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NATIONAL ENERGY POLICY: CONSERVATION AND ENERGY EFFICIENCY

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND AIR QUALITY

OF THE

COMMITTEE ON ENERGY AND COMMERCE

HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTH CONGRESS

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NATIONAL ENERGY POLICY: CONSERVATION AND ENERGY EFFICIENCY

FRIDAY, JUNE 22, 2001

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ENERGY AND COMMERCE,
SUBCOMMITTEE ON ENERGY AND AIR QUALITY,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:33 a.m., in room 2123, Rayburn House Office Building, Hon. Joe Barton (chairman) presiding.

Members present: Representatives Barton, Burr, Whitfield, Bryant, Walden, Tauzin (ex officio), Boucher, Markey, Barrett, and Dingell (ex officio).

Staff present: Jason Bentley, majority counsel; Joe Stanko, majority counsel; Sean Cunningham, majority counsel; Peter Kielty, legislative clerk, Andy Black, policy coordinator; Bob Meyers, majority counsel; Sue Sheridan, minority counsel; and Erick Kessler, minority professional staff.

Mr. BARTON. The subcommittee will come to order.

Today we are going to hold another in our series of hearings on our National Energy Policy. Today's focus is going to be on conservation and energy efficiency, which have to be an important part of any comprehensive and balanced plan.

Already our Nation is among the most energy efficient nations in the world. Gains in the last 25 years in energy conservation have been tremendous. They need to continue and improve.

With the electricity shortage that we have already seen on the Western coast, we know that the need for conservation is still prevalent. The Federal Government must take the lead in encouraging conservation.

We should further increase our energy savings at Federal facilities. For example, Federal buildings should decrease their energy consumption per square foot, as we had in the short-term bill dealing with the California energy crisis. Energy performance savings should also be encouraged and expected in Federal contracts.

We should expand some of these new applications, these new conservation measures in the applications. Also, new technology should be fostered which might help reduce energy loss and help Americans save energy themselves.

We have witnesses today to discuss many of these issues. I want to welcome you, the first two on our first panel. I particularly want to welcome the Honorable David Garman, who is a newly confirmed member of the administration. I am glad to have you here.

The President's plan includes many good provisions in this area, some of which do not require congressional action. As the administration indicated, the Federal Government should consider whether it is reasonable to increase the fuel economy of cars and light trucks. Corporate average fuel economy, or CAFE, deserves a new look with the explosion in sales of vehicles which have been classified as light trucks. Light trucks have a lower mile-per-gallon average than do cars. These so-called light trucks are actually heavier than the cars that have the higher standard.

Last week, I asked the Secretary of Energy what a reasonable CAFE standard might be. To his credit, he said the administration is working on that answer, but he really didn't have an answer for us. I was with the Vice President earlier this week in Michigan, with some of the folks in the automobile industry, and this was a topic that was under consideration. I am going to ask the witnesses today what a reasonable CAFE standard might be, also.

Not all the increases that have been put into legislative form appear to be reasonable. Some appear to be too stringent. Factors that must be carefully considered are the safety of the automobile, the energy savings from the CAFE increase, the impact upon the work force and the impact upon the economy, and the consumer's choice in the marketplace.

Today, some consumers already vote with their pocketbooks and purchase more fuel-efficient cars. However, some are clearly comfortable with the low-fuel economy of some SUVs. This is a delicate issue, obviously, politically and, most importantly, in the real world. Chairman Tauzin and I encourage members to start taking a fresh look at fuel economy, but to do it in a reasonable fashion.

In the next several weeks, the subcommittee is going to begin to consider legislative elements of a comprehensive energy plan. Upon return from the 4th of July recess, it is extremely reasonable to—if you can be extreme and reasonable at the same time, to expect action on conservation, hydroelectric relicensing, nuclear power, clean coal technology and more. And that is just in this subcommittee.

Very soon thereafter, we hope to move a comprehensive electricity restructuring bill with an important focus on transmission infrastructure, the so-called "rules of the road."

Finally, I wish to make a great announcement. We had the congressional charity baseball game last night. Mr. Largent is not here. He is probably recuperating, but he pitched a complete 9 to 1 game in which we atoned, we being the Republicans, atoned for the thrashing the Democrats gave us in last year's game.

I am trying to think. Mr. Doyle on the subcommittee was in that game. He was a catcher and did admirably for the Democratic side. Mr. Stupak pitched; although he is not on the subcommittee, he is on the full committee. So we had a number of our committee and subcommittee members active in the game. Mr. Pickering played third base for the Republicans.

It was a memorable game. And Mr. Shimkus. Mr. Burr has pointed out, well, yours truly was the has-been coach at third base and managed to not trip over the chalk lines trotting back and forth to the dugout. So it was a successful game in that regard.

Anyway, we had a lot of fun and raised a lot of money. And as far as I know, nobody got hurt on either side.

Anyway, with that, I would like to recognize my ranking member, Mr. Boucher of Virginia, for an opening statement.

[The prepared statement of Hon. Joe Barton follows:]

PREPARED STATEMENT OF HON. JOE BARTON, CHAIRMAN, SUBCOMMITTEE ON ENERGY AND AIR QUALITY

Today, the Energy & Air Quality Subcommittee holds another in its series of hearings on national energy policy. Today we focus on conservation and energy efficiency, two very important parts of a comprehensive and balanced plan.

Our Nation is among the most energy-efficient Nations in the world. Our gains have been tremendous, but they must continue. With the electricity shortages out West, many Americans understand the need for conservation unlike ever before.

The Federal government must take the lead in encouraging conservation. First, we should further increase our energy savings at Federal facilities. Federal buildings should decrease energy consumption per-square-foot, as we had in the short-term bill dealing with the California energy crisis. Next, energy performance savings contracts should be expanded to new applications. Also, new technologies should be fostered which might help reduce energy loss and help Americans save energy themselves.

We have witnesses today to discuss many of these issues, and I welcome you. I particularly want to welcome David Garman, a newly confirmed member of the administration. Welcome to the Subcommittee. The President's plan includes many good provisions in this area, some of which do not require Congressional action.

As the administration's plan indicated, the Federal government should consider whether it is reasonable to increase the fuel economy of cars and light trucks. Corporate Average Fuel Economy standards, or CAFE, deserve a new look with the explosion in sales of vehicles classified as light trucks. Light trucks have a lower miles-per-gallon average than do cars, but they are heavier.

Last week I asked the Secretary of Energy what a reasonable CAFE standard was. He said the administration is working on that answer. I will ask many of the witnesses today what a reasonable CAFE standard is, too. Not all increase proposals are reasonable, certainly. Factors that must be carefully considered are the safety of the automobile, the energy savings from a CAFE increase, the impact upon the workforce, and the impact upon the economy and the consumers in the marketplace for vehicles.

Today, some consumers already vote with their pocketbook and purchase more fuel-efficient cars. Some, however, are clearly comfortable with the low fuel economy of some SUVs. This is a delicate issue politically and, more importantly, in the real world. Chairman Tauzin and I encourage Members to start taking a fresh look at fuel economy, but to do so reasonably.

In the next several weeks, this Subcommittee will begin to consider legislative elements of a comprehensive energy policy. Upon return from the 4th of July recess, expect action on conservation, hydroelectric relicensing, nuclear power, clean coal, and more. Very soon thereafter, we will move to electricity restructuring, with an important focus on our transmission infrastructure and rules of the road.

After the great Congressional Baseball Game last night, at which Mr. Largent starred in his final appearance, Members should be rested and ready for the coming action. It's time to roll up our sleeves on a bipartisan basis and get to work. Today's hearing will help us get on our way.

Mr. BOUCHER. Thank you very much.

Mr. Chairman, I appreciate your conducting today's hearing on conservation and energy efficiency as part of our series of hearings on the development of a comprehensive National Energy Policy.

In my view, new approaches to promote conservation and efficiency should be a cornerstone of our national energy strategy. Energy savings alone will not suffice. We must also take steps to accommodate new energy supplies. But conservation and new efficiencies can make an impressive contribution to a successful energy strategy, and they must be a fundamental part of it.

Over the past quarter century, the Nation has become far more energy efficient. Our per capita energy consumption today is almost the same as in 1973, while over that same period of time, our per capita economic output has increased by 75 percent.

While much of this improvement is attributable to underlying economic transformations, such as the arrival of an information economy, which is far less energy intensive than is traditional manufacturing, it is generally believed that more than one-half of the total improvement is due to energy efficiency advances.

And much more can be done. It is variously estimated that the adoption of new energy efficiency policies could lower national energy use between 20 percent and 33 percent over the next 2 decades. These are savings that are well worth pursuing. Conservation efforts can produce even greater savings beyond these energy efficiency savings.

As the chairman knows, I am a proponent of policies that will promote greater production. And let me say this morning that I am very pleased by the bipartisan efforts that we have under way today to craft legislation that will facilitate the arrival of new coal-fired electricity generating units and addressing in a substantial way the primary concerns of the nuclear power industry. These conservations are productive, and I want to thank the chairman for the bipartisan spirit in which he is approaching the construction of legislation that will establish a comprehensive national energy strategy.

But, Mr. Chairman, I also want to stress this morning that I personally have an equal commitment to the adoption of broad new measures that will encourage greater energy efficiency and greater energy conservation.

The American public is expecting this committee to adopt energy savings policies. A recent national opinion survey revealed that by a margin of 68 percent to 21 percent, the public favors energy savings over new production as the preferred means of meeting our Nation's energy needs.

I have never believed that we should govern by poll results, but I don't think we should ignore them either, particularly when they are as compelling as this national survey.

While there is much that I personally support in the administration's energy policy recommendations, I will have to confess that I have a measure of disappointment in the overall balance of the report. It simply doesn't focus enough on energy savings, new efficiencies and conservation as a means of meeting the Nation's energy needs. I am very disappointed in the recommendation from the administration that funding for the Department of Energy's energy efficiency research and development and technology deployment programs be reduced next year in fiscal year 2002 by 30 percent as compared to the funding level for the current fiscal year. These programs deserve funding increases, not funding reductions.

I look forward to the recommendations from our witnesses this morning of constructive steps that we should take in adopting forward-looking energy efficiency and energy conservation policies which will buildupon our national success over the last quarter century in becoming a more energy-efficient Nation.

And I look forward to working with you, Mr. Chairman, and with members of this committee on both your side and our side as we seek to place in our legislation substantial, broad, new measures that will promote energy savings.

Thank you and I yield back.

Mr. BARTON. Thank you, Congressman Boucher. We now recognize the vice chairman of the full committee, Congressman Burr of North Carolina, for an opening statement.

Mr. BURR. I thank the chairman. I have always said that the sign of a good leader is a person who knows his limitations. Mr. Chairman, your decision to coach, rather than to play this year, is a sign of that great leadership that we found as a quality of yours.

Mr. Chairman, Mr. Boucher, I want to thank you for holding this hearing on energy efficiency and conservation. The work of this committee in these two areas of the energy sector have to be examined and addressed first before we move forward with developing new sources of energy. I applaud the fact that the two of you recognize this by scheduling this hearing as we work toward developing a long-term domestic energy policy.

The need for a long-term energy policy is simple. We are experiencing a fundamental imbalance between energy supply and consumer demand that poses a tremendous risk to our Nation's well-being, our standard of living, and to a great extent our national security.

If we continue energy production and consumption at a rate equal to the one set in the 1990's, by 2020 we will be experiencing a shortfall of supply and demand of nearly 50 percent.

That shortfall, caused in part by a booming high-tech economy, can be made up in only three ways: import more energy, improve energy efficiency even more than expected, and increase domestic energy supply.

As I stated earlier, today's hearing will focus on the second of these two areas, improving energy efficiency even more than expected. President Bush's energy policy devotes 42 of his 105 recommendations to energy efficiency and conservation.

The easiest and most productive way to achieve recognizable conservation and efficiency goals is to provide as much information to the consumers as possible. Among other things, the President recommends continued and expanded promotion of the Energy Star program, a joint effort of the Environmental Protection Agency and the Department of Energy that promotes the most energy-efficient products on the market.

Energy Star currently applies only to major appliances, but the President has recommended that the Energy Star classification be expanded to a broader range of products. Energy efficiency can be improved by establishment of a minimum energy efficiency standard.

In 1987 and 1988, Congress established minimum energy efficiency standards for major appliances. These standards apply to manufacturers, but not to consumers. New standards recommended by the President, which simulate energy savings that benefit the consumer, reduce fossil fuel consumption, thus reducing air emissions.

While the initial cost of these energy-efficient appliances might be more than traditional appliances, access to more information will allow customers to better comprehend the long-term savings on their energy bills. These long-term savings will compensate the extra money spent on the more energy-efficient products.

I look forward to the testimony of our panelists today, especially the comments from our first panel.

Now, Mr. Chairman, as you can see, I have not prepared my testimony on a roll of toilet paper or anything like last year this year. And while I am still suspect about the 1.5-gallon-per-flush toilet, I hope that our panelists will address the Clinton Administration's rulemaking on washing machines, as well as tax credit legislation on energy-efficient appliances.

Again, Mr. Chairman, Mr. Boucher, I want to thank both of you for holding this hearing. I do look forward to working with both of you throughout the summer, and probably the fall, as we look at all aspects of a comprehensive energy policy that is very well needed in this country.

I yield back.

[The prepared statement of Hon. Richard Burr follows:]

PREPARED STATEMENT OF HON. RICHARD BURR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NORTH CAROLINA

Mr. Chairman and Mr. Boucher, I want to thank you for holding this hearing on energy efficiency and conservation. The work of this Committee in these two areas of the energy sector have to be examined and addressed first before we more forward with developing new sources of energy. I applaud the fact that the two of you recognize this by scheduling this hearing first as we work towards developing a long-term, domestic energy policy.

The need for a long term energy policy is simple. We are experiencing a fundamental imbalance between energy supply and consumer demand that poses a tremendous risk to our nation's economic well-being, our standard of living and, to a great extent, our national security. If we continue energy production and consumption at a rate equal to the one set in the 1990s, by 2020 we will be experiencing a shortfall of supply and demand of nearly 50%. That shortfall, caused in part by a booming high tech economy, can be made up in only three ways: import more energy; improve energy efficiency even more than expected; and increase domestic energy supply. As I stated earlier, today's hearing will focus on the second of these two areas' improving energy efficiency even more than expected.

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I look forward to the testimony of the panelists today, especially the comments from our first panel.

Now, Chairman Barton, as you can see I have not prepared my testimony on a roll of toilet paper or anything like that this year. And while I am still suspect about the 1.5 gallon per flush toilet, I hope that the panelists will address the Clinton Ad-

ministration's rulemaking on washing machines, as well as tax credit legislation on energy efficient appliances.

Again, Mr. Chairman, Mr. Boucher, thank you for holding this hearing. I look forward to working with both of you over the Summer and early Fall on this and all the other aspects of a National energy policy.

Mr. BARTON. I thank the gentleman from North Carolina. I would like to comment on his comment that I showed leadership by deciding not to play. I think Mr. Burr has shown great leadership by, the entire time he has been in the Congress, making no attempt to even come out for the game.

Mr. BURR. Clearly, Mr. Chairman, knowing one's limitations does display I have shown tremendous leadership.

Mr. BARTON. That is very true.

We would like to recognize the distinguished full committee chairman if he wishes to make an opening statement.

Chairman TAUZIN. Thank you, Mr. Chairman. Again, congratulations for last night, a great game.

I want to congratulate you perhaps on something more important than a great victory last night and that is on the decision to make conservation the first major emphasis of the major package.

Mr. BARTON. Of course, let us be honest. The decision to make this the first bill was made at a higher level than the subcommittee chairmanship.

Chairman TAUZIN. I want to thank the chairman for being a good follower as well as a good leader.

But the bottom line is that it is important that we make this statement that the demand reduction is, indeed, not only a critical element of the National Energy Policy that we hope to enact this year, but that it should be the first step we make, it should be the first emphasis we literally develop in the whole package of both the supply and delivery and market improvements we make in the energy markets of our country.

My own secretary of natural resources, Jack Caldwell, was in town this week to talk on the CARA bill. But I congratulated him because in Louisiana's recommendations to the Vice President, he led off with demand reduction, emphasizing that Louisiana was either first or second in per capita energy consumption in the Nation, because we literally have so many primary refining and manufacturing facilities that use natural gas, for example, as raw material, not just as an energy source, to make fertilizer for our country and for other important plastics and other products for Americans.

As a result, as an energy consumer, we were the first to feel the effects of too high prices of natural gas when 7 out of 12 of our petrochemical plants had to shut down because of that high price. So we led off our recommendations to the Vice President with a request that the policy include a significant effort at more demand reduction.

But let us be very clear about this. Just last week, the Wall Street Journal reported in a half-page ad on energy efficiency at IBM, IBM cut their energy bills by 25 percent. They have saved over $527 million over the past 10 years.

The Federal Government, which is the single largest energy user in the country, has already cut its energy consumption by 20 percent since 1985 and saved the taxpayers like $2 billion in 1999 alone. That is pretty good stuff, all using energy efficiency already.

And as technology advances and we develop smarter processes and better ways to use energy efficiently, we are going to continue to see those kinds of improvements. Our job as a committee is to accelerate and to emphasize that facet of the energy picture in our country.

The economic prosperity we enjoy today is due in large part to the fact that we are becoming more and more energy efficient in America. During the time, for example, the economy grew 126 percent, energy use grew only 26 percent in the country. That is a pretty good gain.

Energy intensity, the amount of energy required to produce a dollar of gross domestic product, has steadily declined in America. The reason: accommodation of technology improvement, better management practices, and putting them both to work.

The administration cites, for example, automobiles, which use roughly 60 percent of the gasoline they did in the 1970's per mile driven. That is good improvement.

Could we do better? You bet. Home refrigerators use about a third of the electricity they did in 1972. That translates into enormous savings for consumers and for our energy future.

You know, the House is not going to be willing to produce oil and gas from the Gulf of Mexico just because it is 130-some-odd miles from the panhandle of Florida when it is right adjacent to fields that are major producing fields for this country. The House is going to turn down the ability of America to take perhaps 7 trillion cubic feet of natural gas and nearly 2 billion barrels of oil that are available for us, easily obtained without environmental risk any different from the wells next-door, south of Louisiana. If we are going to shut down a field that was not under a moratorium, if we are not going to add more natural gas to the American supply market, we had better pass a doggoned good conservation bill here or we are in deep trouble.

Ninety-two percent of the new power plants—Mr. Chairman, you know this—say they are going to need natural gas, and we are not producing anymore. Where are we going to get it from? If we don't emphasize conservation in a big way, we are in trouble. Even if we emphasize it in a big way, I think we are in trouble. So we had better emphasize it in a very big way.

Mr. Chairman, I want to thank you and the witnesses who have come to testify today. And I especially want to congratulate our witness, Mr. Garman, on his recent appointment as Assistant Secretary for Energy Efficiency and Renewable Energy.

I want to pledge to you and Mr. Dingell and Mr. Boucher, and to your staffs, that in the next couple weeks, we are going to spend an awful lot of good time together. And this committee is going to do what it always does in a bipartisan fashion, we are going to produce a good energy policy for the country, and we will start here with conservation.

[The prepared statement of Hon. W.J. "Billy" Tauzin follows:]

PREPARED STATEMENT OF HON. W.J. "BILLY" TAUZIN, CHAIRMAN, COMMITTEE ON ENERGY AND COMMERCE

I would like to thank Chairman Barton for holding this important hearing in our series on a National Energy Policy. Any serious, comprehensive National Energy Policy must address energy efficiency and conservation. It is unfortunate, but per-

haps necessary, that high energy prices seem to be the driver for advancements in energy efficiency. As Americans, we are innovative when we have to be, but even more so when there is a dollar to be made or saved.

Just this week in the Wall Street Journal, there was a half-page ad on energy efficiency at IBM. They cut their energy bills by 25% and saved $527 million dollars over the past ten years by improving the efficiency at their facilities.

The Federal Government, the single largest energy user in the country, has cut its energy consumption per gross square foot by 20% since 1985, and saved taxpayers more than $2 billion in 1999 alone—all through improving energy efficiency. As technology advances and we develop smarter processes, the potential for saving both energy and money grows exponentially.

The economic prosperity we enjoy today is due in large part to improvements in efficiency over the past 30 years. During that time, the economy grew 126% while energy use only grew 26%. Energy intensity, the amount of energy required to produce $1 of gross domestic product, has steadily declined. The reason: a combination of technological improvements, better management practices, and putting these technologies and practices to their best use.

The Administration cites, for example, automobiles, which use roughly 60% of the gasoline they did in the 1970's per mile driven. New home refrigerators use about one-third the electricity they used in 1972. That translates into substantial savings for consumers.

The time is ripe for a renewed look at our Nation's energy efficiency programs. While the marketplace is perhaps the best driver for efficiency, it is not always perfect. There are technologies and practices that can be accelerated into the market with appropriate funding. There are conditions the Federal government can place upon itself to meet efficiency requirements, and there is information we can give consumers that will allow them to better manage their energy usage.

The first pieces of legislation this Committee will produce of the President's National Energy Policy will be on conservation and efficiency. I look forward to working closely with the ranking Members, Mr. Dingell and Mr. Boucher, on the elements of that package. All of the Committees have been asked by the House Leadership to produce energy legislation in the coming month. As the primary Committee of jurisdiction for energy policy, we plan to deliver. July will be a busy month.

I thank all of our witnesses for coming to testify here today. I especially want to congratulate our DOE witness, Mr. Garman, on his recent appointment as Assistant Secretary for Energy Efficiency and Renewable Energy. I look forward to hearing all of your testimonies.

Mr. BARTON. Thank you, Chairman Tauzin.

The Chair will recognize the distinguished gentleman from Oregon, Mr. Walden, for an opening statement.

Mr. WALDEN. Thank you very much, Mr. Chairman. I intend to keep my remarks short.

I think we have heard a lot of the data already that is out there about the importance of energy conservation. What has taken place already in this country is, people have responded to the marketplace and looked forward to higher prices. If indeed, as the chairman of the full committee says, we are not going to explore, not going to develop domestically and, indeed—in fact, take more areas out of production, put more restrictions around our domestic ability to supply our own needs, then it seems to me in the supply demand market the choice is higher prices.

That is going to put pressure on conservation. It is going to put, ironically, pressure back on this Congress to do something about high prices at the same time this Congress—some, have taken action to decrease supply. I don't get how you reverse the laws of economics. You can't have it both ways.

So, Mr. Chairman, I am a strong advocate of conservation measures. I believe very strongly in the need for increasing alternative sources of energy.

In our region and in my district there is a lot of development going on, upwards of 2000 megawatts of power of wind turbines

which work well in a hydro system because it helps shape the power curve. It allows us to store water to be released later when the wind is not blowing. So there is a unique partnership, at least in the Northwest, in terms of how it can be used elsewhere in the country. I think there is other work that can be done on solar and geothermal research and some of the fossil fuel research.

So I am actually pleased that yesterday we restored some of the funding, that the administration proposed a cut, in some of these areas. So as we work together, I hope we come out with a balanced program that encourages higher standards of conservation in the vehicles that we drive, in the appliances that we use, but also respects the fact that we don't want to price people out of the market and create an inability for them to be able to afford those appliances or drive those vehicles. So it is a tightrope we walk, but it is one we must.

Mr. Chairman, I look forward to the testimony today and thank you for leading with conservation. I think it is critical.

Mr. BARTON. I thank the gentleman from Oregon. And i welcome another veteran of the congressional baseball game, Mr. Bryant, who played in the game last night and, if I heard him correctly, told Mr. Oxley after the game he might be considering retirement from next year's game. I hope I heard that incorrectly, but I do believe I heard something along those lines.

Mr. BRYANT. I hoped not to make a formal record of this, but I did make a pledge to myself—when Mel Watts struck me out the first time—I was hanging it up. So that event occurred last night. And I asked my office this morning what was the only thing that Cal Ripkin and I had in common, and that is, we are both retiring this year. I asked Oxley for the opportunity to make a victory lap around the outfield, and he held me back and would not let me do that.

Mr. BARTON. The fact that you think you could make a victory lap around the outfield is commendable. I could watch you make a victory lap.

Mr. BRYANT. Actually, I was talking about driving around the outfield in a very efficient automobile, I might add, fuel efficient.

But I also want to add my appreciation for your having this hearing and talking about, and I think actually putting into action, a plan to——

Mr. BARTON. Would the gentleman yield? We need to make sure everybody understands you indicated to Oxley you weren't going to play in the baseball game next year. You are retiring from the baseball game, you are not retiring from the Congress. We need to make that clear.

Mr. BRYANT. That is right.

Mr. BARTON. The Democrats over here, their eyes were lighting up.

Mr. BOUCHER. Mr. Chairman, in all fairness, my eyes were only lifting in surprise, not in pleasure. I would very much like to see my colleague remain here.

Mr. BARTON. All right.

Mr. BRYANT. Thank you. I have a very yellow dog Republican district, so it is—I am not sure there is much hope there even if I

were to retire from that. But to be clear, it is just the baseball team.

