774

ENERGY CONSERVATION IN MASSACHUSETTS

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

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MONDAY, NOVEMBER 17, 1975

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CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON ENERGY
OF THE JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:45 a.m., in Waltham City Hall, Waltham, Mass., Hon. Edward M. Kennedy (chairman of the subcommittee) presiding.

Present: Senator Kennedy.

Also present: John Stewart, subcommittee staff member.

OPENING STATEMENT OF CHAIRMAN KENNEDY

Chairman KENNEDY. The subcommittee will come to order.

Before getting started, I want to take the opportunity to express my very warm sense of appreciation to the mayor and to the town officials here for being kind enough for making this facility available to us and to the Senate subcommittee. We appreciate very much their hospitality and their kindness in working and cooperating with us today.

And I do also want to thank many of our witnesses for being with us this morning, particularly Roger Sant who is the Assistant Administrator for Conservation and Environment of the FEA. He came all the way across the country last night on a "red-eye special" to New York and then up on a shuttle here this morning. And we really very much appreciate the fact of his special efforts. I think it's a very clear indication of the seriousness with which he is approaching this particular problem and his own commitment to it. I think all of us who recognize the enormous potential in the area of conservation, both as a Member of the Congress and I think all of us, the citizens of our State, appreciate this kind of dedication to the public interest.

This is a hearing of the Subcommittee on Energy of the congressional Joint Economic Committee. The Energy Subcommittee was established this past summer to provide a focal point for the Joint Economic Committee's continuing evaluation of the economic effects of the Nation's energy problems and to provide policy recommendations on energy for consideration by Congress.

As chairman of this new subcommittee, I believe it is essential for Congress to hear the views of Massachusetts citizens. We face the most difficult energy problems in the Nation. And we have been most inventive in dealing with these problems.

No one living in Massachusetts has any doubt whatever about the impact of energy prices on our economy.

Last year, Massachusetts consumers were paying about 35 percent more for energy than consumers in other parts of the United States. Over the past 2 years, the cost of home heating oil is up more than 100 percent, gasoline is up nearly 100 percent, and industrial fuel oil is up about 400 percent.

For many people these prices are breaking family budgets already stretched by inflation and unemployment. So it is distressing that President Ford has done everything possible to drive these energy prices still higher. He imposed a $2 per barrel tariff on imported oil; and when Congress disapproved the tariff, he vetoed the legislation. He advocated decontrol of domestic oil and natural gas prices. He proposed a $2 per barrel excise tax on domestic petroleum.

Some of you may recall that last February I chaired a public hearing in Boston on the projected impact of the energy program proposed by President Ford in his state of the Union message. At that time we heard compelling testimony from Governor Dukakis, from private citizens, from labor leaders, from business and industry leaders on the disastrous economic effects that would occur if President Ford's energy program was enacted. And I pointed out that the President's energy program would turn a serious economic illness into a fatal one. And I promised to do everything in my power to see that the President's program did not become law.

For the past 9 months, a majority of Democrats in Congress have been working to pass an alternative to President Ford's program. It has not been an easy job. Time and again, we have sent energy legislation to the White House, only to have it vetoed. On more than one occasion, the President has turned aside Democratic efforts to reach a compromise on energy matters. In each instance, the President has demanded that Congress agree to his program of higher energy prices.

So when President Ford accuses Congress of not enacting a national energy policy, he is really saying that Congress flatly refused to buy his program. And he usually fails to mention his vetoes of the energy legislation that Congress has passed.

Today it is possible to see the benefits of Congress standing firm and not going along with an energy program we knew was wrong. This week Congress will put the finishing touches on a comprehensive energy bill that retains price controls on domestic oil for the next 40 months and that rolls back oil prices during this period of high unemployment and inflation. Instead of paying more for gasoline and home heating oil in the months ahead, you will be paying about 1 to 2 cents a gallon less.

The legislation also imposes mandatory fuel efficiency standards on new automobiles. It requires that all new home appliances carry labels spelling out their energy efficiency. And it provides for a strategic petroleum reserve to be used in the event of another oil embargo, including home heating and residual fuel oil reserves as a result of the amendment I introduced and that was adopted.

Much more remains to be done. But we can say with certainty that Americans, especially those of low and moderate income, are far better off under the energy program written by Congress than under any of President Ford's earlier proposals.

I know that all of us await with considerable interest President Ford's decision on whether he will sign this legislation. Should he

decide to veto this bill, as he has so many others, the present oil price controls will expire, and we will be faced with immediate and steep increases in the cost of fuel oil and gasoline.

The congressional energy program is an important step in the right direction. It will bring some short-term relief for all consumers. But energy prices will still be high and many families will still be hard pressed to make ends meet. We must continue to do all we can to help individuals and businesses reduce their total energy bill.

That is what we plan to explore at the subcommittee hearing this morning—ways that Americans can reduce their consumption of energy without inflicting further damage on our shaky economic recovery.

Massachusetts residents are already setting an example for the rest of the country in energy conservation. The consumption of home heating oil in Massachusetts has been reduced about 35 percent below expected levels. Gasoline consumption in Massachusetts has been reduced by 4.9 percent, while it has risen 2.5 percent nationally. Electric power consumption in New England decreased by 2 percent last year, compared to a normal increase of 7 percent.

While this progress in reducing fuel consumption is encouraging, it cannot hide the fact that the Ford administration's high-price energy program continues to impose the harshest economic sacrifices on citizens least able to bear them. And it cannot hide the fact that the Federal Government should be working more effectively with State governments, local governments, business and industry, and private citizens in lowering their energy bills by helping them reduce the amount of energy they consume.

We are fortunate to have with us this morning the Director of the Federal Government's conservation program, Roger Sant of the Federal Energy Administration. We hope Mr. Sant will tell us how we can help him do a more effective job in achieving a hard-hitting energy conservation program for Massachusetts and the rest of the Nation.

And when we are talking about energy conservation, there is an additional point to bear in mind. Energy conservation is the cheapest, fastest, and the most environmentally safe way to increase our domestic supply of energy. In other words, one way to expand our domestic supply is to reduce consumption. Of course, we must work to develop new sources of energy in the United States. But it only makes sense to work just as hard to find ways of using the energy we already have more efficiently.

We know that much more can be accomplished in implementing a national energy conservation program. The International Energy Agency recently ranked the United States near the bottom of all industrial countries in the effectiveness of its energy conservation program. In fact, three nations—West Germany, Sweden and Denmark—have higher per capita incomes than the United States, yet each of these countries uses only 40 to 50 percent of the per capita energy we use. Project Independence studies show that about 30 percent of our American energy consumption could be eliminated without significantly affecting life styles or reducing industrial output.

To my view, the administration has not made a satisfactory commitment to achieving significant levels of conservation. The adminis-

tration's deeds have not matched its words. Budget levels for conservation programs have lagged far behind budget levels for supply development programs.

We hope we can do better. And more to the point, I know we must do better. It is my hope that today's hearing will dramatize not only the dimensions of the energy problem we still face in Massachusetts, but also point the way to better answers that will bring economic relief to the citizens of Massachusetts and the Nation.

I understand we have some groups here. We have some high school students here who are with us today. We want to extend our welcome to them.

We have got a full morning here. We'll open the hearing with a panel of local citizens who will describe the impact of high energy prices on various facets of life in this section of Massachusetts. We want to welcome his honor, Arthur J. Clark, major of Waltham, who has been successful in reelection. He is going to tell us about the effect of high fuel and energy costs on the city services and city budget. Other participants on the panel include Mrs. Florence Leyland, a resident of Waltham; Mr. Gregory Adamian, president of Bentley College; Mr. Randall P. Cameron, chairman of the board of Waltham Hospital; and Mr. Anthony LaCava, president of Paino-LaCava Realty Trust. And, let's see, yes, we have several others. Mrs. Hill and Mr. Turco.

STATEMENT OF HON. ARTHUR J. CLARK, MAYOR, WALTHAM, MASS.

Mayor CLARK. Thank you, Senator. Let me assure you the city of Waltham considers it a privilege to host this subcommittee hearing. It goes without saying that all present here recognize the tremendous importance of the Subcommittee on Energy in its role as a fact-finding unit for the Joint Economic Committee.

The increased cost of energy and its debilitating effect on all of consumerism is of great concern to me as mayor of this city. It is a matter of record that all elements of our society are suffering under the weight of the energy problem. It has affected Waltham's industry, its business center, its hospital, its educational community, and, of course, its citizens, particularly the working poor and the elderly.

Senator, because you have always personally shown great concern for the welfare of our elderly as an example, I will briefly speak of their sorrowful plight and the impact that this energy nightmare has had upon them.

Today, as you know, there are more than 22 million Americans who are 65 years of age or over. In Waltham alone, there are over 6,500 persons in this age bracket. Indeed, many of them are justified in their anger of this nightmarish situation. Having struggled hard through wars, depression, conflict, all to make this country what it is today—or perhaps I should say what they had hoped it would be—yet, in their twilight years, when they should be enjoying the fruits of their labor, they are instead being subjected to the worst conditions of their lives, worst because there is so very little, if anything, they can do about it.

Inflation has hit the elderly hardest due to the fact that in the majority of cases, they are living on fixed incomes. When the value of their fixed income starts to drop, they have no place to turn to make

up their loss. Inflation has indeed struck hardest at the basic necessities of their lives—food, maintenance of their homes, medical costs and power—things on which the elderly spend most of their income. As a result, belt-tightening for the elderly means just what it implies. Too many cases can be documented where an elderly person has been forced to decide to cut his or her monthly budget for food in order to pay for the rising costs of fuel needed to heat his or her modest home.

They ask what has happened? Is this the way of life I made so many sacrifices for?

Senator, the answer is, the wave of inflation that is staggering this great country of ours was, in my opinion, generated and is still being nurtured by our dependence on foreign oil. Let's look at the revenue from oil sales that is accruing to the Mideastern countries. In 1973, their revenue on oil was $15 billion. Two years later now in the year 1975, their revenues are $90 billion. And then projecting to the year 1980, their revenues will reach $180 billion.

To avoid this continued rape of our country by OPEC nations, yes, and by our own producers, we must immediately develop conservation programs and energy-producing mechanisms. Conservation of energy is vital, and all three levels of Government must act as one in developing our conservation programs.

But conservation alone will not solve the problem. If this country, this city, is to survive, we must become less dependent on Mideast oil and develop our own energy resources. We must as a country and within our own jurisdiction produce adequate amounts of fuel to generate electric power to provide and to serve other industrial and domestic needs. We must have a tri-level governmental program that will assure us that sufficient energy is being generated at all times to support our total needs.

Senator, the respected Nobel Prize winner, Mr. Hans Bett, has said:

> The energy crisis is not a matter of a year or two but of decades. It is the new and predominant fact of life in industrial societies. No one person or interest can solve this problem alone. It cannot be solved in Washington. It can only be solved by united commitment on the national, on the State and on the local level. For either we shall fail separately or survive together.

Senator, this subcommittee hearing being conducted in Waltham indicates that you recognize this very important point. And once again, I appreciate deeply your willingness to hold this hearing in Waltham.

I have touched only briefly on the total problem. The distinguished speakers that will appear this morning will go into more depth on energy costs and energy conservation.

Senator, at this time, I would like to introduce to you as chairman of the panel Mrs. Florence Leyland who will speak about the problems she is suffering under as a result of the energy crisis. Mrs. Leyland.

