimates that demand for newsprint exceeds supply 40% of the time, that supply and demand are in rough balance 40% of the time, and that supply exceeds demand 20% of the time.

figures from the G&P market area, the BTU's deductible for burning waste paper would average 2,157,368 BTU's per ton. If it is assumed that all types of waste burning facilities will be represented equally in all parts of the country, the conversion efficiency would be 42.6%. Using this figure, the energy realized by burning a ton of waste paper would be 6,177,000, the actual loss to burners would be 555,930 BTU's 80% of the time, and would average 1,680,144 BTU's.

The 600,000 tons of waste newspapers recycled into newsprint is only a small part of the waste newspapers recycled. Other recyclers of waste newsprint bring the total to over 3,000,000 annual tons, a figure approaching the total amount of newsprint manufactured in the United States. Many of these users, and many recyclers of other grades of waste paper (using 17,000,000 tons in all) are a net addition to the volume of paper manufactured, and only detract from the amount of waste paper available for burning when supply exceeds demand, as is the case with recycling newspapers into newsprint.

It seems essential to analyze each grade before arriving at summary and mistaken judgments of energy balances.

Nothing above gives any consideration to the energy value of wood not consumed to make that virgin newsprint which may be replaced by recycled material. This replacement may take place when supply of newsprint exceeds demand and virgin mills operate below capacity.

It is doubtful, however, that American wood could replace the fibres gained by recycling when demand is strong and virgin mills are operating at capacity.

* * *

We urge you to approach the matter of entitlements to burners of waste paper with extreme caution.

The encouragement of recycling and of materials recovery is a recognized policy of our Government, as evidenced in the enactment of the Resource Recovery Act of 1976, as well as a number of legislative enactments related to the Department of Energy. Recycling has its own merits aside from energy efficiencies. These benefits must not be lost. It seems paradoxical to set new and increased recycling goals, as directed by the Congress, and at the same time to promote policies which will destroy recycling.

Burning plants are being built without your help. They are already subsidized. At DOE hearings July 17th, Wheelabrator-Frye testified that 50% of their income comes from subsidies (tipping fees) and 50% from sale of steam. Annual statements of companies building them project their profitable operation. Tipping fees are fixed to insure their profitable operation. Intervention in a very complex market may be harmful. Economic damage may outweigh putative energy stimulation.

Will existing subsidies be withdrawn if DOE provides additional subsidies? Will they be reduced?

Since the present subsidies are intended to guarantee a profit, what are entitlements supposed to contribute? A windfall?

If present subsidies are withdrawn, what benefit in substituting different ones? Are Federal subsidies to be preferred to local ones? If not withdrawn, is the purpose to add to the profit of already profitable enterprises?

We feel that entitlements to burners of solid waste will disrupt a major economic market. We feel they may stimulate more inefficient use of some energy sources. We do not feel they should be extended to waste materials for which there are recycling markets. If, nevertheless, DOE does extend entitlements to the burning of waste paper, we recommend that entitlements also be extended to recycling of waste paper in the following manner:

1. Entitlements would apply only in locations or areas which provide solid waste to an existing energy recovery facility. This would exclude entitlements to recycling mills which do not have to compete with an energy recovery facility for the recoverable waste material.
2. Limit entitlements eligibility to recycling mills which consume at least 90% waste paper in the fibre furnish of the waste paper recycling mill. The Energy Tax Act of 1978 provides the precedent for this proposal.
3. To be eligible, recycling mills must have

signed contracts for three years or more, or must have made firm contractual offers for three years or more for the waste paper for which entitlements are being sought.

4. Failure to comply with contract terms would result in forfeiture of eligibility and rescission of entitlement payments.

5. The entitlements for recycling waste paper should be based on the value of the energy conserved by the recycling process.

Importation of newsprint (7,000,000 tons [†]) causes a \$2.5 billion deficit in our national balance of payments. Recycling newsprint reduces that deficit.

We realize that newspaper recycling is a small part of the national economy. However, the energy and economic factors presented here probably apply to other paper recycling markets. And paper recycling is a very large and constructive part of the economy. Other paper recycling businesses must be analyzed objectively and thoroughly.

It is a waste of energy to burn waste newspapers for energy. It may waste energy to burn other papers and will probably prove to be so if the factors presented in this paper are fairly computed.

Bridgeport Post, July 28, 1979

Refuse plant to resume testing work in August

A spokesman for the prime contractor of the Bridgeport Resource Recovery Facility on Howard Avenue said Thursday that the plant would resume testing operations in August, and would be likely to become fully operational before winter.

The spokesman, Edward Kelly, said the plant would be running "Three full shifts" if the city approved it for testing, which is expected in early August.

Testing at the plant was halted by the city after a June 20 explosion inside one of the six 200-ton-capacity fuel silos at the plant site. Investigations revealed that the explosion had been caused by a spark from a fuel-level sensor inside the silo.

Kelly also said that the plant would be able to run at full capacity prior to its official certification for full commercial operation. He explained that the plant would not be certified by the state until the second boiler at United Illuminating's Bridgeport Harbor Power Station had been converted to burn the refuse-derived fuel (RDF) produced by the recovery plant. Currently, only boiler number one at the power plant can accept RDF, a grey powdery fuel.

Certification is not expected until mid-1980. Under the contract between the contractor, Combustion Equipment Associates, and the Connecticut Resource Recovery Authority, a state agency, certification is required before the nine communities contracted to supply the plant with refuse can benefit from the sale of fuel to UI.

The contract also requires a minimum of 1,500 tons of solid waste per day to be processed by the plant before the communities benefit through reduced "tipping fees" — the per-ton fee they are charged for depositing their garbage there. The nine municipalities only produce about 1,100 tons of refuse per day.

SUMMARY

SYSTEM ENERGY PROFILES OF VIRGIN
AND RECYCLED NEWSPRINT MANUFACTURE

OVERVIEW

Included in this brief summary are two tables which show the energy requirements for the manufacture of newsprint from virgin and recycled fiber. Also included is a brief description of the methodology for determining the recoverable energy from one ton of newsprint as shipped (7 percent moisture).

TOTAL ENERGY REQUIREMENTS FOR NEWSPRINT MANUFACTURE SYSTEMS

Table 1 shows the energy requirements for the manufacture of recycled newsprint. The energy values represent actual data for each mill and appropriate adjustments have been made to account for boiler efficiencies and secondary energy requirements (that is, the energy required to obtain end process fuels).

Table 2 shows the energy required to manufacture virgin newsprint at locations near the three recycle mills. These data are more complex than that shown in Table 1. Energy impact ranges are shown for manufacturing operations to represent the assumed range for the groundwood/kraft mixture. This range is 70 to 78 percent for groundwood pulp manufacture and the complementary 22 to 30 percent for kraft. It is important to note that when total energy is examined, the lower percent of kraft manufacture results in less energy consumption but in terms of fossil fuel only, the higher utilization of kraft results in less energy consumption. This results from the fact that about half the energy consumption in kraft manufacture is self-generated, produced from wood wastes.

The data shown in Table 2 have also been adjusted by factors which appropriately account for boiler efficiency, steam pressure, and secondary energy requirements.

Table 1

ENERGY REQUIREMENTS FOR MANUFACTURE OF RECYCLED NEWSPRINT
AT THREE GARDEN STATE MILLS
(Million Btu per ton product)

	<u>Garfield</u>	<u>Pomona</u>	<u>Dublin</u>
Waste Newsprint, Recovery, Processing and Transport	0.23	0.25	0.24
Newsprint Manufacture	22.39	16.30	20.38
Chemical Additives	0.90	0.90	0.90
Newsprint Transport	<u>0.26</u>	<u>0.40</u>	<u>0.38</u>
Total Energy	23.78	17.85	22.08

Table 2

ENERGY REQUIREMENTS FOR MANUFACTURE OF VIRGIN NEWSPRINT
 AT LOCATIONS NEAR THREE GARDEN STATE RECYCLED NEWSPRINT MILLS 1/
 (Million Btu per ton product)

	Garfield (Groundwood- Kraft)	Pomona (Groundwood- Kraft)	Dublin (Groundwood- Kraft)	Dublin (TMP)
Raw Materials Procurement	0.81	0.76	0.79	0.72
Newsprint Manufacture	37.45 to 38.47	39.85 to 40.35	40.10 to 40.58	40.56
Chemical Additions	1.1 to 1.3	1.1 to 1.3	1.1 to 1.3	0.50
Newsprint Transport	0.26	0.40	0.38	0.38
Total Energy	39.62 to 40.84	42.1 to 42.81	42.37 to 43.05	42.16
Total Fossil Energy 2/	35.96 to 35.84	38.63 to 38.07	38.89 to 38.31	42.16

1/ Conventional newsprint was assumed to be manufactured from a mixture of stone groundwood pulp blended with semibleached kraft. The percentage of semibleached kraft in this mixture was assumed to range from 22 to 30 percent and the ranges given in the table correspond to these figures. At Dublin, the thermochemical pulp option was also assessed.

2/ Approximately one-half of the energy requirements of a semibleached kraft mill is met by recovery energy from wood wastes. The difference between total energy and fossil energy is equal to the energy generated from wood waste for each virgin newsprint system.