But anyway, I do appreciate your advancing a plan to bring forth a conservation bill. I think it sends the right signal to America. I think we all agree that we cannot conserve our way out of—you know, out of an energy crisis; but we must have a broad, comprehensive plan that includes all aspects of the use of power and energy, and certainly, conservation and more efficient use of our fuel is a key component of that comprehensive, national plan that we have.

Quickly, I want to point out two things that I am involved with personally that will be showing up somewhere in this process of energy bills. Both have to do with diesel fuel. One is an instance of being more efficient in our use of diesel fuel.

I don't know how many of you—I am sure most of you travel the highways and stop at truck stops occasionally, or drive by and see just hundreds and thousands of trucks that are sitting there, particularly overnight, running their engines and using up diesel fuel and sending out emissions into the air. And we wonder, why does this have to happen?

There are technologies being developed today that are workable, particularly in the area of truck stops, that—where auxiliary power can be used to energize these trucks and provide the air conditioning and television and telephones and all those things that ordinarily these truckers keep their engines running all night to have.

This would result in a great savings, this type of technology would, in terms of what is going into the air, polluting the air, as well as the cost of fuel and saving fuel. That will be an amendment I will make at some point along the way in a conservation bill.

Second, one that I am cosponsoring with my colleague from Tennessee, Bart Gordon, regarding raising the standards—actually, the EPA has already set a higher standard for emissions in terms of diesel fuel itself, but actually they are phasing that in over a number of years. That makes no sense, in many ways, to everybody involved in this in terms of—if we are going to convert to a higher standard, let us go ahead and do that at one time so that we don't have to have additional equipment, two sets of pumps, and perhaps create confusion and put the wrong type of fuel into the trucks and the engines that will be using this more efficient diesel fuel.

So we will be adding that to something along the way also.

I think all of the—both of these ideas are win-win-win-win type situations for all involved. So with that, again thank you for holding this hearing, and I will yield back the balance of my time.

Mr. BARTON. We thank the gentleman from Tennessee.

Seeing no other members present that wish to make an opening statement, the Chair would ask unanimous consent that all members not present have the requisite number of days to put a formal opening statement in the record. Is there an objection to that? Hearing none, so ordered.

[Additional statement submitted for the record follows:]

PREPARED STATEMENT OF HON. EDWARD J. MARKEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MASSACHUSETTS

Thank you, Mr. Chairman. Let me begin by commending you for calling today's hearing.

Yesterday, the House of Representatives voted 247-164 to bar drilling off of the Florida coast, and it voted 242-173 to bar drilling in National Monuments. At the same time, the House also voted 216 to 194 to prevent any further delay in enforcing rules adopted by the Clinton Administration to require mining companies to pay for the full cost of environmental cleanups on federal lands.

These votes reflect the very strongly held views of the American public that we should not be sacrificing our nation's environmental heritage to help the oil and gas industries. A New York *Times*/CBS poll released yesterday shows that only 33% of the public favors the Bush Administration's energy plan, while 55% oppose it. 53% of the public believes that the U.S. should abide by the Kyoto Treaty on Global Climate Change, while only 32% agree with the President's position rejecting the treaty. 55% of the public believes that protecting the environment is more important than increasing energy production, while only 29% feel that energy production is more important.

The public also recognizes the importance of energy conservation and efficiency. According to the *Times* poll, 68% of the public agrees that encouraging efficiency and conservation should be a higher priority than increasing oil and gas production. 81% of the public would support stronger fuel efficiency standards for cars and trucks, with 66% still supporting such stronger standards even after they were told that they would result in higher prices to buy a new vehicle.

I believe that the American public is actually quite wise in their assessment of the situation that we face. They know that our nation's competitive advantage against OPEC is not in oil drilling. We can never match the huge oil reserves of Saudi Arabia and the other OPEC nations. Our advantage is that we are the world's technological giant. If we can harness the innovative and entrepreneurial genius of our nation to making ourselves more energy efficient, we can bring OPEC to its knees.

How do we do this? First, we need to create a Conservation and Renewable Energy public benefits fund to provide $1 billion annually for efficiency, conservation and solar, wind and other renewables. Second, we need to strengthen fuel efficiency standards for cars and light trucks, including SUVs and minivans. Third, we need tax credits for investments in more energy efficient buildings, homes, vehicles, and appliances. Forth, we must dramatically increasing funding for the Department of Energy research into innovative new efficiency technologies. Fifth, we must require the Energy Department to issue stronger minimum efficiency standards for a wide array of electricity-consuming appliances. Sixth, we must demand that the federal government be required to become more efficient in its consumption of energy. Seventh, we must help state and local governments make schools and other public buildings more efficient.

We believe that these proposals form the core of what is needed to help America exploit technology to reduce its energy consumption. We recognize, of course, that increasing energy production is necessary—consistent with protecting the environment. That is why we also support incentives for increasing production from marginal wells, construction of a natural gas pipeline in Alaska, and continued exploration and production on those public lands which are less sensitive and have been set aside for oil and gas production.

I look forward to today's hearing, Mr. Chairman. I was particularly heartened to read your remarks in today's papers indicating that you agree that "a 'just say no' approach [on CAFE standards] is just not going to be viable this year" and that "it makes sense to try to conserve." I could not agree more and I look forward to working with you and other Members of the Subcommittee as we prepare to legislate in this important area.

Mr. BARTON. Okay. We would like to welcome our first panel. We have the Honorable David Garman, who is the Assistant Secretary for Energy Efficiency and Renewable Energy at the U.S. Department of Energy; and we have Mr. Frederick Hoover, who is the director of the Maryland Energy Administration, who is here on behalf of the National Association of State Energy Officials.

Gentlemen, we welcome you. Your statements are in the record in their entirety.

We are going to start with our Federal witness, Mr. Garman. We will give you 7 minutes to summarize your testimony, and then we will give Mr. Hoover the same 7 minutes, and then we will ask you some questions. Welcome to the subcommittee.

STATEMENTS OF HON. DAVID K. GARMAN, ASSISTANT SECRETARY FOR ENERGY EFFICIENCY AND RENEWABLE ENERGY, U.S. DEPARTMENT OF ENERGY; AND FREDERICK H. HOOVER, JR. DIRECTOR, MARYLAND ENERGY ADMINISTRATION, ON BEHALF OF THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Mr. GARMAN. Thank you, Mr. Chairman, and members of the committee. I will try to take less than 7 minutes, if possible.

It is very important and notable that you are starting out your first hearing on this very important subject of energy efficiency. Energy efficiency is, of course, a critical component of the administration's National Energy Policy. As has been pointed out, of the 105 recommendations contained in the policy, more than 20 directly or indirectly address energy efficiency and another 16, refer to renewable energy.

By implementing these recommendations, our Nation will continue the trend that has begun on decreasing energy use per dollar of GDP while improving our standard of living and protecting the environment.

My office is responsible for DOE's research, development, demonstration and deployment of advanced energy technologies and practices. We are quickly working to implement the recommendations contained in the President's National Energy Policy.

For example, the policy calls for a review of current funding and historic performance of the Department of Energy's Office of Energy Efficiency and Renewable Energy Programs. Within 12 days after I was sworn in, we were conducting public meetings at various locations across the Nation in an effort to receive public comments on the objectives of our energy efficiency programs, the objectives of our future programs, program implementation, whether or not our programs were achieving their intended objectives, and new ideas for public-private partnerships.

With the benefit of public comment, we are now proceeding with a top-to-bottom strategic review of all of our 31 programs to assess their performance and potential to be complete by September 1.

Our review will complement a National Academy of Sciences' review that is also under way, studying some of our energy efficiency programs, and that review is expected to be released in mid-July. Based on these reviews, we will be in a position to propose appropriate levels of funding for our programs in the future, as well as to continue to engage the Congress as it concerns spending levels for fiscal year 2002. It is our aim to promote a diverse portfolio of activities that are performance-based and modeled on public-private partnerships.

Let me cite just a couple of examples of what we have accomplished so far to illustrate why I am enthusiastic about our capacity to fulfill many of the recommendations contained in the President's National Energy Policy document.

In the transportation sector in our government, the investment in our government/industry partnership for new generation of vehicles is paying off. Hybrid electric drive options will be offered by each of the three automakers in the 2003-2004 timeframe: Dodge Durango in 2003, Ford Escape in 2003, Chevrolet Silverado in 2004, and Ford Explorer in late 2004.

In general, these configurations of hybrid vehicles will deliver equal or better performance while also improving fuel economy between 15 and 35 percent.

In our industrial programs, through cost-shared R&D on precompetitive technologies, the Department has helped develop over 140 technologies that are now in the marketplace. For example, a new oxygen-fueled combustion process in the glass industry averages energy savings of 15 percent on larger furnaces and can achieve savings of up to 45 percent in smaller furnaces, all while reducing NO_X and particulate emissions; in the buildings arena, the introduction of new technology to increase energy efficiency that can have significant economic and environmental benefits.

Two examples of reduced energy use that EERE has played a role in include low emissivity windows that now comprise 40 percent of the market and reduce heat loss from the windows by one-third. Also, energy-efficient refrigerators, as has been pointed out this morning, use a quarter of the energy needed by refrigerators as recently as 1974.

I want to stress that nearly our entire portfolio of energy R&D is based on public-private partnerships. We believe that working with the private sector stimulates private investments and leverages Federal dollars. These partnerships also help ensure that we develop technologies that the private industry will carry forward into the marketplace.

Finally, Mr. Chairman, in the letter asking us to testify, you asked that we identify any statutory changes that might further promote energy efficiency. We find that at very first blush, we have significant existing authority to carry out programs under the provisions of the National Energy Policy Act of 1992, the Energy Policy and Conservation Act, the National Energy Conservation Act, the Energy Security Act, and many other provisions of law.

Prior to the completion of our strategic reviews, which will be complete September 1, we are not yet in a position to identify other legislative initiatives beyond those included in the National Energy Policy that the administration is prepared to recommend at this time. However, we will look forward to working with the Congress and this committee as you move forward in these areas.

Mr. Chairman, I believe that the National Energy Policy recognizes the critical role that energy efficiency plays in a balanced energy policy. Thank you for the opportunity to testify today, and I look forward to any questions the that the panel may have. Thank you.

[The prepared statement of David K. Garman follows:]

PREPARED STATEMENT OF DAVID K. GARMAN, ASSISTANT SECRETARY FOR ENERGY EFFICIENCY AND RENEWABLE ENERGY, U.S. DEPARTMENT OF ENERGY

Chairman Barton and members of the Subcommittee, it is a pleasure for me to be here today to discuss the Administration's National Energy Policy and its relationship to the Department of Energy's Energy Efficiency programs. Mr. Chairman,

the National Energy Policy, which was issued on May 16, 2001, by the National Energy Policy Development Group, is a balanced, comprehensive long-term approach highlighting the promise of technology in meeting our energy, environmental and economic challenges. The National Energy Policy promotes energy efficiency and improved energy conservation as a national priority. Of the 105 recommendations in the Policy, more than 20 directly or indirectly address energy efficiency in residences, commercial establishments, industrial sites, electrical power plants, and transportation. By implementing these actions, this nation will continue our trend of decreasing energy use per dollar of GDP, while improving our standard of living and protecting the environment.

Mr. Chairman, I am pleased to report the Office of Energy Efficiency and Renewable Energy will continue to build on our successful technology research, development, demonstration and deployment (RDD&D) activities to meet the recommendations of the National Energy Policy. EERE is poised to play a major role in this nation's energy future. The Office funds research, development, demonstration and deployment of affordable, advanced energy technologies and practices. This effort is organized around five energy sectors—(1) buildings, (2) industry, (3) transportation, (4) power generation and delivery, and (5) federal government facilities—which are incorporated into 31 programs. Let me cite only a few examples of what we've accomplished so far to illustrate why I am so enthusiastic about EERE's capacity to fulfill many of the recommendations of the National Energy Policy.

In the transportation sector, the investment in our government/industry Partnership for a New Generation of Vehicles (PNGV) is paying off: Hybrid-electric drive options will be offered by each of the three automakers in the 2003-2004 timeframe: Dodge Durango in 2003, Ford Escape in 2003, Chevrolet Silverado in 2004, and Ford Explorer in late 2004. In general, these configurations will deliver equal or better performance while also improving fuel economy by between 15 to 35 percent. To the individual consumer, this could mean roughly a twenty percent reduction in fuel use, which allow a fifth fewer trips to the gas station and reduced fuel costs.

In our industrial programs, through cost-shared R&D on pre-competitive technologies, the Department has helped develop over 140 technologies which are currently in the marketplace. These technologies provide environmental and general productivity improvements, as well as reducing farm and factory energy bills. For example, a new oxygen-fueled combustion process in the glass industry averages energy savings of 15% on larger furnaces and can achieve savings of up to 45% in smaller furnaces while reducing NO_X and particulate emissions.

In the buildings arena, the introduction of new technology to increase energy efficiency can have significant economic and environmental benefits. Two examples of reduced energy use are: Low emissivity windows which reduce heat loss from windows by one-third and now comprise 40% of the windows market; and energy use in refrigerators has gone from over 1800 kilowatt hours per year for a typical unit sold in 1974 to a new standard of 476 kilowatt hours for a typical unit sold after July 1, 2001, reducing refrigerator energy use by roughly three-quarters.

And, finally, we have also had successes in our Federal Energy Management program. In FY 1999, the Government reached its Energy Policy Act of 1992 FY2000 goal of 20% decreased energy consumption per gross square foot since FY1985—a year early. In FY 1999 constant dollars, the Federal government's utility bill in FY 1985 for facilities was $5.6 billion dollars. In FY 1999, the bill was $3.41 billion dollars—$2.2 billion less in constant dollars.

I want to stress that nearly our entire portfolio of energy efficiency programs is based on public/private partnerships. We believe that working with the private sector stimulates private investments and leverages scarce federal dollars. These partnerships also help ensure that we develop technologies that private industry will carry forward to the marketplace.

Mr. Chairman, the Department has already begun to implement some of the recommendations from the National Energy Policy report. The Policy calls for a review of current funding and historic performance of the Department of Energy's Office of Energy Efficiency and Renewable Energy programs. I am pleased that Secretary Abraham asked me to begin the review process. My office has undertaken the reviews by using a two-pronged approach: (1) A period of public comments; and (2) an internal programmatic review. We scheduled seven meetings across the country throughout the month of June to receive public comments on the NEP as it relates to EERE programs. Six of the meetings have been completed. We've asked the public to provide their views on (1) the objectives of the current energy efficiency and renewable energy research, development, demonstration and deployment programs, (2) suggested potential objectives for future programs, (3) implementation of current and future programs, (4) whether these federal programs are achieving intended objectives, and (5) and ideas for public/private partnerships.

When public input concludes on June 29, we will begin reviewing all EERE programs to determine their performance and potential in terms of delivering benefits to the public. We have committed to reevaluating those programs that have not made progress toward national energy goals. Likewise, we will redouble our efforts in those programs that have shown, and continue to show, good performance and potential in contributing to national energy goals. We have set the ambitious goal of completing the formal program review by September 1 at which point we will provide recommendations to the Secretary. I fully expect, that when the review is complete, we will have a diverse portfolio of activities—from basic research to deployment projects—that is performance-based. This is consistent with the national need to develop a balanced energy technology R&D portfolio that delivers short-term, intermediate, and long-term energy benefits. Further, this review will complement the National Academy of Sciences study of our programs which is expected to be released in mid-July.

Mr. Chairman, we are leading by example. President Bush, on May 3, 2001, issued a directive to Federal agencies, echoing the NEP recommendation that Federal managers take appropriate actions to conserve energy at their facilities to the maximum extent possible. These Federal actions, which were to begin immediately, are expected to reduce peak load and serve as examples of energy conservation for the rest of the country. They may even help reduce the extent of electricity shortages this summer in susceptible areas including California, the Northeast and the Northwest. Secretary Abraham has asked EERE's Federal Energy Management Program (FEMP) to work with federal agencies to implement the President's directive. This week we transmitted to the Vice President for his review, the consolidated report of Federal Agencies outlining the Federal Government's efforts to save electricity and reduce peak load in response to the President's directive.

The National Energy Policy report recommended that the President increase funding the Weatherization Assistance Program by $1.2 billion over 10 years. In concert with this recommendation, the President requested an additional $120 million in the FY 2002 budget submission for this purpose. This funding increase will enable States to weatherize 123,000 low-income homes. This represents an increase of 48,000 additional low-income homes as compared to FY 2001, thereby providing assistance to low-income citizens whose energy costs represent a disproportionate share of their income.

Mr. Chairman, I know that the Subcommittee is considering statutory changes that might further promote energy efficiency. We find, at first blush, that we have significant existing authority to carry out our programs under the provisions of the Energy Policy Act of 1992, the Energy Policy and Conservation Act, the National Energy Conservation Act, the Energy Security Act, the National Appliance Energy Conservation Policy Act, the Federal Energy Management Improvement Act, and the Department of Energy Organization Act, among others. Moreover, Executive Orders provide us with additional authority and guidance. Prior to completion of our strategic reviews, we cannot identify other legislative initiatives beyond those included in the National Energy Policy that the Administration is prepared to recommend.

Mr. Chairman, we believe that the National Energy Policy recognizes the critical role that energy efficiency plays in a balanced energy policy. Thank you for the opportunity to testify today and I will be happy to respond to any questions you may have.

Mr. BARTON. Thank you, Mr. Garman.

And we now hear from Mr. Hoover.

STATEMENT OF FREDERICK H. HOOVER, JR.

Mr. HOOVER. Mr. Chairman, members of the subcommittee, my name is Frederick Hoover, Jr., and I am pleased to testify today to discuss the views of the National Association of State Energy Officials on energy efficiency programs. I am the Director of the Maryland Energy Administration. I am also an officer of NASEO, which represents 49 of the State energy offices, as well as the territory of the District of Columbia.

NASEO's overall objective is to support balanced national energy policies and to provide State perspectives on energy issues. NASEO members operate energy programs in all sectors of the economy

and all types of energy resources. The State energy officials are also generally the Governor's energy advisors.

I want to congratulate Assistant Secretary Garman on his appointment. He has been open to State views, and we look forward to working with him in the future. We also applaud the subcommittee for holding this hearing today on energy efficiency.

In short, energy efficiency is a critical component of a responsible National Energy Policy. It is certainly not the only component of a balanced policy, but it is both undervalued and underfunded.

Energy efficiency cannot be seen as one individual program or policy. It works most effectively when implemented through a combination of public-private partnerships, government encouragement and programs, deployment and research, development and demonstration.

One of the many roles that State energy offices play is to promote energy efficiency activities through all these vehicles. Our offices push for the passage of energy legislation at the State level, such as electric restructuring with public benefit programs, building code upgrades, State tax credits for energy efficiency, and the promotion of transportation efficiency programs such as telecommuting and ride-sharing.

Many in Washington, DC, see energy efficiency as a series of stark choices in contrast. We do not view it in this manner. For example, some on Capitol Hill and in the administration believe that the only Federal Government role is to promote R&D. We believe this is not correct. NASEO strongly supports aggressive R&D programs at the Federal and State level, but R&D alone is not sufficient.

A sensible energy policy is built upon encouraging deployment of new technologies, especially in the energy efficiency area. I would cite as an example the Energy Star program, a partnership with States between the Department of Energy and the Environmental Protection Agency to promote energy-efficient appliances.

Our State energy officials have their fingers on the pulse of the actions that businesses and homeowners are taking. We know what sells to the public. R&D without deployment is a waste. We conduct both applied and long-term R&D at the State level in concert with our business partners.

Feedback is critical to directing that work so that it is relevant. Often, our Federal R&D programs lack that necessary feedback loop to the energy offices and the industries to provide practical advice on the direction of this research and its practical application.

The recent action by the House Subcommittee on Interior of the Committee on Appropriations, and approved by the full committee on June 13, to increase funding for Federal energy efficiency programs to $940 million in fiscal year 2002 is a very positive step. The Subcommittee on Interior should be applauded for its leadership and bipartisan cooperation in recognizing the significance of our energy problems.

Of greatest importance was the proposed increase in the State energy program from $38 million to $62 million and the weatherization assistance program from $153 million to $249 million. In general, most of the energy efficiency R&D programs unfortunately remain closed to fiscal year 20O1 levels.

The review of these programs being conducted by the Department of Energy is described by Assistant Secretary Garman as a positive development. This review is intended to focus on measures of success in the presence of public-private partnerships. Our State energy offices have been participating in these meetings. We stand ready to assist the new administration during this review process.

The State energy offices are in a unique position to get us precisely this type of review which our Governors and legislatures call on us to undertake on a regular basis. We look forward to providing useful input. Progress has been made in recent years, and we look forward to continuing to work with the agency in this area.

We do feel that there are a number of areas that require specific legislative attention beyond the budget and appropriation issues. Residential tax credits for new and existing building energy efficiency is a critical piece of legislation. The school sector is one area where we have a serious energy problem.

The efforts on the part of Representative Udall and the gentleman from New York, Mr. Boehlert, who had the foresight to introduce such legislation which will provide funding for energy efficiency and improvements at schools is a positive development. This legislation is basically included in both Senator Mikulski and Chairman Bingaman's comprehensive bills. It should be included in any bill this subcommittee moves forward.

In the transportation sector, the President's proposal for hybrid and fuel cell vehicles and Senator Hatch's Clear Air Act legislation are very positive developments. We cannot fully address our energy problems without dealing with the transportation sector.

I would also like to congratulate the efforts by the gentleman from Louisiana, Chairman Tauzin, and the gentleman from North Carolina, Mr. Burr, to remove the weatherization match requirement that was taken yesterday.

NASEO is pleased to have had the opportunity to testify today. We look forward to working with the subcommittee in the future on this very important issue. Thank you.

[The prepared statement of Fredrick H. Hoover, Jr. follows:]

PREPARED STATEMENT OF FREDERICK H. HOOVER, JR., DIRECTOR, MARYLAND ENERGY ADMINISTRATION ON BEHALF OF THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Mr. Chairman, members of the Subcommittee, my name is Frederick H. Hoover, Jr., and I am pleased to testify today to discuss the views of the National Association of State Energy Officials (NASEO) on energy efficiency programs. I am Director of the Maryland Energy Administration. I am also an officer of NASEO, which represents forty-nine of the state energy offices, as well as the territories and the District of Columbia. NASEO's overall objective is to support balanced national energy policies and to provide state perspectives on energy issues. NASEO members operate energy programs involving all sectors of the economy and all types of energy resources. The state energy officials are also generally the Governors' energy policy advisors.

Obviously, this has been an exciting time for us all. Ed Pinero of Pennsylvania testified on behalf of NASEO at a recent coal hearing held by this Subcommittee and I testified at a recent Senate Energy and Natural Resources hearings on U.S. energy trends and changes in energy markets. We applaud the Subcommittee for holding this hearing today on energy efficiency. In short, energy efficiency is a critical component of a responsible national energy policy. It is certainly not the only component of balanced policy, but it is both under-valued and under-funded.

At both the state and federal levels we have been suffering with high energy prices and critical infrastructure problems. Public reaction is predictable and polit-

ical rhetoric tends to follow. One thing we have learned about energy crises is that no two are ever exactly alike and our response should not be worse than the disease.

NASEO provided input to the Vice-President's energy policy task force and we are happy to provide input on a non-partisan basis to both the House and Senate. Our members are called upon to advise our Governors and legislatures with respect to legislative, policy, programmatic and regulatory options to address our energy situation. Energy efficiency is an important part of that broader discussion.

APPROACH TO ENERGY EFFICIENCY

Energy efficiency cannot be seen as one individual program or policy. It works most effectively when it is implemented through a combination of public-private partnerships, government encouragement and programs, deployment and research, development and demonstration. One of many of the roles of the state energy offices is to promote energy efficiency activities through all these vehicles. Our offices push for passage of energy legislation at the state level, such as: 1) electricity restructuring with public benefits programs; 2) building code upgrades; 3) state tax credits for energy efficiency; 4) promotion of transportation efficiency programs (telecommuting, ridesharing), etc. In my own state of Maryland, the Governor with the General Assembly has been in the forefront of promoting tax credits for purchases of energy efficient products, such as appliances, with the Maryland Clean Energy Incentive Act. Regulatory actions are another key component of energy efficiency strategies. In Maryland, we see energy efficiency as part of a broader agenda to limit sprawl. These anti-sprawl initiatives look at energy use and distribution, telecommuting, redevelopment of inner suburbs and cities, environmental policies, etc. Energy efficiency will be an ever-increasing part of this effort. "Smart Growth" initiatives are an important part of energy policy. Governor Glendening, in his role as Chairman of the National Governors' Association (NGA) this year, is encouraging work in this area on a national basis. This year the Governor issued an Executive Order, entitled "Sustaining Maryland's Future with Clean Power, Green Buildings and Energy Efficiency." Environmentally responsible building practices which reduce the use of energy through site orientation and design, promotion of natural day-lighting and ventilation, encouraging use of recycled and reused materials are all part of this effort.