STATEMENT OF FLORENCE LEYLAND, RESIDENT, WALTHAM, MASS.

Mrs. LEYLAND. Thank you. I am here today in hopes that some way I can find a way to find myself. The price of oil, the price of electricity, and the price of gas, living on a fixed income, is almost like a nightmare. I try to shop and to take care of things, and I have always been pretty good at figuring. But somehow or other, my figuring is not so good these days. I can't seem to figure. There is nothing to figure with.

When you're on a fixed income, you have so much money, and you have to pay your bills, and you say HOW? How out of this money can I do it? So you take and you go around, and you say to yourself, "I have to run the oil down lower, put more clothes on." So at least I can be comfortable in my home.

In cooking I say, well, don't turn on the oven. If I can pot-roast something, it will cost less money on my gas. And then the electricity, put smaller bulbs in so that your electric light bill will come within a decent range. But still it's in the $30 and $34 range for 2 months.

Last year between Sept. of 1974 to September of this year, 1975, my oil bill was $550.

Chairman KENNEDY. How big a place were you heating?

Mrs. LEYLAND. A 6-room house, and they are not too big rooms. It's a bungalow. It's not a big home.

Chairman KENNEDY. You live there by yourself?

Mrs. LEYLAND. My son lives with me. My husband is dead, and I have lived there since 1930.

Chairman KENNEDY. You now receive social security, is that right?

Mrs. LEYLAND. Yes. My husband worked for Raytheon until his death. His pension ended right there. Even to the extent that he died on the 31st of May, and I had to return the whole pension—nothing for the 30 days that he lived. I had to return the whole check. So there is only the social security that I receive.

Chairman KENNEDY. And you have to with that, pay both the taxes on the house?

Mrs. LEYLAND. Yes. And then, of course, I do get that $350 rebate, see, for senior citizens that they give, see. And that makes quite a difference when you get that. But you have to pay your taxes; and then, of course, taxes have gone up and up and up because they have to. And then everything up and up and up, and you just wonder—wonder how you're going to be able to carry on. How?

Chairman KENNEDY. What have you found in terms of where you keep your thermostat now?

Mrs. LEYLAND. Well, I find that during the daytime when I'm working, I figure 68. And then at night when I sit down, 70. And then I take and put an extra sweater on or something so that I won't bring it up any more. I can't go around with thin clothes on because the rooms aren't warm enough.

Chairman KENNEDY. I see you have got some of your fuel bills there.

Mrs. LEYLAND. Yes.

Chairman KENNEDY. Have they been going up and up, even when you——

Mrs. LEYLAND. Now they're up to 40, I think it's 41 cents. The last one is 41 cents a gallon.

Chairman KENNEDY. For home heating oil?

Mrs. LEYLAND. Yes, for home heating oil.

Chairman KENNEDY. And even with the steps that you have taken to reduce the amount of home heating oil you have been using, have you found that your bills have still been increasing?

Mrs. LEYLAND. Still increasing, yes.

Chairman KENNEDY. How much of your total budget goes for fuel oil or electricity?

Mrs. LEYLAND. Now, I have brought here electric bills for 1975, 1974, 1973, and 1972. Is that what you're interested in?

Chairman KENNEDY. Yes. Why don't you tell us that first.

Mrs. LEYLAND. Now, what I have bills of, one, two, three, four——

Chairman KENNEDY. Are all those bills in front of you now your fuel bills?

Mrs. LEYLAND. There's gas, electric and fuel, three different ones. This is for gas. This is for the fuel. Now, I haven't got every bill. But start with 1970, it was $280 for that year. In 1971 it was $276. In 1972 was $329.64. And I haven't got all of 1973—I have only four of the bills, they total $310.49—and for 1974, $512. For 1975 you wouldn't have the whole year. The only thing I had was from September of 1974 to September of 1975, which is $550.

Chairman KENNEDY. Now, that's just about doubled in maybe 2½ years, has it not?

Mrs. LEYLAND. Yes.

Chairman KENNEDY. Your fuel bill has just about doubled?

Mrs. LEYLAND. Yes.

Chairman KENNEDY. Has your social security check doubled in that period of time?

Mrs. LEYLAND. No.

Chairman KENNEDY. So what has this meant? Does this mean that you have less money for food and for other——

Mrs. LEYLAND. Less money for food. When I go into the store, I can't say can I get some nice hamburger. I have to get almost the least expensive there is in the counter, regardless of 28 percent fat. I still have to get it. Because I have to pay for things I get; and if I haven't got any more money to pay, I have to buy what's there.

Chairman KENNEDY. How much more can you really turn your thermostat down? It doesn't seem to me that you really can, can you?

Mrs. LEYLAND. I can't because at my age, I don't have the circulation that a young person would have. And so I would be very cold if I tried to decrease it any.

Chairman KENNEDY. Do you find that in talking with your friends, that they're faced with this similar kind of problem?

Mrs. LEYLAND. They are faced with the same circumstances.

Chairman KENNEDY. Do you have any insulation for your house?

Mrs. LEYLAND. Very little, to the best of my knowledge.

Chairman KENNEDY. How about any windows, storm windows?

Mrs. LEYLAND. No, I haven't been able to get them. I have to use the old-fashion storm windows.

Chairman KENNEDY. But I suppose if there was some way or means that you could be able to get some more insulation or storm windows—I don't know how you could get it out of your present budget now.

Mrs. LEYLAND. I couldn't.

Chairman KENNEDY. But if there were some way or means in which storm windows could be available to you, I would imagine you would use it; would you not?

Mrs. LEYLAND. I would use it to do that.

Chairman KENNEDY. To help you save on your bill as well.

Mrs. LEYLAND. Yes.

Chairman KENNEDY. OK. Very fine. Well, we appreciate your sharing this experience. I think that you do speak for hundreds of thousands of people of our State who have been dependent upon social security for their livelihood and have seen the enormous increases in fuel and also in food, the items that have gone up most

significantly in the period of the recent past, the last 2 to 3 years, as well as health costs. And it just seems to me, I don't know what more anyone should expect you to do. You have turned your thermostat down. You're living on an extremely tight budget in terms of your food.

How many times a week can you buy meat, other than hamburger?

Mrs. LEYLAND. Well, sometimes I look: and then if they have placed meat aside that is a day old and then they reduce the price, then I can buy probably a little piece of steak. I would say not the best but a poorer grade. Because at one time, I could go into the store and buy what I wanted. But I no longer can. For quite a while now I haven't been able to do that. I look at the things. I pick them up, and I put them down. And most all of us on this income, we have to take and plan on a Saturday night going over to the Stop & Shop over here near the overhead bridge. And they mark the pastries and bread and everything down to half price. So we all go Saturday night to see what we can buy to have something for the week to live on. And that does help an awful lot.

Chairman KENNEDY. Well, those are choices I think that people in the most powerful, in many respects the richest country in the world, shouldn't have to make. And I think that that's, you know, really a fierce indictment of the system. Certainly we have to do better to treat our elderly people and make those kind of decisions and choices.

Mayor CLARK. Senator, I would like to now introduce Mrs. Millie Cericola, one of our Waltham housewives. And she can talk a little bit about her problems. Mrs. Cericola.

STATEMENT OF MILLIE CERICOLA, HOUSEWIFE, WALTHAM, MASS.

Mrs. CERICOLA. A lot of what I had intended to say has already been said here, but maybe I can offer a few more things. I happen to belong to what you call today the low- to middle-income family. We do have eight children. We are a homeowner here in Waltham. Things are very bad. And we are doing all we can to manage. I have talked to hundreds of people in the same position as I find myself, and we all have the same complaints.

Now, I read in Saturday's paper that the U.S. oil industry has been subject to price controls since August of 1971. However, going over some of my bills—and I haven't brought them here, they are stacked that high—in 1973, I was paying per gallon of home fuel oil 27.4 cents per gallon. Now, controls were supposed to have been in existence since 1971. I couldn't go that far back. This October—last month—I was paying 41.9 cents per gallon.

Now, if price controls have been in effect, how can it be explained to me that my oil costs per gallon has gone up 50 percent?

And then I notice hidden costs that are passed on to us. If we are paying $75 for our electric bill, $25 of that goes for cost of fuel.

Now, what I have in mind is will the day come that when I go to the market to do my food shopping and spend $100 dollars for food, are they going to tack on $10 for their cost of fuel? Because if my cost of fuel has steadily risen 50 percent—almost 100 percent—then every single item which we have to consume as consumers has to be accounted for somewhere. And I'm afraid that some day, no matter

what we buy or where we have to go, hospital, church, schools, will they add on this cost of fuel to us?

I actually feel that today, women on a fixed income like myself—and I don't call myself a housewife, I call myself a homemaker, and believe me, I'm working every single day trying to make ends meet and stretching that dollar, and I'm shopping wisely. And I want to bring up this question of conserving energy. Maybe in the end we may be conserving energy, but I don't see that we're saving any money. And I'll give you a for-instance. Five years ago, I had all eight children at home. My family consisted of 10 people for whom I was responsible. When I say "I." I mean my husband, he's out working, and I'm managing the household. We had 10 people at home using energy. Today I have three children at home. That means my family has been cut in half. And we are now using every means of conserving energy that we find available. Even chopping wood, using the fireplace daily as soon as the cold weather sets in. We do have marvelous insulation. We do have storm windows. We have put the thermostat down by 3 to 4 degrees. And we do wear heavy sweaters.

But that is not a sacrifice for us young people to make. Florence Leyland has a point. It's very difficult for the old people to have to live this way. And when I make complaints, I'm not taking into consideration the fact that there are people worse off than ourselves. Hundreds and hundreds of families that I have spoken to, women like myself, the main topic of conversation today isn't life, liberty, and the pursuit of happiness. It's life, liberty, and the pursuit of trying to balance the budget and make ends meet. And it's no joke. Things are really tough. There was a time when the bills would come in. And once a month like perhaps everybody else in businesses we would sit down, and we could almost take care of the bills as they came in. I think we have reached a point today where if we can allot a very small portion each month to these bills to keep them in the process of being paid, we're doing something. But that isn't enough. Because sooner or later, everything catches up to us; and we're going to be in a terrible predicament.

I find also that gasoline costs are really digging into the family budget. A car is no longer a luxury. I find it a tremendous necessity. When I go shopping, I'm like Florence Leyland. I've got coupons stashed in every finger, and I'm shopping here and there and everywhere else trying to save a couple of dollars just to balance the budget. And if a woman is not a genius or has a computer brain today, it's almost impossible to get by. I'm talking for families like myself. We're on a fixed income. Years ago, people looked down on jobs of fixed incomes or Civil Service jobs because our husbands weren't making that much. However, today, we feel that the security and the weeks pay coming in, the benefits, we are glad we have them.

And I have raised eight children. I have a daughter—two daughters that attended college—one four years and is teaching here in Waltham, and one that attended 2½ years. And at that time, with 10 people to support on half my husband's salary, and not really making efforts to economize as far as consuming fuel was concerned, we were managing and getting by. And to be honest, I was like the average homemaker. I could squeeze out a dollar for myself every week. But I find, though, today, with half the family, twice the salary and really

squeezing on economizing fuel and tightening the belt—And to go along with Florence Leyland, we really, have to be wise and smart shoppers today, and a car is not a luxury. It is a necessity just to get by because we have to go from place to place where they have the good buys. I say that when it ends up costing twice as much to support half the size family that I was supporting as short a time ago as 5 years back, then something's got to be wrong and something's got to give.