Table 3 summarizes total newsprint system energy requirements for both virgin and recycled systems. In all instances recycled newsprint manufacture requires considerably less energy than all of the virgin fiber systems. At a maximum difference, the recycle system at Pomona, California consumes 25.3 million Btu per ton less than the total energy required for virgin newsprint manufacture in the Dublin, Georgia area. In terms of fossil energy only, the difference is 21.1 million Btu per ton, which makes the virgin system more than twice as energy intensive.

At the minimum difference, the recycling system at Garfield, New Jersey can be compared with the virgin system at Garfield. Even under this comparison recycling saves 12.0 million Btu per ton of fossil energy and 15.8 million Btu per ton if wood energy is included.

Table 3

TOTAL NEWSPRINT SYSTEM ENERGY REQUIREMENTS
FOR VIRGIN AND RECYCLED SYSTEMS 1/
(Million Btu per ton product)

	<u>Virgin Systems</u>		<u>Recycled</u>
	<u>Groundwood-Kraft</u>	<u>TMP</u>	
Garfield			
Total Energy	39.6 to 40.8		23.8
Total Fossil Energy 2/	36.0 to 35.8		
Pomona			
Total Energy	42.1 to 42.8		17.8
Total Fossil Energy 2/	38.6 to 38.1		
Dublin			
Total Energy	42.4 to 43.1	42.2	22.1
Total Fossil Energy 2/	38.9 to 38.3	42.2	

1/ Conventional newsprint was assumed to be manufactured from a mixture of stone groundwood pulp blended with semibleached kraft. The percentage of semibleached kraft in this mixture was assumed to range from 22 to 30 percent and the ranges given in the table correspond to these figures. At Dublin, the thermochemical pulp option was also assessed.

2/ Approximately one-half of the energy requirements of a semibleached kraft mill is met by recovery energy from wood wastes. The difference between total energy and fossil energy is equal to the quantity of energy generated from wood waste for each virgin newsprint system.

RECOVERABLE ENERGY FROM THE COMBUSTION OF USED NEWS

The task of developing reliable estimates of the energy which is recoverable by burning used newsprint is complicated by several factors. The moisture content of the waste paper, boiler efficiencies, and accurate heating values are required and such data must be consistent to ensure reliability.

For the purposes of this analysis, Franklin Associates selected data presented in two Environmental Protection Agency publications. These data appear to be consistent in that all values represent higher heating value conditions. The higher heating value for wet newsprint (30 percent moisture) is reported to be 5,980 Btu per pound.* The average efficiency of energy recovery systems in the regions where the virgin mills are hypothesized is about 54 percent.** This efficiency is reported to represent the net energy available as steam with respect to higher heating value. Therefore, it seems appropriate to use the higher heating value of 5,980 Btu per pound along with the 54 percent efficiency. Utilizing these data, the net energy available in one ton of shipped newsprint can be calculated as shown below.

- 1 ton of newsprint at a 7 percent moisture content contains 1,860 pounds dry fiber.
- 1,860 pounds dry fiber weighs 2,657 pounds at a 30 percent moisture content.

$$\begin{aligned}
 \text{Net Recoverable Energy} \\
 \text{as Steam} &= (2,657 \text{ lb newsprint}) \times (5,980 \text{ Btu/lb}) \times (.54) \\
 &= 8.58 \times 10^6 \text{ Btu per ton of shipped newsprint}
 \end{aligned}$$

* Wilson, E. M., et al, "Engineering and Economic Analysis of Waste to Energy Systems," prepared by The Ralph M. Parsons Company for the U.S. Environmental Protection Agency, May 1978.

** U.S. Environmental Protection Agency, "Fourth Report to Congress, Resource Recovery and Waste Reduction," August 1977.

Mr. FLORIO. Thank you very much.
Mr. White?

STATEMENT OF ALVIN WHITE

Mr. WHITE. Good morning. My name is Alvin White. I am president of the Atlantic Disposal Service, Inc., of Mount Laurel, N.J. I am also chairman of the New Jersey Chapter of the National Solid Waste Management Association and vice president of that association.

I appreciate this opportunity to share the perspective of the waste management industry on the subject before this committee, the conversion of solid waste into energy to meet the growing demands of American society and industry. Private waste management companies have a deep interest in plans to convert wastes into energy because of the changes which refuse to energy projects will mean to existing patterns of delivering waste collection and disposal services and because, due to our experience and expertise, we expect to be heavily involved in the construction and operation of these facilities.

The National Solid Wastes Management Association has just completed an extensive survey of resource recovery procurements throughout the United States and has identified a number of common factors that characterize successful projects. I will submit with my formal remarks a copy of the NSWMA publication, "Resource Recovery Decision-Maker's Guide" and ask that it be made a part of the record of these proceedings.

The waste management industry has also been diligently examining various alternative incentive programs whereby Government might stimulate the development of resource recovery. Without question, with the increasing stringency of land disposal standards, the cost of sanitary landfilling will be going up. Equally apparent is the steep rise in energy costs and fuel prices which will continue to enhance the revenue potential for refuse-derived energy. Clearly, market forces are making energy recovery from solid wastes more attractive economically every year.

At the same time, the roughly 2 dozen operating plants in this country are providing valuable operating experience on which to base future expansion of resource recovery. This experience will allow American industry to implement effective resource recovery projects in a rapid and timely fashion when such development becomes economically feasible.

This committee is concerned about the proper role of the Federal Government in facilitating development of resource recovery. I think it is fairly safe to assume that these projects will be built and operated at the local level either by private entrepreneurs or by local government. But, inasmuch as these facilities usually represent the single largest public works undertaking by a municipality, and that in a risky and uncharted area, there remains a healthy reluctance to risk capital for resource recovery projects.

We strongly suspect that this reluctance will turn to enthusiasm as both experience and economics suggest that these projects can provide both economically competitive disposal and a partial answer to meeting the Nation's energy requirements.

The Federal Government provides investment tax credits for the purchase of energy recovery equipment. It provides up-front money to communities to study the feasibility of resource recovery. It provides matching grants for the development of new technologies. It provides loan guarantees that encourage at least some companies—those with marginal capacity—to pursue resource recovery.

The U.S. EPA also provides public sector officials technical assistance to evaluate possibilities of resource recovery. The Federal Government has rejected a strategy of providing construction grant assistance for resource recovery such as that used in the wastewater treatment program. Thus we have avoided constructing a number of costly "white elephants."

We believe that the hallmark of any Federal program to stimulate resource recovery should be that the stimulus be neutral as between the several competing technologies and that it respect the basic mission of resource recovery which is efficient and environmentally sound waste disposal.

This committee should keep in mind the repeated findings of the Department of Energy that, taken by itself, conversion of waste to energy is not and will not soon become economically competitive with alternative energy sources, but when taken in combination with its impact in reducing the cost of waste disposal, it has the potential for competitive economics.

Waste to energy systems are part of the solid waste management system; the value of energy recovered can offset the cost of disposal in most cases. Without calculating the costs of disposal, producing energy by burning wastes will not be competitive with other sources of energy.

We feel that the Federal Government could make an important contribution to the development of resource recovery by helping develop markets for the energy which can be recovered. At least one resource recovery project in this country has been forced to take all of its expensively processed, boiler-ready refuse-derived fuel and cart it to the landfill because it has no energy customer.

Utilities, which might regularly be considered prime customers for refuse-derived energy, have been stripped of any incentive to participate by the rate regulation of their operations which discourages any risk taking on their part.

And now, a new Federal law threatens to halt private resource recovery initiatives dead in their tracks. The Public Utilities Regulatory Policy Act, enacted ostensibly to spur small-scale production of electricity in the below 80 megawatt range, appears to contain the very seeds of destruction of the resource recovery industry. The act helpfully provides marketing advantages to these small producers—most resource recovery plants are likely to be in the 30-80 megawatt range—but combines this carrot with a heavy stick of subjecting not only the company operating the facility but also its corporate parent to burdensome regulation under the Public Utilities Holding Company Act enacted during the depression, the Federal Power Act, and State regulatory actions.

Only power production facilities less than 30 megawatts may be exempted from these regulatory acts. European resource recovery plants of that small size have not proven to be economical by American standards. This means that any solid waste management

company which might wish to get into the waste-to-energy business as the natural adjunct to its present collection/disposal operations would find its entire operation regulated as a public utility holding company.

If the economic risks alone do not discourage new projects, such a new requirement most certainly would. We recommend that the Congress amend PURPA to consistently define as small all electrical power production facilities less than 80 megawatts that use a renewable energy source. This will enable the Federal Energy Regulatory Commission to exempt virtually all conceivable resource recovery facilities from regulations intended to apply to conventional power production facilities and thus stimulate development of this exciting technology.

The waste management industry is not here today with its hand out asking for subsidies to stimulate resource recovery. Resolution of the many remaining institutional impediments will facilitate its development. More importantly—in fact key to the success of the program—effective implementation of the Resource Conservation and Recovery Act will facilitate its development.

Beyond that, we respectfully request that the Federal Government might more profitably direct its considerable resources elsewhere and let this process move at its own considerable pace. The lead in stimulating resource recovery is more properly a role for State and local governments and for the private sector.

In summary, we urge this committee, with its jurisdiction over RCRA, to insist that EPA fully and fairly implement that law. That single action would create economics favorable to resource recovery projects in many communities while preserving the essential character of resource recovery as a component of the Nation's waste disposal system and avoid introducing bias among the competing technologies for accomplishing resource recovery.