Energy efficiency is not turning the thermostat up to 80 degrees and dramatically changing the lifestyles of Americans. Our programs in Maryland, and the work of my colleagues nationwide, is focused on integrating technological advances into the everyday lives of our taxpayers, including not only the residential sector, but the commercial and industrial sector as well.

Energy efficiency programs at the state level are often seen as economic development programs. The state energy offices are a key component of economic development at the state level. Part of our work focuses on helping businesses reduce operating costs to become more competitive. Part of the reason our nation's productivity has increased is that our energy use has decreased per unit of economic output. This is not accidental.

On the other hand, keeping the focus on energy efficiency is not easy when energy prices are low. As you know, everyone cares when the prices rise, but generally only producing states care when the prices are low. We agree that extreme price volatility is damaging to both producing and consuming states. We need to fight the urge to ignore energy when prices drop. The compromise that you worked out, Chairman Barton, when the Energy Policy and Conservation Act (EPCA) was reauthorized, to establish a regional petroleum reserve in exchange for a price-triggered strategic petroleum reserve fill is the type of example that the states support as a creative response to energy problems. There are many examples in the pending congressional debate on energy policy that might lend themselves to similarly creative solutions.

On the regulatory side the federal government has the statutory responsibility to issue appliance energy efficiency standards. We hope that higher standards can be developed for a number of products. There has been great controversy about choosing the lower standard for air conditioning products, which we think is unfortunate. We encourage Congress to prod the Administration to take the suggestion in the Vice-President's report very seriously and quickly move to enhance these standards.

Many in Washington, D.C. see energy efficiency as a series of stark choices and contrasts. We do not view it in this manner. For example, some on Capitol Hill and the Administration believe that the only federal government role is to promote R&D. This is simply wrong. NASEO strongly supports aggressive R&D programs at the federal and state levels, but R&D alone it is not sufficient. A sensible energy policy is based upon encouraging deployment of new technologies, especially in the energy

efficiency arena. Our state energy officials have their fingers on the pulse of actions that businesses and homeowners are taking. We know what "sells" to the public. R&D without deployment is a waste. We conduct both applied and long-term R&D at the state level, in concert with our business partners, and feedback is critical to directing that work so that it is relevant. Often our federal R&D programs lack the necessary feedback loop to the energy offices and industry to provide practical advice on the direction of this research and its practical application.

In the same manner, some support exclusive promotion of so-called "market transformation" programs as opposed to direct energy deployment programs. Market transformation programs promote things such as the development and use of a new breed of high efficiency appliances. The correct answer is that there is a role for both types of programs. Most of the state public benefit programs established through electricity restructuring statutes recognize the value of promoting both types. This can be done by funding educational programs to promote the use of energy efficient appliances, while also supporting rebates to businesses to implement energy service performance contracts. Energy Service Performance Contracts (ESPCs) are an excellent example of deployment programs that work. The energy services industry is a $1-1.5 billion/year business, focused on energy efficiency programs. NASEO is very supportive of these efforts. We are working closely with DOE's Rebuild America Program to promote this activity.

BUDGET/APPROPRIATIONS ISSUES

The recent action of the House Interior Appropriations Subcommittee (approved by the full Committee on June 13) to increase funding for the federal energy efficiency programs to $940 million in FY-02 is a very positive step. The Interior Appropriations Subcommittee should be applauded for its leadership and bi-partisan cooperation in recognizing the significance of our energy problems. Of greatest importance was the proposed increase of the State Energy Program from $38 million to $62 million and the Weatherization Assistance Program from $153 million to $249 million. In general, most of the energy efficiency R&D programs remained close to FY-01 levels.

This is a dramatic improvement from the President's Budget request, which generally called for 50% reductions in most R&D programs, while calling for an increase in the Weatherization Program. Another innovative program which was proposed for a large decrease in the President's budget (from $14 million to $5 million) was the State Energy Programs Special Projects. This exciting program allows states with their private partners to submit competitive proposals to fund replicable projects, with substantial cost-shares. The projects fit into the basic categories of buildings, industry, transportation, power and energy management and provide real energy savings very quickly. More funding needs to be provided to this activity, not less. Another important program is a small $6 million state-federal cooperative R,D,D&D program, strongly supported by the Interior Appropriations Subcommittee that is intended to link federal and state programs.

Certain other programs should be increased by at least some amount, including: 1) international market development (+$2 million); 2) buildings research (+$2 million); 3) energy star (+$2 million); 4) industry energy efficiency (+$2 million); and 5) the Federal Energy Management Program (+ $2 million). Unfortunately, we continue to oppose a 25% match requirement imposed on the Weatherization Program, which was repealed last year by this authorizing committee as part of the reauthorization of the Energy Policy and Conservation Act.

The review of these programs being conducted by the Department of Energy, and being led by Assistant Secretary Garman, is a positive development. This review is intended to focus on measures of success and the presence of public-private partnerships. Our state energy offices are participating in these public meetings. We stand ready to assist the new Administration during this review process. The state energy offices are in a unique position, because it is precisely this type of review which our Governors and legislatures call on us to undertake on a regular basis. We look forward to providing useful input. Progress has been made in recent years and we look forward to continuing to work with the agency in this area.

During the campaign the President proposed a doubling of the State Energy Program to $76 million and the Weatherization Program to $306 million. The budget request suggested a $120 million increase for Weatherization and no increase for the State Energy Program. These approximate increases in authorization levels were included in the Senate-passed Bankruptcy bill, through an amendment primarily sponsored by Senator Bingaman. This amendment also included proposed increases for the Low-Income Home Energy Assistance Program (LIHEAP) to the $3-$4 billion level; an increase we support, as well as more aggressive funding for the Federal

Energy Management Program (FEMP). Similar funding levels are included in legislation separately introduced by Senators Bingaman and Murkowski—in other words there is bi-partisan support.

These authorization levels do point out a difficult problem for Congress. In an effort to pass comprehensive energy legislation, it will be easier to simply authorize funding for a panoply of programs of all types, without any expectation that funding will be provided through the appropriations process. For example, many of the programs established in the Energy Policy Act of 1992 have never been funded at their authorized levels. While this may bring votes, it fails an important leadership test for a balanced energy policy. If energy problems are that serious, we must find the resources to address the problem. This applies to supply-side as well as demand-side solutions.

The State Energy Program is the key federal-state coordinating tool for energy programs. The energy offices bring a substantial amount of non-federal funding to the development of energy projects and programs at the state level. This runs the gamut of deployment to research and development, and involves all sectors of the economy. The leverage provided to the small amount of federal funding for this program is many times in excess of any other energy efficiency program presently provided with federal funds. In fact, state funding for these programs (directly and indirectly) far exceeds the funds provided by the federal government.

As we mentioned the budget also suggested a 50% reduction in many of these energy efficiency programs, though the words of the new National Energy Policy Development Group report seemed to suggest an important role for these programs. There appears to have been a disconnect, which will require further attention. We hope that Congress will finish the good work of the Interior Appropriations Subcommittee in the House and fund these programs at least at the House Committee-passed level for FY-02, with the additions noted above.

ENERGY LEGISLATION

A number of areas require specific legislative attention, beyond the budget and appropriations issues.

Residential tax credits for new and existing building energy efficiency is a critical piece of legislation. This issue demands attention and can provide both short-term and long-term benefits to homeowners to reduce their energy use, and make home ownership more affordable. A number of bills have been introduced and should be relatively easy to meld. Representative Weller introduced such a bill on June 13, 2001. Similar provisions are included in H.R. 2108 offered by Representative Matsui and S. 207, offered by Senator Bob Smith and Senator Feinstein. Chairman Bingaman and Senator Murkowski support similar provisions. House Ways and Means Chairman Thomas introduced a bill similar to Representative Weller's in the previous session of Congress. This is a must-pass bill. We believe that a compromise can be achieved which will allow: 1) outside inspections of less than 100% of tract-built homes (assuming compliance); 2) a higher tax credit level than that provided in the Smith/Feinstein bill, though possibly not quite as high as in other bills for a 30% increase in efficiency with a possible second tier; and 3) consideration given to credits being offered to builders.

The schools sector is one area where we have a serious energy problem. Congress and the Administration on a bi-partisan basis recognize the importance of improving educational opportunities for our students and ensuring that funding is provided in an efficient manner. The state of our nation's schools is poor. Even if you do not support a broad school construction program through bonding, increasing the energy efficiency of our schools (both new and existing) should be a top priority. Every dollar spent on energy costs for these institutions is one less dollar that goes into educating our sons and daughters. Representatives Udall and Boehlert had the foresight to introduce such legislation, which would provide funding for energy efficiency improvements in schools. This legislation is basically included in both Senator Murkowski's and Chairman Bingaman's comprehensive bills. It should be included in any bill this Subcommittee moves forward.

In the transportation sector the President's proposal for hybrid and fuel cell vehicles and Senator Hatch's "Clear Air Act" legislation are very positive developments. We cannot fully address our energy problems without dealing with the transportation sector. We must seriously consider either an increase in CAFE standards or some other alternatives, such as Senator Bingaman's fuel use legislation, that will increase our vehicle fuel efficiency. Some notable developments in the use of light weight materials, hybrid engines, fuel cells and use of alternative fuels (such as ethanol) are all providing opportunities to reduce our oil use in the transportation sec-

tor. We hope that the upcoming National Academy of Sciences study will help conclude the debate.

If Congress proceeds on comprehensive energy legislation, a rational public benefits program could be a real asset to both energy efficiency programs as well as federal-state relations. Funding of energy efficiency programs is a key piece of such a public benefits program, with discretion provided to states.

Also in the energy conservation arena, expansion of daylight savings time deserves strong consideration.

EXAMPLES OF EFFECTIVE ENERGY EFFICIENCY PROGRAMS

There are certainly a myriad of successful programs, policies, regulations and statutes at the state level that should inform a federal discussion on energy efficiency programs. We are ready to work with DOE, EPA and the Administration as a whole, as well as Congress, to help improve programs.

Some examples of successful state efforts are as follows:

- Iowa established an energy management program a number of years ago to provide energy efficiency improvement for public buildings utilizing private financing. Thus far, $141 million in improvements have been made, saving $21 million annually. Avoided emissions total 4,052 tons of Nox, 45,782 tons of Sox and 5,341 tons of particulate matter.
- In Texas 192 schools have implemented energy efficiency measures resulting in annual savings of $4.4 million, with cumulative savings thus far of $10.5 million. An additional 262 schools have yet to be retrofitted, but are scheduled for improvements.
- Idaho has operated a low-interest loan program for residential, commercial, agricultural, government and school projects. Almost 2000 loans have been provided totaling $13.4 million, with almost $4 million in annual energy savings. Idaho has also implemented scores of energy efficiency programs in the agricultural sector focusing on such items as irrigation delivery and management.
- Tennessee operates a local government loan program for schools, emergency response facilities and other publicly-supported buildings. The $7 million in loans provided thus far have produced cumulative savings of $39 million. The state also operates a small business loan program that has provided $8.2 million in loans to 217 entities for cumulative savings of $14.2 million thus far.
- Wisconsin's Energy Initiative 2 for schools has saved $3.4 million per year for 314 projects, with improvements to over 32 million square feet of space, with dramatic reductions in natural gas and electricity use. The state energy office is also operating a pilot energy efficiency program within the Wisconsin Public Service Corporation service territory, with substantial results.
- New York operates the FlexTech program to provide technical assistance to small businesses and non-profits to reduce energy costs. The program leverages $14 in private funds for every $1 of state grant funds, and returns $4 per year in savings to the owner. Nineteen state facilities under the Envest program have utilized $75 million in private financing to make major energy efficiency capital improvements. Multiple changes to the New York State Energy Code will save $3.5 million per year in 24,000 new homes and over $42 million per year in operating costs at new commercial buildings.

ENERGY/ENVIRONMENT INTEGRATION

One area where the states have taken the lead is an attempt to integrate energy and environmental policy. As has been the case historically at the federal level, state energy agencies, utility commissions and environmental agencies had generally treated energy and environmental programs separately. Obviously, we know intuitively that energy and environmental policies, programs and regulations need to be addressed together or you operate less efficient, cost-effective and environmentally sound programs. Energy efficiency is a big piece of this effort. Beginning in August of 1999, then with larger meetings in March of 2000 and September of 2000, NASEO, along with the National Association of Regulatory Utility Commissioners (NARUC), the Environmental Council of the States (ECOS)(state environmental commissioners) and the State and Territorial Air Pollution Program Administrators/Association of Local Pollution Control Officials (STAPPA/ALAPCO), worked together to bring members from the different states together to begin to address these important problems. Solutions range from energy efficiency and renewable energy, to demand restraint programs of Independent System Operators (ISO), to promotion of distributed generation, to electricity reliability issues. We have had cooperation from the Department of Energy and the Environmental Protection Agency. A number of states are working to institute pilot programs, where we examine

these issues together, including my own state of Maryland, as well as Utah, Wisconsin, Georgia. A regional effort in the west, known as the Western Regional Air Partnership, is examining innovative solutions to air quality problems, utilizing energy efficiency and renewable energy alternatives, among other options. The Northeast is working together to develop a specific technical standard for distributed generation, to avoid a mismatch from state-to-state within one ISO.

The VA-HUD and Independent Agencies Appropriations Bill for FY-2001 recognized the value of these efforts and encouraged EPA and DOE to continue to cooperate with the states. We would certainly appreciate the support of this Committee. It is a clear "win-win" situation with no partisan issues. This effort is completely voluntary among the states.

CONCLUSION

NASEO was pleased to have the opportunity to testify today. We look forward to working with the Subcommittee as you systematically address the array of serious energy problems.

Mr. BARTON. Thank you.

The Chair would recognize himself for 5 minutes for questions, and I don't expect to take 5 minutes.

Mr. Garman, how long have you actually been in the Department of Energy this year?

Mr. GARMAN. I was sworn in on May 31.

Mr. BARTON. So you have been there less than a month.

Mr. GARMAN. Yes, sir.

Mr. BARTON. Okay. Have you, in your mind, had adequate time to assimilate some of the programs that are under your jurisdiction? Do you feel like you have got a good working knowledge based on that?

Mr. GARMAN. I have an initial working knowledge, yes, sir.

Mr. BARTON. Okay. Of the people that are directly under your control, are any of them people that you brought with you, or are they pretty much people that were there?

Mr. GARMAN. No, sir, I brought no one with me.

Mr. BARTON. Do you expect to have some assistants that are of your choosing at some point in the near future?

Mr. GARMAN. Yes, sir, I do.

Mr. BARTON. Okay. So far, you have been in the Department less than a month, and you have the career staff that are in that part of the Department that you are in charge of?

Mr. GARMAN. That is correct. And I would add that it is truly an excellent and exceptional career staff. We are fortunate in that regard.

Mr. BARTON. We would expect you to say that in their presence. And I am sure it is a true statement, so I am not being facetious about that.

When I was chairman of the Subcommittee on Oversight and Investigations of this committee, I did numerous hearings on the efficiency of the Department of Energy and the programs under that department. It was like throwing darts at a dart board. Wherever you hit, you found a problem. It was just—without exception, the programs were not well run, were not cost effective, were very wasteful of taxpayer dollars.

So I am very interested, as you settle in, in your personal analysis of these conservation programs that you are in charge of, because my experience has been, at the surface, they may appear to be performing ably, but in fact, if you look beneath the surface, there are problems. I am not talking about corruption problems, I

am just talking about, does the program deliver what it is supposed to deliver in terms of the expectation of the country and the Congress.

So I would encourage you to really stress in your programmatic reviews that we expect these things to deliver. We expect these programs to deliver.

Now, having given you that lecture, which is just that everybody is going to be—the first time you get elected a Congressman, everybody is nice to you, they smile at you, they laugh at jokes that they've heard 1,000 times like they have never heard them. I mean it is amazing, okay?

But be a real manager. Work underneath.

Do you feel, is there one particular program under your review that you, on initial review, you think is really performing well?

Mr. GARMAN. Part of it could be my previous position, sir, since I come from the South, I have a certain affinity for automobiles, transportation technology. Yes, you can picture my home where I grew up is one that had cars in the back on blocks. That is where I come from.

The time that I have been able to spend with the transportation technologies, with the development of hybrid vehicles, fuel cells, and looking at some of these other technologies, I find that they are truly exciting.

I also see a great deal of promise in the area of bioproducts, biofuels, opportunities to provide renewable resources on the farm and turn them into products that can benefit the Nation from an energy standpoint and from an economic standpoint.

Those are two things that have jumped out at me.

Mr. BARTON. I will ask you a question I asked the management of General Motors in Detroit this past Monday. Do you see a point in the future where the fuel cell will become so well developed and so efficient that it is economically competitive or preferred over the internal combustion engine, regardless of the cost of gasoline?

Mr. GARMAN. You have put your finger on a very strong technological challenge. We calculate that for a fuel cell to be economically competitive with an internal combustion engine, it is going to have to come down to the level of about $50 a kilowatt.

Right now, the catalyst component of the fuel cell itself costs $57 or $60 for that unit of energy. When you add the compressor pumps, the graphite stack and all the other components that make a fuel cell, yes, we have some significant technological challenges before we will have a cost-effective, efficient fuel cell vehicle.

Having said that, though, hybrid technologies, gasoline-electric-drive hybrid technologies present an excellent bridge technology—that can score some efficiency gains along that pathway.

Mr. BARTON. My time has expired, so I want to just make one final comment and recognize Mr. Boucher.

When I asked the GM executive that question, my impression was that they have given all their thought to how fuel cells are going to compete in a higher oil price market, their assumption is that as the price of oil escalates, fuel cells become more competitive because they can bring the fuel cell cost down and the oil cost is going to go up.

I may have misinterpreted his reaction, but my interpretation of his reaction was, they haven't given any thought to what happens when OPEC says, oh, fuel cells are becoming pretty efficient. We had better lower the price of oil so that internal combustion engines are still competitive. We better pump more.

If your only asset is hundreds of billions of barrels of oil reserves, and the Western economy moves to fuel cells and says, the heck with the internal combustion engine, then you don't have an asset. So all these projections that oil prices are going to $50, $60, $70, $80 a barrel, that is only if we don't develop an alternative.

If we really develop an alternative, those prices are going to go down to stay competitive. I don't think that at least the GM people had thought about that. We need to think about that if we are going to put all of our eggs into fuel cell technology, because the people that are providing the oil are not crazy people. They are going to eventually say, we have got to lower our price to stay competitive.

The gentleman from Virginia is recognized for 5 minutes for questions.

Mr. BOUCHER. Well, thank you very much, Mr. Chairman.

And, Mr. Garman, I also want to congratulate you on your appointment and thank you very much for being here today and say that we look forward to working with you as we develop the energy conservation and efficiency portions of our national energy strategy legislation.

Let me direct your attention to a provision in the report of the administration's Energy Task Force, recently released, which recommends—and I will simply quote this; that will save you actually having to open it up. You are probably familiar with this direction, in any event. The recommendation is that "the President direct the Secretary of Energy to establish a national priority for improving energy efficiency."

I would like for you, if you would this morning, to give us a sense of how that direction is going to be translated into concrete recommendations. Give us a status report, if you would, on your work in developing the recommendations stemming from that direction.

Here is where you may want to take a note or two. In particular, I would appreciate your indicating how the Department of Energy would propose to have energy efficiency improvements in the following areas. And I will be very precise about the areas that I would like for you to address.

First of all, how soon do you intend to update the existing standards for a residential dishwasher and for refrigerators, residential dishwashers and refrigerators?

Second, how soon do you expect to complete the ongoing proceedings, which I think have been under way for a matter of years, extending well back into the last administration, relating to electricity distribution transformer efficiency?

Then, third, will the administration support new efficiency standards for the following: commercial refrigerators, exit signs, traffic lights, icemakers, and commercial unit heaters?

The reason I have selected these precise latter topics is because we are getting recommendations from other witnesses who will appear this morning that in our legislation we include these precise

items with directions that energy efficiency improvement standards be established. So anticipating those recommendations, I would like to get your view on those subjects.

I will yield the balance of my time to you for that.

Mr. GARMAN. One of the things that we are working to do—and I will be candid with you, looking at that particular recommendation that you cited, making energy efficiency a national priority, gives us something of an open field.

What the Secretary has directed, the Deputy Secretary, the No. 2 official in the Department, us to do is to take this document and to translate it into implementation actions. We were in a meeting yesterday in his office going over some of these very points.

It is going to require in most cases a collaboration between the other agencies—the Department of Transportation, the Environmental Protection Agency—frankly, a level of collaboration we haven't always seen in the past. So in addition to the fundamental issue of translating this, we are going to have to refashion the dialog and improve the dialog between the disparate Federal agencies to begin to put some meat on the bones of these recommendations.

Now, that process is under way, and on a weekly basis, we have updated matrixes to try to implement the policy and really put a fine point on it.

With respect to the specific standards, we are well along the way on distribution transformers, and I can't give you an exact timeframe because, of course, it is a regulatory process and there are opportunities for some of the stakeholders in the process to lengthen or expedite depending on—but let me——

Mr. BOUCHER. Can you just give us a general sense?

Mr. GARMAN. Sure. I think we can—I think that distribution transformers are an opportunity for a reasonably expeditious win. I think that—and part of this, because one of the programs that we are actually going to review in the context of this strategic review are our rulemaking processes on setting new standards for these various items.

I can tell you that some that you have mentioned, refrigeration, commercial, are on our higher priority list. And I would beg the indulgence of the committee—and perhaps this is something I can provide you for the record—something of a matrix of our current thinking on the prioritization of these various appliances and the general timeframes in which we think we will be turning to them.

Mr. BOUCHER. Mr. Chairman, thank you. My time has expired. Let me simply conclude by thanking Secretary Garman for his attendance here and his answer to this question.

And, Mr. Secretary, I would very much welcome at the earliest time that you could provide it that written response to this question that establishes these priorities and some suggested timeframes for completing these various rulemakings. And to the extent that you can talk about your level of support for the specific items that I indicated in the last part of the question for refrigerators and the other items, that would be welcome, too.

Now, we are proceeding on a fairly rapid schedule here to adopt legislation on this set of issues, and so if you could provide an answer perhaps by next week, that would be timely and helpful to us. And I thank you and thank you, Mr. Chairman.

[The following was received for the record:]

Summary of Priorities

Standards and Determinations (D)

High Priority Products	Low Priority Products
Residential Central AC/HP [1]*	Clothes Dryers
Distribution Transformers	Clothes Washers*
Residential Furnaces and Boilers	Cooking Products—Electric*
Air-Cooled Central Air Conditioners and Air-Source Heat Pumps, 65-240 kBtu/h	Direct Heating Equipment, Gas
Packaged Terminal Air Conditioners and Heat Pumps	Dishwashers
Small Electric Motors (D)	Electric Motors, 1-200 HP
Niche Products-Residential A/C	Fluorescent Lamp Ballasts*
Cooking Products—Gas	High Intensity Discharge Lamps (D)
	Lamps
	Mobile Home Furnaces
	Plumbing Fixtures/Fittings
Medium Priority Products	Pool Heaters, Gas
Central Air Conditioners and Heat Pumps, 3 phase, <65 kbtu	Refrigerators*
Oil- and Gas-Fired Commercial Packaged Boilers	Residential Water Heaters*
Tankless Gas-Fired Instantaneous Water Heaters	Room Air Conditioners *

[1] Drops to Low Priority upon Completion
*Final Rules for these products have been recently published.

Mr. WALDEN [presiding]. That would be good for all the committee members to have a copy of.

The Chair now recognizes the gentleman from Louisiana, the chairman of the full committee, Mr. Tauzin.

Chairman TAUZIN. Thank you, Mr. Chairman.

Mr. Garman, again my congratulations, and thanks for being here.

Let me ask you, sir, in terms of the administration's position to give the air conditioning efficiency standard a hit for me, where is the administration on this, and what kind of support can we expect for regulations that would improve air conditioning efficiency?

I realize it is pretty controversial, but maybe you can explain where you are on it.

Mr. GARMAN. Sure. I will try to make a couple of points on this.

First of all, the current air conditioning standard is set at a seasonal energy efficiency ratio of 10. Approximately 79 percent of the air conditioners on the market today are at a level 10. What the administration is expected to shortly propose—and that rulemaking has not been offered up yet—is to raise standards for residential air conditioners and heat pumps 20 percent from a SEER 10 to a 12. I would expect that rulemaking to occur in the next week or 2.

Chairman TAUZIN. In terms of the drive to make Federal facilities more energy-efficient, you recently saw the President make an announcement that in California, he expected a 10 percent reduction in energy use in these facilities, particularly during the State's three emergencies.

In the bill that Mr. Barton was proposing, we had even increased that to 20 percent, because our information was that that was achievable. We have seen 20 percent reductions in Federal facility energy consumption mandated over time and achieved. Is it time for another mandate for the buildings and the facilities of our country that are Federal to target and to achieve energy efficiency reductions?

Mr. GARMAN. There is an existing executive order, if I am not mistaken, that is in place currently, it has not been rescinded, that is calling for continuous improvement in the Federal arena.