I sincerely am glad, Senator, that you and your subcommittee have seen fit to take an interest in us poor little people because, not meaning to be offensive to anyone here, sometimes I wonder if people that have never had to worry about where the next dollar was coming from really can understand what people like Florence Leyland and many others and myself are going through. Trying to keep body and soul together and raise our families with dignity, which is what the United States of America is all about, especially in this year of the Bicentennial, I feel it's so very important. We do not want anything for nothing. We want the opportunity to raise and support our families in dignity.

Thank you.

Chairman KENNEDY. Thank you very much. A very good statement. I might mention just a couple of things in response. As you might have seen in the papers this morning, another subcommittee that I have been chairman of, the Administrative Practices and Procedure Subcommittee, which tries to review the various procedures that are being followed and regulations that are being issued by the other agencies of government, found that there was some close to $300 million in overcharges by the major oil companies to consumers. And this, of course, may very well be just the tip of the iceberg where people are being asked to pay more than they should. And that's something we're working on to try and demand that that doesn't take place; or if it has taken place, try to get some rebates to people.

The second thing is in terms of the increase of the costs, see when we had the controls on prices, that was only for domestic oil. It didn't apply to foreign oil. And the increases that you saw were really as a result of the enormous increase in the overseas oil. But the thing that is terribly important for you to understand is that those increases which you have experienced would have either been significantly more, perhaps even double, if there was no price control whatsoever, if we eliminated any kind of controls. And that's one of the reasons that I and others in the Congress have been strongly opposed to the administration's suggestion that we eliminate any kind of price controls.

I think you have asked a good question. They say well, Senator, we have got cost control and price control, and still our fuel bills have gone up. And why does this happen? But this has been, as I mentioned, even though we controlled the domestic, we didn't control the foreign. And that makes about one-third of our total fuel amounts. And with the enormous increase in overseas fuel, it's reflected itself in almost a doubling of the cost for the consumer. But that would have been significantly higher if we didn't have the controls that we had in the first place.

Now, the one thing that I'll mention to you is that in the compromise energy bill that has been agreed to by the House and Senate, this will actually, if the President signs it, mean a reduction of about

1 or 2 cents a gallon in home heating oil as well as in gasoline for about 18 months. So that's something we're very hopeful that the President will sign. We're obviously going to do everything we can to get the President to sign that. But that should provide some immediate kind of relief. But I thought I would just make those comments. We want to keep moving.

Mayor CLARK. Thank you, Senator. The next man with us this morning is the chairman of the board of Waltham Hospital, Mr. Randall Cameron, and he will explain a little bit about the problems affecting the hospital as far as energy is concerned.

STATEMENT OF RANDALL CAMERON, CHAIRMAN OF THE BOARD, WALTHAM HOSPITAL, WALTHAM, MASS.

Mr. CAMERON. Thank you very much, Mr. Mayor, Senator. At my request, Mr. Farrell, the comptroller of the hospital, developed the cost study relative to energy that the hospital has faced. Going back to fiscal 1972, which would cover the period October 1, 1971, to September 30, 1972, for example, in the area of electricity, the costs incurred by the Waltham Hospital with no bed expansion, we're talking a comparable institution, was $80,000 $79,566 to be exact. Last year, the period ending September 30, 1975, was $220,000. The cumulative increase over that period of time amounted to $140,989.

Now, we both know that increases are affected by two factors—the volume you have used and the cost of it. By equating out the volume, we come up with an actual price change of over $100,000 for the cost of electricity alone.

In the item of natural gas in fiscal 1972, we used $4,000 worth of natural gas, using 22,000 cubic feet. 19,000 cubic feet cost us $6,000 3 years later.

In the area of fuel oil, the most significant changes take place. In fiscal 1972, we used 10,000 barrels of fuel oil costing us $48,000. In fiscal 1975, the period ending September 30, we used 13,000, a 30-percent increase in total usage at a cost of $177,488, approximately five times the cost.

Now, the greatest change in our cost of fuel oil during the fiscal 1974 with an 18-percent increase in usage, our costs were increased 138.6 percent.

Now, Mrs. Cericola wonders what happens when institutions such as the Waltham Hospital or others incur these costs, how does it affect the patient? Energy costs to our hospital roughly are 2 percent of our total significant costs. They are not the big major item, as you can well imagine, labor costs and medicines are. But energy has cost the patient at the Waltham Hospital $2.43. The increases, just the increases—not the basic costs of heating the institution or of treating, running the electricity, running the X-ray department or its power factors—just the increase, results in a cost of $2.43 to the patient. When you're dealing with a $100 a day room, perhaps you can look at a 2-percent change as not being significant, but it is. It is significant. And if we could constantly reduce our costs year after year by factors of 2 percent, then I think we would be being praised rather than chastised for the structure of rates that we have.

Another factor that bothers me personally is that if the Waltham Hospital trustees in their wisdom chose to buy a $100,000 piece of equipment, we would have to petition the State—the Massachusetts Hospital Control Cost and Finance Board. We would have hearings before the A agencies, the B agencies. We would go through probably two or three different sets of public hearings and ultimately be awarded the right to purchase the equipment or denied it. But yet here we have two instances, both in the area of electricity and in the area of fuel oil, where we have spent increases well over the $100,000 figure and, really, no hearings, no problems.

Energy is a cost factor in the hospital. And, Mrs. Cericola, you are paying it.

Thank you, Senator.

Chairman KENNEDY. OK.

Mayor CLARK. Thank you, Randy. Senator, I would like now to present Mrs. Hill representing the board of directors of the Massachusetts Federation of Nursing Homes.

STATEMENT OF DOROTHY S. HILL, REPRESENTING THE BOARD OF DIRECTORS, MASSACHUSETTS FEDERATION OF NURSING HOMES

Mrs. HILL. Thank you, Mayor Clark, Senator. High aspiring energy costs are hurting our outlay. The United States, the greatest country in the world, is not treating its elderly fairly. In fact, it is seriously hurting what was once its greatest asset. Today's elderly work long and hard to make this a great United States of America, and how are we rewarding them? Those living on fixed incomes after a lifetime of productivity, fixed incomes which by today's standards are barely at the poverty level in a great many cases, cannot afford both high energy costs and food for the table.

At a time in their lives when warmth and food are about their only comforts, they are being asked to choose one and forgo the other. This is not much of a reward for a lifetime of working and saving for what they hoped would be their comfortable years.

Those elderly living in nursing homes are not untouched by indecently high energy costs. Because State and Federal regulations require that temperatures be maintained at a certain acceptable level and that lights burn 24 hours a day in specified areas of their homes, the nursing homes are hard pressed to economize on energy use. These requirements raise the consumption of energy and also the cost. Nursing homeowners have no choice but to reflect these higher costs in their rates.

Inasmuch as 80 percent of nursing home residents in the State of Massachusetts are medicaid recipients, the taxpayers of the State eventually pay these high rates in the form of increased taxes.

The Commonwealth is supported by taxes from the workers of today who are the elderly of tomorrow. And if we have no more to offer them in their later years than we are offering their parents and grandparents, there is not much hope for any of us.

Energy costs, electricity, fuel and gas have skyrocketed in New England. A recent survey of a representative number of nursing homes in the Massachusetts area show that 1975 annualized costs over 1971, costs have jumped 57 percent for electricity, 84 percent for gas, and

155 percent for fuel costs. These increases exceed by far any adjustments to income realized by the elderly in the past 5 years. Nursing home residents cannot help but be somewhat aware of the increased costs to maintain them. Thus creating a mental burden to them, along with the physical impairments that necessitate their being nursing home residents.

Families who keep their elderly relatives at home with them also have the problem of keeping up with these energy costs in their own homes, along with supporting through taxes those in nursing homes. The elderly who live alone are forgotten members of society when it comes to seeing that they can afford the necessities of life on meager fixed incomes. When the necessities are being priced beyond their capacity to pay, what is luxury?

Thank you, Senator.

Chairman KENNEDY. Thank you very much.

Mayor CLARK. Thank you very much, Mrs. Hill. I would like now, Senator, to ask Mr. Anthony Turco, corporate attorney for one of our larger office parks in this area, to discuss briefly the problems they are encountering as a result of the energy.

STATEMENT OF ANTHONY TURCO, CORPORATE ATTORNEY, PAINO-LaCAVA REALTY TRUST, WALTHAM, MASS.

Mr. TURCO. Thank you, Mayor Clark, Senator Kennedy. Paino-LaCava Realty Trust is the owner and manager of commercial real estate and apartment dwellings in the city of Waltham. The area in which the office space is located is an area that is directly affected by the energy, due to the fact that it's located on the 128 Belt; and access to and from these office complexes necessitated the use of an automobile. There is just no other way to get to the area by any other means.

Primarily, the space is leased to national companies who use this area as regional or district offices for this part of the country. And since the energy crisis has commenced, there has been a noticeable change in the attitudes of these companies toward maintaining their offices. As far as the energy cost is concerned, utilizing 1972 as a base year on a comparative analysis basis, all of the buildings, all of the office buildings are totally electric. They are all electric buildings, air-conditioning, heating, and lighting. The heating and air-conditioning on a cost per kilowatt hour was increased by a total of approximately 114 percent of 1972 to the end of 1974 in a prorated use for 1975. The lighting per kilowatt hour has increased—not the use—the cost has increased by in excess of 70 percent, utilizing the same base year of 1972.

The apartments operate under a method of heating which is gas heated. The gas heat crisis hasn't really hit this area; but even at this point, without the projected and forecasted increases on the cost of natural gas, that from the 1972 base year to date on a prorated basis, the cost has increased by almost 80 percent at this point.

The net economic effect of the increase of costs of energy could not be directly passed on to the tenant because the increased cost of rental would be too much for any commerical or private tenant to absorb. Therefore, a conservation program was implemented during this

period, and a concerted effort was made to see what could be done to conserve the amount of energy that was required and used in the operation of these buildings. A reduction in use of power was achieved through a reduction of the hours of operation for lighting, heating and air-conditioning. In effect, during the summer months when the air-conditioning is a necessity, the units and the systems are closed down. They are watched on a daily basis and shut down entirely on evenings, holidays, and weekends. During the winter months when the heat is required, it cannot be turned down as much; but it is turned down as much as possible on weekends, holidays, and evenings in order to conserve that amount. In addition to that, an alternate lighting system has been implemented whereby rather than using every light in a common corridor, every other light is turned down, so it's an elimination and substitution of a lighting factor to reduce the cost. In addition, all of the tenants in the buildings have been notified, an educational program in effect has been requested and implemented whereby they are notified that when a machine is not in use, please turn it off. When a light is not required, please turn it off and this will assist everybody in conserving the energy.

Despite the fact that this positive plan was implemented by reducing the use of electricity, the costs have gone up by approximately 114 percent, and the use was reduced by approximately 25 percent. The two, as you can well see, do not equate each other. By the reduction in the use of 25 percent, they did not save at least that amount. It went approximately five times in excess of that. The net effect of this crisis in this area in the New England region has meant that the national companies are taking a second look as to the necessity of operating regional offices in this area. The companies cannot do without their salesmen having the use of automobiles, and they cannot do without the sales offices having a minimum budget to operate on.

Therefore, it has been seen within this period of time that these companies have reassessed their need to have these offices, and we have found that a definite factor is that all of these companies are in effect either turning down the need for increased office space or cutting down on the staff, either sales or administrative forces required in this area. There are even specific instances where companies have closed down their offices. Yet because of contractual obligations, continue to pay for the leased space because of the lease contract.