Thank you.

Mr. FLORIO. Thank you very much.

Mr. Nichols?

STATEMENT OF DOUGLAS R. NICHOLS

Mr. NICHOLS. Mr. Chairman and members of the subcommittee, I am Douglas Nichols and I am vice president of Widmer-Ernst, Inc., a New York-based corporation. We thank you for the opportunity to submit our testimony. We would like to express our gratitude for the in depth attention that is being given to this field of expertise, which will provide the needed source of potential energy from nondepletable reserves and also establish a beneficial service to communities by alleviating potentially hazardous health situations that could occur.

Widmer-Ernst, Inc., is part of a broader group of companies controlled and owned by the firm Alusuisse, Ltd., commonly known as Swiss Aluminum, based on both the North American Continent and in Europe, with worldwide influence in many areas of endeavor.

The particular discipline of Widmer-Ernst is in the environmentally sound reduction of wastes by thermal processes with the resulting recovery of energy and other byproducts. Our technology

is based upon many proven installations in Europe, including systems for codisposal of sewage sludges with municipal solid waste.

We have been selected for the State of Rhode Island refuse to energy project. Widmer-Ernst operates directly in the U.S. market via a wholly owned New Jersey corporation.

We are not here to sell our product, but to provide some thoughts as to the direction that could be taken by Government to assist this industry in the acceleration of urgently needed successful projects. We feel that Government must take a strong, positive stance to create the proper climate conducive to the growth of the waste to energy industry.

With this background in mind, we are pleased to offer the following thoughts.

At this point, I am going to depart from my text to try and save some time, and I will try to paraphrase the several points that we would like to make. There have been discussions here about the fact that two of the real bottlenecks of a successful resource recovery system is having a hold on refuse supply that is guaranteed for a long period of time and also have the same situation on the other end from the energy user.

I submit that there are other problems equally as bad. I agree that both of those are a definite deterrent.

The one I would like to bring up first and foremost is the problem of siting a plant. I think that all of us know that in talking to any private citizen, that everybody says this is a great idea, but give it to somebody else, we do not want it in our backyard, take it over to my neighbor's. And this, of course, underscores one of the key problems in siting such plants, which is, where are you going to put it?

Now, we would like to suggest that one of the best places for locating such plants might be along railroad lines right-of-ways. This might solve one of the problems of moving refuse through residential communities. We feel also by siting along railroads that we could have both transfer stations and resource recovery assistance supplied by the railroads through a containerized shipment program.

This would allow for larger installations, sited nearer the central cities, which may need rebuilding. Therefore, what we would like to indicate is that to save traffic problems and help siting, and provide for larger, more economical plants, that it might be desirable to get preferential rates for shuttle trains and containerized shipments of refuse vis-a-vis the railroad.

Point No. 2. I believe that there is a need for Government to classify now that energy from refuse waste is a reliable, and I underscore the word reliable, source of fuel. DOE and EPA have done extensive R. & D. programs. They do know now what works and what does not work. They do know now what is a reliable technology. This does not mean to infer that the R. & D. program should be discontinued. They should be continued, but there are existing technologies that do work here and have done so for some time.

One of the problems in dealing with public utilities is the fact that the type of rates that they want to pay for a refuse-derived fuel energy is really not competitive. Operating costs and the re-

capture of capital costs in such plants are not considered in the price they are going to pay for this form of energy. We feel that the Federal Government, preferably the EPA, should publish now operating and pertinent cost data on proven systems, both that exist here and in Europe, rather than produce tedious tomes of how the system works today. Devise ways of planning how these projects can be put on a fast track.

It now takes somewhere between 3 and 5 years to develop any project from its start and before anything can be done about breaking ground. I think this is a considerable waste, and I feel that ways should be found to shorten leadtime or, in other words, how can the time interval be improved, how can the system be short tracked.

Time is a very important factor, as far as private industry is concerned, in chasing these particular projects and making them economically viable.

The third thing I would like to suggest is the possibility that, and I agree with the statements made by the port authority in their testimony in Washington, about innercity depressed areas and how to attract industry back to these areas. We feel that perhaps an energy tax credit, a special energy tax credit should be given to any fuel user who might go back into such an area and use the fuel and guarantee the use of that fuel over a 20-year period for a refuse to energy program.

The next point I would like to make is the fact that codisposal, as far as we are concerned, is here to stay. That technology is definitely proven. There are existing operating plants in use today that economically produce fuel from a combination of these two raw materials. There was testimony that was made earlier today by Mr. Liss, that it is important that in order to get a proper tradeoff it depends a lot on the moisture content in the sludge that is going to go into the fuel cycle.

We feel that when the EPA is considering waste water studies, that part of these waste water studies should include disposal of alternate means, or in other words, the codisposal factor. That should be considered much more seriously than it presently is on all waste water projects that are coming up for Federal funding.

In conclusion, although I have mentioned only a couple of items, we feel that the general direction of the industry is positive. We do not favor handouts, nor do we favor giant experimental projects. What we do endorse is to put to work now our existing knowledge and expertise with enthusiasm. What is needed from government is not money or loan guarantees or experiments or studies. We need assistance to break the bureaucratic logjams that are institutional, legal, and jurisdictional, that have become entrenched through a long period of analysis and development.

Simplify the process to get a plant approval so it can be built. Seek ways to fast-track projects. The long, tedious leadtime that now exists has been in part created by several unsuccessful plants that have had far too high a profile in the public domain, and then in effect curtail the activity or perhaps set back existing technologies that do work. In other words, negatives have been stressed, in our opinion, and we would like to see positives stressed.

We feel that the period has passed, and we must move on to successful and proven system implementation.

Everyone agrees that the sound, proven technology definitely exists today, both for refuse to energy and codisposal to energy. This industry needs to point to such projects where they do exist, and where they do work, and what makes them work. That is the story that we should be getting across to people who are interested in applying these technologies in their own areas.

Thank you again for the opportunity to testify. We look forward to the mutual reward of working together to alleviate not only the artificial pressures of imported energy, but also to clean up the neighborhood while so doing.

Thank you very much.

[Mr. Nichols' prepared statement follows:]

TESTIMONY OF

DOUGLAS R. NICHOLS, JR.
Vice President

WIDMER + ERNST, INC.

Mr. Chairman and members of the subcommittee, we thank you for the opportunity to submit our testimony. We would like to express our gratitude for the in-depth attention that is being given to this field of expertise, which will provide a needed source of potential energy from non-depletable reserves and also establish a beneficial service to communities by alleviating potentially hazardous health situations.

WIDMER + ERNST, INC., is part of a broader group of companies controlled and owned by the firm ALUSUISSE LTD., based on both the North American Continent and in Europe, with worldwide influence in many areas of endeavor. The particular discipline of WIDMER + ERNST is in the environmentally sound reduction of wastes by thermal processes with the resulting recovery of energy and other by-products. Our technology is based upon many proven installations in Europe, including systems for co-disposal of sewage sludges with municipal solid waste. We have been selected for the State of Rhode Island refuse-to-energy project. WIDMER + ERNST operates directly in the U.S. market via a wholly owned New Jersey corporation.

We are not here to "sell" our product, but to provide some thoughts as to the direction that could be taken by Government to assist this industry in the acceleration of urgently needed, successful projects. We feel that government must take a strong positive stance to create the proper climate conducive to the growth of the waste-to-energy industry. With this background in mind we are pleased to offer the following thoughts:

PREFERENTIAL FREIGHT RATES

Siting of Resource Recovery plants, in many cases, involves developing traffic patterns that will satisfy the concerns of local citizens. Basically, citizens like the idea of resource recovery, "but not where I live". One of the major deterrents at public meetings is the plan of truck delivery routes that encroach upon private homes and streets. One of the easiest ways around this problem is to site resource recovery plants along rail lines so that rail transfer stations can be utilized. Unfortunately, the rates for railhaul of refuse are not preferential and also the use of "shuttle" trains or containerized cars is not within the present work rules or guidelines of most labor/rail agreements. If railhaul were used, not only would this alleviate the traffic problems, but it could also save fuel costs for the collecting agencies. Additionally, larger plants could be constructed for economy of scale and the developed energy could be used for industrial parks adjacent to rail systems.

RELIABLE FUEL SOURCE

The EPA and DOE have done extensive research work over the years in establishing what is workable and what is not. This depth of knowledge should be applied now to establish certain technologies as being "reliable" sources of energy. Reliability of energy source has a great deal to do with negotiating a financially viable rate structure so that debt service costs of facilities can be effectively reduced to palatable levels for communities with a consequential reduction in cost for the disposal of wastes.

Hopefully the rules proposal by the Federal Energy Regulatory Commission on June 27, will be pushed aggressively as this will help to increase the value of energy for waste to a more realistic plateau. This proposal outlines rules for determining the status of small waste-to energy power plants.

A great step forward has been taken by the MOU (memorandum of understanding) between the EPA and the DOE. One of the first projects that could assist municipalities would be the joint publication of a source document of reliable technologies to all levels of government in the U.S.. This publication could contain pertinent operating and cost data of existing successful plants both in the U.S. and in Europe. Most important, it should indicate ways and means to fast-track projects, simplifying the process that is far too complicated and unwieldy. This area of time is one which could be aided by bundling all permits into one agency at both federal and state levels and setting time limits for approval.