Chairman TAUZIN. We are told, for example, Mr. Garman, that an investment in a simple thing of replacing incandescent bulbs with more efficient bulbs could obviously be a little costly. Most Americans are more willing to buy a 30-cent incandescent bulb rather than a $4 very efficient, high-quality bulb because of the initial investment in cost. But we are told that you can recover those costs within a 4-, 5-year period; and that would, in the long term, make great economic sense, particularly for Federal officials.

If we included a new mandated number, a target, a goal in our legislation, do you think that ideas like that could be utilized by the Federal facilities to achieve even greater efficiencies than they are currently doing?

Mr. GARMAN. Yes. Let me put it this way. Against the 1985 baseline, we have outperformed the goal, slightly outperformed the goal, government-wide, that appeared in the Energy Policy Act of 1992. We achieved the goal a year early, the 2000 goal.

Now, that is not to say there is not a lot, frankly, in pursuit of that goal, a lot of the low-hanging fruit such as those you have mentioned, ballasts, changing incandescent bulbs. That is not to say that——

We are testing the system now, for instance, in California where the Federal Government uses about one and a half percent of all the energy in California. We had our managers, in response to the President's directive, try load-sharing opportunities, and at one point I believe we were able to cut load during peak time on the order of 20, 25 percent.

Chairman TAUZIN. You know, we hear big numbers like that.

Mr. Hoover, I suspect the State facilities are doing similar work. Can we expect that if, in fact, we in our legislation encourage and incentivize State and local governments to achieve similar results, is that possible? Is that achievable?

Mr. HOOVER. Well, in my own State we have a legislative reduction goal that increases by a certain percentage each year from a 1992 base line, and now we are up to discussing going to a 30 percent reduction. So I think all of these are very achievable.

Chairman TAUZIN. I want to know what either of you know about Sterling engines. One of our members, Charlie Bass, has presented a lot of information to us on the latest developments on the Sterling engine.

We hear a lot about hybrid fuel cells, and our bill obviously is going to try to incentivize more than—and also because of the environmental aspects of fuel cell use and hybrid engines on the Nation's highways. We were thinking, for example, why not allow people to use an HOV lane if they have got a high-mileage, low-emission vehicle even if you are only one person in that car? Why not incentivize you to do that?

But in terms of the Sterling engine, do we have a good understanding of its capabilities as it has been recently modified to add to all sorts of new energy efficiencies in the market?

Mr. GARMAN. I had the opportunity to actually see a Sterling engine a couple of weeks ago. It is not a particularly new technology.

Chairman TAUZIN. It is very old.

Mr. GARMAN. But, as you pointed out, there are new modifications and possibilities that it affords. I think in—particularly in some of, renewable energy where an external heat source can be applied.

Chairman TAUZIN. We are also told that in distributive energy systems Sterling engines can be extraordinarily useful, particularly new designs. I would love to have something from you to complement what Charlie Bass has brought on our committee, if you can to give us your latest of its potential as part of a conservation and distributive energy initiative.

[The following was received for the record:]

Stirling engines have several attributes that make them attractive for distributed energy applications as well as renewable energy applications:

(1) **Flexible.** Stirling engines are external combustion engines and can accept heat input from a variety of sources, including solar energy. Stirling engines can be designed to bum more than one fuel and operate in a "Hybrid" mode. DOE has worked with several engine manufacturers (such as STM Corporation) to develop an engine that is capable of using solar energy and/or biogas in combination with natural gas, landfill gas, and hydrogen. This would provide a potentially dispatchable power supply for grid-connected utility as well as off-grid remote applications.

(2) **Efficient.** The efficiency of the Stirling engine is approximately 40 percent as compared to 30 percent for microturbine technologies. This is the reason why the Stirling technology is currently the engine of choice for solar dish systems. Solar dish systems, with a Stirling engine at the focal point, have an overall system solar-to-AC power efficiency of nearly 30 percent.

(3) **Modular.** Current Stirling engines range in size from several hundred watts to 25 kilowatts, with applications including refrigeration, cryogenics, cogeneration, and power generation. This makes them ideal for on-site power applications.

Chairman TAUZIN. Finally, I just wanted a comment from both of you on one of the most important elements of conservation. When California had price caps on the retail market on its electricity, we discovered in our surveys in California a drop in conservation of 8 percent. It shouldn't have surprised us. Price controls tend to encourage demand and weaken conservation efforts. Price increases have the opposite results always. We saw a 13 percent increase in conservation in California the moment it was announced that those price controls would be lifted on the retail market.

Is the price of gasoline going up, shortage of natural gas, prices of natural gas going up? How much do prices and increases in prices under your analysis create conservation incentives? What is the relationship in that? Is it a one-to-one relationship? Is it a one-to-two?

How high do prices have to go before people really get serious, for example, and change all the incandescent bulbs in their houses and buy the systems that turn our air conditions on and off when we are gone and turn them back on when we are coming home? Those are very cheap items to buy. We don't buy them. We don't install them. But they could save enormous amounts of energy for the consumers and for the country. How high do prices have to get, and what is the relationship in price conservation reaction?

Mr. GARMAN. Pricing is, of course, an obviously—a very powerful incentive to conservation. And it is not always the magnitude of the price, but the pace of the price increase.

I know that when I was in my own home, was noticing that my price of gas was going to roughly double, based on the contract I

had entered into on December 31, you can bet that in November I was at the Home Depot buying the computerized thermostat, buying the extra insulation. I mean, price was a very powerful motivator, and I think it is—particularly when it comes in a very short time span.

And I would echo, because I think you asked me for this, your observations with respect to the situation in California. However well-intentioned, the edict of the legislative body or executive can't repeal the laws of supply and demand and the impact that price has on the rational consumer economic behavior toward conservation. It is a very, very powerful and persuading force.

Chairman TAUZIN. My time is up, Mr. Hoover, but I would love to hear your response.

Mr. HOOVER. Well, the one thing I would add to that is I think that price is a big motivator to make people want to conserve. But I also think that the increases that we saw in heating prices last year caused a lot of people to look at things that they hadn't looked at in a long, long time. The problem is you have to make sure that when the individuals get that price signal, whether it is an opening or monthly utility bill or whatever signal they see, that they have the opportunity to take advantage of conservation activities.

So the infrastructure, so to speak, for conservation and efficiency has to be there. The products have to be in the marketplace. The programs, whether they are run by State government or the Federal Government, need to be there so that people can do something.

Because the problem is, a lot of times, there is that initial reaction to it. But if you don't take some substantive action to it, that opportunity is gone, so you just get a lot of——

Chairman TAUZIN. If I may add one more thing, and that is why I think there is a responsibility, particularly at this level, it is making sure consumers know at the right moment what is available and how economic those opportunities are in terms of cost savings for them in the short and the long run.

Thank you very much, Mr. Chairman.

Mr. BARTON. The Chair now recognizes the gentleman from Wisconsin, Mr. Barrett, for 5 minutes.

Mr. BARRETT. Thank you very much, Mr. Chairman. I appreciate you holding this hearing.

Good morning, gentlemen.

At least until the recent spate of rolling blackouts in California, the history of blackouts in our country seems to have been one that showed a tight correlation between blackouts in the summer and high energy demands in the summer as well. I think we all probably would recognize that. Not surprisingly, that is a time when there is the greatest demand for air conditioning; and it is for that reason that I was simply blown away by this Administration's decision to basically gut the rule that the Clinton Administration put into effect to increase the energy efficiency standards for air conditioners. I was amazed even more so when I realized that Amana, the second or third largest producer of air conditioners, was in support of this.

So it boggles my mind how, at the one time this administration comes to Congress, comes to the American people and says, we have an energy crisis in this country, an energy crisis, and we have

to do more for production, production, production, the Vice President basically makes fun of conservation and energy efficiency, when right before us is a rule that would allow us to save energy, energy efficiency, by increasing the energy efficiency standards for air conditioners.

I think the fact that this rule was basically set aside on Good Friday evening, when the major press didn't pay any attention to it, was a signal to anybody watching this issue that this was simply an attempt to gut this rule. Now, I understand that it is involved in litigation right now. But, for the life of me, can you tell me what was wrong with what the Clinton Administration tried to do?

Mr. GARMAN. Yes, sir. And thank you for that question.

I think a couple of points—it is important to make, first of all, that the incoming administration reviewed and adopted without change efficiency standards promulgated during the last administration covering washing machines, water heaters and commercial heating and cooling systems. Only in the case of residential air conditioners and heat pumps did this administration propose any variation from the prior administration.

Mr. BARRETT. This is the big enchilada, though. This is the one that people care about.

Mr. GARMAN. Right. But the real heart of matter is that the Department of Energy analysis produced by the careerists, and it is the same analysis that was used by the prior administration, in the 13 SEER standard showed that it would represent an unreasonable burden on consumers, particularly low-income consumers. The analysis that DOE prepared indicated that 64 percent of the low-income consumers would be faced with paying increased life-cycle costs under the 13 SEER standard for split air conditioners.

Mr. BARRETT. But they would save money with their monthly bill if it was more energy efficient.

Mr. GARMAN. No, sir. Sixty-four percent would incur increased life-cycle costs for low-income consumers.

Now, in general, when you take all of the consumers, you know, some would save more than others. The median payback period for this particular 13 SEER standard on a split air conditioning system would be 14 years. Most of these systems last an estimated 18.4 years. That is, the standard use in the rulemaking and the law directs us to use other factors other than energy efficiency to promulgate these standards.

Mr. BARRETT. But this was a standard that was already in effect when your administration took place. Isn't there a law that says you are not allowed to backtrack? Hasn't this administration violated Federal law by backtracking because it has reduced energy efficiency standards?

Mr. GARMAN. No, sir. Because that—and we are getting perilously close to the issue of contention in the legal matters.

Mr. BARRETT. That doesn't bother me. I would consider it an important issue.

Mr. GARMAN. But—no, it is the contention of the Department of Energy that the standard was not final, was not in force and effect and would not be until, I believe, 2005. So this is not a back-pedaling.

Mr. BARRETT. Why did Amana support it if this is such a bad rule?

Mr. GARMAN. Pardon?

Mr. BARRETT. Why did Amana support this if it was such a bad rule?

Mr. GARMAN. Amana's parent company, Goodman Manufacturing, is kind of an interesting niche manufacturer.

Mr. BARRETT. Irresponsible citizen?

Mr. GARMAN. No. No. In fact, they are very smart businessmen. They are essentially building a commodity product, an air conditioner. They view it as a commodity product. They don't attempt to differentiate their air conditioner from others.

Goodman Manufacturing I think markets their air conditioner under 5 or 6 brand names. They are one of the manufacturers that control, you know, 97 percent of the market. I believe that seven manufacturers control 97 percent of the market. But Goodman was in a position, under our analysis, to actually come out much better in relation to the other manufacturers, and I think they are acting responsibly and economically, rationally, but according to our analysis, they are a manufacturer that benefits from——

Mr. BARRETT. So the other six manufacturers were opposed to it.

Mr. GARMAN. Other manufacturers suffer pretty significant economic impacts. And again——

Mr. BARRETT. But they could raise prices even though it would hurt the poor. Under your analysis, why would it have a negative impact if they could raise prices?

Mr. GARMAN. Our analysis indicates that, because of not only this rule but a number of other rules——

Mr. BARRETT. But this is the rule we are talking about.

Mr. GARMAN. Yes. But the cumulative effect on manufacturers, it can in affect seriously alter the landscape of the manufacturing base of air conditioning and heat pumps in the country; and that is why the Department of Justice had expressed similar concerns with the 13 standard. The Department of Justice, as you know, under the law is required to review. It had done that with the 12 standards. But one of the things the DOE did not do in the prior administration when it jumped the 13 standard was to fully consult, it is my understanding, with the Department of Justice to fully understand the impacts, the anti-trust impacts and the way that the landscape of the market would be changed.

Mr. BARRETT. I think my time has expired. Let me just say again I find it hard to believe that that administration can come to us with a straight face and say that they care about energy efficiency and say that there is an energy crisis in this country and not act more aggressively to increase the energy efficiency standards for the product that virtually every American recognized is the demand product during the time of the year when demand is greatest, causes the most blackouts, causes the biggest pressure on our electric system in this country. It just boggles my mind.

And I would yield back my time.

Mr. BARTON. The Chair now recognizes the vice chair of the full committee, Mr. Burr, for 5 minutes.

Mr. BURR. I thank the chairman.

I found the last bit of information fascinating because I never knew that the Minnesota market for air conditioners was quite as high as it seems to be from the gentleman's statements. As a matter of fact, I found it interesting because, in my prior life—prior to serving in Congress—with a wholesale distributor, we represented the Amana company regionally; and North Carolina is a market where air conditioners, when it gets hot, do sell.

It is amazing to watch consumers. Some do pay attention to the energy standards, and they make a buying decision based upon that. Some people can't afford a doubling of the price, which, in fact, some have testified the move to 13 did. But at 12 we have a 20 percent increase, and it is affordable, especially seniors who are susceptible in hot times to a health hazard.

I commend the administration for trying to find a balance of improvement but, also, the realities of the pricing constraints that many of the consumers are under.

Let me thank both of you for coming.

Mr. Hoover, I want to also thank you for being observant to what we did do yesterday on the point of order. I think sometimes we have a feeling that nobody pays any attention to what happens in Congress, but clearly you must pay a little bit of attention because that was a very quick process that we went through.

Let me ask you, Mr. Secretary, has the Bush Administration taken a position as it relates to the Clinton Administration's rulemaking regarding clothes washers?

Mr. GARMAN. Yes, sir. The administration is adopting the clothes washers' rule.

Mr. BURR. Were you involved in that decision?

Mr. GARMAN. No, sir.

Mr. BURR. What does the standard mean?

Mr. GARMAN. I am sorry?

Mr. BURR. What does the standard that we are moving to mean?

Mr. GARMAN. I do not have that because that is a past rulemaking. I don't have that at my fingertips, and I would be happy to supply that to you and for the record.

Mr. BURR. I think it is important that in your position you should know that, and I know you have been there a very short period of time. My concern is this is not an attempt to eliminate from the marketplace top-loading washers, is it?

Mr. GARMAN. No, sir. No, sir. And, in fact, there are now on the market some new top-loading models that do meet the new standard.

Mr. BURR. We have certainly seen in this committee a tremendous amount of evidence about the water usage of the toilet regulations that we currently have. I don't think anybody envisioned the fact that it would take three or four flushes to evacuate a toilet, and that, in fact, with a new one point six gallon standard, after four flushes you have used more than the original toilet that we replaced. But I think a move toward conservation must also make a determination as to whether the standard that we set can be met and can be met successfully.

Let me ask you, Mr. Hoover, we did move the Interior appropriations bill for fiscal year 2002 yesterday. It will now be considered in the Senate and ultimately in a conference committee to resolve

the differences between the two bodies. What programs or funding initiatives would you suggest to those potential conferees that need to be preserved that would promote energy efficiency out of that particular appropriations bill?

Mr. HOOVER. I mean, obviously, the ones that I mentioned in my testimony about the support of the State energy programs, which is what funds our efforts to do energy efficiency, we view as very important and also the weatherization assistance program which, you know, provides the type of activities and help to low-income consumers to make their housing stock much more energy efficient. It helps them not only in the wintertime with heating problems but also in the summertime with cooling situations. Those two in particular, so—okay.

Then also an increase in the Federal Energy Management program, the FEM program, and also Energy Star, the $2 million increase for the Energy Star program which we view as a critical and very important one because it is one where States take advantage of the Federal Government's activities to promote energy efficient appliances, and it plays into some of the State programs.

In my own State we have a sales tax credit for the purchase of Energy Star appliances, and so we don't have to go through the certification process to determine what those products are, it is right there, and we just use that criteria to apply our sales tax credit.

Mr. BURR. Well, I can't speak for the committee, but for me personally my hope is that in this conservation piece that we can extend the Energy Star program to include more areas.

I want to thank the chairman for this opportunity and yield back the balance of my time.

Mr. BARTON. The gentleman yields back his time.

The Chair now recognizes the singer/songwriter from Massachusetts for 5 minutes.

Mr. MARKEY. Thank the chairman very much. I appreciate that introduction.

Mr. Garman, I authored this legislation back in 1987; and I have a certain proprietary interest in this air conditioning issue. So Mr. Dingell and I may be the last of the Mohicans to remember the 1980's, but we remember them vividly. And one of the reasons why we built in the no-rollback standard into this bill was that the Reagan Administration had promulgated essentially a no-standard standard standard whereby they met the technically minimal requirements of a regulation by doing nothing. But they went through the whole rulemaking. So we had to make sure that in the future we would protect Congress against a willful administration violating the intent of our law.

Now, you contend that this was not a final rule. This was a final rule, Mr. Garman. It is illegal for the Bush Administration to roll back this rule. It had been published in the Federal Register. It had a delayed effective date for compliance, as many regulations do. But it was a final rule in effect as you took office.

There was no basis whatsoever, Mr. Garman, for the Bush Administration to take this rule off the books, except for the fact that the Bush Administration has a drilling agenda, not an energy efficiency agenda, and the entire Bush energy plan is nothing more

than a Trojan horse designed by the energy companies to take environmental and energy efficiency and health laws off the books which they have opposed over the years.

Obviously, if the air conditioning standard reduced dramatically the need for new coal-fired or nuclear-fired or gas-fired electrical generating plants, then that is right in concert with the Bush vision. Now, at the same time, the Bush Administration says that they are a technology-based administration, and they point, in fact, to the Department of Energy.

Let me put up over here—here is their vision for war fighting, for abrogation of the Anti-Ballistic Missile treaty, that we will be able to deploy this war fighting scenario in outer space with technologies that have yet to be invented, yet to be deployed, yet to be proven effective. But we are willing to destroy an entire arms control regime which has create stability in the world for 30 years, and the Department of Energy and the weapons labs is given a responsibility for helping to develop that.

Now, at the same time, the Department of Energy, in analyzing this Bush Administration, in analyzing air conditioners, says this: Here is an air conditioner. Now we can't figure out how to make an air conditioner meet a standard which the second largest manufacturer in America is already meeting.

Now, if you look at the complexity of the task that the Department of Energy has in both assignments, one, which almost every scientist at MIT and Cal Tech says is technologically impossible but the administration defies that, you have to have the will, they say, and compare that with the fact that the second largest manufacturer is already making the air conditioners that the Clinton Administration has put on the books as a standard for every industry participating to meet 5 years from now, giving them plenty of time to phase in a technology that is already out on the market, it would seem to me that the careerists that you point to in the Bush Administration should be put in new jobs because the consequence of not complying with that air conditioning standard is to insure that we are going to become more dependent upon energy sources that are inconsistent with the environmental and health and national security interests of the United States.

Now, I have a list of 132 air conditioners made by 25 companies that meet or exceed the standard promulgated by the Clinton Administration and illegally taken off of the books by the Bush Administration, and I would ask unanimous consent that this be put in the record.

Mr. BARTON. Without objection.

[The information referred to follows:]

ENERGY STAR HVAC QUALIFYING PRODUCTS LIST

Air Conditioners and Air-Source Heat Pumps

Manufacturer Name (Trade Name)	Product Family Name	SEER/HSPF Rating	Model Series
Air-Ease	Concept 12 (AC)	12	All models beginning with SCU 12
Air-Ease	Concept 13 (AC)	13	All models beginning with SCU 13
Air-Ease	Concept 12 (HP)	12	All models beginning with SHP 12
Air-Ease	Concept 13 (HP)	13	All models beginning with SHP 13
Air-Ease	Compaq 12	12	Model PHP12
AirQuest	AC	13	All models beginning with CA96
AirQuest	HP	12/8.0	All models beginning with CH95
AirQuest	HP	14/8.5	All models beginning with CH97
AirQuest	12 SEER Premium (AC)	12-13	All models beginning with HAC2
AirQuest	14 SEER Premium (AC)	14-15	All models beginning with HAC4
AirQuest	12 SEER Performance (AC)	12	All models beginning with NAC2
AirQuest	PA95 Series (AC)	12	All models beginning with PA95
AirQuest	12 SEER Premium (HP)	12	All models beginning with HHC2
AirQuest	14 SEER Premium (HP)	14	All models beginning with HHC4
AirQuest	12 SEER Performance (HP)	12	All models beginning with NHP2
AirQuest	PHAD Series (HP)	12	All models beginning with PHAD
Amana	Prestige II	12	All models beginning with RCC
Amana	RHE (HP)	12.0-14.0/7.0-8.5	All models beginning with RHE
Amana	TempAssure II	12-13/7-8.5	All models beginning with RHE
Amana	Ultron	13	All models beginning with RSD
Amana	TempAssure Ultra	14-15/7.8-9	All models beginning with RHF
Amana	Prestige Ultra	14-16	All models beginning with RCE
American Standard	Heritage (HP)	12-16/7	All models beginning with 6H2, 6H4, or 6H6
American Standard	Allegiance (AC)	12	All models beginning with 7A2, 7A4, 7A6
American Standard	Package (AC)	12	All models beginning with YCP
American Standard	Package (AC)	12	All models beginning with YCX
American Standard	Package (AC)	14	All models beginning with YCY-G
American Standard	Package (AC)	16	All models beginning with YCZ
American Standard	Packaged (HP)	12	All models beginning with WCY
American Standard	Packaged (HP)	16	All models beginning with WCZ
Arcoaire	AC	12	All models beginning with AH
Arcoaire	AC	13	All models beginning with AJ
Arcoaire	HP	12/8.0	All models beginning with YG
Arcoaire	HP	14/8.5	All models beginning with YH
Arcoaire	X 12 (AC)	12-13	All models beginning with CAC2
Arcoaire	X 14 (AC)	14-15	All models beginning with CAC4
Arcoaire	Arcoaire 12 (AC)	12	All models beginning with NAC2
Arcoaire	PAPC Series (AC)	12	All models beginning with PAPC
Arcoaire	X 12 (HP)	12	All models beginning with CHC2
Arcoaire	X 14 (HP)	14	All models beginning with CHC4
Arcoaire	Arcoaire 12 (HP)	12	All models beginning with NHP2
Arcoaire	PAPC Series (HP)	12	All models beginning with PYMC
Armstrong Air	Concept 12 (AC)	12	All models beginning with SCU 12
Armstrong Air	Concept 13 (AC)	13	All models beginning with SCU 13
Armstrong Air	Concept 12 (HP)	12	All models beginning with SHP 12
Armstrong Air	Concept 13 (HP)	13	All models beginning with SHP 13
Armstrong Air	Compaq 12	12	Model PHP12
Bryant Heating & Cooling Systems	"Cube" Series (AC)	12-13	All models beginning with 563
Bryant Heating & Cooling Systems	"Cube" Series (HP)	12-13.5/7.0-8.5	All models beginning with 663
Bryant Heating & Cooling Systems	AeroQuiet System (AC)	12-14	All models beginning with 597
Bryant Heating & Cooling Systems	AeroQuiet System (AC)	13-14	All models beginning with 550
Bryant Heating & Cooling Systems	AeroQuiet System (HP)	12-14/7-8.3	All models beginning with 697
Bryant Heating & Cooling Systems	Puron (AC)	12-13	All models beginning with 533
Bryant Heating & Cooling Systems	Puron (HP)	12/7.8	All models beginning with 633
Bryant Heating & Cooling Systems	Quantum Plus Series (AC)	12 -14	All models beginning with 552
Bryant Heating & Cooling Systems	Quantum Plus Series (AC)	14-15.75	All models beginning with 556
Bryant Heating & Cooling Systems	Quantum Plus Series (HP)	12/14.5/7.3-8.6	All models beginning with 650
Bryant Heating & Cooling Systems	Quantum Plus Series (HP)	12/7.8	All models beginning with 652
Bryant Heating & Cooling Systems	Quantum Plus Series (HP)	12-16/7.3-8.5	All models beginning with 698B
Bryant Heating & Cooling Systems	Reliant Series Two-Speed (AC)	12-16	All models beginning with 598A
Bryant Heating & Cooling Systems	Reliant Series Two-Speed (HP)	12-16/7.0-8.4	All models beginning with 698A
Bryant Heating & Cooling Systems	Small Packaged Products (AC)	12+	702B (Puron) and 702A (R-22)
Bryant Heating & Cooling Systems	Small Packaged Products (AC/HP)	12+	583B (Puron) and 583A (R-22)
Bryant Heating & Cooling Systems	Small Packaged Products (HP)	12+	602B (Puron) and 602A (R-22)
Bryant Heating & Cooling Systems	Two-Speed Puron Plus (AC)	12-16	All models beginning with 598B
Carrier Corporation (Carrier)	Small Packaged Products (AC)	12+	50GL (Puron) and 50GX (R-22)
Carrier Corporation (Carrier)	Small Packaged Products (AC/HP)	12+	48GP (Puron) and 48GX (R-22)
Carrier Corporation (Carrier)	Small Packaged Products (HP)	12+	50JZ (Puron) and 50JX (R-22)
Carrier Corporation (Carrier)	WeatherMaker 2-speed (HP)	12-16/7.6-8.8	All models beginning with 38YDA
Carrier Corporation (Carrier)	WeatherMaker Series (AC)	12-14	All models beginning with 38TR
Carrier Corporation (Carrier)	WeatherMaker Series (AC)	12-14	All models beginning with 38TX
Carrier Corporation (Carrier)	WeatherMaker Series (HP)	12-14.5/7.3-8.6	All models beginning with 38YZ
Carrier Corporation (Carrier)	WeatherMaker Series (HP)	12-14/7.1-8.5	All models beginning with 38YR
Carrier Corporation (Carrier)	WeatherMaker Series (HP)	12-15/7.8-9.05	All models beginning with 38YS