In conclusion, therefore, the suggested solutions that we feel in the business area could help the New England area as far as the energy factor is concerned is that perhaps a hydroelectric system can be viewed, offshore oil drilling may be of some assistance, the use of solid waste material for the production of energy—all methods whereby the energy output could be supplemented.

We feel some positive action is required to reach this status of independence for the production of energy and energy resources. There must be a balance between the environmental factors and the need for energy. Yet, we all must equally recognize that projected needs for energy will not decrease or diminish. Therefore, it is apparent that having assessed the impact that the development of the commonly known resources would have on the ecological standards, then an approach must be taken to produce enough energy through these resources so that it will be effective ecologically for the New England area. Thank you.

Mayor CLARK. Senator, we have with us as our next witness a man who is no stranger to you or to most people here; Mr. Gregory Adamian, president of Bentley College.

STATEMENT OF GREGORY ADAMIAN, PRESIDENT, BENTLEY COLLEGE, WALTHAM, MASS.

Mr. ADAMIAN. Thank you very much, Mr. Mayor, Senator Kennedy. I am very pleased to have this opportunity to present some information to you and the subcommittee regarding energy conservation as it applies to Bentley College.

Bentley is the 8th largest of 87 independent colleges in this Commonwealth, with undergraduate and graduate enrollments of 4,800 full and part time; 4,000 of whom are Massachusetts residents. We moved to Waltham in 1968 to a beautiful 102 acre campus. At that time, economists and engineers and others indicated that the most economical heating and cooling source would be electricity, particularly where we were constructing new buildings. Therefore, our campus of 23 buildings is all electric, except for two small structures that were on the original site.

And our electric bill this year will be almost $500,000. Since 1971, cost increases over 4 years in the basic rate alone were $96,000 basic rate. More shocking, however, fuel adjustment charges since their inception have cost the college $503,000, in addition to the basic charges. That's a 500 percent greater change than the base rate.

In relative terms, the increase in fuel adjustment charges have risen from zero in 1970 to 22 percent of the total energy bill in 1972, to 56.6 percent of the total energy bill in 1975.

Obviously, Senator, these increases in energy costs are reflected in higher tuitions which are already at too burdensome levels. Fortunately, in the last 5 years, Bentley has experienced an increase in enrollment of about 40 percent. Had our growth stabilized or even just increased the 8 percent national rate for independent colleges, the impact on higher costs would have been impossible to accept.

Naturally, as a college specializing in accounting and business administration, we have applied the principles of what we teach and what we preach in the classroom to the problem of energy conservation. We have for over 2 years followed a policy of reducing corridor lighting, lowering thermostats, turning off lights in empty rooms and similar measures which have kept our basic consumption about the same in the last 3 years, despite the addition of several new buildings.

We estimate that conservation efforts have decreased our consumption of kilowatts by 20 percent. Yet, despite these efforts, we seem to be losing the battle as fuel adjustment costs escalate at an alarming rate.

Consequently, this month, on November 1, the Bentley College board of trustees voted the expenditure of $180,000 for the purchase of a special computer designed to control heating and cooling more efficiently, reducing usage in unused areas, shutting off the system in each room intermittently and regulating peak loads. We estimate retrieval of the total cost of this system over 2 years through reduced electric bills. Furthermore, in the next 10 days or within the next

10 days, the college will be filing with ERDA, the Energy Research and Development Administration, a proposal for a solar domestic hot water heating system for our gymnasium integrated with the existing electrical system. The total cost of this project is $188,000, but will provide 70 percent of the hot water used in that particular building. With an 8-percent inflation factor for energy cost, it is estimated that $110,000 of that $188,000 will be recovered in 10 years; $340,000 will be recovered in 20 years.

May I respectfully suggest to this subcommittee, Senator, that we need to balance our research efforts in two directions through energy conservation, as you suggested when you opened this panel, as well as new energy sources. And that a combination of Federal Government grants and low interest loans to finance conservation projects and make them economically feasible in the long term would contribute very significantly to the solution of national energy problems.

Thank you.

Chairman KENNEDY. Thank you.

Mayor CLARK. Thank you very much, Mr. Adamian.

Chairman KENNEDY. Well, that's very interesting, and I think that's a good conclusion for the panel, the stressing of the importance of incentives that can be provided by ERDA and FEA and by the Congress to institutions, hopefully to individuals, to homeowners and to other groups in our society so that we're getting a greater effort in the areas of conservation. Because as we are going to hear from our next witness, the dramatic resources that are being developed now for alternative sources of energy make the amount that is actually being allocated in the areas of conservation really very, very marginal. And so we're delighted to move with our next witness. But I want to thank the panel here that's given us a very clear idea as to what the increased costs have been in terms of individual family budgets, which I think was very, very helpful. Probably not much of a surprise because we hear about it, I do, in terms of letters or conversations I have with people, and what it's meant in terms of health care costs, what it's meant in terms of business and business opportunities, the difference it's made to the city and what it's meant to a great educational institution here which I'm very familiar with, Bentley College. And the idea that they are moving and practicing what they are preaching is indeed a very encouraging factor in this area of conservation. So we're delighted to have you, Mr. Adamian. Again, it's good to be with you.

Mayor CLARK. Thank you panel very much. I guess we can recess now as a panel, and I think the next speaker will be Mr. Sant.

[Panel excused.]

Chairman KENNEDY. We want to thank you. As I mentioned in my opening remarks, you have made a very special effort to be with us here this morning; and we want to thank you for doing it. And, as I say, I think it's a very clear indication of the importance that you put on your responsibilities. And we're terribly interested in hearing what's being done at the present time, what you think can be done and should be done and what we in the Congress can do to help make your job easier. And I think to the extent that you talk about some of the things that are taking place in the agencies that can be of some help to the people that have talked here and, you know, what should our role be in the Congress in trying to help and

assist you, whether it's Mrs. Leyland or the others who have spoken here. Why don't you proceed.

STATEMENT OF HON. ROGER W. SANT, ASSISTANT ADMINISTRATOR FOR CONSERVATION AND ENVIRONMENT, FEDERAL ENERGY ADMINISTRATION

Mr. SANT. Thank you very much. I'll summarize as quickly as I can some of these programs. I am so delighted that a Senator of your prominence would hold a special hearing on energy conservation, and I would be happy to come from anywhere to attend.

As we look at energy conservation today, as the administration and I think many others are looking at energy conservation as just an alternate source of energy, indeed it's just a new supply source for energy and has many of the same attributes as looking for new sources. And therefore each thing that we look at in terms of conserving energy really has a cost per barrel or cost per gallon that can be equated with some of the new things that we're looking at. Because the major energy problem that we face is to replace the domestic and foreign oil and gas with other sources. As we run out of domestic oil and gas, which we are inevitably going to do, and it's only a matter of time, we are replacing energy that's costing us between $2 and $6 per barrel with other replacements which are going to cost about $15 or $20 per barrel. And I have been moved, as you have, by the plight of our citizenry now. And I find throughout the country, regardless of the politics of the current debate on energy prices, inevitably energy is going to cost us more. There is no way for us to avoid that problem ultimately, except through conservation.

When we equate some of the opportunities for conservation with new energy supplies, instead of them costing us $15 to $20 per barrel, as some of those new energy sources would appear to, new improvements in autos seem to work out at about $2 per barrel, or even substantially lower. Company van-pool programs work out to $1.50 to $2 a barrel equivalent. Ceiling insulation in homes works out to about $5 a barrel. Industrial conservation may be $4 to $8.

Chairman KENNEDY. What do you mean by equating these to the cost of the barrels? Maybe you could explain that to us?

Mr. SANT. Let's say if we have a ceiling job in a home, on an average in America, if we put in a good ceiling job which say is 6 to 8 inches of insulation, it saves the equivalent of about seven barrels of oil a year. When we add up all of those savings and divide them into the cost of putting the insulation in in the first place, it only costs us like $5 a barrel. Well, that works out to about the equivalent of 12 cents a gallon, compared to what people are paying 41 cents for fuel oil right now.

And so it's clear that we have to get more ceiling insulation because that's just an alternate source of energy. So everyone in their own home can in effect go out and drill for oil by putting in ceiling insulation, if you'll accept that analogy.

So we ought to compare those opportunities from the economic point of view—not from an ethical point of view or moral point of view. It just makes good business sense for us to be replacing energy with energy substitutes like insulation. And that's what this is all

about. There are probably 40 million homes in this country that don't have adequate insulation. Well, if we look at it from that point of view, the current situation, it looks like there is a potential of about 30 and 35 percent reduction in our energy use that we could take in this country without having any impact on our quality of life. But the major barrier, Senator, in my mind, is lack of information. There are no institutions in place to cause this information to get to the homeowner. I would even believe that some of the panelists this morning would find further opportunities if we could get experts to their homes to analyze the kinds of leaks that are taking place in their home and save further amounts of energy without changing thermostat settings.

The role of Federal, State and local governments then is to get more information to citizens—not only citizens living in homes, but citizens occupying commercial office buildings and industrial plants and transportation systems as well. And that will take some mandatory measures, some legislative measures as well as some voluntary measures.

I think the mandatory measures, like building standards which have been adopted in this State and we hope will be adopted federally; and the voluntary measures I mean by seminars and questionnaires are another way of getting information to people.

So given that, I would like to review quickly what the Federal Government has done and assess where we can go from here. So far we have done very little on the mandatory side. The only thing that we have done is passed the 55-miles-per-hour speed limit. The Federal Government, I am proud to say, has saved 28 percent of its energy bill by what we might call mandatory measures, but it's just been a conserted effort to try to save in all factors of Federal Government. However, there is a lot in progress.

You mentioned the conferees coming to some conclusion last week. And, as you know, we at FEA have recommended to the President that he sign that bill. But it has a lot in it besides the pricing mechanism. You mentioned auto efficiency standards. According to that bill, we would improve the auto efficiency by double by 1985. There are appliance standards which would call for a 25 percent improvement in 5 years. The industrial goals program which would allow us to set goals for the 10 largest energy industries. There are substantial grants provided for for State programs to carry out good programs such as have been started here in Massachusetts which would require mandatory lighting and thermostat settings.

I was just noticing in this fine building that when the lights are on, we probably don't need those lights. We probably don't need a lot of lights in most public buildings in this country. And we haven't really gotten around to reducing those.

There would be a number of other provisions, but $150 million is in that bill to allow States to carry out further programs. Other legislation is in progress. The Senate Banking Committee is considering House passed building standards and subsidies for low income families to provide free insulation, free storm windows, free thermo improvements for people who are low and fixed income like many of the people here this morning. It's been a long time trying to get that legislation through. The House, unfortunately, passed the building standards

without any mandatory features, which I think was very unwise. And I'm hoping that the Senate can show leadership in putting those back in the form of mandatory standards.

The Senate Finance Committee is considering now a 30 percent tax credit for all improvements to the residential community for all things such as ceiling insulation and storm windows, etc. If all of these programs were passed—and there really seems to be very little disagreement about whether they should be passed, they just have not been passed—this country could be proud to have one of the finest energy conservation programs in the world. And it's time that we get all of those through.