REDLINE AREAS

Resource recovery plants can be a source of inner city rejuvenation. The output of energy flow from these facilities can be utilized to the benefit of cities for the development of downtown industrial parks, with a rippling effect of energy output for the enhancement of satellite businesses and rejuvenated housing, serviced with district heating and power from the resource recovery plant. These inner-city transformations can be planned around the resource recovery plant which will also assist in the "clean-up" of these areas. Inner cities need growth and jobs to eliminate their worst form of pollution, which is inner city poverty. A fast and reliably developed source of energy from wastes can contribute to inner-city rehabilitation. Businesses that align themselves with a waste--to-energy project in a depressed area should receive special tax credits (energy) for contracting long-term for the purchase of the energy, for it is only through these contracts that long-term financing can be assured (usually 20 years).

LANDFILLS - OPEN DUMPS

One of the deterrants to growth in the industry is the continuation of environmentally unsound landfills that do not conform to Federal guidelines. The result is unrealistically low cost disposal service. Regions have a natural reluctance to close these sites because they have no viable alternative. Enforcement of regulations is often not uniform because of this situation. One difficulty is in finding ways in which those sites that are not sound can be closed and then converted economically into other beneficial uses for the community, and to assist the owners of sites to do this. Low cost loans should be provided to landfill owners to allow them to convert their sites into industrial land, or even to guarantee the land sale back to communities for use as parks.

CO-DISPOSAL

The disposal of sewage sludges with municipal waste is today a proven technology. We forecast a proliferation of this type of plant in the years ahead. All waste water projects should require a feasibility consideration of co-disposal in

the construction grant process so trade-offs from refuse, including sludge, conversion to energy can be readily assessed in the final disposal process.

CONCLUSION

Although we have mentioned only a few items, we feel that the general direction of the industry is positive. We do not favor handouts or giant experimental projects. What we do endorse is to put to work our existing knowledge and experience with enthusiasm right now. What is needed from government is not money or loan guarantees, or more experiments and studies. We need assistance to break bureaucratic logjams that have become entrenched through a long period of analysis and development. Simplify the process to get a plant approved so it can be built. The long tedious lead-time has been in part created by several unsuccessful plants that have had far too high a profile. In other words, negatives have been stressed, not positives.

We feel that period has passed and we must move on to successful and proven system implementation. Everyone agrees that sound proven technology definitely exists today. This industry needs to point to such projects where success reigns.

Thank you for asking us to testify. We look forward to the mutual reward of working together to alleviate not only the artificial pressures of imported energy, but also to "clean up the neighborhood" while doing so.

Mr. FLORIO. Thank you very much.

I would like to ask a question, perhaps one question of each of you.

Mr. Snider, I was impressed with your concern about subsidies being provided which might work to the detriment of the recyclers. I just wonder if you do not regard procurement policies of the Federal Government, particularly in the RCRA, as, in a sense, a form of subsidy if we are going to set aside a policy that the government shall procure a certain percentage of recycled materials. Is that not a form of indirect subsidy, guaranteeing that regardless of bidding there will be a mandatory requirement that there be these set aside purchases? Aside from the question of whether or not it is socially desirable, I think we have to be somewhat candid in saying that this is an indirect subsidy of sorts.

Mr. SNIDER. I would agree with that. What we have found, incidentally, and of course our product line is confined to newsprint type paper on which the congressional report and many other governmental documents are printed, that in spite of the fact that there are those enticements, we have been unsuccessful in bidding on that business.

As a matter of fact, we view our business as devoted primarily to the publishers, such as the Bergen Record, and so forth and so on.

However, I am aware, of course, that many of my colleagues in the paper industry are very appreciative of that kind of emphasis to help, if you will, pull through the system and encouraging recycling on the front end of their process. They are very well aware of that. I could not, of course, say that it is not a subsidy form. I think it is probably a mild subsidy, if you will.

The kind of subsidies that we do endorse are those, and I guess many businessmen endorse, and that is in favor of fast tax writeoffs to encourage us to take higher risks than we might normally take in a new technology. It may very well be that some of the energy recovery projects that are now evolving could be further accelerated that way.

Mr. FLORIO. When you testified before our committee on the RCRA amendments of 1979 you advocated, successfully, I might add, that the committee look to giving more responsibility to the Department of Commerce as compared with EPA and DOE. However, in all honesty, since that time, the more exposure I have to the Department of Commerce, and I am sure they have other things to do, the less impressed I am with their capability or with their commitment to this particular area.

Now, I know that they are concerned with world trade initiatives and things of that sort, but I am becoming more and more convinced that the Department of Commerce does not regard energy recovery as a major area of concern. I am becoming a bit more reluctant than I was at an earlier point to provide them more money when I do not see great enthusiasm or interest to utilize that money in more effective ways.

Mr. White, you made reference to the Federal Energy Regulatory Commission's new rules to encourage small producers of energy from solid waste to become involved in relationships with the public utilities. Your understanding of what those rules are, and what they contemplate is different from mine. I am going to check

this out, because it is our understanding that there is a specifically planned rule that would exempt such solid waste generating facilities from being treated as a public utility.

I agree that this is not a terrible move, but it is our understanding, and we have spent some time looking at it, that it is the intention of this regulatory commission for solid waste facilities to get into the production of energy from solid waste and that be exempt from public utility regulation as an incentive to do so.

As I say, there seems to be a difference of opinion as to what the rules say. We will make sure that we check this out.

Mr. WHITE. Our people have checked it. It exempts the 30 megawatt users, identifying the small ones, and we would like to see it up to 80.

Mr. FLORIO. You think it should be a bit bigger?

Mr. WHITE. Most of the refuge derived in the energy facility will be in that range, so it will put them automatically in that.

Mr. FLORIO. I understand.

The last point I would like to make, Mr. Nichols, is that one of your competitors—I assume it is a competitor—Wilbur Frye, has taken a similar position to yours in not wanting too much Federal involvement in terms of subsidies, any kind of assistance. There are those cynics who say that people in the business are not too interested in encouraging other people to get into the business, and hence they have sufficient capital to do things themselves.

I do not totally share that view.

I would just like to address myself to your comment that what you need is assistance, what the private sector needs is assistance, in overcoming the institutional and political barriers. Of course, the comment about fast-track legislation is, I think, very timely, because as you know, we are considering such legislation in Washington that I am not sure, and perhaps I can get some assistance from Congressman Maguire, that the fast-track projects, and there are a number of different approaches, really do address this particular type of project.

Beyond that, we feel that the philosophic difference of opinion as to what should be on the fast track, not only the substantive types of projects, but should we be talking about merely expediting the consideration of different requirements, that is, putting some time frames in, that something shall be considered under the Environmental Protection Act in 30 days, 60 days, or whatever, or should we provide for the actual waiving of some substantive requirements?

I am inclined to say that we should not be waiving the substantive requirements, but to a degree those requirements have to be met. Someone making an application, either public or private, should be assured that they will get answers within a reasonable period.

Mr. NICHOLS. First of all, you commented about competition. We have plenty of that already. In fact, on a recent project, there were over 100 sets of specs taken out. So as far as more competition, there is enough there already.

As to what I was referring to on fast tracking, I was thinking more there about the number of permits. On many of those projects, we made an assessment of the number of permits that have to

be obtained. There were anywhere from 60 to 160 and it involves dealing with all kinds of government agencies, both State and Federal.

I understand that in the State of Georgia, and I am not sure of this, that on many different projects, the State has bundled a permit program into one agency and has given time limits, reasonable time limits, on the agency having to react.

The second point I was referring to was the testimony given in Washington by the EPA about the fact that they were publishing a tome on the existing waste and steps that must be taken in order to get one of these projects off the ground. I feel that we all know what the existing approach is. What we need is to find the ways and means to improve that so that instead of sitting around until 1990 or 1995, and cutting down on imported oil, we will be able to do it on a much faster pace. I feel very strongly about the need to fast track these projects to cut down delayed time.

Mr. FLORIO. Let me respond just briefly on two points. One is the tome, and I have seen it, and you are correct, it is a telephone booklike manual. To the degree that we can provide some justification to EPA for this, I have no doubt whatsoever that you have the capability and the competence to expedite these procedures without the need for these manuals.

Unfortunately, many of the public bodies that become involved, and of course you can appreciate that there are differences, whether or not we are going to go public or private, but to the degree that there is a need for public involvement, when the private sector does not care to become involved, there is a need for direction because the level of expertise in some areas is not as high as it could be.

That is not to say that we should not be reducing the requirements and the regulations, but the concept of direction from a higher level of government to provide local municipalities, counties, or regional authorities some assistance, I think, is desirable and justified.

Mr. NICHOLS. I would agree with that. I would like to make one other reference to the fact that we have basically three Government agencies involved here, DOE, the Department of Commerce, and EPA. I question whether they really have a concrete overall strategy that is tied into a timetable. I do not know whether deadlines on this happening or that happening or the other thing happening is necessary, but it seems to me that that would be a very important factor, that these agencies come up with an overall combined coordinated plan and strategy and stick to it and adhere to it so something can be accomplished.

I just have the feeling when I deal with three agencies that it is very difficult to see how something can come out of that that is going to help a great deal quickly.

Mr. FLORIO. Congressman Roe?

Mr. ROE. Thank you, Mr. Chairman.