ENERGY STAR HVAC QUALIFYING PRODUCTS LIST

Manufacturer Name (Trade Name)	Product Family Name	SEER/HSPF Rating	Model Series
Carrier Corporation (Carrier)	WeatherMaker Two-Speed (AC)	12-16	All models beginning with 38TDA
Carrier Corporation (Carrier)	WeatherMaker Two-Speed w/Puron (AC)	12-16	All models beginning with 38TDB
Carrier Corporation (Carrier)	WeatherMaker Two-Speed w/Puron (HP)	12-16 9.1-8.5	All models beginning with 38YDB
Carrier Corporation (Carrier)	WeatherMaker W/Puron (AC)	12-14	All models beginning with 38TZ
Carrier Corporation (Carrier)	WeatherMaker W/Puron (AC)	14-15.75	All models beginning with 38TS
Carrier Corporation (Carrier)	WeatherMaker W/Puron (HP)	12-14.5/7.3-8.6	All models beginning with 38YX
Carrier Corporation (Carrier)	WeatherMate Puron (AC)	12 –13	All models beginning with 38EZ
Carrier Corporation (Carrier)	WeatherMate Puron (HP)	12/7.8	All models beginning with 38EY
Carrier Corporation (Carrier)	WeatherMate Series (AC)	12-13	All models beginning with 38BR
Carrier Corporation (Carrier)	WeatherMate Series (HP)	12-13.5/ 7.0-7.5	All models beginning with 38BY
Comfortmaker	AC	12	All models beginning with AH
Comfortmaker	AC	13	All models beginning with AJ
Comfortmaker	HP	12/8.0	All models beginning with YG
Comfortmaker	HP	14/8.5	All models beginning with YH
Comfortmaker	SoftSound 1200+ (AC)	12-13	All models beginning with CAC2
Comfortmaker	SoftSound 1400+ (AC)	14-15	All models beginning with CAC4
Comfortmaker	Comfortmaker 12 (AC)	12	All models beginning with NAC2
Comfortmaker	PAPC Series (AC)	12	All models beginning with PAPC
Comfortmaker	SoftSound 1200+ (HP)	12	All models beginning with CHC2
Comfortmaker	SoftSound 1400+ (HP)	14	All models beginning with CHC4
Comfortmaker	Comfortmaker 12 (HP)	12	All models beginning with NHP2
Comfortmaker	PYMC Series (HP)	12	All models beginning with PYMC
Ducane Company	AC12 (AC)	12	All models beginning with AC12
Ducane Company	HP12(HP)	12/7.2	All models beginning with HP12
Ducane Company	HP14(HP)	14/7.5	All models beginning with HP14
Evcon Industries, Inc.	Coleman Evcon AC	12	All models beginning with DRCS
Evcon Industries, Inc.	Coleman Evcon AC	14	All models beginning with FRCS
Evcon Industries, Inc.	Coleman Evcon AC	12	All models beginning with D*YH
Evcon Industries, Inc.	Coleman Evcon Heat Pump	12	All models beginning with DRHS
Evcon Industries, Inc.	Coleman Evcon Heat Pump	14	All models beginning with FRHS
Evcon Industries, Inc.	Coleman Evcon Heat Pump	12	All models beginning with B*UH
Excel Comfort Systems (Aire-Flo)	Aire-Flo A/C	12	AFAIR12B18
Excel Comfort Systems (Aire-Flo)	Aire-Flo A/C	12	AFAIR12B24
Excel Comfort Systems (Aire-Flo)	Aire-Flo A/C	12	AFAIR12B30
Excel Comfort Systems (Aire-Flo)	Aire-Flo A/C	12	AFAIR12B36
Excel Comfort Systems (Aire-Flo)	Aire-Flo A/C	12	AFAIR12B42
Excel Comfort Systems (Aire-Flo)	Aire-Flo A/C	12	AFAIR12B48
Excel Comfort Systems (Aire-Flo)	Aire-Flo A/C	12	AFAIR12B60
Excel Comfort Systems (Aire-Flo)	Aire-Flo Heat Pump	12	AFHEAT12B48
Excel Comfort Systems (Aire-Flo)	Aire-Flo Heat Pump	12	AFHEAT12B60
Fraser-Johnston	High Performance A/C	12	All AC models beginning with H*BC
Fraser-Johnston	Peak Performance A/C	14	All AC models beginning with H*BE
Fraser-Johnston	Split Heat Pump	12	All Heat Pump models beginning with E*CA
Fraser-Johnston	Packaged Heat Pump	12	All Heat Pump models beginning with B*UH
Goettl Air Conditioning Inc.	Astro Air/Astro Plus (HP)	12-13/7.1-7.35	All models beginning with HP
Goettl Air Conditioning Inc.	Astro Air	12-12.5/7.2-7.5	All models beginning with RHP
Goettl Air Conditioning Inc.	Astro Air	12	All models beginning with GA
Goettl Air Conditioning Inc.	Astro Air/Astro Plus	12-13	All models beginning with RSC
Goodman Manufacturing	12 Seer Condensing	12-14	All models beginning with CKJ
Goodman Manufacturing	13 Seer Condensing	12-14	All models beginning with CKT
Goodman Manufacturing	14 Seer Condensing	12-14	All models beginning with CKQ
Goodman Manufacturing	12 Seer Heat Pump	12-14	All models beginning with CPKJ
Goodman Manufacturing	12 Seer Pkg. HP	12	All models beginning with PHJ
Goodman Manufacturing	13 Seer Heat Pump	12-14	All models beginning with CPKT
Goodman Manufacturing	12 Seer Pkg Cooling	12	All models beginning with PCJ
Goodman Manufacturing	12 Seer Pkg. Gas Electric	12	All models beginning with PGJ
Heat Controller (Comfort-Aire) (Century)	Energy Knight (AC)	12	RSA1218-1, RSA1224-1, RSA1230-1, RSA1236-1
Heat Controller (Comfort-Aire) (Century)	Energy Knight (AC)	12	RSA1242-1, RSA1248-1
Heat Controller (Comfort-Aire) (Century)	Energy Knight (HP)	12/7.6	HRA1224-1, HRA1230-1, HRA1236-1, HRA1242-1
Heat Controller (Comfort-Aire) (Century)	Energy Knight (HP)	12/7.6	HRA1248-1
Heat Controller (Comfort-Aire) (Century)	AC	12	All models beginning with CA90
Heil	AC	12	All models beginning with CA90
Heil	AC	13	All models beginning with CA96
Heil	HP	12/8.0	All models beginning with CH95
Heil	HP	14/8.5	All models beginning with CH97
Heil	QuietComfort 12 (AC)	12-13	All models beginning with HAC2
Heil	QuietComfort 14 (AC)	14-15	All models beginning with HAC4
Heil	Heil 12 (AC)	12	All models beginning with NAC2
Heil	PA95 Series (AC)	12	All models beginning with PA95
Heil	QuietComfort 12 (HP)	12	All models beginning with HHP2
Heil	QuietComfort 14 (HP)	14	All models beginning with HHP4
Heil	Heil 12 (HP)	12	All models beginning with NHP2
Heil	PHAD Series (HP)	12	All models beginning with PHAD
Lennox Industries	Value 12 A/C	12-13.5	All models beginning with 12ACB
Lennox Industries	Elite 13 A/C	13-14	All models beginning with HS26
Lennox Industries	Elite 14 A/C	13-15	All models beginning with HS27
Lennox Industries	Powersaver A/C, HP	12-15.8	All models beginning with HS21

ENERGY STAR HVAC QUALIFYING PRODUCTS LIST

Manufacturer Name (Trade Name)	Product Family Name	SEER/HSPF Rating	Model Series
Lennox Industries	Powersaver A/C, HP	12-16	All models beginning with HS32, HP32
Lennox Industries	Value 12 HP	12-13.25	All models beginning with 12 HPB
Lennox Industries	Elite 13 HP	13-14	All models beginning with HP26
Lennox Industries	Elite 14 HP	13-15	All models beginning with HP27
Lennox Industries	Elite 13 A/C, HP	13	All models beginning with HS32, HP32
Lennox Industries	Elite 13 with R410A A/C, HP	13	All models beginning with HS32, HP32
Lennox Industries	Elite 14 A/C, HP	14	All models beginning with HP27
Lennox Industries	Merit 12 A/C, HP	13	All models beginning with
Lennox Industries	Merit 12 A/C, HP	13	All models beginning with HP32, HS32
Lennox Industries	Powersaver HP	12-16	All models beginning with HP21
Luxaire	High Performance A/C	12	All AC models beginning with H*BC
Luxaire	Peak Performance A/C	14	All AC models beginning with H*BE
Luxaire	Split Heat Pump	12	All Heat Pump models beginning with E*CA
Luxaire	Packaged Heat Pump	12	All Heat Pump models beginning with B*UH
NORDYNE Inc. (Frigidaire)	Split System AC	12	All FS3BC models
NORDYNE Inc. (Frigidaire)	Split System HP	12	All FT3BC models
NORDYNE Inc. (Frigidaire)	AC Packaged	12	All P3SC models
NORDYNE Inc. (Frigidaire)	AC Packaged	12	All P4RC models
NORDYNE Inc. (Frigidaire)	AC Packaged	12	All R4GC models
NORDYNE Inc. (Frigidaire)	HP Packaged	12	All Q3SC models
NORDYNE Inc. (Frigidaire)	HP Packaged	12	All Q4RC models
NORDYNE Inc. (Gibson)	Split System AC	12	All GS3BC models
NORDYNE Inc. (Gibson)	Split System HP	12	All GT3BC models
NORDYNE Inc. (Gibson)	AC Packaged	12	All GP3SC models
NORDYNE Inc. (Gibson)	AC Packaged	12	All GP4RC models
NORDYNE Inc. (Gibson)	AC Packaged	12	All GR4GC models
NORDYNE Inc. (Gibson)	HP Packaged	12	All GQ3SC models
NORDYNE Inc. (Gibson)	HP Packaged	12	All GQ4RC models
NORDYNE Inc. (Grandaire)	Split System AC	12	All GS3BC models
NORDYNE Inc. (Grandaire)	Split System HP	12	All GT3BC models
NORDYNE Inc. (Grandaire)	AC Packaged	12	All GP3SC models
NORDYNE Inc. (Grandaire)	AC Packaged	12	All GP4RC models
NORDYNE Inc. (Grandaire)	AC Packaged	12	All GR4GC models
NORDYNE Inc. (Grandaire)	HP Packaged	12	All GQ3SC models
NORDYNE Inc. (Grandaire)	HP Packaged	12	All GQ4RC models
NORDYNE Inc. (Intertherm)	Split System AC	12	All S2BC, S3BC models
NORDYNE Inc. (Intertherm)	Split System HP	12/7.6	All T2BC, T3BC models
NORDYNE Inc. (Intertherm)	AC/Package	12	All P2SC models
NORDYNE Inc. (Intertherm)	HP/Package	12/6.8	All Q2SC models
NORDYNE Inc. (Intertherm)	Split System AC	14	All models beginning with S1BE
NORDYNE Inc. (Intertherm)	Split System HP	14/7.8	All models beginning with T1BE
NORDYNE Inc. (Intertherm)	Powermiser	20/7.6	All models beginning with I1BA, I3BA
NORDYNE Inc. (Intertherm)	Mfg Home AC Split	12	All S2QC, S3QC models
NORDYNE Inc. (Intertherm)	Mfg Home HP Split	12/7.6	All T2QC, T3QC models
NORDYNE Inc. (Intertherm)	Mfg Home AC Pkg	12	All P2SC models
NORDYNE Inc. (Intertherm)	Split System AC	12	All S3BC models
NORDYNE Inc. (Intertherm)	Split System AC	12	All S3QC models
NORDYNE Inc. (Intertherm)	Split System HP	12	All T3BC models
NORDYNE Inc. (Intertherm)	Split System HP	12	All T3QC models
NORDYNE Inc. (Intertherm)	AC Packaged	12	All P3SC models
NORDYNE Inc. (Intertherm)	AC Packaged	12	All P4RC models
NORDYNE Inc. (Intertherm)	AC Packaged	12	All R4GC models
NORDYNE Inc. (Intertherm)	HP Packaged	12	All Q3SC models
NORDYNE Inc. (Intertherm)	HP Packaged	12	All Q4RC models
NORDYNE Inc. (Kelvinator)	Split System AC	12	All S3BC models
NORDYNE Inc. (Kelvinator)	Split System HP	12	All T3BC models
NORDYNE Inc. (Kelvinator)	AC Packaged	12	All P3SC models
NORDYNE Inc. (Kelvinator)	AC Packaged	12	All P4RC models
NORDYNE Inc. (Kelvinator)	AC Packaged	12	All R4GC models
NORDYNE Inc. (Kelvinator)	HP Packaged	12	All Q3SC models
NORDYNE Inc. (Kelvinator)	HP Packaged	12	All Q4RC models
NORDYNE Inc. (Miller)	Split System AC	12	All S2QC, S3QC models
NORDYNE Inc. (Miller)	Split System HP	12/7.6	All T2QC, T3QC models
NORDYNE Inc. (Miller)	AC/Package	12	All P2SC models
NORDYNE Inc. (Miller)	HP/Package	12/6.8	All Q2SC models
NORDYNE Inc. (Miller)	Split System AC	14	All models beginning with S1BE
NORDYNE Inc. (Miller)	Split System HP	14/7.8	All models beginning with T1BE
NORDYNE Inc. (Miller)	Powermiser	20/7.6	All models beginning with I1BA, I3BA
NORDYNE Inc. (Miller)	Mfg Home AC Split	12	All S3QC models
NORDYNE Inc. (Miller)	Mfg Home HP Split	12/7.6	All T3QC models
NORDYNE Inc. (Miller)	Mfg Home AC Pkg	12	All P2SC models
NORDYNE Inc. (Miller)	Split System AC	12	All S3QC models
NORDYNE Inc. (Miller)	Split System HP	12	All T3QC models
NORDYNE Inc. (Miller)	AC Packaged	12	All P3SC models
NORDYNE Inc. (Miller)	AC Packaged	12	All P4RC models
NORDYNE Inc. (Miller)	AC Packaged	12	All R4GC models
NORDYNE Inc. (Miller)	HP Packaged	12	All Q3SC models

ENERGY STAR HVAC QUALIFYING PRODUCTS LIST

Manufacturer Name (Trade Name)	Product Family Name	SEER/HSPF Rating	Model Series
NORDYNE Inc. (Miller)	HP Packaged	12	All Q4RC models
NORDYNE Inc. (Philco)	Split System AC	12	All S3BC models
NORDYNE Inc. (Philco)	Split System HP	12	All T3BC models
NORDYNE Inc. (Philco)	AC Packaged	12	All P3SC models
NORDYNE Inc. (Philco)	AC Packaged	12	All P4RC models
NORDYNE Inc. (Philco)	AC Packaged	12	All R4GC models
NORDYNE Inc. (Philco)	HP Packaged	12	All Q3SC models
NORDYNE Inc. (Philco)	HP Packaged	12	All Q4RC models
NORDYNE Inc. (Tappan)	Split System AC	12	All FS3BC models
NORDYNE Inc. (Tappan)	Split System HP	12	All FT3BC models
NORDYNE Inc. (Tappan)	AC Packaged	12	All P3SC models
NORDYNE Inc. (Tappan)	AC Packaged	12	All P4RC models
NORDYNE Inc. (Tappan)	AC Packaged	12	All R4GC models
NORDYNE Inc. (Tappan)	HP Packaged	12	All Q3SC models
NORDYNE Inc. (Tappan)	HP Packaged	12	All Q4RC models
Payne Heating & Cooling	Teardrop (AC)	12 -13	All models beginning with PA10
Payne Heating & Cooling	Teardrop (AC)	12 -14	All models beginning with PA12
Payne Heating & Cooling	Teardrop (HP)	12 -14	All models beginning with PH10
Payne Heating & Cooling	Teardrop (HP)	12-13.5 7.0-8.5	All models beginning with PH12
Rheem Manufacturing (Rheem)	AC/PrOzone Classic XII	12.0 - 14.0	All models beginning with RAML
Rheem Manufacturing (Rheem)	AC/Classic XII	12	All models beginning with RAMB
Rheem Manufacturing (Rheem)	AC/Classic XIII	13	All models beginning with RANB
Rheem Manufacturing (Rheem)	AC/Classic XIV	14	All models beginning with RAPA
Rheem Manufacturing (Rheem)	AC/Package AC	12	All models beginning with RSMA
Rheem Manufacturing (Rheem)	HP/PrOzone Classic XII	12.0-14.2 / 8.0-8.8	All models beginning with RPML
Rheem Manufacturing (Rheem)	HP/Classic XII	12 8.0-8.8	All models beginning with RPMC
Rheem Manufacturing (Rheem)	HP/Classic XIII	13 8.0-8.7	All models beginning with RPNJ
Rheem Manufacturing (Rheem)	HP/Classic XIV	14 8.0-8.7	All models beginning with RPPA
Rheem Manufacturing (Rheem)	HP/Package HP	12 / 7.2	All models beginning with RQMA
Rheem Manufacturing (Ruud)	AC/PrOzone Achiever XII	12.0 - 14.0	All models beginning with UAML
Rheem Manufacturing (Ruud)	AC/Achiever XII	12	All models beginning with UAMB
Rheem Manufacturing (Ruud)	AC/Achiever XIII	13	All models beginning with UANB
Rheem Manufacturing (Ruud)	AC/Achiever XIV	14	All models beginning with UAPA
Rheem Manufacturing (Ruud)	AC/Package AC	12	All models beginning with USMA
Rheem Manufacturing (Ruud)	HP/PrOzone Achiever XII	12.0-14.2 / 8.0-8.8	All models beginning with UPML
Rheem Manufacturing (Ruud)	HP/Achiever XII	12 / 8.0-8.8	All models beginning with UPMC
Rheem Manufacturing (Ruud)	HP/Achiever XIII	13 / 8.0-8.7	All models beginning with UPNJ
Rheem Manufacturing (Ruud)	HP/Achiever XIV	14 / 8.0-8.7	All models beginning with UPPA
Rheem Manufacturing (Ruud)	HP/Package HP	12 / 7.2	All models beginning with UQMA
Rheem Manufacturing (WestherKing)	AC/PrOzone Select XII	12.0 - 14.0	All models beginning with WAML
Rheem Manufacturing (WestherKing)	AC/Select XII	12	All models beginning with WAMB
Rheem Manufacturing (WeatherKing)	AC/Select XIII	13	All models beginning with WANB
Rheem Manufacturing (WeatherKing)	AC/Select XIV	14	All models beginning with WAPA
Rheem Manufacturing (WeatherKing)	AC/Package AC	12	All models beginning with WSMA
Rheem Manufacturing (WeatherKing)	HP/PrOzone Select XII	12.0-14.2 / 8.0-8.8	All models beginning with WPML
Rheem Manufacturing (WeatherKing)	HP/Select XII	12 / 8.0-8.8	All models beginning with WPMC
Rheem Manufacturing (WeatherKing)	HP/Select XIII	13 / 8.0-8.7	All models beginning with WPNJ
Rheem Manufacturing (WeatherKing)	HP/Select XIV	14 / 8.0-8.7	All models beginning with WPPA
Rheem Manufacturing (WeatherKing)	HP/Package HP	12 / 7.2	All models beginning with WQMA
Rheem Manufacturing (Corsaire)	A/C	12	All models beginning with EAFF
Rheem Manufacturing (Corsaire)	H.P	12 / 8.0-8.8	All models beginning with EPFG
Rheem Manufacturing (Zephyr)	A/C	12	All models beginning with EAFF
Rheem Manufacturing (Zephyr)	H.P	12 / 8.0-8.8	All models beginning with EPFG
RTI	AC2	14	All Models
RTI	EvarCon	12	All Models
Tempstar	AC	12	All models beginning with CA90
Tempstar	AC	13	All models beginning with CA96
Tempstar	HP	12/8.0	All models beginning with CH95
Tempstar	HP	14/8.5	All models beginning with CH97
Tempstar	SmartComfort 2200 (AC)	12-13	All models beginning with TCA2
Tempstar	SmartComfort 2400 (AC)	14-15	All models beginning with TCA4
Tempstar	Tempstar 12 (AC)	12	All models beginning with NAC2
Tempstar	PA95 Series (AC)	12	All models beginning with PA95
Tempstar	SmartComfort 2200 (HP)	12	All models beginning with TCH2
Tempstar	SmartComfort 2400 (HP)	14	All models beginning with TCH4
Tempstar	Tempstar 12 (HP)	12	All models beginning with NHP2
Tempstar	PHAD Series (HP)	12	All models beginning with PHAD
Tempstar	SmartComfort 2200	12	All models beginning with TCH2
Tempstar	Tempstar 12	12	All models beginning with NHP2
Tempstar	PHAD Series	12	All models beginning with PHAD
Tempstar	SmartComfort 2400	14	All models beginning with TCH4
The Trane Company	Package (AC)	12	All models beginning with YCP
The Trane Company	Package (AC)	12	All models beginning with YCX
The Trane Company	Package (AC)	14	All models beginning with YCY-G
The Trane Company	Package (AC)	16	All models beginning with YCZ
The Trane Company	XE-1200 (AC/HP/PKG)	12/8.2	All models beginning with WCY or TCY
The Trane Company	XE-1200 (AC+HP)	12	All models beginning with TTP or TWP

ENERGY STAR HVAC QUALIFYING PRODUCTS LIST

Manufacturer Name (Trade Name)	Product Family Name	SEER/HSPF Rating	Model Series
The Trane Company	XE-1200 (HP PKG)	15.8	All models beginning with WCZ
The Trane Company	XL-1200 (AC-HP)	12	All models beginning with TTX or TWX
The Trane Company	XL-1400 (AC-HP)	14	All models beginning with TTY or TWY
The Trane Company	XL-1800 (AC-HP)	16-	TTZ, TWZ
Thermal Zone	AC Split	12	All models beginning with CA **M
Thermal Zone	AC Split	13	All models beginning with CA **N
Thermal Zone	Heat Pump Split	12	All models beginning with CH**M
Thermal Zone	Heat Pump Split	13	All models beginning with GH**N
Thermal Zone	Packaged AC	12	All models beginning with PA**M
Thermal Zone	Packaged Heat Pump	12	All models beginning with PH**M
Thermal Zone	Packaged Gas-Electric	12	All models beginning with PG***M
Thermal Zone	AC Condenser Unit	12-12.5	AC12241G1
ThermoPride	AC Condenser Unit	12-12.4	AC12301G1
ThermoPride	AC Condenser Unit	12	AC12361G1
ThermoPride	AC Condenser Unit	12	AC12421G1
York International Corporation	Stealth AC	16	All models beginning with H*TS
York International Corporation	Stellar Plus AC	12	All models beginning with H*DH
York International Corporation	Stellar Ultra AC	14-16	All models beginning with H*DS
York International Corporation	Olympian AC 12	12	All models beginning with H*RC
York International Corporation	Olympian AC 14	14	All models beginning with H*RE
York International Corporation	Champion	13	All models beginning with D*EM
York International Corporation	Champion Plus	12	All models beginning with B*HH
York International Corporation	Champion Plus	12	All models beginning with D*NH
York International Corporation	Stellar Plus Heat Pump	12	All models beginning with E*FH
York International Corporation	Olympian HP	12	All models beginning with E*RC
York International Corporation (Coleman)	Cooler A/C	14	FRCS
York International Corporation (Coleman)	Cooler A/C	12	FDRCS
York International Corporation (Coleman)	D.E.S. A/C	12	DAPH
York International Corporation (Coleman)	D.E.S. Heat Pump	12	DRHS
York International Corporation (Coleman)	T.H.E. Heat Pump	14	FRHS
York International Corporation (Coleman-Evcon)	Cooler 12 A/C	12	DRCQ
York International Corporation (Coleman-Evcon)	Packaged A/C	12	All models beginning with PAC***H12
York International Corporation (Coleman-Evcon)	DES XII HP	12	DRHQ
York International Corporation (Luxaire)	Peak Performance A/C	14	All models beginning with H*BE
York International Corporation (Luxaire)	High Performance A/C	12	All models beginning with H*BC
York International Corporation (Luxaire)	High Performance AC	12	All models beginning with D*PH
York International Corporation (Luxaire)	High Performance HP	12	All models beginning with E*BC
York International Corporation (Luxaire)	Peak Performance HP	14	All models beginning with E*BE

Note: Air-Ease is a Johnson line by Armstrong Air Conditioning
Note: ICP produces Airquest, Arrowire, Comfortmaker, Heil, and Tempstar products

Note: Nordyne produces Thermal Zone Air Conditioners and Heat Pumps
Note: York International produces Evcon, Luxaire, and Fraser-Johnston products

Mr. MARKEY. Now, let's look at this issue.