Now, in addition, there is a strong need to increase the information. We in FEA have totaled up the Federal programs, and they come to about 20 existing programs to do that. But they are all at a very small level. The major seven programs that we have going are as follows: We have a questionnaire program that we think can get to 2 million homeowners. It would provide specific suggestions to those 2 million homeowners as to how they can improve the energy use in their homes. There are 50 million homes that we ultimately should get to. We have made some direct office calls and held seminars so that we have contacted about 6,000 building owners just to show them the simple things that can be done that have not yet been done. We have set established goals with the ten largest energy using industries and have contacted in the order of 500 of the largest industrial firms and set programs and reported all on a voluntary basis. We have had seminars to urge companies to adopt van-pooling programs, but still at a very small level.

We have 10 programs now to study rate adjustments so that we could perhaps go to a time of day metering idea, so that the consumer might have the opportunity to cut down on his electrical use during the day when the peak requirements are the highest and use at night when we could provide a much lower electrical rate.

We have had some public service advertising which is all voluntary on the part of the radio stations and TV stations. Unfortunately, we don't hear that very often in the prime time. They come on just before the 2:00 o'clock signoff maybe.

We have had some programs of State support. A State-Federal program has been worked out with not very much funding. The long and short of that is that we have many programs in place that have been tested and tried. It's now time to expand those to the whole country, and we have proposed to the Appropriations Committees of the House and the Senate to do that.

The Senate Appropriations Committee is considering that request now. It's approximately $80 million against a $20 million budget last year. And we are hoping to get favorable action.

I think that concludes this summary of what I would like to say, Mr. Chairman; and I would be happy to answer any questions that you have.

Chairman KENNEDY. Well, thank you very much. As you mentioned, part of the problem is the question of information and education, as well as the areas of research. What now in terms of the allocations of resources of taxpayers' funds, what goes into developing new alternative sources of energy and what goes into areas of conservation, just roughly?

Mr. SANT. Roughly, Senator, as the budget now stands, I think about $1.8 billion is spent on energy in the Federal budget. Of that, approximately $80 million would be spent on energy conservation. So a little less than 5 cents on the dollar.

Chairman KENNEDY. And I would think that most of the Members of Congress, most Americans, would support the $1.8 billion that's being spent on the development of alternative sources of energy, recognizing the need. But this $80 million is woefully inadequate, I would think, in terms of the kind of opportunity that you have spelled out here. Should we increase the percentage of that $1.8 billion that's being spent on conservation, or should we appropriate additional moneys to the area of conservation which over any period of time I suppose will reflect itself as being seen in the savings that we can achieve?

Mr. SANT. I certainly feel there are two places where we can increase. Right now we have proposed, as I indicated, a substantial increase in our budget so that we could get information programs we have available out to the country as a whole. Not just in small segments. That program would call for about a $65 million increase. As you know, there is also the legislation in process which would add to that; and I think those programs would be adequate, if they are approved by the Appropriation Committees, to expand the program as it should.

The second area that ought to be considered is in the area of financial aid to people who want to make investments but cannot make them economically viable at the present time. It is similar to putting an esthetic gas plan in place. Right now the economics don't justify it, but as a country we need it. As you know, the President has proposed the "Energy Independence Authority" which would include both conservation kinds of assistance as well as our new supplies. And that's one method that we can look at as a means of increasing those things. Anything we can save, of course, in industrial usage translates itself into savings for the consumer. Because as long as we have these rising costs to look forward to, the longer we can postpone the need for those higher cost energies, the lower we are going to keep our consumer fuel bills.

Chairman KENNEDY. Now, what can we tell the Mrs. Leylands of the world, where there are people who are living on social security hard-pressed now in terms of their own budget, having to make the kinds of tough decisions and choices in terms of what they can even buy and I think enormously depressed by, you know, the hard choices and hard decisions that she's having to make. But what really can be done for her? The homeowner that has a limited income, hard-pressed because of the economic problems that we're facing at the current time? You know, what should be we doing in the Congress and what should the administration be doing to try to help them?

Mr. SANT. Well, there is only one major program that's been proposed, and that is to provide free insulation and free improvement, both with donated labor and with free materials for that class of consumer. We think that would be one of the major helps that we can provide in that we find——

Chairman KENNEDY. Where is that program?

Mr. SANT. That program has currently been passed by the House as being considered by the Senate Banking Committee. And we hope will be passed within the next several weeks.

Chairman KENNEDY. What's the scope of it?

Mr. SANT. It calls for $55 million in the first year, equal amounts in the second and third year with a review of that program to see its adequacy. It's proposed that there be about 4 or 5 million homeowners in that category, and it would allow for roughly a $100 improvement for each of those homes. Now, that may not be adequate, but it would sure be a good start. And we could expand that if we found we could.

Chairman KENNEDY. What is the status of "Project Conserve," the computerized effort to inform homeowners of the cost of insulating and weatherproofing their home?

Mr. SANT. Mr. Chairman, let me make one second point on your previous question, and then I'll answer that. It seems to me that there is a question of income transfer associated with that question. That is, people in higher incomes tend to use substantially more energy than people on lower incomes. One of the proposals that's been talked about has been really proposed by the President that there would be a tax placed on energy use but a rebate made across the board such that the rebate would cover the average user of energy and, in fact, provide an additional income for the lower income people. I believe that program has a great deal of merit and ought to be studied. For instance, say the average fuel use in this country may turn out to be the equivalent of 1,000 gallons of oil a year, including automobiles, if we could set up a tax such that we would provide enough rebate to the person to cover that average use and then only severely penalize the people who use more than average, we might have a way of accommodating an income transfer along the lines that you're suggesting. And it may be one of the better social programs we could take care of, because it's clear that the lower income people have been more than disadvantaged by this situation.

Now, the "Project Conserve" that you——

Chairman KENNEDY. Well, could you use that money that comes back in rebates in this area of conservation? I mean, in insulation, for example?

Mr. SANT. We could. In fact, part of it could be in tax credits to people who do insulate. I believe, however, we already have a proposal for a 30-percent tax credit that, if the Senate would pass at this point, we could put in place even if we don't add any taxes, that is, that bill would provide for a $150 tax credit for a person putting $500 of improvements into his home. And I think if we did that, we could stimulate a lot of further improvements in a person's home that are not now stimulated.

Chairman KENNEDY. Has the administration sent the rebate up to the Congress?

Mr. SANT. The President initially proposed along with his tariff and decontrol and windfall profits tax, a method of rebating that total take. There is something like $30 billion that would have been collected in higher taxes. And he proposed that all of that $30 billion be refunded or rebated to the consumer. The schedule that the President proposed was not as flat as I have indicated. But there was no problem within our administration of accepting the sort of flat rebate. So that if we took the $30 billion, if that was the number, and divided it by the 50 million households in this country or the 70 million households in this country and rebated it across the board, I think we might have a

way of looking at this redistribution along the lines that you have talked about.

Chairman KENNEDY. Of course, you're going to find out that people are going to pay a good deal more for that oil and gas when you had the decontrol program, too. And I'm not so sure that they would be willing to think that—their fear of the certainty of increases, I think, far outweighs the assuredness of getting that rebate.

Mr. SANT. I'm sure that's been the hangup on it. If we leave the decontrol question out of it for just a moment and just say it was a flat Federal tax which was thought to—it's in effect a rationing program so that you are penalizing the people who use more than the rationed amount—we might have the basis for handling the particularly disadvantaged people out of this energy situation, particularly when I personally can see no hope for anything but higher prices in the future. We just don't have any low-priced sources any more.

Chairman KENNEDY. Did we talk about "Project Conserve"?

Mr. SANT. Now, let me indicate that right now we have enough funding to be able to get that questionnaire, which is just a 30-question questionnaire, when filled out, provides enough information for us to give a computer printout to anyone providing us with information such that we can go down the whole array of energy saving opportunities that are available in that person's home. It gives the cost, it gives the savings, it gives the payback—all of those things. We have enough funds now to provide that questionnaire to about 2 million homeowners. We have just sent out a request from the States to make proposals as to which States would like to do that first. We hope that Massachusetts will be one of those States making a proposal to us to use those funds. We do believe that ultimately we ought to get to all 50 million homeowners in the United States.

Chairman KENNEDY. What would that do for Mrs. Leyland now?

Mr. SANT. Well, I was sitting in the back. I'm not sure who Mrs. Leyland was.

Chairman KENNEDY. She's one of those 50 million people.

Mr. SANT. One of those 50 million people. The questionnaire would come back and it would say—after she had checked off the answers, she would provide us with how much insulation she has in her ceilings and walls and whether or not she has storm windows and so forth, the construction of her home, the size of it and so forth. If we got that information, we could come back to Mrs. Leyland and say:

> If you put 6 inches more insulation in your attic, it will save you x dollars per year, given the present fuel oil costs in your area. If you put 12 inches of insulation, it will save you this much more, and it would be a pay-back of this much. If you put storm windows on your home, it would cost you this much, and your savings would be this much. If you turned down your thermostat at night to 60 degrees, this is how much it would save.

It would give a whole list of the opportunities that seem to be available based on the information she's provided us.

And, as you know, a questionnaire doesn't make that totally accurate, compared to a good engineer surveying. But we think it's the cheapest way to provide the general information to every homeowner. And if we had a tax credit to—let's say it came from you as the Senator in this State, or the congressman or the mayor, could provide that and say: "In addition, 'Mrs. Home Owner', that 30-percent tax credit is

available for any insulation you put in," I believe we might make a real step toward getting more homes insulated. We have tried it now in about five cities. We have had roughly a 20-percent response rate, and about half of those people have done something. And we just think it's not even important from a national standpoint. It's important for those individual homeowners.

Chairman KENNEDY. OK. Well, I want to thank you. I know you probably have to get back to Washington. But we have some rather interesting speakers, if you do have time, you can listen. We have Mr. Lee who is the director of the Massachusetts Energy Policy Office. And then there are some rather interesting local conservation efforts being done by some of the business people here, and I'm familiar with a couple of the programs that are very interesting. I don't know what your time program is, but if you could swing it——

Mr. SANT. I'm going to stay as long as I can. I have read the testimony of Henry Lee, and I don't agree with some of it; but for the most part, I agree. And I think we can do a lot together.

Thank you very much.

Chairman KENNEDY. Thank you very, very much.

Mr. Lee, would you proceed.

STATEMENT OF HENRY LEE, DIRECTOR, MASSACHUSETTS ENERGY POLICY OFFICE

Mr. LEE. Senator, I am pleased to have the opportunity to appear here this morning. I think that Mrs. Leyland's remarks probably more poignantly stated what the energy problem is than any I can make here this morning. What I would like to do is summarize its philosophy.

It is very fitting that you hold this hearing here in New England, for we in this region feel that we can justifiably be proud of our record in conserving energy. However, Senator, I must admit to you that we sometimes feel we are alone in our commitment. Last year, we in New England had a conservation rate of close to 20 percent, while the national average was in the neighborhood of 4 percent. While we in State government have attempted to promote aggressive conservation programs, we see the present administration relying almost entirely on programs to expand energy production to solve the energy dilemma. Very simply, Mr. Chairman, it is difficult to establish effective energy conservation programs when our national leaders look upon such programs as window dressing. You only have to look at where the money in FEA and ERDA is going to see where their priorities are.

I believe it an embarrassment that when the International Energy Agency did its study on energy conservation programs, this country came in fourth from the bottom.

In the time allotted to me this morning, I would like to tell you briefly what we in Massachusetts are trying to do and to make several suggestions as to what actions the Federal Government might take in addition to those actions contained in the omnibus bill.