I really do not have any questions in depth. I think all three of your presentations have been excellent. I do not want to leave you with the thought, or anybody else in here, that I feel big government can solve all of these problems. I think the point that Mr. Nichols made is a very solid one, that the only way to get the

sewage disposal program going in the country is to concentrate it in one way. That is not all perfect, either.

Now, I think we should start talking about the fast track method, about how to get it achieved. So I think you are on the right track. I do appreciate your testimony on the point of view that there are recoverable items here that should not be bulked together. In other words, let us try to get the optimum yield of the refuse material so that we are not wasting and spinning our wheels and everybody is saying, we will burn it and this will be the answer.

I think you have also stressed, all of you, an element of caution based upon the point of view, let us not rush and jump over the fire, or whatever, at the moment, but let us take another good look to find definitely what the optimum yield is. All of that notwithstanding, the fact still remains that if we do not get on the fast track method, if we do not get something done, which is the most frustrating thing for us to do, by the way, in the implementation vis-a-vis the regulations. We make the law, and we know what we said in the law, we know what we meant in the law, but by the time you have to analyze implementing regulations you are practically destroying what the intent of Congress was in the first place.

So, as far as I am concerned, Mr. Chairman, I think that the testimony has been excellent. It has been very helpful, and it has given me some insight into some of the directions we should be going.

Thank you very much.

Mr. FLORIO. Thank you.

Mr. Maguire?

Mr. MAGUIRE. Thank you, Mr. Chairman.

Mr. Nichols, what has impeded the transfer of European technology to the United States? You have been on both sides of the ocean here. Why have we been so slow over here?

Mr. NICHOLS. The first reason is the fact that the United States was prolific in natural resources and fossil fuels. In many of the countries in Europe, the Groningan gas fields of Holland and the North Sea oil are the only real sources of energy other than hydroelectric energy or oil which came from the Ploesti oil fields of Romania.

Therefore, a long, long time ago, the European people, the European countries, particularly Germany and Switzerland, and some of the other countries had to move in these areas and had to move into them fast. As a matter of fact, I have seen figures quoted that 92 percent of the garbage in Switzerland is converted to energy today, which is a pretty astounding figure to me.

Mr. MAGUIRE. Are these pretty sophisticated systems?

Mr. NICHOLS. Yes, they are.

Mr. MAGUIRE. Or are they systems that need to be made more sophisticated for application on a larger scale in the United States?

Mr. NICHOLS. I have just been over there. I only returned 6 weeks ago from Switzerland and Germany, and I saw about six or seven plants. They are extremely sophisticated plants.

In one plant I saw, it was run by a computer. In effect the plant manager can sit there and look and see whether any particular piece of important equipment is down at any given time and where

it is and what corrective action is to be taken is right on the computer.

As far as air pollution controls are concerned, I have seen \$250,000 worth of air pollution control monitoring equipment in the stack of one of these plants, which is fed into the computer. The codes of Germany, for example, are far more strict on air pollution than the United States or the Federal Government here.

Why has it not come about? Well, EPA commissioned a report by the Battella Institute back here about 2 years ago to look into the European technology, maybe 3 years ago. That report was supposed to have been completed last year. It has not been published yet. Now, that report was supposed to look in detail at four or five technologies in Europe. It was supposed to come up with operating statistics, operating data, cost data, and that kind of information, and then that would be passed out to all of the various people and communities in the United States who were asking for information on resource recovery. That report still has never been turned out.

Mr. MAGUIRE. Do you happen to know where the most sophisticated codisposal operations are in Europe?

Mr. NICHOLS. There is only one that I have really seen, and the one that I have seen is the one that we have built in Ingolstadt, which is about 50 kilometers north of Munich in Bavaria. That is a 400-ton-a-day plant for garbage, and it is taking in about 25 to 30 percent sludge on a dry basis over and above that which it is mixing together.

I am sure there may be some others.

Mr. MAGUIRE. You suggest on page 5 of your testimony that all waste water projects in the United States should require feasibility considerations of codisposal in the construction grant process. Two questions. One, how would you get the people, once the feasibility has been determined, to actually act? What requirements should there be?

Second, can you now look at those that are already in the pipeline, like the ones that Congressman Roe earlier mentioned, can you do something now about feasibility of codisposal with respect to those plants which may be in the pipeline but not yet have been constructed?

Mr. NICHOLS. I am not that familiar with the waste water process of how they determine feasibility. I know they write a feasibility report and then that goes on from there, but I would think that they would have to assess from it an overall economic view as to the tradeoffs on the pluses and minuses.

For example, it is interesting in the United States, I am not aware of any place in this country where there is a refuse plant and a sludge plant side by side acting on tradeoffs. This is common in Europe, but it does not exist here for reasons that escape me. It may be political; it may be deciding problems; it may be the industry moves. But I have often wondered why that has not happened.

Mr. ROE. Will the gentleman yield?

Mr. MAGUIRE. Yes.

Mr. ROE. I think Mr. Maguire raises an extraordinarily important point, because I am on that committee. We had an indepth oversight series of hearings on the 201 program where that very issue was brought up. I think what the gentleman from New

Jersey is suggesting is that, and I made a note to myself earlier, we ought to be looking at the parameters and requirements of the 201 section, because if we take into consideration that EPA as the umbrella has the responsibility, then they do not talk to each other, and by following some of the suggestions that Mr. Maguire is making here to amend that legislation and mandate that, at least it would have gotten into the whole mix rather than the point of view of somebody going in one direction here and one direction there.

So, I think you gentlemen raise a very important issue which I intend to look into.

Mr. MAGUIRE. I think that is right. I think that we are just going to have to deal with this directly, legislatively.

Mr. WHITE. Congressman, you are now saying that one technology is better than the other.

Mr. MAGUIRE. No; I am not.

Mr. ROE. No, no. The gentleman has suggested, if I may, that when they prepare the feasibility report, they narrow the dimension down for EPA, and then relate it to the whole cycle of sewage disposal from input to output—DOP reduction of the solid metals and things of that nature. The sludge becomes something, and what do you do with it? We need to find some way to get rid of it.

The whole substance of Mr. Maguire's approach is that it is part of the whole cogeneration. Now, if they are not doing it as a matter of course, which should obviously be done, perhaps it should be so mandated by law.

Mr. MAGUIRE. We are talking about two different problems which might be capable of being solved by the same facility. So it is not that we are picking one technology over another.

Mr. White, I would just like to ask you how your industry would feel about the franchising of larger geographical areas such as was suggested by Commissioner Jacobson earlier.

Mr. WHITE. My feeling and the industry's feeling is, franchising is being done around the country. Franchising has never been addressed here in New Jersey, so there has been no leadership, there has been no plan of what do you mean by franchising. I view franchising in New Jersey as disenfranchising. Someone mentioned earlier, what do you do with the 2,000 collection companies?

Mr. MAGUIRE. But you do not like it?

Mr. WHITE. No, I like competition.

Mr. MAGUIRE. How are we going to get the garbage pulled together in one place to go into these facilities? If you do not like it, what do you suggest we do?

Mr. WHITE. Contract. That is the normal way it is being done with the only viable economical plant operating under the private sector money in the United States today, which is in Saugus, Mass. They contract the waste for that plant by contract. They contract the other side also.

Mr. MAGUIRE. Does it not make more sense from an efficiency point of view to put all of this together at the front end?

Mr. WHITE. I do not think so. First of all, I think waste collection companies are very efficient themselves, private companies are, because that is their business. They very well ought to be, because that is how they make their money.

Mr. MAGUIRE. Why has not your private sector industry been more involved in the development of resource recovery? Is it just irrelevant to what you are doing?

Mr. WHITE. No, it is not irrelevant. Actually, it is an institutional problem that presents the biggest problem today. You talk about right down the line, procurement is a problem. Procurement is typically under competitive field bids to this type of large scale resource recovery. I do not think you are going to get companies to bid like that. I think you are going to have to possibly address this under some kind of negotiating bids. Like in New Jersey, that is the only way that you can do it.

Mr. MAGUIRE. I would only observe that it would seem to me that it might be in the interest of your industry to become more involved in planning for the future along the lines that we have been discussing this morning. Otherwise, you might find yourself out in the cold.

Mr. WHITE. We realize that. That is why we are trying to work with not only the State but the Federal Government and local governments as well.

By the way, 326, the planning districts that have been set up, have industry representatives in every county, at every level, so I have to question some of Commissioner Sheehan's innuendoes about the industry too, about one bidder and all that. That kind of puts us down a little bit. It does not help the relationship, I would say. If there is a problem, let us address that particular problem. But there are people in the industry that are working diligently with the problem.

Mr. MAGUIRE. Thank you, Mr. Chairman.

I have a question for Mr. Snider. Then I will be finished.

Mr. Snider, you talked about municipalities having to meet quotas and therefore putting the newspapers in with everything else in order to meet those quotas. I wanted to ask you whether your statement did not indicate whether in fact there are examples where municipalities have abandoned newspaper recovery in order to meet those resource facility quotas that you mentioned.

Mr. SNIDER. Is the question, is there a specific example?

Mr. MAGUIRE. Yes, has anybody abandoned the separate treatment of newspapers?

Mr. SNIDER. Not yet.

Mr. MAGUIRE. So you are presuming that this may happen in the future, but so far it has not happened?