Mr. BARTON. Will the gentleman yield?

Mr. MARKEY. I will be glad to yield.

Mr. BRYANT. I just want to inform the chairman that it is a 5-minute rule, and Mr. Markey is one of our more eloquent speakers, but he has had his 5 minutes. So if he has a question, let's ask the question, rule; and if he wants to continue to make a statement, he can continue to do that at a later point in the hearing.

Mr. DINGELL. Mr. Chairman, I am enjoying this so much that I am compelled to make a unanimous consent request. I ask unanimous consent that I be permitted to insert my opening statement in the record and be recognized at this time to yield 5 minutes of my time to Mr. Markey.

Mr. BARTON. Well, reclaiming the Chair, even from this part of the podium, we will certainly accept the unanimous consent request to put the gentleman's opening statement in the record, which was already made before the gentleman arrived.

In terms of the second unanimous consent request, you are asking that Mr. Markey be given an additional 5 minutes right now?

Mr. DINGELL. I am asking that you give him my 5 minutes.

Mr. BARTON. Well, your 5 minutes will be given after Mr. Walden's 5 minutes. If you want to yield at that time——

Mr. DINGELL. I was hoping I could yield it at this time. As I have indicated, I have been enjoying Mr. Markey's comments.

Mr. BRYANT. Well, I will object to the second part of the unanimous consent request, and we will do regular order in terms of when questions are to be asked.

Mr. BARTON. Objection is so noted. We have allowed others to go over some; and Mr. Markey, if you have a question you want to

pose at this point, it appears that you will have another 5 minutes there after I ask my questions.

Mr. MARKEY. I thank the chairman for yielding to me at this time for a quick question.

Well, here is the question I have. Up until my questioning, the Chair had been operating under a no-standard standard——

Mr. BARTON. No, in terms of the time, that is not true. Mr. Markey, we have actually been keeping track. We have been going over about a minute and a half. At 48 seconds over, I flip my mike on just to give you a signal that we were approaching that time limitation.

Mr. BRYANT. When I was in the Chair—when I asked my questions, I asked questions for 5 minutes and 20 seconds.

Mr. BARTON. We have now used up another 1½ minutes on this debate, so if you have——

Chairman TAUZIN. We are not being very efficient here.

Mr. MARKEY. So how do you want to proceed, Mr. Chairman?

Mr. BARTON. Well, as I said, if you have a quick question you want to ask, it appears Mr. Dingell will be yielding you 5 minutes after I get my first round of questions in, since I haven't had that opportunity yet. So if you have a quick question, we can do it. I will take my 5, and then it appears Mr. Dingell will yield to you his 5.

Mr. MARKEY. Okay. I thank you, Mr. Chairman.

The EPA Energy Star website, Mr. Garman, this morning lists the 132 model lines made by 25 different manufacturers that already meet or exceeded the SEER 13 standard. Why can't the other industry participants meet that standard?

What is the difficulty, knowing that low-income users, 60 percent of whom rent, are in situations where they effectively pay the electricity bill every day that they are in these apartments, where the estimates are that the rent would only increase by $2 a month if a more efficient SEER 13 standard was installed in each one of those homes?

Why isn't a low-income user better off in the long term if the landlord is forced—not forced but because the air conditioning industry is forced to only have more efficient air conditioners out in the marketplace?

Please explain again the deep concern that this administration seems to have for low-income people in this one area if every economic analysis demonstrates that the consumer is better off by having low electricity bills in the long term.

Mr. GARMAN. You have raised a number of issues, and I will try to constrain my comments to the most recent one. But the——

Let me, first of all, point out that the matter on the legality is an issue before the United States Court of Appeals for the Second Circuit, and we will not resolve that issue here today. So if I can put that issue of whether or not a 12 SEER is legal under the provisions of EPCA, we just need to put that aside.

I want to make it very clear, we are not arguing and it has not been argued, to my knowledge, that it is not technically possible to make an air conditioner that has a SEER 13 standard or a 15 standard or actually even a 18 standard. It is technically possible. Residing the compressor, increasing the size of the cooling array,

and other steps can be taken. It is not a technological issue. It is an economic issue.

It is economically unwise to, you know, in terms of its impact on consumers and the industry, to move to this standard this quickly. This is not to say the consumers in areas of the country where they can achieve a quick payback are not free to buy these air conditioners. They are. They are available on the market, and they can buy them. And if you live in Phoenix or Miami you should by them.

But if you live in Minnesota or Wisconsin and you are a low-income person who wants to live in his own home and you want to buy an air conditioner that is going to have a reasonable payback period, keep in mind we are promulgating a minimum national standard that has to apply in all regions of the country. If you want an Energy Star air conditioner that has a higher SEER standard, that is certainly available.

The question and the tests that are put in the law that we are supposed to use in promulgating these standards don't rest on the single issue of energy efficiency alone. We are told to evaluate the economic impact of the standard on the manufacturers and the consumers. We are told to evaluate the savings and operating costs throughout the life of the product. We are told to evaluate the total projected amount of energy that can be saved. In total, seven items in the law that we are required to evaluate in setting these standards. It is a balancing act. What the administration is pointing toward is a standard of 12, an energy efficiency standard that will raise energy efficiency over the current standard by 20 percent.

Mr. BARTON. Okay. Thank you. We need to move on. We are 8 minutes and 56 seconds on that one.

So, Mr. Garman, I now yield myself 5 minutes for purposes of questioning.

I would like to follow up on this issue of the SEER standards and the other recommendations that the Bush Administration did adopt. Can you go back through those, the ones that you did adopt and the energy savings levels for each of those appliances? Because, for some of us, air conditioning is not the biggest user of power, especially if you are in the rather cool Northwest. It is heating. It is water heating. And I wonder if you could go back through the ones that you did adopt.

Mr. GARMAN. Yes, sir. Adopted were standards covering washing machines, water heaters, commercial heating and cooling systems.

I would also want to point out that in the National Energy Policy we were expressly directed to look to new areas that——

Mr. BARTON. What are those new areas?

Mr. GARMAN. Well, they didn't specify it. But we are looking at everything ranging from, of course, it has been mentioned earlier, distribution transformers, residential furnaces and boilers, small electric motors, gas cooking products, residential or larger commercial central air conditioners and heat pumps, oil and gas-fired commercial package boilers, tankless gas-fired instantaneous water heaters, a whole range of things that we are looking at for possible new standards.

Mr. BARTON. So is the SEER standards on air conditioning from 13 recommended by Secretary Richardson? Was that figure the fig-

ure recommended by the professional staff of the Department of Energy?

Mr. GARMAN. My understanding is that the—and again, this is anecdotal and I wasn't there. But it has—I have been told that the general staff recommendation presented to Secretary Richardson based on the technical support document, the same numbers developed by the same staff put before Secretary Abraham was to adopt the 12 SEER standard.

Mr. BARTON. So you are saying the 12 SEER standard is the one that the staff recommended based on your knowledge, not the 13.

Mr. GARMAN. Yes, sir.

Mr. BARTON. And what savings would people see on a 12 standard versus a 13?

Mr. GARMAN. It depends on the region of the country, where they lived, how——

Mr. BARTON. Right.

Mr. GARMAN. You know, it varies widely. I can give you a very kind of gross median savings.

Mr. BARTON. Well, my understanding is the industry estimates that the cost of an air conditioner will increase by $407, 16.9 percent increase at 12 SEER, and $712 or a 29.5 percent increase at a 13 SEER. So the difference is nearly double between the 12 and 13, just in the cost of the air conditioner. Correct?

Mr. GARMAN. Yes, sir. The DOE numbers are actually lower than those numbers provided I think by the air conditioning manufacturers' trade. But they still are significant. It is—we estimate, particularly when you look at heat pumps, a SEER 13 heat pump is projected to cost $4,000 when these regulations take place.

Mr. BARTON. A SEER 13 would cost $4,000——

Mr. GARMAN. $4,000. And that is lower DOE number estimate.

Mr. BARTON. And what would a SEER 12 cost?

Mr. GARMAN. The SEER 12—I don't have that number at my fingers. But you are leading me to a very important point, and it goes right to the issue of energy efficiency. The choice that a consumer makes between air conditioners and heat pumps is a very important one.

Mr. BARTON. Why?

Mr. GARMAN. Because what can happen, as I said, the installed price of a 13 SEER heat pump is projected to be $4,000 compared to $2,571 for a split air conditioning system. Now, if we were to go to the 13 SEER, there would be an incentive for the consumer to team up the lower priced air conditioning system with a resistance heater furnace at a lower cost to get their heating and cooling. If only 4 percent of the consumers buying new equipment did this, they would erase the energy savings achieved by the 13 SEER standard.

Mr. BARTON. Can you say that again? Because I think that is a critical point in this debate if we are trying to get energy conservation.

Mr. GARMAN. If the price difference between a 13 SEER heat pump and a 13 SEER air conditioner, which is significant, drives only a fraction of consumers, 4 percent, to opt for the lower up front cost of teaming up an air conditioner with a resistance heating unit or resistance heating furnace——

Mr. BARTON. Right.

Mr. GARMAN. [continuing] they will more than erase the nationwide savings that would be achieved.

Mr. BARTON. So if 96 percent of consumers go for the 14 SEER air conditioner, if that is the new requirement——

Mr. GARMAN. Heat pump.

Mr. BARTON. Heat pump. I am sorry—then you would erase the savings achieved by the higher standards because you would drive people to go to the other.

Mr. GARMAN. That is right. I mean, that is the other thing.

Mr. BARTON. So in fact the regulations we put in place could actually have an inverse response by consumers, and you could end up then consuming more energy.

Mr. GARMAN. That is right. 13 SEER could have the unintended effect of actually making us take a step backward in terms of energy conservation.

Mr. BARTON. All right. My time has expired. Thank you, Mr. Garman.

The Chair now yields 5 minutes to the gentleman from Michigan, Mr. Dingell.

Mr. DINGELL. Mr. Chairman, I thank you.

I would simply observe that the policies of this administration on these matters appear to be a triumph of conservative ideology of over technology and good sense, and I yield to my good friend from Massachusetts.

Mr. MARKEY. I thank the gentleman very much.

Let me move back in, Mr. Garman, about the administration's concern for poor people. And, by the way, congratulations. Because the New York Times poll yesterday, poling all voters in the United States, when asked the question of which Americans the Bush Administration favors most, an astounding 57 percent of all Americans—Bush policies generally favor the rich—57 percent of Americans say the rich, 8 percent say middle class, and 2 percent of all voters say that the Bush Administration favor poor people. So congratulations. You seem to have found the one issue where the Bush Administration is favoring poor people.

Now let's explore that concern as the driving force for rolling back this air conditioning standard.

So there are about 15 million people, Mr. Garman, who live at or below the poverty line in the United States. Now, 3.7 million of those households use central air conditioning, 60 percent of those rent. So we are talking maybe 2.2 million households now. Now, understanding the way the population of the United States works for central air conditioning, most of those homes would be in Texas and Florida and California. They would be in the warmer States, obviously. Almost by definition, those are the people who would need it most, and that is where they would be centralized.

Now, central air conditioners last about 18 years and cost between $2,000 and $5,000. According to DOE's high-cost estimates, a 30 percent improved standard will cost about $340 more than current basic models. If a landlord chose to attempt to recoup this increment by raising rent over an 18-year product life, the rent increase would be less than $2 per month.

Now the 40 percent of the 3.7 million low-income households with central air conditioning who own their homes at some point would face the cost of replacing a central air conditioning system, and there—I think you would agree that for most of these households the monthly utility bill savings from the strongest standard over the life of the home will outweigh the incremental cost of financing a more inefficient air conditioner. So, again, could you go back through this analysis and tell me why the low-income renter or owner is worse off having a national SEER 13 standard 5 years from now than having a 12 standard over the lives of their families?

Mr. GARMAN. I will again reiterate as best I can the consumer impact comparison between 12 and 13 SEER for split air conditioners and heat pumps. The median payback period for an average consumer and the 12 SEER standard is 10 years, according to DOE analysis, notwithstanding the fact that the law tells us to use as a general guidepost a rebuttable presumption of a 3-year payback. But, nevertheless, the administration placed the emphasis and the importance of energy efficiency as saying that we are going to promulgate a minimum national standard that the average consumer could not recoup until 10 years. The low-income consumer would take 12 years to recoup it. In the case of the 13 SEER standard, those numbers become 11 years to 14 years.

Mr. MARKEY. What is the electricity price that you assume in that?

Mr. GARMAN. These are minimum payback periods.

Mr. MARKEY. No. What is the minimum?

Mr. GARMAN. It depends, because electricity prices vary with region.

Mr. MARKEY. How long would it take the electricity rates that have been in California for the last year and that the Bush Administration refuses to interject themselves to use cost of service rate, how long would it take to get a recovery for California low-income users?

Mr. GARMAN. For, of course, a much shorter time in any area of the country——

Mr. MARKEY. Thank you.

Mr. GARMAN [continuing]. Where rates are higher or when temperatures are higher and air conditioners are used more often.

Mr. MARKEY. How about in Texas? How long would it take to get a return?

Mr. GARMAN. It should not—it should take a matter of several years to get a return in Texas.

Mr. MARKEY. What do you mean, "several years"?

Mr. GARMAN. Well, again, it depends on a number of factors.

Mr. MARKEY. So you would get the return after maybe 3 or 5 years in Texas or California, and then for every other year after that there would be savings which the consumer or the landlord would be enjoying.

Mr. GARMAN. Correct. Remember, sir, we are promulgating a minimum national standard. Consumers in Texas or Louisiana are free to buy Energy Star devices today in the marketplace.

Mr. MARKEY. But you understand that the landlord has no incentive.

Mr. BARTON. The gentleman's time has now expired.

Mr. MARKEY. If I may just finish my thought. The landlord has no incentive to buy an efficient central air conditioning system since they can pass the cost on to the tenant, to the poor tenant; and so it is not the poor person who makes that decision. The poor person is subjected——

Mr. BARTON. The gentleman's time is expired.

We want to thank the panelists for their presentations today. If members have further questions, they are welcome to submit them in writing.

We have a number of panelists who are here today to testify in our next panel, so we would welcome them up to the committee table at this time.

We want to welcome our panelists this morning. Each of you will have 7 minutes to make your presentations. We have your written testimony which has been entered into the official record of the committee. Feel free to work off of that or to summarize your remarks in an oral manner.

We would like to start with Mr. Steven Nadel, the Executive Director of the American Council for an Energy-Efficient Economy. Welcome to the committee. We appreciate your taking the time to testify today. Please begin your remarks.

STATEMENTS OF STEVEN NADEL, EXECUTIVE DIRECTOR, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY; MARK F. WAGNER, DIRECTOR, JOHNSON CONTROLS, INC.; MALCOLM O'HAGEN, PRESIDENT, NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION; JOSEPHINE S. COOPER, PRESIDENT, ALLIANCE OF AUTOMOBILE MANUFACTURERS; DAVID M. NEMTZOW, PRESIDENT, ALLIANCE TO SAVE ENERGY; GARY SWOFFORD, VICE PRESIDENT AND CHIEF OPERATING OFFICER—DELIVERY, PUGET SOUND ENERGY; MARK E. RODGERS, CHIEF EXECUTIVE OFFICER, SMARTSYNCH, INC.; DEAN E. PETERSON, CENTER LEADER, LOS ALAMOS NATIONAL LABORATORIES, MATERIAL SCIENCE TECHNOLOGY-SUPERCONDUCTIVITY TECHNOLOGY CENTER; PATRICIO SILVA, PROJECT ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL; AND JORDAN CLARK, PRESIDENT, UNITED HOMEOWNERS ASSOCIATION

Mr. NADEL. Okay. Thank you, Mr. Chairman and other committee members.

Mr. BARTON. Could you pull that microphone just a little bit closer? Need to be fairly close for us to hear. Thank you.

Mr. NADEL. Yes. I very much appreciate the opportunity to testify before the committee today.

Energy efficiency in our opinion should be the cornerstone of American energy policy. Other aspects are also going to be needed, but energy efficiency is the cornerstone.

As Mr. Boucher reported earlier, energy efficiency has increased enormously in the U.S. Over the last 25 years. If we had not increased our energy efficiency as much as we have over these last 25 years, our energy bills last year would have been more than $4 billion higher, a very high number. It has made a dramatic difference.

Likewise, there are enormous opportunities to improve energy efficiency. Analysis by the National Laboratories or DOE found that we can reduce energy use cost effectively by about 10 percent in 2010, about 20 percent in 2020. Our estimates at ACEEE are that even higher savings are possible.

In my time here today I mainly wanted to focus on three recommendations that we have in terms of policy recommendations as this committee moves forward with legislation. In our written comments we have six recommendations, but in the interest of time I am going to concentrate on three of them.

First is to adopt efficiency standards for several products. As several of the committee members have pointed out before, the appliance standards program is one of the most effective Federal energy-saving programs. As a result of efficiency standards that have already been adopted and are in effect, we have reduced peak demand by the equivalent of more than 200 power plants. Energy bills last year were about $9 billion lower as a result of these standards, and these savings keep increasing every year as more and more products turn over.

The efficiency standards program was last revised by Congress in 1992 as part of the Energy Policy Act. It is 9 years later, and there has been a lot of work going on at the State level to develop new State standards, also in development of voluntary standards by industry associations, by Energy Star and by others.

We think it is time for Congress to add some additional products to the energy standards program. The Bush Administration and the national energy plan does propose to add some new standards where technically feasible and economically justified. In a few cases they do have existing legislative authority to do that. In most cases, though, they do not, which is why congressional action is needed.

Also, DOE is very much behind schedule in many of its rulemakings, and this goes back for many administrations. So to the extent Congress can set consensus standards that dramatically speeds up the process and we should have DOE rulemakings only when there is important outstanding technical issues that can't be resolved through consensus negotiations.

Specifically, we recommend that Congress adopt new efficiency standards for distribution transformers, commercial refrigerators, exit signs, traffic lights, torchiere lighting fixtures, icemakers, commercial unit heaters and consumer electronic equipment; and I provide some information in my written testimony on some of those products.

In addition, we believe that Congress should direct DOE to set standards on residential ceiling fans, heat pump circulation fans and refrigerated vending machines. We put those last three in a separate category because there are some technical issues to be resolved there.

For all of these products we are just not completing an analysis looking at the opportunities for energy savings. We conclude that by 2020 setting new standards on these products that I have just named will reduce electricity use from the residential and commercial sectors by about 5 percent. So that is quite a significant savings.

We are talking energy savings to consumers of billions of dollars. Over the next 15 years, we project that these standards would save consumers about $85 billion on a net present value basis. The benefits to our estimation are about five times greater than the cost.

These are pretty straightforward standards. Many of them right now are being adopted in California without controversy. The paybacks tend to be very rapid, nothing like some of the more controversial products we have been discussing of late.

So that would be one of our important recommendations.

Second, we recommend that Congress establish a national system benefit trust fund. Many States and utilities have historically offered energy efficiency, low-income research and development and other types of programs as part of their effort to help provide services to people who are on the system. In general, these programs have cost less than 3 cents for each kilowatt hour that they save, so far cheaper than generating electricity.

Unfortunately, as a result of restructuring and competition, the budgets for these programs have been dramatically cut. Over the last 6 years, spending on these types of programs has declined by more than 50 percent.

Some States have enacted their own system benefit programs, but many States have not. We recommend that the Federal Government establish a program to provide matching funds to the States.

Specifically, there are proposals by Senator Jeffords and Representative Pallone that would establish a Federal fund, funded by a charge of two-tenths of a cent per kilowatt hour of sales, a very small charge on electric service that would then be used to match State expenditures. States would decide how to spend the funds within their States, to choose the mix of efficiency versus low income versus other needs.

But we think this type of program would be an important inducement to the States to establish these programs, and it follows a precedent for the Universal Service Fund under the Telecommunications Act which this committee helped develop back in 1996. We find that, from our analysis, that this type of program could result in energy savings fairly quickly. We figure this could reduce energy use in 2005 by about 1.4 percent in this country, and by 2010 it would reduce electricity use by about 7 percent.

So each of these things are saving a couple of percent, and it really adds up.

The third policy I wanted to mention was to improve automobile fuel economy, to increase corporate average fuel economy standards or undertake other policy steps that will result in similar savings. To the extent we work with CAFE, we recommend improving the standards by 5 percent per year for the next 10 years. That would bring the car standards to 44 miles per gallon and the light truck standard to 33 miles per gallon by 2012.

We do support tax incentives for advanced car technologies, but we believe from our analyses that these will have a very small impact relative to the impact of CAFE. The market has not worked well when it comes to automobile fuel economy. Average fuel economy has come down in recent years, not gone up.

CAFE standards were very effective in the 1970's and 1980's since they were first signed by President Ford. Manufacturers were able to meet the standards at a modest cost and without compromising safety, and we believe it is time to increase these standards again. In particular, we recommend that Congress do it because this will provide greater certainty to the manufacturers of what the long-term targets are rather than these annual rulemakings that just make very small, incremental changes.

Mr. BARTON. If you could sum up your comments, sir.

Mr. NADEL. Okay. Just to wrap up on that one, there is a large amount of oil at stake here. The savings from the CAFE proposal, like I mentioned, is more than three times proven reserves of oil in the United States.

In conclusion, the Bush Administration has endorsed energy efficiency rhetorically in their national energy plan but is short on specifics when it comes to energy efficiency. Congress should adopt—address these shortcomings by adopting some of the specific policies I have recommended here as well as in my written statements.

It has broad public support for these policies. A Gallup poll last month found that more than 8 percent of consumers supported mandating new, more efficient appliances and mandating more efficient cars. So I would urge this committee to put some action behind the rhetoric and endorse efficiency through these policies. Thank you.

[The prepared statement of Steven Nadel follows:]

PREPARED STATEMENT OF STEVEN NADEL, EXECUTIVE DIRECTOR, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY

INTRODUCTION

ACEEE is a non-profit organization dedicated to increasing energy efficiency as a means for both promoting economic prosperity and protecting the environment. We were founded in 1980 and have contributed in key ways to energy legislation adopted during the past 20 years, including the Energy Policy Act of 1992 and the National Appliance Energy Conservation Act of 1987. I appreciate the opportunity to appear again before this Committee.

Energy efficiency improvement has contributed a great deal to our nation's economic growth and increased standard of living over the past 25 years. Consider these facts which are based primarily on data published by the Energy Information Administration:

1. Total primary energy use per capita in the United States in 2000 was almost identical to that in 1973. Over the same 27-year period economic output (GDP) per capita increased 74 percent.
2. National energy intensity (energy use per unit of GDP) fell 42 percent between 1973 and 2000. About 60% of this decline is attributable to real energy efficiency improvements and about 40% is due to structural changes in the economy and fuel switching.
3. If the United States had not dramatically reduced its energy intensity over the past 27 years, consumers and businesses would have spent at least $430 billion more on energy purchases in 2000.
4. Between 1996 and 2000, GDP increased 19 percent while primary energy use increased just 5 percent. Imagine how much worse our energy problems would be today if energy use increased 10 or 15 percent during 1996-2000.

Even though the United States is much more energy-efficient today than it was 25 years ago, there is still enormous potential for additional cost-effective energy savings. Some newer energy efficiency measures have barely begun to be adopted. Other efficiency measures could be developed and commercialized in coming years, with proper support:

- The Department of Energy's national laboratories estimate that increasing energy efficiency throughout the economy could cut national energy use by 10 percent

or more in 2010 and about 20 percent in 2020, with net economic benefits for consumers and businesses.[1]

- ACEEE estimates that adopting a comprehensive set of policies for advancing energy efficiency could lower national energy use by as much as 18 percent in 2010 and 33 percent in 2020, and do so cost-effectively.[2]

All of these savings are from efficiency improvements, meaning improving equipment and systems to get the same or greater output (e.g. miles traveled or widgets produced) but with less energy input. Additional energy can be saved from energy conservation, meaning reduced energy use, including reducing energy waste (which is generally desirable) and reducing energy services (which is generally not desirable). In my testimony here today, I will talk only about energy efficiency and not about energy conservation.

Whether the savings potential from energy efficiency is 20 or 30 percent, increasing the efficiency of our homes, appliances, vehicles, businesses, and industries should be the cornerstone of national energy policy today since it provides a host of benefits. Increasing energy efficiency will:

- Reduce energy waste and increase productivity, without forcing consumers or businesses to cut back on energy services or amenities;
- Save consumers and businesses money since the energy savings more than pay for any increase in first cost;
- Reduce the risk of energy shortages and improve the reliability of overtaxed electric systems;
- Reduce energy imports;
- Reduce air pollution of all types since burning fossil fuels is the main source of most types of air pollution;
- Lower U.S. greenhouse gas emissions and thereby help to slow the rate of global warming.