The Commonwealth of Massachusetts is in the process of implementing an extensive energy conservation program. Let me outline its key elements.

First of all, we have a strong conservation program in State buildings; and we think that the Commonwealth should set an example for

its citizens. Our goal is a 20 percent reduction in energy costs, and this will be accomplished by an awareness program for State employees, careful monitoring of energy consumption in each building, and judicious capital improvements. Public Technology, Inc., has completed a survey of State buildings last spring and has now been hired to do an extensive study of our energy use in three prototype buildings in Greenfield, Worcester, and Charlestown.

We also have a Massachusetts State Building Code Commission to go in effect on January first, and it's one of three in the Nation. The other two States being Minnesota and California. Studies of this code indicate that it can be very effective in cutting energy use in new buildings. But even more significantly, it is also anticipated that the code may very well lower initial construction costs, as well as operating costs, for new buildings. This casts serious doubts on the myth that energy efficiency in buildings will result in higher initial costs.

In the area of transportation, the Commonwealth, with the assistance of the U.S. Department of Transportation, has initiated a statewide carpooling program. The goal of this program is a 25 percent reduction in the use of single passenger commuter cars. We are also seriously exploring the possibility of van-pooling programs.

The commitment of Massachusetts to mass transit is well known, and the Dukakis administration has made improvements in the MBTA and other commuter services a high priority.

A comprehensive solid waste disposal plan for the State has been formulated; and we are optimistic about the potential for solid waste energy facilities, either producing electricity, steam, or fuel.

The State is providing in-depth assistance to city and town officials to help them reduce energy consumption in municipal operations. And I have here a guide that will be sent out this week to all the cities and towns in the Commonwealth which I will leave with Mr. Stewart of your staff.

But I would say, and I'll come back to this a little later, that we're not doing an adequate job because we don't have adequate amount of funds here.

At the residential level, the State's community action agencies are assisting low-income families in winterizing homes. In addition, public awareness and information programs, such as the "energy savings month" program, are currently underway. Appliance labeling regulations are now in effect in Massachusetts for air-conditioners, refrigerators, and freezers to help consumers make more knowledgeable choices when buying appliances.

We are proud of our programs, but we are not satisfied. More must be done.

The commercial sector uses 20 percent of the energy in this State. Yet, its conservation record is poor.

When I say the commercial sector, it usually connotates retailers. It goes a lot further. We're talking about office buildings. We're talking about hospitals and every area in the nonindustrial and nonresidential sector.

The recycling of waste crankcase oil has great potential. Either reprocessing or burning of waste oil could reduce energy demands.

Thousands of homes in the State have inadequate thermal insulation. The waste of energy by households is tremendous and causes unneces-

sary expenses to families. Public housing projects often face insolvency because of extraordinary fuel and electricity costs.

We have heard this morning in your opening remarks about the adequacy or inadequacy of Federal funding. And without going into depth that I have in the prepared remarks, I would say that I support them very strongly. And sometimes we feel we are very alone here in Massachusetts with many putting a very high priority on energy conservation. In fact, making energy conservation the cornerstone of our energy policy, while in the Federal Government, we feel very often it is made nothing more than a window dressing or a frill on what is really the major part of the Federal energy program, which is to enhance production of existing and alternative sources of fuel.

The energy problem is not temporary, nor is it artificially induced. This State, this region, and this country are facing the most difficult decade of their history. The 1970's and 1980's will be a period of high energy prices—no matter what we do. Our only recourse is energy saving and energy efficiency. Failure to conserve will result in millions of dollars flowing out of the State and National economies, away from areas that mean employment and opportunity for our people.

Energy conservation is not synonymous with deprivation. In fact, just the opposite is true. Saving energy means saving money. For a household, this means more cash for other activities. For a business, this means higher profits. For the State in general, this means more jobs and more income for our citizens.

While these two messages are essential, they must be combined with specific programs to assist the public in saving energy. We in the States are doing what we can, but there must be a coherent national effort.

We have noticed that the Ford administration's concern for conservation programs is less than enthusiastic. OMB's paring of the FEA supplemental conservation package totally ignores any commitment to energy savings. Funds are needed for outreach, education, and implementation of specific projects. We would urge that full funding be appropriated in these areas.

Within the FEA, we have noticed a disturbing tendency toward centralization of conservation programs. Regional FEA offices are given little latitude to experiment or respond to the needs of specific States.

Conservation is one area in which State participation is crucial, and running programs out of Washington will result in little success. Massachusetts has had a very good working relationship with the regional FEA conservation division, but the effectiveness of our relationship is severely hampered by the lack of initiative allowed the regional office. I would propose a special discretionary fund for the regional offices for State-Federal conservation efforts so that money and effort can be directed at specific local problems.

In another area, we note that the Department of Commerce has allocated remarkably little money from the title X program to energy-related areas. Conservation projects are excellent opportunities for unemployed workers. We hope that in the future, the Department of Commerce will give greater priority to title X energy conservation proposals.

The Energy Research and Development Administration finally seems to be getting organized. We hope that there will be continual

pressure from Congress to insure that it fulfills its mandate in the conservation area. Specifically, we would like to see ERDA (1) place a much greater emphasis on energy conservation in its budget; (2) undertake a wide variety of conservation programs and not simply isolate on hardware R. & D.—for example, they should fund programs to curtail consumption in housing projects or to study pilot peak pricing techniques; and (3) demonstrate a sensitivity to local and regional needs. It is essential that ERDA understand that its role is not simply a rehash of the old AEC—it is very different and demands a much higher degree of sensitivity to local problems.

We also feel the special appropriations for low-income winterization and emergency assistance beyond those contained in the omnibus energy bill are important, and we hope that they will be considered.

I personally don't feel that $55 million for the Nation per year is probably an adequate sum of money. I think when you break it down, you probably are talking about $1 million for Massachusetts a year on a 3-year program. And $1 million I don't believe will insulate the amount of homes you're going to have to insulate of low-income people, especially in our urban areas like New Bedford, Lowell, and Boston. I would hope that the Senate would consider this when they are considering this legislation because I think that figure is probably going to be inadequate, and it is very inadequate when you compare it to the programs that have been set forth in the Scandinavian countries and many countries in Europe.

Funding to upgrade Federal and State public housing for energy efficiency is also needed. We suggest that special funding be included in the HUD appropriation for this purpose and for monitoring and enforcing the State building codes.

Here is another problem. Many of the housing authorities are almost about to exceed their bonding limitations. And, as you know, we have a few financial problems here in Massachusetts. And it's very difficult for them to put any capital improvements without some kind of help, be it in the form of loans guaranteed by the Federal Government, or in the form of direct subsidies to make the energy conservation changes that we need. For example, the Littleton Housing Authority has set forth what we feel is a tremendously unique project where they would retrofit with solar collectors and set up a load management program. And when we went down to Washington last week to try to get some help for it, one, we were told that Washington wasn't interested in basically—HUD and ERDA in this case—they weren't interested in solar projects of that size of elderly housing projects and load management. They weren't ready to handle that for about another year. They hoped that would be something they could get into the latter part of 1976, the beginning of 1977.

In summary, Massachusetts recognizes the importance of a Federal-State partnership in energy conservation. We are willing to do our share. In fact, we believe we have made a good start already, and we hope that the Federal Government will begin to demonstrate a more determined commitment, both in terms of program priorities and in terms of dollars and cents.

Chairman KENNEDY. Well, thank you very much, Mr. Lee. Has the State been able to develop any programs along the lines of the programs you have indicated support for from the Federal level? Have

we been able to do anything up here in the State to try to provide incentives to, you know, the Mrs. Leylands?

Mr. LEE. Well, what we have been trying to do is extensive programs of information dissemination to try to tell the Mrs. Leylands of the world of how they can cut back on energy consumption. We have made an attempt to obviously cut our own fuel costs. We don't have to increase the tax bill for the Mrs. Leylands of the world. And we have also taken programs in the area of transportation, solid waste and building codes. But I don't think I can give an adequate answer to the Mrs. Leylands of the world. Because what you have to do is show to them either you can lower their bills or increase their income.

We have been trying and looking at things like Lifeline. We have been looking at peak pricing, load management techniques to lower their electric bills. We have been working in every way we can, but we can't control the price of oil. I mean, we have been down—I know I've talked with your people many times about how we can avoid the price of oil going up even higher. It hasn't been a question of lowering it. It's been a question of keeping it from going through the roof. We have the President's decontrol plan. But at the same time, how do you get more money to Mrs. Leyland, which is a problem we face. We just avoided default here in the State last week. And it's quite hard for us to increase our benefits from the welfare department. And I don't think the Mrs. Leylands of the world want welfare. They want to be given a chance to do things on their own. And I don't think we in government have done a very good job in helping Mrs. Leyland.

Chairman KENNEDY. How many people do you have at the State level working specifically on conservation?

Mr. LEE. I have a full staff of 10 people, and six people work on conservation.

Chairman KENNEDY. OK. Well, have you experimented with any kinds of incentives or tax incentives? You really can't do it, I suppose, with the kind of financial problems you have here in the State? Any incentives to any of the homeowners to try to move in this direction?

Mr. LEE. Well, we have been working in terms of trying to get property tax incentives. One thing we're nervous about, if you put in a whole bunch of insulation or you put a solar collector on your house, your property tax then goes up. And we have looked into that whole area. But, really, when you're talking about tax incentives like the incentive that the Federal Government has before it, the State would be very small because we just don't have much money left here.

Chairman KENNEDY. OK, thank you very much. I appreciate it.

Our final panel this morning will focus on various efforts going forward in Massachusetts that contribute to the goal of achieving more meaningful levels of energy conservation. Some of the most innovative and significant work in the country is taking place in Massachusetts, and it is important for Congress to understand more specifically what is possible if energy conservation is taken seriously.

Peter Clark, staff director of the New England Center for Energy Policy, will describe the on-going work of the center in the conservation area, especially its research on the kind of governmental incentives that can produce greater energy savings.

George Hatsopoulos, President of Thermo-Electron Corp., will summarize some of the breakthroughs in industrial energy conservation.

Allen Akerblom, energy coordinator of the Honeywell plant in Waltham, will describe the energy savings that have been accomplished in this installation.

And Gale Haydock, Massachusetts League of Women Voters, will talk about programs that the League has underway in this area. OK, we'll start off, Mr. Clark.

STATEMENT OF PETER CLARK, STAFF DIRECTOR, NEW ENGLAND CENTER FOR ENERGY POLICY

Mr. CLARK. Thank you very much, Senator Kennedy. It's a pleasure to be here and be able to explain a little bit about what the Center for Energy Policy is doing. The purpose of our organization is explained in the small gray pamphlet which has been handed out in some places. And it's a two-tier organization, you might say. The New England Energy Policy Council was formed to increase the public understanding of energy issues faced by this region and to provide a forum in which these issues may be discussed, differences narrowed and action proposals developed. It is an organization which represents the six New England States. It has members from four key sectors: The energy industry itself, consumer groups, environmentalists, and the economy, finance and industry. The essence of the thing is to try to work out differences before they flame up in the public domain.

One project which I would like to describe which the staff of the council works on, the staff being known as the Center for Energy Policy, is a project to recommend a regional strategy for space heating in New England. Specifically, this project which is being conducted by the Center for Energy Policy under a NSF grant will analyze alternative conservation methods, heating systems, and fuel resources in order to determine what factors will affect energy demand and how an optimum mix of energy types can be recommended for both new and existing space heating systems.