Mr. SNIDER. The example that I cited there in Dade County I think is the one that is about to impact our company. I think it is very real. We have visited with the Commissioner down there. He has a very real problem. Frankly, we are for recovering energy from the solid waste treatment.

Mr. MAGUIRE. Of course you are, but you have a higher and more sophisticated process which would have certain things separated out.

Mr. SNIDER. Exactly. We simply say if there are recycled materials let us work out the total system. I think we are all really saying the same thing.

Mr. MAGUIRE. What is the situation in Bridgeport? Do they separate newspapers there, or not?

Mr. SNIDER. No, they do not. Of course, Bridgeport is not what I would call a commercially operating unit yet. I think most of us know that they have had some real problems. They had an explosion. They have some problems, and they are working them out. They are engineering, technical problems. I am not putting them down. I am just saying it is a typical large research project that the United States is noted for taking on.

Mr. MAGUIRE. There was a reference earlier to 150 or so programs, presumably voluntary programs, for separating out materials in the State of New Jersey here. Would you comment on the voluntary versus mandatory approach? Mandatory separation, presumably that would be helpful to you, would it not?

Mr. SNIDER. I think it could be. As a matter of fact, we have right in this area 32 municipal contracts, and in fact I am sure our company has been a leader in this area. We have been offered a 25-year contract with a municipality if they wish it. Most of them do not, and we understand that, too, but we will guarantee a price for that paper.

So far this year, from the 20-odd curbside programs here, many of them have mandatory curbside. You must put your paper out and separate it. Montclair is an example, Ridgewood is another example. The paper comes out there very nicely.

The interesting thing is, and we can show statistically that this is true, the voluntary programs increase at the same time. The Boy Scouts, the PTA's, those people who are generating funds, also increase under a mandatory program.

We had some concern, frankly, because we do promote and spend lots of time and so forth encouraging volunteer people to do recycling and we were a little concerned when the municipalities became interested in the mandatory requirement because it might just cut into that, but it has not. Therefore, we see that even that is compatible.

By the way, I might add that the first 6 months I think we got something over 4,000 tons of used newspapers in our mill over here, which represents close to \$100,000 for these municipalities.

Mr. MAGUIRE. Finally, would it be your judgment, and others in your company as well, that higher and higher energy costs are going to make it more and more attractive to use recycled products of various sorts? Is that not a general proposition that everyone would agree with?

Mr. SNIDER. I think that is generally true. Again, I think it has been emphasized, as we have had our discussions here, that one must look at each specific situation. It is true that right here where we are now is the capital, if you will, of the garbage problem, and yet it is also a real potential to go far beyond where we are. Our company's concern is that forces could come about because we are interested now, really interested in energy generation, that we could if we ever decided to put another machine in here or expand our capacity, we might have a problem in getting access to that raw material, not just us, but there are countless companies in this city that depend on that recycling stream.

We say, gentlemen, when we look at it, let us look at the total perspective. That is all we ask. And we will compete for that. We are willing to compete for that resource.

Mr. MAGUIRE. Mr. Nichols?

Mr. NICHOLS. Actually, we have looked recently at separating out the newspaper fraction and the effect on the Btu value of garbage, and it would be very small. Therefore, it would not be a detriment as far as we are concerned. It might produce as much as a couple of Btu's per pound, something like that.

Mr. MAGUIRE. I want to express my gratitude to all of the members of the panel for the testimony and for the work they are doing in this area.

Mr. FLORIO. Congressman Hollenbeck.

Mr. HOLLENBECK. I do not have any questions, Mr. Chairman. I would like to thank the panelists also. Mr. Snider, you testified last year in a similar hearing which we held in Washington, which also was quite informative and worthwhile to my committee, which is concerned basically with technology and research. Thank you.

Mr. FLORIO. Let me express our thanks for your testimony. Please note that if my subcommittee can overcome its apprehensions of being criticized for junketing, we may very well go to see some of those facilities in Europe you made reference to, since we do feel that there is some knowledge to be gained from that.

Gentlemen, thank you very much. Your testimony was very helpful.

This hearing of the Subcommittee on Transportation and Commerce is adjourned.

[The following statements were received for the record:]

STATEMENT OF
ECKARDT C. BECK
REGION II ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON TRANSPORTATION AND COMMERCE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE
U.S. HOUSE OF REPRESENTATIVES

AUGUST 10, 1979

Mr. Chairman, I am appreciative of this opportunity to express my views before this Subcommittee regarding an increasingly important subject: the conversion of municipal solid wastes to energy.

EPA's national policy direction in this matter was previously submitted on July 17, 1979, in the statement of Steffen W. Plehn, the Deputy Assistant Administrator for Solid Waste. I believe, therefore, that any contribution I may make will best be achieved through examining the resource-conservation initiatives and specifics which have either transpired or are in the planning phases within EPA Region II -- New York, New Jersey, Puerto Rico and the Virgin Islands.

At the outset, however, I would like to re-emphasize the need of squeezing both much-needed dollars and energy from the tons of valuable garbage which we now literally throw away in regrettably huge amounts.

The typical pattern of the movement of material goods through the American market place has won us the dubious title, "The Throw-Away Society". But that phrase does little justice to the degree of wastefulness which our lifestyle has come to embrace over the past decades. By estimates which are probably quite conservative, we annually landfill some 48 billion cans, 26 billion bottles and jars, 4 million tons of plastic, 7.6 million television sets, 7 million cars and trucks, and 30 million tons of paper. Adding industrial wastes, the total mass is between 3 to 4 billion tons.

Not only is there no profitable return on this enormous discard, but there is the inherent risk of jeopardizing underground water resources through leachate, gas migration and other deleterious environmental effects. We now pay in excess of \$6 billion per year nationally simply to collect this refuse.

By 1985, that cost could double to \$12 billion, while available sites for burying our society's rubbish continue to diminish.

By stark comparison, it has been frequently pointed out that by burning mixed municipal wastes from larger U.S. urban areas, we could generate energy equal to as much as 400,000 barrels of oil per day, or nearly a third of the projected flow from the Alaskan pipeline -- enough energy to provide lights for all of America's homes and commercial buildings.

These facts are all too well known. The question which immediately confronts us, then, deals with the realistic prospects of tapping the energy reserves in our Nation's wastes.

In this regard, the Subcommittee has asked me to focus my observations on three major aspects of that challenge: 1) what are the technological feasibility and reliability of present refuse-to-energy systems; 2) what are the socio-economic and legal considerations; and 3) what is the Federal Government's effectiveness in administering resource recovery programs.

The feasibility and reliability of refuse-to-energy technology are not simple yes-or-no matters. This may strike those who are familiar with the European experience as a bit puzzling. The technology currently employed abroad -- primarily water-wall mass burners -- would seem amply to affirm the capability of turning waste to watts. Denmark, for instance, successfully converts 60 percent of its garbage to energy. Switzerland converts 40 percent. The Netherlands and Sweden convert 30 percent. Germany converts 20 percent. And England converts 10 percent.

As effective as water-wall mass burners are in turning the contents of garbage cans into kilowatt-hours, they do not incorporate the newer, more experimental means of mechanical front-end separation and recovery of saleable materials.

Saleable materials could figure prominently in the energy conservation equation. For example, a ton of aluminum from virgin ore requires the equivalent of over 30 barrels of oil to process. A ton from recovered aluminum requires about 1 barrel.

Likewise, it takes eight times more energy to mine and produce new copper than to recycle it. Yet, we now throw out three-fifths of our copper, and it is projected that our reserves may run out altogether in 45 years. This means, of course, that the copper in our garbage is worth as much if not more than what little we have left in our mines. The same disturbing shortages are facing us with regard to iron, lead, tungsten, aluminum, nickel, tin and manganese as well.

For this reason, some American manufacturers of refuse-to-energy equipment have chosen to experiment in mechanical front-end separation of resaleable materials, lured by the prospect of obvious advantages over the simpler European systems.

Nationwide, energy production from refuse shows modest growth, although its contribution to national energy needs is still negligibly small. As of January of this year, the United States had five large (greater than 100 tons per day) resource recovery facilities in daily operation, regularly selling an energy product, such as steam or refuse-derived fuel. Of those, three are making refuse-derived fuel, and two are mass burning plants of the water-wall incinerator variety. In addition, two other waterwall incinerators that have been in use since 1972 solely for disposal are now being hooked up to steam markets. Smaller (less than 100 tons per day) shop-fabricated modular combustion units are also available. Four systems have these in continuous use, operating as mass-burners of municipal refuse and selling steam.

Material recovery, for the most part, is still performed to an overwhelming extent by source separation, despite the fact that governmental educational support programs and ordinances promoting source separation are generally lacking nationwide. But that situation is beginning to change.

Today, the mechanical front-end separation methods hold out the promise of turning waste into wealth in heretofore undreamed of ways. But it cannot yet be said they have achieved the level of reliability of the strict water-wall mass burners, whose chief objective is steam or electrical production.

Although existing U.S. facilities, convert only one percent of our wastes to energy, industry expects that within eight years about 17 percent of the Nation's garbage will be recovered in 20 large plants and 50 small ones.

Of the plants now up and running, I would like to describe briefly the capabilities of one -- not because it is the largest such U.S. operation, which it is -- but because it falls within the geographical bounds of my region. It also involves technology more advanced and experimental than mass burning incinerators.