Furthermore, increasing energy efficiency does not present a trade-off between enhancing national security and energy reliability on the one hand and protecting the environment on the other, as do a number of energy supply options. Increasing energy efficiency is a "win-win" strategy from the perspective of economic growth, national security, reliability, and environmental protection.

We are not saying that energy efficiency alone will solve our energy problems. Even with aggressive actions to promote energy efficiency, U.S. energy consumption is likely to rise for more than a decade, and this growth, combined with retirements of some aging facilities, will mean that some new energy supplies and energy infrastructure will be needed. But, aggressive steps to promote energy efficiency will substantially cut our energy supply and energy infrastructure problems, reducing the economic cost, political controversy, and environmental impact of energy supply enhancements.

ENERGY EFFICIENCY POLICY RECOMMENDATIONS

The remainder of my testimony will focus on six priority energy efficiency policies which are cost-effective to consumers and businesses and will substantially reduce U.S. energy use. The first four of these recommendations are within this Committee's area of jurisdiction, the other two fall under the jurisdiction of other Congressional committees. Each of these recommendations could reduce U.S. energy use by more than 1% in 2020; **taken together they would reduce U.S. energy use by about 20%.** These policies involve a combination of "carrots" and "sticks," including new incentives, funding for R&D and technology deployment, and new regulations. The policies would significantly increase the efficiency of energy use in our homes, commercial buildings, factories, and vehicles.

1. Adopt Efficiency Standards for Several New Products

Federal appliance and equipment efficiency standards were signed into law by President Reagan in 1987 and expanded under President Bush in 1992. Minimum efficiency standards were adopted because many market barriers, such as lack of awareness, rush purchases when an existing appliance breaks down, and purchases by builders and landlords, inhibit the purchase of efficient appliances in the unregulated market. Standards remove inefficient products from the market but still leave consumers with a full range of products and features to choose among. Appliance and equipment standards are clearly one of the federal government's most effective

[1] Interlaboratory Working Group. 2000. *Scenarios for a Clean Energy Future.* Washington, D.C.: Interlaboratory Working Group on Energy-Efficient and Clean-Energy Technologies, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy.

[2] H. Geller, S. Bernow, and W. Dougherty. 1999. *Meeting America's Kyoto Protocol Target: Policies and Impacts.* Washington, D.C.: American Council for an Energy-Efficient Economy.

energy-saving programs. Analyses by DOE and others indicate that in 2000, appliance and equipment efficiency standards saved 1.2 quadrillion Btu's (quads) of energy (1.3% of U.S. electric use) and reduced consumer energy bills by approximately $9 billion with energy bill savings far exceeding any increase in product cost.[3] By 2020, standards already enacted will save 4.3 quads/year (3.5% of projected U.S. energy use), and reduce peak electric demand by 120,000 MW (more than a 10% reduction). The President's National Energy Plan devotes half a page to this program and notes that these "standards will stimulate energy savings that benefit the consumer, and reduce fossil fuel consumption, thus reducing air emissions."[4]

In order to provide additional cost-effective savings under this program, we recommend three actions:

A. DOE, with adequate funding and encouragement from the Congress, should commit to completing equipment standard rulemakings in a timely manner. Current rulemakings include initial standards for distribution transformers as well as new, updated standards for commercial air conditioning systems and residential heating systems. Rulemakings should also be started soon to update existing standards for residential dishwashers, and refrigerators. On-going proceedings should be completed within two years, new proceedings within three years.

B. The Congress should enact new efficiency standards for products now or soon to be covered by state efficiency standards and by several voluntary standards programs. Among the products that should be included are distribution transformers,[5] commercial refrigerators, exit signs, traffic lights, torchiere lighting fixtures, ice makers, and commercial unit heaters. California is now adopting standards on many of these products and Massachusetts and Minnesota already have standards on distribution transformers. None of these standards have been controversial and all involve highly cost-effective energy savings. In addition, the Congress should adopt limits on standby power consumption for household electronic products and appliances based on levels promoted through the Energy Star program and should also direct DOE to adopt standards on furnace fans, ceiling fans, and cold-drink vending machines. Setting standards for household electronic products such as televisions, VCRs, cable boxes, and audio equipment would substantially reduce the approximately 5% of household electricity consumed when products are not "on". Standards for the other products mentioned above will be very cost-effective, but certain technical details need to be worked out which is why DOE and not the Congress should set specific standard levels.

C. The Bush Administration should permit a SEER 13 efficiency standard for residential central air conditioners and heat pumps to proceed. The Administration recently announced that it will soon propose rolling back the standard issued in January from SEER 13 to SEER 12. A SEER 13 standard relative to a SEER 12 standard will cut peak electricity demand by 18,000 MW (equivalent to 60 power plants of 300 MW each) once the standard is fully phased in, and will cut consumer electricity bills by more than $18 billion over the next 30 years. This is one of the most important steps the Federal government can take to help California and other states avoid future power shortages.

The first two of these recommendations are consistent with the President's National Energy Plan which recommends that the Secretary of Energy: (1) "support [the] appliance standards program for covered products, setting higher standards where technologically feasible and economically justified;" and (2) "expand the scope of the appliance standard program, setting standards for additional appliances where technologically feasible and economically justified."[6] However, we recommend that the Congress take action in order to accelerate savings (Congressional action can avoid a 3-10 year DOE rulemaking process) and because DOE currently lacks authority to set standards for commercial and industrial equipment not currently covered by the federal standards program.

ACEEE estimates that these three steps can cost-effectively reduce energy use in 2020 by about 2.4 quadrillion Btu's (quads), nearly a 2% reduction in projected U.S.

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[3] H. Geller, T. Kubo, and S. Nadel. 2001. *Overall Savings from Federal Appliance and Equipment Efficiency Standards.* Washington, D.C.: American Council for an Energy-Efficient Economy.

[4] National Energy Policy Development Group. 2001. *National Energy Policy.* U.S. Government Printing Office, Washington, D.C.: National Energy Policy Development Group.

[5] Congressional enactment of transformer standards will be quicker and easier than the DOE rulemaking discussed in section A above. Congress first called for a DOE transformer rulemaking in 1992, but now it is nine-years later and this rulemaking has barely begun.

[6] National Energy Policy Development Group, *op. cit.* (see note 4).

energy use. Consumers and businesses would see their energy bills decline by nearly $20 billion per year by 2020. Savings in 2010 would be about one-third of these amounts.[7] A forthcoming ACEEE analysis estimates that the benefits of just the second step will be approximately five times greater than the costs, and will provide net benefits to consumers and businesses of about $80 billion from products sold through 2020.

2. Establish a National System Benefit Trust Fund

Electric utilities historically have funded programs to encourage more efficient energy use, assist low-income families with home weatherization and energy bill payment, promote the development of renewable energy sources, and undertake research and development. Experience with utility energy efficiency programs in New England, New York, and California shows that the energy bill savings for households and businesses are around twice costs (both the program costs and measure costs).[8] However, increasing competition and restructuring have led to a decline in these "system benefit expenditures" over the past six years. Total utility spending on all demand side management programs (i.e., energy efficiency and peak load reduction) fell by more than 50% from a high of $3.1 billion in 1993 to $1.4 billion in 1999 (1999 dollars).[9]

In order to ensure that energy efficiency programs and other public benefits activities continue following restructuring, 15 states have established system benefits funds through a small charge on all kilowatt-hours (kWh) flowing through the transmission and distribution grid. We recommend creation of a national systems benefits trust fund that would provide matching funds to states for eligible public benefits expenditures. Specifically, we recommend a non-bypassable wires charge of two-tenths of a cent per kWh. This concept and specific amount were included in utility restructuring bills sponsored by Rep. Pallone (H.R. 2569) and Senator Jeffords (S. 1369) in the last Congress. This concept is based on the Universal Service provisions contained in the Telecommunications Act of 1996.

This policy would give states and utilities a strong incentive to expand their energy efficiency programs and other public benefits activities. All states and utilities would pay into the fund, but they would only get money back out if they establish or continue energy efficiency programs and other public benefit activities. However, individual states, not the federal government, would decide how the money gets spent in each state. The Pallone and Jeffords bills provide one national dollar for each state dollar but other matching ratios could also be considered such as a 2:1 national:state match, or a baseline funding amount with no matching requirement plus an additional supplemental amount subject to a match.

We believe this policy would lead to widespread energy efficiency improvements in lighting, appliances, air conditioning, motors systems, and other electricity end uses. We estimate it could save as much as 54 TWh (1.4% of projected electricity use) in 2005 and 291 TWh (7% of projected use) in 2010.[10] With these levels of electricity savings, the risk of power shortages in the future will diminish, there will be fewer price spikes caused by periods of tight supply and demand, and there will be less need to build often contentious new power plants. In addition, pollutant emissions from power plants will fall, thereby improving public health and helping cities and states meet the ambient air quality standards.

3. Increase Corporate Average Fuel Economy (CAFE) Standards for Cars and Light Trucks or Adopt an Equivalent Fuel Consumption Cap

The average fuel economy of new passenger vehicles (cars and light trucks) has declined from about 26 miles per gallon (mpg) in 1988 to 24 mpg in 2000 due to increasing vehicle size and power, the rising market share of light trucks, and the lack of tougher Corporate Average Fuel Economy (CAFE) standards. The original CAFE standards for cars were adopted in 1975 and reached their maximum level in 1985.

We recommend increasing the CAFE standards for cars and light trucks 5% per year for 10 years so that they reach 44 mpg for cars and 33 mpg for light trucks by 2012, with further improvements of 3% per year beyond 2012. Alternatively, the standards for cars and light trucks could be combined into one value for all new passenger vehicles, specifically 38 mpg by 2012. This level of fuel economy improve-

[7] Preliminary results of an ACEEE analysis to be published July 2001.

[8] S. Nadel and M. Kushler. 2000. "Public Benefit Funds: A Key Strategy for Advancing Energy Efficiency." *The Electricity Journal.* October, 74-84.

[9] Ibid. Also EIA. 2000. "Electric Utility Demand Side Management 1999." www.eia/gov/cneaf/electricity/dsm99. Washington, D.C.: U.S. Department of Energy, Energy Information Administration.

[10] Preliminary results of an ACEEE analysis to be published in July 2001.

ment is technically feasible and cost effective for consumers, and it can be achieved without compromising vehicle safety.[11] The 5% annual fuel economy improvement is the rate of improvement that Ford has indicated it will achieve voluntarily for its SUVs over the next five years. If this rate can be achieved in SUVs, it can be achieved in all new vehicles made by Ford as well as other manufacturers.

Car manufacturers will protest and say "it can't be done" or "it will cost a fortune," as they did when the original CAFE standards were debated. The initial CAFE standards were enacted by the Congress and signed into law by President Ford in 1975 in the face of industry opposition, and the car companies complied with these standards at reasonable cost. Tougher standards are now long overdue and should be adopted before we face another oil price shock or crisis, considering "technological feasibility, economic practicability, and the need of the nation to conserve energy," as stated in the Energy Production and Conservation Act of 1975.

Tougher fuel economy standards should be complemented by tax credits for purchasers of innovative, highly efficient vehicles (see policy 5 below), expanding taxes on gas guzzling vehicles, increasing labeling and consumer education efforts, and continuing vigorous R&D on fuel-efficient, low emissions vehicles. This combination of policies would facilitate compliance with the tougher standards.

The CAFE standards proposed here would save about 1.5 million barrels of petroleum per day by 2010 and 4.8 million barrels per day by 2020. Over 40 years, increasing vehicle efficiency as suggested above would save 10-20 times more oil than the projected supply from the Arctic National Wildlife Refuge (ANWR) and more than three times total proven U.S. oil reserves today.[12] The avoided carbon dioxide emissions would also be very substantial.

An alternative approach would be to establish a cap on the use of petroleum products by passenger vehicles and then come up with the policy mechanisms, including but not limited to stronger CAFE standards, that would enable the cap to be met. This approach was included in recent Senate legislation (S. 597), which sets the cap at 105% of fuel consumption in 2000 starting in 2008. This fuel consumption cap would result in a energy savings and avoided CO_2 emissions in the near term (i.e., by 2010) similar to those achieved by strengthened CAFE standards.

4. Promote Clean, High-Efficiency Combined Heat and Power Systems

Combined heat and power (CHP) systems (also called cogeneration) produce multiple usable energy forms (e.g., electricity and steam) from a single fuel input. These combined systems can achieve much greater efficiency than separate systems because they produce the heat that would otherwise need to be generated in a separate boiler, while also producing power on-site at a higher efficiency than most central station power plants.

Several inequities in government and utility regulations hinder development of CHP resources. These include utility rules that make it difficult for many CHP systems to connect to the utility grid, tax depreciation rules that vary the depreciation period for CHP systems from 5-39 years depending on plant ownership, and environmental standards that do not recognize the efficiency gains of CHP systems. Each of these problems need to be addressed.

CHP and other distributed generation technologies have encountered hurdles to interconnecting with the electric utility system, which has lead to a hostile environment for CHP in many utility service territories. These hurdles include a lack of standard technical specifications, which means that each utility develops its own specification. While many of these utility specifications are reasonable, others are not and contain unreasonable requirements, such as expensive equipment or project studies, and discriminatory pricing and contractual practices such as "exit fees" and onerous terms and conditions of service.

While some states have begun to address these issues, many have not, and those that have, take somewhat different approaches. Federal legislation is needed to address these issues in a consistent manner across states. The legislation should require that CHP facilities be interconnected with the local distribution facilities if the CHP owners comply with new IEEE interconnection standards and pay the directly related costs. CHP facilities should have a right to back-up power sold at rates, terms, and conditions that are reasonable and not discriminatory as determined by the appropriate regulatory authority. Provisions along these lines are included in

[11] J. DeCicco, F. An, and M. Ross. 2001. *Technical Options for Improving the Fuel Economy of U.S. Cars and Light Trucks by 2010-2015.* Washington, D.C.: American Council for an Energy-Efficient Economy. Also, J. Mark. 1999. *Greener SUVs: A Blueprint for Cleaner, More Efficient Light Trucks.* Cambridge, Mass.: Union of Concerned Scientists.

[12] H. Geller. 2001. *Strategies for Reducing Oil Imports: Expanding Oil Production vs. Increasing Vehicle Efficiency.* Washington, D.C.: American Council for an Energy-Efficient Economy.

H.R. 1945 which was recently introduced by Rep. Quinn and others. In addition, high-efficiency CHP systems should be exempted from exit fees that are not directly related to service to that customer.

Under current IRS rules, CHP assets are depreciated over varying time periods depending on system configuration and owner (i.e., the same equipment can be depreciated over as little as five years to as much as 39 years). For example, equipment at a data center is depreciated over 5 years, while the same system installed in an owner-occupied commercial building is deprecated over 39 years. This treatment is a result of policies that did not envision the changes in technology and markets that have occurred in recent years. Most modern CHP systems use combustion turbines derived from jet engines, which have much lower capital costs than older systems but require more extensive and expensive maintenance. These systems are projected to run 7-10 years before needing major capital investment. A common depreciation period is needed for CHP equipment. Based on the technical and market life of current systems, we recommend a depreciation period in the range of 7-10 years (at the high end of this range if a separate investment tax credit is offered; at the low end of this range if there is not a separate investment tax credit). This is consistent with the President's National Energy Plan which recommends that "the Secretary of the Treasury [should] work with Congress to encourage increased energy efficiency through combined heat and power (CHP) projects by shorterning the depreciation life for CHP projects or providing an investment tax credit." [13]

Most stationary-source air quality regulations are based on either the emissions per unit of fuel burned or the concentration of a pollutant in the smokestack. This smokestack approach makes no adjustment in allowable emissions based on the efficiency of energy use. Thus, a CHP system receives no credit for net total emissions reductions achieved when compared to separate systems for providing heat and power. To address this problem, the permitting of CHP systems should be shifted from an input-based to an output-based approach (i.e., maximum emissions per unit of useful energy output). Output-based levels equivalent to current input-based levels for separate heat and power should be developed by EPA.

DOE and EPA have set a goal of adding 50,000 MW of new CHP capacity by 2010. With these barriers removed, we believe this target is achievable, and further growth could add an additional 95,000 MW over the 2011-2020 period. Relative to the conventional power plants these systems would displace, this new CHP capacity would result in net energy savings of approximately 1.5 quads in 2010 and 4 quads in 2020. Carbon dioxide emissions would be cut substantially.[14] Owners of CHP systems (businesses and industries) will realize net cost savings that pay back the first cost in 4-5 years on average.[15]

5. Enact Tax Incentives for Highly Energy-Efficient Vehicles, Homes, Commercial Buildings, and Other Products

Many new energy-efficient technologies including fuel cell power systems, hybrid and fuel cell vehicles, gas-fired heat pumps, super-efficient refrigerators and clothes washers, and super-efficient new buildings have been commercialized in recent years or are nearing commercialization. But these technologies may never get manufactured on a large scale or widely used due to their initial high cost, market uncertainty, lack of consumer awareness, and other barriers.

Tax incentives can help manufacturers justify mass marketing for innovative energy-efficient technologies. Tax credits also can help buyers (or manufacturers) offset the relatively high first cost premium for the new technologies, thereby helping to build sales and market share. Once the new technologies become widely available and produced on a significant scale, costs should decline and the tax credits can be phased out.

We recommend providing tax incentives for a variety of highly energy-efficient vehicles, buildings, and other products. A key element in designing the credits is for only highly efficient products to be eligible. If the eligibility level is set too low, then the cost to the Treasury will be high and incremental energy savings low because many of the credits will go to projects that would have occurred even without the credits (so-called "free riders").

We recommend tax incentives for the following products:

Hybrid Electric and Fuel Cell Vehicles. Tax credits of up to $4,000 for hybrid electric vehicles and $8,000 for fuel cell vehicles will help jump start introduction and

[13] National Energy Policy Development Group, *op. cit.* (see note 4).

[14] Geller, Bernow, and Dougherty, *op. cit.* (see note 2).

[15] H. Geller, S. Nadel, N. Elliott, M. Thomas, and J. DeCicco. 1998. *Approaching the Kyoto Targets: Five Key Strategies for the United States.* Washington, D.C.: American Council for an Energy-Efficient Economy.

purchase of these innovative, fuel-efficient technologies. The incentives should be based primarily on energy performance and provide both fuel savings and lower emissions, as is the case in the CLEAR Act introduced by April 24 by Sen. Hatch and others, and by Rep. Camp in the House (H.R. 1864). The President's National Energy Plan also endorses tax credits along these lines.

Combined Heat and Power. We support either a 10% investment tax credit or seven-year depreciation period for combined heat and power systems with an overall efficiency of at least 60-70% depending on system size. This proposal has strong industry support and is included in both the Murkowski and Bingaman bills and in the Quinn bill (H.R. 1945) in the House. This proposal is also endorsed in the President's National Energy Plan.

New Homes. A tax credit of up to $2,000 for highly efficient new homes will stimulate efficiency and help lower housing costs for American families. Versions of this proposal have been introduced by Sen. Bob Smith (S. 207) and Rep. Bill Thomas and others, and variants are included in both the Murkowski-Lott (S. 389) and Bingaman-Daschle (S. 596) energy bills.

Appliances. A tax credit of $50-100 for manufacturers of highly efficient clothes washers and refrigerators will help save energy and water (with a cap on the total credit per manufacturer). This proposal has been introduced by Sens. Grassley and Allard in the Senate and Reps. Nussle and Tanner in the House (H.R. 1316). It is strongly supported by the appliance industry.

Commercial Buildings. We support a tax deduction of $2.25 per square foot for investments in commercial buildings and multifamily residences that achieve a 50% or greater reduction in heating and cooling costs compared to buildings meeting current model energy codes. This proposal is included in legislation sponsored by Sen. Bob Smith in the Senate and Rep. Cunningham in the House (H.R. 778).

Other Building Equipment. We support a 20% investment tax credit with caps for innovative building technologies including very efficient furnaces, stationary fuel cell power systems, gas-fired heat pumps, and electric heat pump water heaters. This proposal is included in the Bingaman bill.

6. Reject the Deep Cuts in Funding Proposed for DOE's Energy Efficiency Programs and Instead Expand These Programs and EPA's Energy Star Programs in FY2002 and Subsequent Years

The U.S. Department of Energy (DOE) has made many valuable contributions towards increasing the energy efficiency of U.S. buildings, appliances, vehicles, and industries. Consequently, the President's Committee of Advisors on Science and Technology (PCAST) stated in 1997 that "R&D investments in energy efficiency are the most cost-effective way to simultaneously reduce the risks of climate change, oil import interruption, and local air pollution, and to improve the productivity of the economy."[16]

This is not just a rhetorical statement. DOE recently documented that 20 of its most successful energy efficiency projects have already saved the nation 5.5 quadrillion Btus of energy, worth about $30 billion in avoided energy costs, mostly over the past decade.[17] The cost to taxpayers for these 20 activities was $712 million, less than 3 percent of the energy bill savings so far. In fact, the energy bill savings from these 20 projects alone is over three times the amount of money appropriated by the Congress for all DOE energy efficiency and renewable energy programs during the 1990s, demonstrating that spending taxpayers money on energy efficiency R&D and deployment is a very sound investment. There are many other indicators of success and effectiveness besides the 20 projects reviewed in this report.

The Energy Star deployment programs operated by EPA and DOE have also been very successful. Since starting the Green Lights program in 1991, EPA has shown great creativity in developing cost-effective, practical programs that are having a substantial impact. For example, 16 percent of the commercial and public sector building space in the country has now signed up for the Energy Star Buildings program. The Energy Star New Homes program is growing rapidly with over 1,600 builders now participating and more than 25,000 Energy Star Homes built. These homes use 35 percent less energy for heating and cooling on average compared to current "good practice" model building codes. And the Energy Star labeling program has transformed the market for personal computers, photocopiers, printers, and fac-

[16] [PCAST] President's Committee of Advisors on Science and Technology, Panel on Energy Research and Development. 1997. *Federal Energy Research and Development for the Challenges of the Twenty-First Century,* Washington, D.C.: Executive Office of the President.

[17] Office of Energy Efficiency and Renewable Energy. 2000. *Clean Energy Partnerships: A Decade of Success.* Washington, D.C.: U.S. Dept. of Energy, Office of Energy Efficiency and Renewable Energy.

simile machines. Prior to Energy Star, most of this equipment consumed energy whether the machine was in use or not. Through the Energy Star program, EPA stimulated use of power management which allows equipment to go into a low-power "sleep mode" when equipment is not in use. As a result of cumulative purchases, consumers saved more than 49 billion kWh in 2000—worth about $3.9 billion.[18]

The Bush Administration has proposed cutting DOE's energy efficiency R&D and technology deployment programs (apart from grants to low-income households for home weatherization) by $180 million (29 percent) in FY2002. Some programs would be cut by 50 percent or more. Proposed funding for EPA's Energy Star program is approximately level with last year. On the other hand, the President's National Energy Plan, directs DOE and EPA to "promote greater energy efficiency" including to: "expand the Energy Star program beyond office buildings to include schools, retail buildings, health care facilities and homes; extent the Energy Star labeling programs to additional products, appliances, and services; [and] strengthen . . . public education programs relating to energy efficiency."[19] In order to meet the directives in the energy plan, DOE and EPA energy efficiency funding will need to be increased, not decreased.

The 1997 review of energy research programs by PCAST recommended that funding for DOE's energy efficiency R&D programs be increased from $373 million in fiscal year 1997 to $880 million in fiscal year 2003. This increased funding would be used to expand programs in many areas such as for work in transportation on more fuel-efficient cars and trucks, work in industry on improved electric motors, material-processing technologies and manufacturing processes, and work in residential and commercial buildings on high-technology windows, super-insulation, more efficient lighting, and advanced heating and cooling systems. In fiscal year 2001, funding for these programs is $556, so to meet the PCAST recommendations, funding will need to be increased about 25% per year for the next two years. PCAST estimated that if these recommendations are adopted, energy bills could be reduced by $30-45 billion in 2010 and $75-95 billion in 2020 (these savings overlap some with savings from the other policies we recommend).[20]

Funding for the EPA programs should also be expanded. EPA has projected that with continued funding at current levels, energy and emissions savings in 2010 will be more than double savings in 2000, including carbon emissions reductions of about 90 MMT[21] (these savings overlap to some extent with other policies we recommend.) With increased funding, savings could be even greater. EPA and DOE should expand the scope and level of promotion associated with the Energy Star program. Energy Star labeling should be extended to additional types of electronic products, commercial refrigeration equipment, motors, and other mass-produced products not currently covered. The commercial building benchmarking and rating program so far only applies to offices and schools and should be expanded to other sectors as recommended in the President's plan. And more funding is needed to expand promotion and training activities in the Energy Star new homes and small business programs, to develop and implement a major program to encourage home energy retrofits, as well as to increase consumer awareness and market penetration of energy-efficient Energy Star products of all types. We recommend funding increases for the Energy Star programs of 20% per year for the next two years.