A major objective of this program will be to study the conservation methods being recommended throughout the country for voluntary adoption. Our goal is to determine what policies would most effectively aid in the implementation of new conservation policies in New England. Our evaluation of legislation indicates that New England States rely almost exclusively on price-induced policies, while many other States have passed bills which make energy conservation mandatory for their citizens. The most comprehensive program is that being implemented by the State of California.

This project will also give consideration to economic, environmental, regulatory, and technical aspects of each conservation method in order to anticipate any constraints which might prevent the full impact of a policy. In this case, long-term technological objectives are especially important. For example, if the full potential of solar energy is to be realized as quickly as possible permitting economies of scale in the production and installation of solar heating systems, then any retrofit of existing systems and all new equipment should be made compatible with anticipated solar designs. Forced hot air systems are the easiest to adopt to solar. Forced hot water systems are much

less efficient. Steam and electric heating will require full replacement when solar arrives, since these systems are incompatible with present solar technology.

Well, that seems simple enough, but this is in great conflict with other technological constraints about fuel choice for this region. For example, coal's compatibility with the electrical system. If coal is going to be introduced back into the system, we would recommend that electric heat be expanded as a heat source throughout our regional economy in order to reduce our oil dependence and expand our use of electricity in this region. This might be in great conflict with an effective conservation technique.

I'll restrict my other comments this morning, simply to the short-run conservation policies. The NSF project can essentially look at the long run. Table I of the testimony I have illustrated or given to you illustrates the potential energy savings available to the Nation for a range of conservation methods. The second column of figures represents a National Academy of Science task force estimate of feasible levels of compliance after 5 years. This assumes a high rate of public expenditure for information dissemination and public subsidies. Compliance rates range from 10 to 75 percent after 5 years. Actual policy recommendations have not been developed.

I will describe alternative policies designed to induce acceptance of a combination of residential and commercial methods of conservation. We have no basis for estimating compliance rates but have shown potential fuel savings in the first column. These rates were selected as approximately an average of savings potential suggested by a large number of sources. The same type of information will be used to make systematic evaluations of policy alternatives in order to develop recommendations for the most effective mix of conservation methods.

The alternative policies are divided into: (*a*) Voluntary, where additional programs are needed to educate the public to potential energy savings; (*b*) price-induced, where the long-term energy savings outweigh the capital costs, but where economic assistance is needed to offset the initial costs; (*c*) mandatory, where the consumer has no choice but to comply.

I would note, however, that New England relies almost exclusively on price-induced policies, which in terms of that illustration you'll see that many conservation techniques which relate to changing life style, everything from thermostat setbacks in the day and night air-conditioner changes, hot water changes, reducing use of hot water in the house for bathing and other purposes, closing off unused rooms, pulling drapes, turning off pilot lights, all of this kind of action, is not very meanable to a price-induced activity.

So I'll close by emphasizing a technique which I think has great promise. The technique is one of changing the consumer's life style by giving him an instrument to monitor his own consumption. The problem today is that the consumer is not aware of his energy use habits. The average homeowner in New England makes 0.7 decisions in a lifetime about the components in his heating system. Most people take what is found in their home, maintain it, but they make no choices and are totally unaware of its efficiency. The problem is that no consumer is able to compare his rate of energy use to others with similar building types, family sizes or heating plants. Thus, monitoring energy use would reinforce voluntary conservation.

Monitoring of each consuming unit is already a science fully perfected by the energy distribution industry. Gas and electric use is metered in the building. Oil is metered when delivered. In all cases, changes in demand must be predicted by the fuel dealer in order to maintain fuel reserves and an effective delivery service.

We recommend that this information be used to reinforce the voluntary conservation efforts of the consumer. The appropriate information is already maintained for each consuming unit in computer form along with the data used for billing. Still, the consumer only sees the quantity delivered, the price, and the total cost. We recommend that either the Federal or State governments develop a program with the energy industry to redesign the monthly bill so that it also becomes a "scorecard" informing the consumer of the conservation achieved compared with earlier periods of time and with respect to other groups with the same weather and similar characteristics. If the consumer can compare potential savings from different conservation methods with statistics about his present rate of consumption relative to others at the moment he is paying his bill, he will be more highly motivated to comply with the conservation ethic. Moreover, knowing how he rates over time provides a competitive situation which reinforces voluntary behavior. The policy may achieve great conservation at almost no cost to the Government, fuel dealer, and most importantly, no cost to the consumer. It's just there to be organized.

Chairman KENNEDY. Thank you very much. Very impressive list of statistics and figures showing what can be done.

Mr. Hatsopoulos.

STATEMENT OF GEORGE HATSOPOULOS, PRESIDENT, THERMO-ELECTRON CORP.

Mr. HATSOPOULOS. Mr. Chairman, I was listening to an excellent presentation of Mr. Sant, and I believe he made a point that is extremely important to the problem that Mrs. Leyland brought up.

The process of creating new energy sources in this country is of great importance in providing independence, in solving our balance-of-payment problem and not to be dependent on the other people for our energy supply. But it will not, as Mr. Sant very properly pointed out, solve the problem that Mrs. Leyland faces. Namely, of prices. Because all of our new energy sources that we're developing right now for this country will involve either equal or higher costs of energy. The only salvation, I believe, for the kind of problems millions of Americans face in terms of costs is conservation. Because, as Mr. Sant pointed out, conservation is a much cheaper source of energy than any of the other new supplies.

I feel that conservation of energy through more efficient utilization of fuel and elimination of waste is a natural resource which, however, is almost untapped.

Now, I would like to bring to your attention one of the many examples of where this potential can come from. Using municipal waste material as fuel, using trash as fuel, could produce about 400 kilowatt hours of electricity per ton of trash. If we look at the incinerators that are available in Massachusetts, which there are 17 in the process, over 5,000 tons of trash a day, that means that using that

energy that is wasted could produce about 90 megawatts of electricity for Massachusetts.

Moreover, if we were to use more incinerators for trash disposal, we would have the potential of providing over 15 percent of all our electricity needs in this State. And this means not only the cost of this electricity would be lower, but moreover, that the money we pay would not go outside the State but will stay here. And the expenses associated with that will stay with the people of Massachusetts.

Now, this is one of the many examples that put together in industry and municipalities could in our opinion over the next decade cause a reduction on a national basis of over 4 million barrels of oil per year. Such a reduction would have a very significant impact in Mrs. Leyland's problem, as well as the national problems of energy independence.

Now, we believe that some things are beginning to happen, with the concern that Congress and the administration has shown, beginning belatedly maybe, but still has begun to show for conservation.

But aside from conservation in homes and in cars in transportation, we feel there is an enormous untapped source in industry and municipalities. And we do even less there. Just to give you an idea, you mentioned the inadequacy of the $80 million budget versus $1.6 billion that Mr. Sant pointed out is spent on energy sources. $80 million for conservation. Out of that $80 million, only $2 million has been earmarked for industrial conservation. Yet, industrial conservation is the biggest source of energy waste.

Now, how would energy conservation in industry and municipalities help Mrs. Leyland? Well, it does. Because if we reduce nationally our energy consumption, then we don't have to use the more expensive sources of energy, which Mrs. Leyland has to pay for. And, therefore, it does very much relate to her problem.

Now, the question then that we have raised many times is—and I know Mr. Sant has raised with me in the past—why, since there is such a benefit to be derived, why aren't we moving faster? What happened?

Well, we find from our experience that there are two barriers that occur, especially in the industrial and municipality factors, and to a lesser degree—well, to the same degree, in fact, with homeowners. The two factors are the lack of sufficient experience and knowledge, part of which was addressed by Mr. Sant; and the second factor is a lack of capital. This is a very important matter. Both things are important matters. And I believe that a first step has been taken by two bills, one introduced by Senator Tunney and the other by Congressman Drinan, which address themselves to both these problems for industry in particular. Namely, by providing funds, sufficient funds, not token money, for demonstration of new energy-saving technology, and second, by providing capital to industry as well as to homeowners and municipalities in order to be able to circumvent the problem that is created by lack of capital that all of our industry, municipalities and citizens are facing.

Thank you.

Chairman KENNEDY. How would that do it? What is the basic thrust of it, other than the——

Mr. HATSOPOULOS. Well, there is, for instance, in the bill by Congressman Drinan and Congressman McCormack, they provide two

things. First of all, they provide funds for more demonstrations of techniques and technologies that could reduce energy consumption in industry, either by technologies that have been practiced overseas and have to become—our people here, our industry has become familiar. Or totally new techniques which have at least in the laboratory been demonstrated. The second is by providing guaranty loans, especially to small business so that they can find the capital to implement a program of conservation. Because the problem is, although the mathematics work out, that if you make an investment of $1 million for say a town like Waltham to produce electricity from waste, the problem is although the mathematics work out for the future, the $1 million may not be there. And, therefore, like the homeowner, I mean, maybe you can prove to him that he can save in the long run, money by insulating his home. But if he doesn't have the money, he will have to be stuck with the higher costs and a higher escalating cost.

Chairman KENNEDY. You have told me before about some of the interesting energy saving techniques. You have been a member of the different industries that are in this part of the country. I think we talked in the area of textiles and the paper industry. I think it's absolutely extraordinary the real possibilities that exist in those areas which are enormously high utilization of energy sources. And yet with new technology and techniques, they can dramatically impact the reduction on the amount of energy.

Mr. HATSOPOULOS. Yes, sir, this is fantastic.

Chairman KENNEDY. What should be done? I mean in terms of the institutions of government, who ought to be encouraging that, you know, that kind of a movement?

Mr. HATSOPOULOS. Well, as far as the part that has to do with demonstrations, I believe ERDA is the proper agency. And ERDA is doing that as far as demonstrating plans to produce gas from coal to produce new methods of energy supplies. Yet, their allocation of funds is practically nonexistent. And I believe that everybody pays little service in Washington right now to that. But still when you look at the numbers and what could be done if the numbers are bigger, you have to conclude that the programs are really token.

Chairman KENNEDY. You see how the Congress and the country responded when we found new sources of energy up in Alaska. The Congress was really turning over itself in order to get that kind of additional kinds of increases. This panel is outlining where you could increase really by the conservation by about 30 to 35 percent. And still we haven't been able to sensitize either the Congress or the administration to this real potential. And I think that's really hopefully one of the principal lessons that we'll take away from this committee meeting. And it's important in terms of the Mrs. Leylands of the world. I'm sure it's probably somewhat difficult for her to understand that right now, but I think this is a case that's being strongly made during the course of our hearings this morning. And that's what we have to try to focus on.

Thank you.

Ms. Haydock.

STATEMENT OF GALE HAYDOCK, MASSACHUSETTS LEAGUE OF WOMEN VOTERS

Ms. HAYDOCK. I know you're running late, and I know also, Senator Kennedy, that you will be lobbied by a member of our national board about the league energy position, if you have not already.

The League of Women Voters of Massachusetts is pleased to have this opportunity to testify on energy conservation in Massachusetts. There are 113 local leagues in Massachusetts, and our 12,000 members are very much interested in developing and promoting realistic measures for achieving energy conservation. Our national membership of 150,000 has recently reached agreement that energy conservation must be a part of any national or State energy policy. We are in the process of developing guidelines for the implementation of our energy platform which, in addition to citing conservation as its first principle, reads as follows:

> Public understanding and cooperation are essential to the success of any program of energy conservation; citizens should be involved in the difficult choices that must be made.
>
> Implementation of energy conservation must take full account of economic consequences; distribute costs and hardships as fairly as possible without bearing unduly on the poor; give full consideration to the environment.
>
> Wise use of energy resources will buy time to decide on other long-range energy-related policies and programs; and enable Americans to act as responsible citizens of the world community.