Last spring, through the coordinated efforts of the municipality of Hempstead, L.I., and Parsons & Whittemore, Inc., a refuse-to-energy facility was put into operation with the potential to process 2,000 tons per day of unsorted garbage by mechanically separating ferrous metals, aluminum, and color-sorted glass. What is left is converted into an organic fuel which is burned to generate steam and electricity.

In devouring all garbage from the town's 850,000 residents, the plant hopes to recover 90 percent of the ferrous metals which works out to 40,000 tons of saleable iron and steel in a year. It could also recover 80 percent of all aluminum, or 4,600 tons, and 48 percent of the glass, or 20,000 tons.

But more important, perhaps, is the fact that the Hempstead plant generates 250 million kilowatt-hours of electrical power per year -- enough saleable electricity to meet 20 percent of Hempstead's electrical needs, and roughly the equivalent of saving 450,000 barrels of oil per year. Or put another way, the electrical needs of 50,000 people will be met from their garbage.

But while the Hempstead plant has been operating for some months, its advanced technology still requires the resolution of problems. Engineering problems at the site still remain to be overcome. There are also problems with odor. And problems have been encountered at other operations similar to Hempstead's.

It is important to stress, therefore, that municipalities should not be led to believe that the siting of advanced resource recovery technology within their jurisdictions will be tantamount to a windfall of riches in cheap energy and resaleable ores. Still I believe the technology is ready to enable communities to implement waste-to-energy without assuming unnecessary or unreasonable risks. The technology currently exists that, in the long run analysis, will serve to lighten municipal staggering solid waste management expenses, will serve to prove competitive with alternative methods for generating steam and electricity, and will greatly resolve the problem of shrinking available landfill sites.

Perhaps even more rewarding than the existence of a growing technological know-how are the socio-economic benefits that such technology may potentially bestow on municipalities which seek to use it effectively.

One mechanism to coordinate and wed socio-economic opportunities with energy and capital returns is Authorities. I was privileged through my early work in government with the State of Connecticut to help establish the Connecticut Resource Recovery Authority, which subsequently cleared the way for a refuse-to-energy facility in Bridgeport, Connecticut.

There are many reasons for the establishment of an institution such as an Authority. Resource recovery needs capable management and waste mobilization. Resource recovery economies generally require waste mobilization from multiple political jurisdictions, i.e. solutions must be planned on a regional basis to maximize benefits and effectiveness.

A State, can facilitate the use of waste management agencies or corporations with powers to issue bonds, acquire land, sell recovered energy and materials, and contract with systems suppliers who are ready to build, own and operate recovery facilities.

Also, established Authorities, such as the Port Authority of New York and New Jersey, find themselves in a key position. The Port Authority has received authorization from the States of New York and New Jersey to undertake the development of industrial parks in inner cities by demonstrating their economic attractiveness. Ironically, one of the factors which has always been regarded as contributing to the unattractiveness of the inner city -- garbage -- may come to be construed as an incentive for capital investment. By siting recovery plants next to the resource, in this case garbage, transportation costs are reduced to such a degree that recovered saleable materials become even more competitive with virgin materials. This leads to the startling scenario that inner cities could conceivably become the ore mines of the future at best, and major energy producers at a minimum. Not far from the six core-city locations in New Jersey and New York that the Port Authority has suggested as potential industrial park sites some 40,000 tons of garbage are produced every day. It is entirely likely that we will see several economic interests vying for the rights to process that material.

On August 8, for example, the New York Times reported that "Three agencies are fighting for garbage . . . At issue are plans by the city, the Port Authority of New York and New Jersey, and Urban Development Corporation and Power Authority of the State of New York to build or sponsor plants that will convert garbage into electricity and other forms of energy."

The article went on to add that "Even the less optimistic believe that at the very least, resource recovery is a way of using something New York City has a great deal of." To be precise, New York City produces 44 million pounds of garbage every day.

The prospect of urban revitalization growing out of mounds of garbage is reflected in the President's Urban Policy, which brings me to the third topic -- the Federal Government's effectiveness and role in these matters.

The President's policy made over \$14 million in grants available for resource recovery and source separation development projects in special target areas. In my region, for instance, over \$1 million is currently earmarked for initial phases of work by applicants from the Virgin Islands, NY/NJ Port Authority; NYC Department of Sanitation; Utica, New York; Brookhaven, New York; Mercer County, New Jersey; Westchester County, New York; Camden, New Jersey; Newark, New Jersey; Hackensack, New Jersey; and San Juan, Puerto Rico. As our region's projects mature beyond the initial feasibility study phase they will be eligible for substantially larger amounts of funding. (Region II has also granted Puerto Rico \$789,000 under the Clean Water Act Section 208 funding to develop an island-wide program of residuals management by a new Solid Waste Management Authority created in 1978.)

It should be in my opinion, the role of the Federal Government to attempt to maximize economic, technical, environmental and social benefits from the management of residual wastes. Furthermore, the participation of local and State government and the public in the decision-making process must at all times be respected and provided for.

It is further the role of the Federal Government to encourage the participation of the private sector.

But most of all, the Federal Government must bring together all levels of government with all the facets of the private sector which impact resource recovery. This marriage is a practical, analytical and negotiative process. It is also an essential one.

EPA's principal tools in this Federal process are its regulatory powers and the incentives we may provide, particularly through the funding process for planning efforts.

The Federal Government can be most effective by taking an aggressive leadership role working with State and local government to promote the type of coordinated managerial efforts I have discussed. We have done much already. But it is only a beginning. And I would urge that because essential technology is developed, and because the economic climate is inviting, we at the Federal level do everything in our power to make refuse-to-energy operations a high-ranking national priority. This is the major influence we can bring to bear with greatest effectiveness. Markets and municipal needs will decide the rest.

Thank you.

Testimony Submitted By Beatrice S. Tylutki, Director
Solid Waste Administration, Department of Environmental Protection
To The House of Representatives' Subcommittee
On Transportation and Commerce

The New Jersey Department of Environmental Protection (DEP) has statutory responsibility for supervising and coordinating New Jersey's solid waste management planning and implementation program and has been designated by Governor Byrne as New Jersey's lead agency under the federal Resource Conservation and Recovery Act (RCRA, P.L. 94-580). The Department gratefully acknowledges the opportunity afforded it by this distinguished Subcommittee to provide input into its review of the nation's solid waste management program needs. New Jersey's interest in the federal solid waste management program stems from the fact that each year some 15 million tons of solid wastes are disposed of within the State. This includes both wastes generated within New Jersey and wastes generated outside the State (approximately 3 million tons per year) and brought into New Jersey for disposal. This amount of waste also includes some 1.2 billion gallons and 350,000 tons of liquid and solid chemical and hazardous wastes.

Presently, the bulk of this waste is disposed in some 300 landfills located in New Jersey. Our present disposal methods are simply inadequate! They result in environmental impacts on ground and surface waters and air quality. They prevent the conservation and recovery of valuable materials and energy. And they lack the capacity to meet New Jersey's long-term solid waste disposal needs.

To meet these needs, the New Jersey Legislature and the Governor approved the Solid Waste Management Act (N.J.S.A. 13:1E-1 et seq. as amended by C. 326, Laws of 1975). Among other things, the Act created twenty-two regional Solid Waste Management Districts (the Hackensack Meadowlands District and the State's twenty-one Counties). Each District is under a mandate to formulate and develop a comprehensive solid waste management plan. District plans must meet the following objectives:

1. To protect and enhance environmental quality
 - a. by terminating existing land disposal practices which cannot be upgraded to meet environmental standards,
 - b. by upgrading existing land disposal practices, where feasible, to meet environmental standards, and/or
 - c. by providing alternative services and facilities that are capable of meeting environmental standards.
2. To conserve natural resources
 - a. by encouraging waste reduction, and
 - b. by employing the maximum practicable use of resource recovery, including low and high technology material and energy recovery systems.

Twelve of these twenty-two District plans have, following public input, been formally adopted by the appropriate District Governing Body (Board of Chosen Freeholders in County Districts and the Hackensack Meadowlands District) and are

now undergoing State level review. The other District Plans are scheduled for adoption within the next six months.

Mercer County's Plan, for example, centers around a resource recovery program which would have a significant part of the County's waste hauled to an energy recovery facility. The facility would provide energy (steam) to Homosote, a company that manufactures paper board products. Also planned is a county-wide newspaper source separation program which will provide newsprint to Homosote as a raw material input. As another example, Gloucester County is exploring the possibility of a co-disposal system whereby waste water treatment sludges and a portion of the solid waste stream would be combusted to generate electricity. The electricity would be used to operate the County's regional sewage treatment plant. It should be noted that annual electric charges to operate the treatment plant run in excess of \$500,000. One final example, the Hackensack Meadowlands Development Commission's Plan provides for the operation of an energy resource recovery facility capable of converting 2,500 tons per day of solid waste into a refuse derived fuel (RDF). The RDF will be purchased by a New Jersey utility (Public Service Electric and Gas) and used as a fuel to generate electricity.

Following State level review of these District Plans, the Commissioner of the Department of Environmental Protection (OEP) is empowered to approve, reject or require that modifications be made to them. In order to ensure implementation, the Act mandates that all solid waste management services within the District must be in conformance with the approved District Plan. The DEP will not approve any operating permits that are not in conformance with the plan.