I would like to focus my remarks this morning on two areas: Energy savings in transportation, and the critical need for greater involvement of citizens in the decisionmaking processes bearing on energy policy.

The "league's" prime focus for energy conservation at present is on transportation, since it is here that the quickest and largest energy savings can be effected. We heartily endorse the van pool and MASS-POOL programs being developed in the State. We gratefully acknowledge the work being done on those programs by the Massachusetts Office of Transportation and Construction and the Massachusetts Department of Public Works, but it is clear to us that the major impetus for those programs was provided by the Federal Office of Environmental Protection Agency—specifically, their requirement that significant steps be taken whereby the greater metropolitan area will eventually be able to meet minimum primary air quality standards. Without such a goal from the Federal Government, without such insistence that the public's health be protected by the reduction of automobile traffic in the core city, it is highly doubtful that we would now be headed in the direction of energy conservation as a secondary benefit to improved air quality.

We urge you to hold firm in this area for both reasons. As weakening amendments to the Clean Air Act are offered, it is our hope that the Congress can be kept aware of the fact that clean air and energy conservation are not only compatible, but are, as well, mutually reinforcing.

In regard to the impact of a more active Federal role in the transportation sector, we would urge your support for legislation that would set policy on the Highway Trust Fund favorable to mass transit and that would also support Federal aids to mass transit. Under the administration's bill, the fund would claim only 1 cent out of the previous 4. Another 2 cents would go to those funds earmarked for any transportation program other than Federal interstate highways. No priorities are set for that expenditure. Presumably, those funds could go for roads and highways other than "federal interstate." The final 1 cent is also not earmarked, not even for transportation use.

Its potential impact for energy conservation is, therefore, precarious at best. As proponents of mass transportation, we feel that the uncertain nature of this proposed legislation jeopardizes mass transit programs, clean air, and significant energy conservation. It is our hope that the "Highway Fund" can be tailored to provide enough flexibility so that States can use it creatively to produce balanced transportation systems.

At the State level, the league has vigorously supported the commuter "rail improvement program" and has requested funding from UMTA for a two-phase program which would be of significant benefit to our overall mass transit capability. This would involve purchase of rail rights-of-way and rolling stock and provide funding for a 10-year land acquisition program. We hope very much that Massachusetts' request for this funding will prove fruitful.

Ideally, longer-range action would center on the development of a national transportation strategy built around alternatives to the automobile.

The second issue which we would like to address is the need for increased citizen involvement in the difficult choices that must be made. One frequently hears that the public is uninterested in energy conservation until we have to line up at the gas pump or pay our rising oil, gas, and electricity bills. Pricing is one method of achieving energy conservation, but when those gains are made as the result of low-income families going without heat, additional steps are needed.

At the regional public hearings held in this area in connection with "Project Independence," there was a substantial amount of testimony from concerned individuals and citizen groups to the effect that conservation of energy resources should be given a much higher priority than the thrust toward increased domestic supply which seemed to be the primary goal of the project. It may well be that the concern engendered by Project Independence's cavalier attitude toward conservation propelled conservation advocates toward more effective citizen education. In any event, it is our feeling that the potential now exists for a dialog about the choices and tradeoffs and willingness to accommodate lifestyles to reasonable limits. Clearly, citizens must be involved if habits and attitudes are to be modified. We find that opportunities for this kind of dialogue are severely limited. It would be helpful if the kind of highly publicized government activity that was so very visible as Project Independence developed could be generated to capture the public's attention again. This time the keystone should be conservation. This time the project should be carried through, the dialog continued, in an ongoing program of citizen education about the finite nature of our nonrenewable, natural resources. This time the emphasis should be that Americans are responsible citizens of the world community.

Local "leagues" in Massachusetts are particularly interested in the development of a regional New England energy policy. We feel confident that leagues across the country would welcome the opportunity to assist in initiating a public dialog on energy policy, with conservation as its first principle.

Chairman KENNEDY. Thank you very much for your very helpful statement. I'm sure that you're probably aware of the efforts that I have been making in terms of, first of all, about the last 5 or 7 years, changing the Highway Trust Fund to move it into the area of mass transit with Senator Schweiker and myself. And then to testify to abolish the whole Highway Trust Fund so we can get a whole reallocation of resources. And then the efforts we have made in terms of the railroad situation, the other programs which can make a lot of difference to us. So we're working on those, and we're delighted that we get strong support for those efforts because they are, I think, of great importance and consequence to us here in the State. So I want to thank you very much for your testimony, and I'll look forward to hearing from whoever it is who will be lobbying us.

Ms. HAYDOCK. She will be by.

Chairman KENNEDY. Well, I'll look forward to it because on so many of these issues, we work closely with the league; and they have been, I think, out front on so many questions affecting us here in Massachusetts. I have always enjoyed working with them.

Mr. Akerblom.

STATEMENT OF ALLEN AKERBLOM, ENERGY COORDINATOR, HONEYWELL PLANT, WALTHAM, MASS.

Mr. AKERBLOM. Thank you, Senator Kennedy. I would like to go over briefly because of the time shortage here about our Honeywell story. The plant consists of approximately two buildings with about 300,000 square feet, comprised basically of offices and computer operations. We have been in the energy conservation business since about 1972—the fall of 1972. That started with an in-house committee looking at what we thought were the excessive lighting levels. And we started attacking it at that point. And shortly thereafter, a corporate committee was followed up at the top level of Honeywell. And we expanded this program to cover all electricity users, fuel oil and natural gas and gasoline.

And briefly we have been able to achieve in 1975 over 1972 a 57-percent reduction in electrical use on fuel oil.

Chairman KENNEDY. A 57-percent reduction?

Mr. AKERBLOM. From 1972 until now in the fuel oil.

Chairman KENNEDY. Is that in all your plants here in the State?

Mr. AKERBLOM. No; this is just the Waltham facility.

Chairman KENNEDY. What has happened to the other Honeywells?

Mr. AKERBLOM. I have got some other statistics on the other locations. In fuel oil, we have been able to reduce our consumption by 59.9 percent from 1973. And processed gas we have been able to reduce that by 50 percent over 1973.

Chairman KENNEDY. How much has it cost you in new investments?

Mr. AKERBLOM. Most of these areas we have been able to attack with low capital dollars, except in, say, our computer rooms where we have installed economizer systems. Mostly shutting down our boilers when they are not used throughout the summer and any cool days

when we can get away with it over the weekends and week nights. So I would say 75 percent of these items have been achieved with low-cost dollars. And, as I have listed here, we have got—these are major items that we have been working with. As I said, removal of lighting, economizer installations; in our parking lots, we have installed high-pressure sodium lighting which is a much more efficient source of lighting. We have increased the efficiency of our boilers. We have shut down our boilers. We have installed a Honeywell computerized control system which will switch on and off various functions throughout the building, air-conditioning, electricity, heat. And we have installed reflective window film on our windows to cut down the heat gain in the summer and to minimize the heat loss in the winter.

Throughout Massachusetts, we have been able to—you don't have these figures—we have been able to save 33 million kilowatt-hours of electricity in 1974. We have also been able to reduce our oil consumption by 584,000 gallons of fuel, which is about 14,000 barrels. That is Massachusetts-wide.

Some of the suggestions that I could make that you might be interested in, we would like to see improved public transportation, improved emphasis on car pools. Perhaps a tax credit for large capital dollars invested in energy conservation, an item that might be set up at a particular plant. Relaxation of the sulfur content standards where we could burn the low-sulfur fuels but not jeopardize the clean air standards that have been set up. And there should also be no attempt or I feel no further attempt in the allocation of energy to industry or the imposition of mandatory conservation programs. I think these can be achieved, as we have pointed out, through a conscientious program, and I would not like to see a Congress-imposed program where we are forced to save 30 percent a year or whatever the figure may be.

Chairman KENNEDY. I don't think there is anything contemplated like that, is there?

Mr. AKERBLOM. No; but things could—if they get carried away—they could go off in this direction where this would be a last-stand type of thing. And we wouldn't want to see that. And that's about it.

Chairman KENNEDY. Can you think, if they had provided any other kinds of incentives, would you have done anything more, if we provide additional investment credits or other kinds of tax——

Mr. AKERBLOM. I don't make the payback decisions on large capital expenditures; but I'm sure if we were able to get the payback period down to a more realistic time, that a lot of these projects might be considered now that we have exhausted a lot of these small items.

Chairman KENNEDY. Would you do that? Could you give us anything on what additional steps you would do if you did get some kind of a, you know, kind of an incentive or credit on that? I mean, it seems very impressive what you have done to date. So I would be interested in your projections of what, you know, additionally more you could do if you did have any other kinds of incentives. If it's possible, maybe you could talk to the people.

Mr. AKERBLOM. I can talk to the people. But Honeywell is in the solar energy business. They have various demonstrations going around the country. In our particular plant, we could possibly be considering a solar installation; but the physical cost of the project is right now prohibitive. And perhaps things along this line could be instituted.

Perhaps our own generating station for certain peak loads to cut down our demand a portion of the day. But beyond that, I wouldn't be able to comment on it right now, Senator. Thank you.

Chairman KENNEDY. I want to thank this panel for their statements and their comments this morning. What we have really been attempting to point out here during the course of this hearing is what conservation can really mean in terms of our national energy policy. There have been great efforts and focus and attention on the development of alternative sources of energy and a great deal of attention on the whole kind of pricing mechanisms which are enormously important in terms of the development of a national energy program. But nonetheless, we probably have done woefully little in the area of trying to provide help and assistance to the small homeowner, the typical family homeowner, in the areas of conservation.

What can we do in the Congress? What can the energy agency ERDA do to try and help the small family homeowners to conserve energy?

What kind of assistance, either in terms of direct grants, or some kinds of tax incentives so that they can save in terms of their own energy bill and also carry forward a national energy program in the areas of energy conservation?

What can be done for the small businessman to provide incentives to those individuals, small companies and corporations which are so many in our own State of Massachusetts, to help them play a role in the area of conservation?

What can be done in terms of some of the other companies and corporations? And we have heard important testimony this morning about what is being done by Honeywell Corp. and others in Massachusetts.

What can be done to show the interrelationship between the conservation of energy and better allocations of resources in the areas of mass transportation and rail transportation?

And what can we in the Congress do to support those efforts that already are in existence in the national level that are working in the energy area? Can we give better help and support to ERDA and the other energy agencies of Government so that they can provide more effective ways and means in the energy area?

I mentioned during the course of the hearings we saw how the Congress responded incredibly to the Alaskan pipeline situation which was going to increase our energy by approximately 5 percent. But here we have heard convincing testimony that we can increase our energy by approximately 35 percent by conservation efforts.

And for some reason or another, this hasn't got the kind of national priority or national sense of urgency that the development of new sources of energy have gotten. But I think it is a matter of enormous importance and consequence.

We have heard some important testimony here today in Waltham. We are going to take this testimony back and focus on these areas and find ways that we can carry what Mrs. Leyland and the others have mentioned to us to try in the area of conservation to develop a more meaningful national policy.

The subcommittee is adjourned.

[Whereupon, at 12:15 p.m., the subcommittee adjourned, subject to the call of the Chair.]

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