Clearly New Jersey, with its dwindling available landfill capacity, its need for environmental protection and its need to conserve valuable natural resources, must recover the material and energy resources found in its solid waste stream. Each year, for example, New Jersey's solid waste stream contains an estimated 600,000 tons of iron and steel, 30,000 tons of aluminum, nearly 500,000 tons of glass, 4 million tons of paper and an energy value of some 5 billion kilowatt hours.

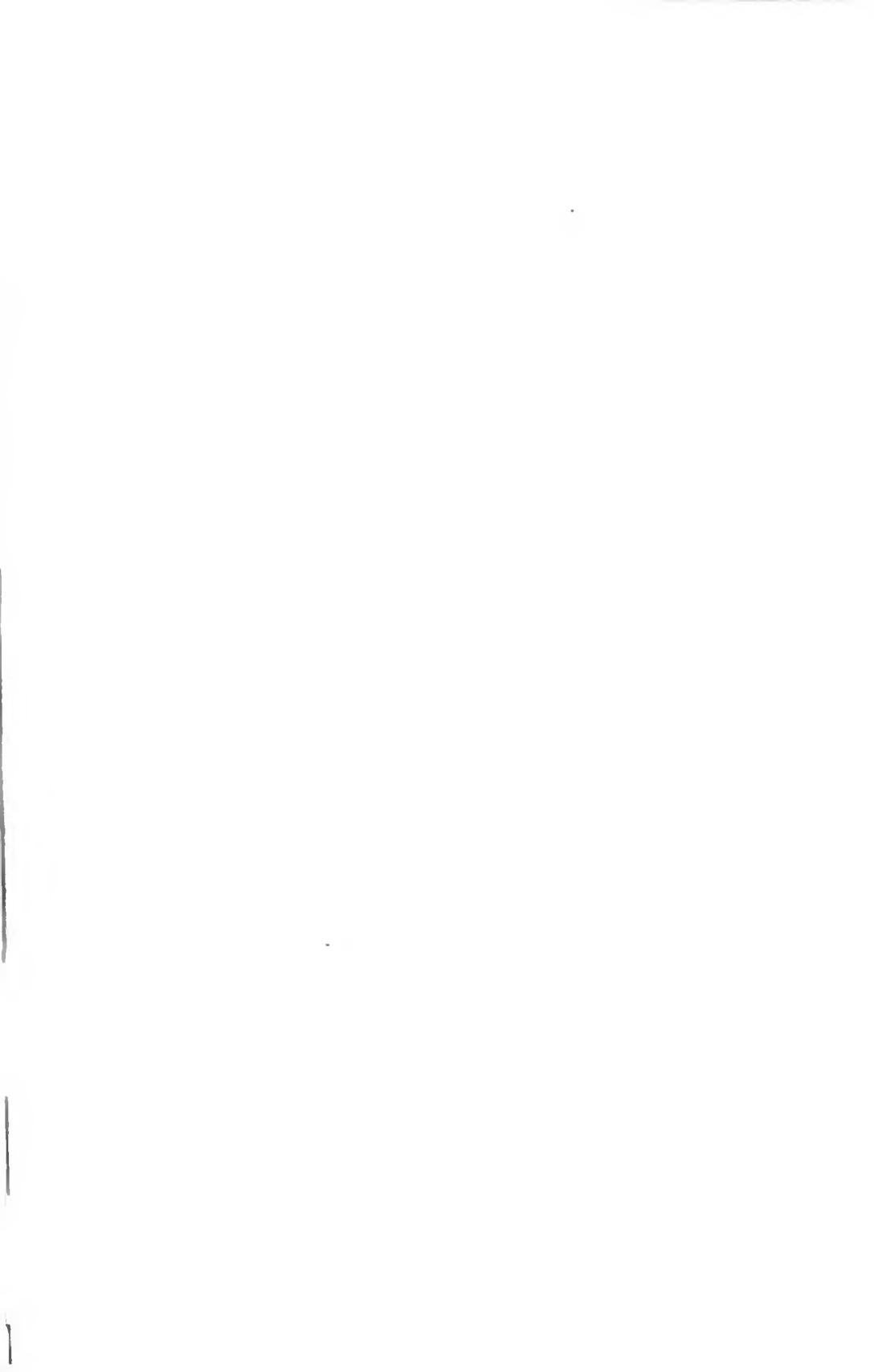
As the adopted plans cited above indicate, New Jersey is moving to recover these resources and to preserve environmental quality. This effort has been assisted with planning and program development grants awarded to the State under RCRA and, most recently, under the President's Urban Policy Resource Recovery Grant Program.

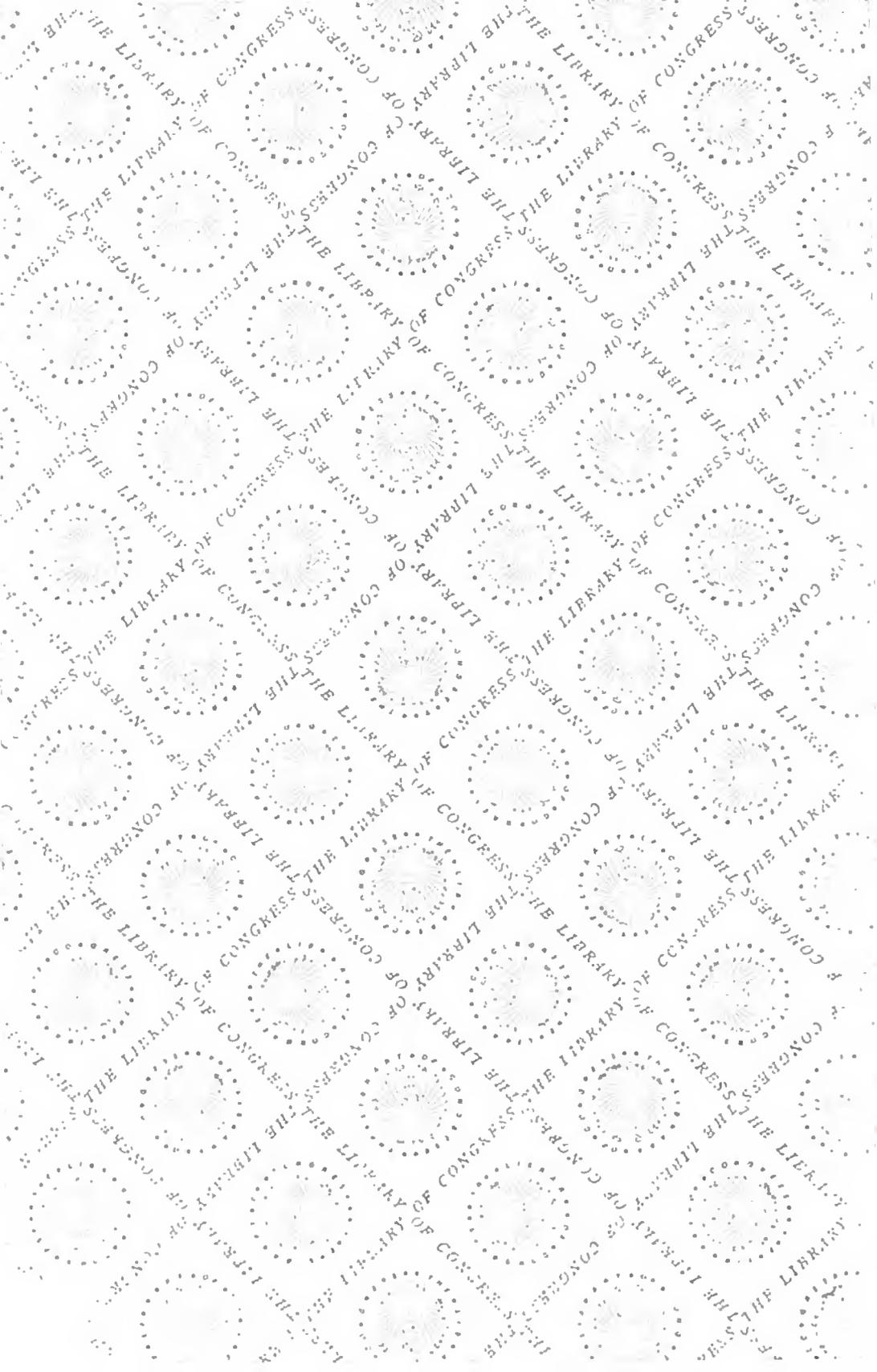
Much more is needed, however. For example, markets for recovered materials and energy must be firmly obtained; technology, particularly in the area of high technology material separation and recovery, must be further developed and refined; implementing agencies must be identified that are capable of capturing the waste stream, providing environmentally sound disposal services, and, at a reasonable price, recover the material and energy fraction. Finally, sufficient capital must be generated to finance the construction of these resource recovery facilities.

Concerning the capital financing of these facilities, the federal and state governments must provide incentives such as tax credits, loan guarantees, and direct loans and grants to stimulate facility planning and development by both public and private sectors. The OEP recommends that Congress stimulate this development with appropriate economic incentives.

The State of New Jersey looks forward to continued support of its solid waste management/resource recovery program by the federal government. Working in partnership, government and private industry can turn an environmental liability (our solid wastes) into an asset (energy and material recovery).

[Whereupon, at 12:35 p.m., the subcommittee adjourned.]








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