CONCLUSION

Energy efficiency is an important cornerstone for America's energy policy. Taken together, the six policies recommended here can reduce U.S. energy use by about 20 percent in 2020. These efficiency policies alone will not solve all of our energy problems—energy use will continue to grow for a decade or more while these energy-saving policies gradually take effect. Furthermore, sustaining current rates of energy use into the long-term future will require new sources of energy supply and distribution. However, these efficiency policies will substantially reduce our energy problems, making it easier to find reasonably priced and environmentally acceptable energy supplies to meet U.S. energy demand. In other words, relative to a supply-focused energy strategy, a balanced energy strategy that complements efforts to expand supplies with a major focus on improving efficiency, has a greater chance of success in terms of ensuring the reliability of the U.S. energy system, reducing eco-

[18] EPA.2001. *The Power of Partnerships, Climate Protection Partnerships Division, Achievements for 2000—In Brief.* Washington, D.C.: U.S. Environmental Protection Agency.
[19] National Energy Policy Development Group, op. cit. (see note 4).
[20] PCAST, *op. cit.* (see note 16).
[21] EPA, *op. cit.* (see note 18).

nomic costs (since all the efficiency strategies incorporated here save consumers and businesses money at projected future energy costs), and protecting the environment.

ACEEE is not the only organization suggesting that national policy makers should increase support for and adopt new policies to raise energy efficiency. The Council on Foreign Relations convened an independent task force that recently completed an in-depth report on our energy challenges and what should be done about them.[22] The Council concludes: "Energy policy has underplayed energy efficiency and demand-management measures for two decades." The Council urges that we "take a proactive government position on demand management" including to "review and establish new and stricter CAFE mileage standards, especially for light trucks."

In addition, the general public voices strong support for increasing energy efficiency and a balanced energy strategy. For example, a recent nationwide poll conducted for the Los Angeles Times found that when people were asked how to meet our energy needs, "15 percent called for greater conservation efforts, 17 percent supported development of new supplies and 61 percent said they favored both steps in equal measure."[23] Similarly, in a May 2001 Gallop Poll, 47% of respondents said the U.S. should emphasize "more conservation" versus only 35% who said we should emphasize production (an additional 14% volunteered "both"). In this same poll, when read a list of 11 actions to deal with the energy situation, the top four actions (supported by 85-91% of respondents) were "invest in new sources of energy," "mandate more energy-efficient appliances," "mandate more energy-efficient new buildings," and "mandate more energy-efficient cars." Options for increasing energy supply and delivery generally received significantly less support.[24]

Ten years ago the previous Bush Administration issued its National Energy Strategy. It gave considerable priority to greater energy efficiency and called for expansion of energy efficiency R&D and technology deployment programs, new policies to stimulate utility energy efficiency programs, establishing new appliance and equipment energy efficiency standards, and new federal incentives to increase energy efficiency.[25] Many of these proposals were incorporated in the Energy Policy Act of 1992, and the budget for and impacts of DOE's and EPA's energy efficiency programs rose throughout the previous Bush Administration.

The current Bush Administration has endorsed energy efficiency rhetorically, but their National Energy Plan is short on specifics when it comes to energy efficiency. The Congress should address this problem by adopting the specific efficiency policies I have discussed here today. These policies will benefit our economy and our environment and will help bring energy supply and energy demand into better balance, helping to protect U.S. consumers and businesses from supply and price disruptions of the type we have experienced recently.

That concludes my testimony. Thank you for the opportunity to present these views.

Mr. BARTON. Thank you very much. We appreciate your testimony, and the complete testimony will be in our record.

The Chair now recognizes Mr. Wagner.

STATEMENT OF MARK F. WAGNER

Mr. WAGNER. Thank you, Mr. Chairman.

I am Mark Wagner, representing Johnson Controls. Since the 1880's when our founder, Warren Johnson, invented the thermostat, Johnson Controls has been working hard to make government facilities, schools, hospitals and commercial buildings more energy efficient.

We do this through the design, manufacture and installation of energy monitoring equipment and control systems, HVAC systems, as well as utility, lighting, security and fire management systems for nonresidential buildings.

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[22] Council on Foreign Relations. 2001. *Strategic Energy Policy Challenges for the 21st Century.* Forthcoming. Washington, D.C.: Council on Foreign Relations.

[23] Mark Barabak. 2001. "Bush is Criticized as Environment Weighed. *Los Angeles Times.* April 30, A1.

[24] David W. Moore. 2001. "Energy Crisis: Americans Lean toward Conservation over Production." www.gallup.com/poll/releases/pr010515.asp. Princeton, N.J.: The Gallup Organization.

[25] *National Energy Strategy: Powerful Ideas for America.* 1991. Washington, D.C.: U.S. Government Printing Office.

Last week we cosponsored the 12th Annual Energy Efficiency Forum along with the United States Energy Association at the National Press Club. Our goal at this forum was to promote an energy efficiency ethic through the presentation of national and worldwide views on energy efficiency, environmental impacts and economic growth.

Congressman Markey was one of our featured speakers, and he did indeed provide an interesting analysis of the Nation's energy situation for the over 400 business leaders and government policy leaders who were present.

We were pleased to have a number of other notable speakers, including Vice President Cheney, FERC Chairman Curt Hebert and Senate Energy Committee Chairman Jeff Bingaman, who opened the program by stating, "Energy efficiency is a bi-partisan issue. The entire country will benefit."

This was our 12th consecutive Energy Efficiency Forum. In the beginning, we called it the Energy Conservation Forum. We changed the name several years ago because we recognized the negative association with the word conservation. It brings to mind cardigan sweaters, turning down thermostats in the winter, turning them up in the summer, shutting down escalators and other uncomfortable or burdensome measures.

It is important to note the difference between conservation and efficiency.

Conservation means shutting off the lights and saving energy the day you do it. Efficiency means replace the light and fixture with energy efficient bulbs and lighting controls such as motion sensors that automatically turn off the lights when not needed, which saves energy tomorrow and well into the future.

Conservation means adjusting the thermostat up or down depending upon the season and being uncomfortable. Efficiency means automatically controlling temperature, heating and cooling rooms and buildings only when they are occupied.

Conservation can save energy in the short-term, energy efficiency means sustainability for the future.

As our energy needs continue to rise in the office environment, we need to expand our deployment of current off-the-shelf technology to achieve energy efficiency in a high-tech world.

According to the Department of Energy, there are some 4.5 million existing commercial buildings involving 55 billion square feet of space. These buildings consume 30 to 40 percent of all energy and 60 percent of all electricity. It is estimated that these facilities waste 20 to 40 percent of their energy or their electricity. They can capture those savings and benefits from the reductions, not by fiddling with the thermostat, but by retrofitting with energy efficient boilers, chillers, lighting and building control systems.

At a recent forum Vice President Cheney said, thanks to new energy efficient technologies it can mean doing things better, smarter and cheaper.

Many of these energy improvements for commercial buildings, schools, hospitals and government facilities are accomplished through something called Energy Savings Performance Contracts, which is shown on the chart at the end of the table. This is a type of contracting in which energy service companies privately finance

the investment of installing energy efficient equipment with no upfront cost to the customer. The building owner pays the investment off over time with the dollars saved on energy and maintenance bills. The energy services company guarantees the savings, so the owner won't pay more than they are currently paying for utility costs. After the investment is paid off, the building owner gets all the subsequent savings. It is a win-win situation.

Businesses and organizations are seeing extraordinary results by installing energy efficient technology using ESPC and other methods. Good examples can be found at the Keller Independent School District in your district, Mr. Chairman; also at southern Oregon University in Mr. Walden's district; not to mention the Roanoke County schools, Mr. Boucher's district.

Mr. BARTON. That is pretty good staff work. Serendipity picked the three members who are actually at the hearing.

Mr. WAGNER. Actually I have one for every member of the committee if you would like me to go on through, but I will submit them for the record if you prefer.

Also notable is the work being done in some Federal facilities. As the largest single consumer of energy in the United States, the Federal Government spends over $3.5 billion a year, $3.5 billion a year to light, heat, and operate its 500,000 buildings. You are right, Mr. Chairman, we do need to increase the energy efficiency of our Federal buildings. We applaud the President's recent directives for Federal facilities to reduce energies. Some of them are already doing that.

For example, we have a project with the Denver Federal Center that will save over $200,000 annually. It is an ESPC contract. It saves energy operational costs while reducing 6.6 million pounds of carbon dioxide emissions a year. It also involves recommissioning an existing solar domestic hot water system, improving an irrigation system which will save nearly 11 million gallons of water per year. All this was done with existing technologies.

These are the kinds of projects that work. Unfortunately, the question is, why aren't we doing more? Why aren't more Federal sites reaping the benefits of energy efficiency through ESPC and saving the taxpayer dollars? There are two quick reasons. First of all, there are great successes like the Denver Federal Center. Many sites are reluctant to enter into ESPC. This committee and Congress passed this authority back in 1992 but some agencies and sites are still reluctant to develop projects. Energy savings must become part of the Federal culture. Instead of asking where we would do an ESPC, we need to ask why isn't everyone doing them. There must be a more consistent effort to use the ESPCs throughout the Federal Government.

There is a second problem, one of micromanagement and delay of projects inside the Beltway. The current contracting mechanisms were designed to streamline ESPC, but some agencies exercise an unnecessarily burdensome review and approval process that add months or years to the process. This delay in projects defers taxpayer savings and ties up contractor resources which could be used to develop more projects. It is time for the headquarters to trust their field organizations will make good decisions and allow quicker projects. Federal leadership——

Mr. BARTON. Can you wrap it up? We love your testimony but you need to summarize it.

Mr. WAGNER. I will only suggest that the subcommittee may wish to consider the advantages of public benefit funds which can help spur energy efficiency throughout country.

[The prepared statement of Mark F. Wagner follows:]

PREPARED STATEMENT OF MARK. F. WAGNER, DIRECTOR, FEDERAL GOVERNMENT RELATIONS, JOHNSON CONTROLS, INC.

Mr. Chairman and members of the Subcommittee, thank you for inviting me to speak on the important role of energy efficiency. My name is Mark Wagner, and I am Director, Federal Government Relations for Johnson Controls, Inc.

Johnson Controls is a global market leader in facility services and control systems. Since the 1880s when Warren Johnson invented the thermostat, Johnson Controls has been working with government facilities, schools, hospitals and commercial buildings to help create comfortable, productive and safe building environments that are energy efficient.

We do this through the design, manufacture, installation and service of energy monitoring and control systems, HVAC systems, as well as utility, lighting, security and fire management systems for non-residential buildings. Included in our service offering is energy savings performance contracting which I will discuss in more detail later.

In March, EPA recognized Johnson Controls with the 2001 Energy Star Award for Service Providers for its vast array of special endeavors relating to energy efficiency, from the operations of our own facilities, to our leadership in community outreach and customer education efforts.

One of those outreach efforts took place just last week. We co-sponsored the 12th Annual Energy Efficiency Forum along with the United States Energy Association at the National Press Club. Our goal for the Forum is to promote an energy efficiency ethic through the presentation of national and worldwide views on energy efficiency, environmental impacts and economic growth.

Congressman Markey was one of our featured speakers, and he provided an interesting analysis of the nation's energy situation to over 400 business leaders and government policy makers and others who were present.

We were pleased to have a number of other notable speakers, including Vice President Cheney, FERC Chairman Curt Hébert and Senate Energy Committee Chairman Jeff Bingaman, who opened the program by stating that, "Energy efficiency is a bi-partisan issue . . . the entire country will benefit."

This was our 12th consecutive Energy Efficiency Forum. In the beginning, the event was called the Energy *Conservation* Forum. Several years ago, we recognized the negative associations with the word "conservation." It brings to mind cardigan sweaters, turning down thermostats in the winter and turning them up in the summer, shutting down escalators and other uncomfortable or burdensome measures.

It is important to appreciate the difference between conservation and efficiency. Conservation means shutting off the lights and saving energy the day you do it; efficiency means replacing the light and fixture with energy efficient bulbs and lighting controls such as motion sensors that automatically turn lights off when not needed—which saves energy tomorrow and well into the future. Conservation means adjusting the thermostat up or down depending upon the season and being uncomfortable. Efficiency means automatically controlling temperatures, heating and cooling rooms and buildings only when they are occupied. Conservation can save energy in the short term, energy efficiency means sustainability for the future.

As energy needs continue to rise in the typical office environment, we need to expand deployment of current off-the shelf technology to achieve energy efficiency in a high tech world. For example, Johnson Controls is currently working to install an energy monitoring and controls system as part of the renovation of the Pentagon. When the Pentagon was built over 50 years ago, there was one telephone for every three desks and manual typewriters were used. Today, every desk has a phone, computers,task lighting and other equipment, supported by a wide array of printers and copiers, all which put out heat. As the "plug load" expands the demand for electricity in aging buildings, energy efficiency measures become vital.

According to the U.S. Department of Energy, there are some 4.5 million existing commercial buildings involving 55 billion square feet of space. These buildings consume 30-40% of all energy and use 60% of all electricity. It's estimated these facilities use 20-40% more energy than necessary. They can capture those savings and

benefit from the reductions—not by fiddling with the thermostat, but by retrofitting with energy efficient equipment.

At our recent Forum, Vice President Cheney said, thanks to new energy efficiency technologies it can mean doing things "better, smarter, cheaper." Congressman Markey stated that, "we need to take command of our destiny." And other speakers noted that the technology, which has been developed over the past 20 years, has made conserving energy irrelevant. We are now in the energy *efficiency* business.

Many of these energy efficiency improvements for commercial buildings, schools, hospitals and government facilities are accomplished through Energy Savings Performance Contracts (ESPC). This is a type of contracting in which an energy services company like Johnson Controls privately finances the investment of installing energy efficient equipment *with no up-front costs to the customer.* The investment includes identifying building energy requirements and acquiring, installing, operating, and maintaining the energy-efficient equipment. The building owner pays for these retrofits and new equipment over time with dollars saved on energy and maintenance bills. The energy services company guarantees the savings, so the customer won't pay more than they are currently paying for utility costs. After the investment is paid off, the building owner gets all the subsequent savings. It's a win-win situation.

We've determined that Johnson Controls performance contracting customers alone will see $18 billion in total energy savings by 2010. That's a 3400 megawatt reduction in electrical demand, the equivalent of taking offline more than three large generating plants or seventy 50 megawatt peaking plants. It also eliminates 350 million tons of emissions—just like removing the pollution from four million automobiles or planting 29 million acres of trees. But we need to go further. Many organizations benefit from *energy effectiveness*: using technology and knowledge that make better buildings for a livable future.

It's all about collaborative design, engineering, and operations. The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating provides a comprehensive, sustainable plan for new construction. Existing buildings become more effective through efforts such as Energy Star's promotion of efficient lighting, heating and ventilating technology—and the controls to measure, monitor and manage their performance.

Many businesses and organizations see extraordinary results by installing energy efficient technology and evaluating operations and maintenance. For example, we have done projects for:

- Central City Cyberschool, Milwaukee, Wisconsin
- St. Mary's County Public Schools, Leonardtown, Maryland
- St. John Medical Center, Tulsa, Oklahoma
- North Carolina Baptist Hospital/Bowman Gray School of Medicine, Winston-Salem North Carolina
- St. Charles Medical Center, Bend, Oregon
- Kansas City Convention Center, Kansas City, Missouri

Also notable is the work being done at some Federal facilities. As the largest single consumer of energy in the United States, the federal government spends over $3.5 billion a year to light, heat, and operate its 500,000 buildings. According to the Department of Energy, the Federal Government has three—billion square feet of floor space, located in all climates. High-rise offices, research laboratories, aircraft hangars, libraries, hospitals, tourist areas, parks, and prisons must all be considered. In total they consume almost 54—billion kilowatt-hours of electricity each year, costing taxpayers more than $3.1—billion annually.

We applaud the President's recent directive for federal facilities to reduce energy. Some facilities are already working hard at saving energy. For example, Johnson Controls, entered into an Energy Savings Performance Contract with the Denver Federal Center. It will save $450,000 per year in energy and operational costs for the next 11 years while reducing more than 6.6 million pounds of carbon dioxide emissions. It also involves recommissioning an existing solar domestic hot water heating system and improving an irrigation system, which will save nearly 11 million gallons of water per year. All was done with existing technologies.

These are the kinds of projects that work. Unfortunately, the question is—why aren't we doing more? Why aren't more federal sites reaping the benefits of energy efficiency and saving energy plus taxpayer dollars? There are two answers.

First, while there are great success stories at some federal sites like the Denver Federal Center and others, at many other sites there is reluctance to enter into ESPCs. Congress passed the authority for agencies to enter into ESPCs back in 1992. But some sites and agencies are still reluctant to develop projects because it can be a complicated process or they may be concerned over the long-term nature of some projects.

Energy savings must be made a part of the federal culture. Instead of asking, "where can we do an ESPC?" we need to ask why isn't everybody doing them? From a Department's headquarters in Washington, to regional offices, to site directors and base commanders, all the way down to the boiler room, there must be a consistent effort to use ESPCs.

The second problem is one of micro-management and delay of projects inside the beltway. The current ESPC contracting mechanisms were designed with streamlining in mind. But some agencies exercise an unnecessary and burdensome review and approval process adding months or more to effort. This delay in projects defers taxpayer savings and ties up contractor resources, which could be used to develop more projects. The federal government does an excellent job providing technical resources and training government employees in the field on how to do ESPCs. It's time for headquarters to trust that they will make good decisions and allow projects to be approved quicker.

Yes, it's important to be sure that the project is a good deal for the government. But the questions and issues that headquarters need to be review can be answered at the preliminary proposal stage, before a contractor makes a significant investment. Unfortunately, the micro-management and drawn-out questioning is often done at the final proposal stage, delaying projects and tying up capital for months. Everyone looses—the site, the contractor and ultimately the taxpayer too.

Johnson Controls is a large company. We're in this for the long haul. But other contractors, especially small and disadvantaged subcontractors, may not have the financial wherewithal to wait for months to hear that a project is going forward.

And even in our case, we have a responsibility to our stockholders to maintain a degree of profit. We are forced to financially consider whether we should even develop other federal proposals because we know we may lose money waiting for approval.

The good news is that neither of these problems are insurmountable barriers.

Federal leadership for energy efficiency should start by example. The federal government needs to utilize ESPCs more at federal facilities. Make the federal building stock truly energy efficient. Cut energy consumption and save the taxpayer money. Leading by that example, showing that it can and should be done is as powerful a tool as any statutory or regulatory measure you could pass.

As far as any new statutory or regulatory measures are concerned, the Subcommittee may wish to consider the advantages of public benefit funds. The days of utility rebates seem to be in the past but the results of those programs continue to save energy. Public benefit funds can spur energy efficiency, particularly where an ESPC type mechanism may not be practical, because the project is too small or the payback too long. Or they could be used to help buy down the project cost of an ESPC to help make it affordable.

Energy efficiency is not just in our nation's best interest, it is a vital part of maintaining a strong and secure economy. We encourage this committee to continue its efforts to spur more efficiency in the future. We look forward to reaping the many benefits of energy efficiency—a strong, secure economy, lower taxes, a cleaner environment, and a federal government that leads our nation.

Thank you again for the opportunity to testify.

Mr. BARTON. We would now like to hear from Dr. Malcolm O'Hagan who is President of the National Electrical Manufacturers Association.

STATEMENT OF MALCOLM O'HAGAN

Mr. O'HAGAN. Chairman Barton, Mr. Boucher.

Mr. BARTON. You need a microphone.

Mr. O'HAGAN. Chairman Barton, Mr. Boucher, Chairman Tauzin, my name is Malcolm O'Hagan. I am President of the National Electrical Manufacturers Association. On behalf of the 450 members of NEMA who manufacture all of the products in the electricity supply chain from the generator to the light bulb, I thank you for this opportunity to share good news with the committee.

We are from the private sector and we are here to help.We have the technology solutions to secure our Nation's energy needs but we need your help also. In the early days of Mr. Edison, electricity was a curiosity. Today it is the lifeblood of our technology-based society.

But the fact of the matter is we waste a lot of electricity in this great country of ours. We jealously defend our comfortable life-style as a God-given right. But we can preserve these comforts which we have worked hard to achieve without using so much energy.

The President's energy report estimated that we could save the equivalent of 600 300-megawatt power plants through the deployment of energy-efficient technologies and conservation measures. We agree. And that is a lot of energy.

How is it possible to realize these savings? Let me offer a few examples. Lighting upgrades in commercial buildings can cut energy consumption by up to 40 percent. And commercial buildings, as the chart on the left shows, account for 22 percent of electricity consumption. By adding lighting controls, substantial additional savings can be achieved, and these numbers are indicated on the second chart. Transformers that meet NEMA TP-1 efficiency levels can greatly reduce power losses in getting electricity from the generating station to the outlet. And typical savings for a transformer are indicated in chart number 3. NEMA premium efficiency motors and industrial control systems can substantially reduce energy consumption in steel mills, water treatment plants, irrigation systems, and myriad other industrial applications which account for 51 percent of electricity consumption. Transmission and distribution line losses account for 8 to 10 percent of production. Solutions exist to cut these losses significantly.

Mr. Chairman, members of the committee, the technology exists. NEMA members offer it. But it is not enough. Experience has demonstrated that efficiency by itself does not do the job. With efficient products, unfortunately, come higher first costs, presenting an economic barrier. Consequently, there are three additional requirements:

First, we need economic incentives or other measures to drive the technology solutions and address that first cost issue.

Second, we need the government to lead by example, not by fiat. For example, all government buildings should be upgraded to meet Energy Star building requirements as soon as possible. And a good place to start, Mr. Chairman, would be right in this hearing room which I would point out is using low-efficiency lighting.

Mr. BARTON. That is a point well taken. We will check. We think those lights may be left over from when Chairman Dingell was Chairman. We will check on that.

Mr. O'HAGAN. We also recommend, Mr. Chairman, that all government procurements should be based on industry consensus standards for energy efficiency such as ASHRAE 90.1, NEMA Premium motors, and NEMA TP-1 transformers. I would like to note for the committee that NEMA Premium efficiency levels exceed the levels mandated by the government under REPAC.

Finally we need the government to spearhead a massive education campaign to promote the use of energy-efficient and energy-controlled technologies. In our written testimony we expand on these comments and we stand ready to provide the committee with whatever additional information would be helpful to its deliberations.

In the final analysis, only solutions that are technologically feasible, economically justifiable, and commercially available will succeed. As in all human endeavors, balance is the key.

Mr. Chairman, we thank you for scheduling this hearing. Thank you for allowing us to participate.

[The prepared statement of Malcolm O'Hagan follows:]

PREPARED STATEMENT OF MALCOLM O'HAGAN, PRESIDENT, NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

INTRODUCTION

Good morning Chairman Barton, Representative Boucher, and members of the Subcommittee on Energy and Air Quality. I am Dr. Malcolm O'Hagan and I am President of the National Electrical Manufacturers Association (NEMA). NEMA, celebrating its 75th anniversary, is the leading trade association in the United States representing the interests of electroindustry manufacturers. Founded in 1926 and headquartered near Washington, D.C., our 450 member companies manufacture products used in the generation, transmission and distribution, control, and end-use of electricity. Annual shipments of these products total $100 billion.

My testimony today will focus on the following four main areas:

1. The role of NEMA products and services to achieve energy efficiency and conservation in helping to meet out national energy needs;
2. The federal government's role in promoting conservation and efficiency and the use of new technologies and innovative practices that use energy more efficiently.
3. The barriers to the widespread application of energy efficient practices and technologies; and
4. The statutory or regulatory provisions that should be reformed to enable the greater use of energy efficient technologies.

Mr. Chairman, let me take this opportunity to commend you and the other members of the subcommittee for the steps you have collectively taken to address the need for a comprehensive national energy policy. Indeed, the issues of energy efficiency and conservation are crucial aspects of the energy policy debate and your foresight in examining these matters are applauded by the 450 NEMA member companies.

On behalf of NEMA, I also commend the work of the Administration and its recommendations; we support the Bush Administration's National Energy Policy plan and look forward to the enactment of those recommendations. NEMA has also reviewed several other proposals and we are committed, and look forward to, working in a bipartisan fashion to craft a comprehensive and balanced national energy policy. NEMA has reviewed the President's recommendations and I have attached those findings for your reference. Let me succinctly summarize our findings: NEMA member companies have an interest in every chapter of the National Energy Policy and can substantively contribute to the efficiency recommendations contained in the report.

NEMA ELECTRICAL ENERGY AND ENERGY EFFICIENCY POLICY PRINCIPLES

NEMA has crafted a set of electrical energy and energy efficiency principles for your guidance and consideration as you and your colleagues proceed on a comprehensive national energy policy. I have included the principles for your reference, but let me take this opportunity to highlight the three main points from our principles:

- A comprehensive electrical energy policy should rely on affordable, proven technology to address energy supply and demand;
- Second, it is critical to understand that energy efficiency and conservation don't mean sacrifice and reduced access, but rather doing more with existing capacity by achieving reduction in energy usage through the use of more efficient products and systems; and
- Third, market-based incentives and solutions should be the primary vehicle to enhance energy efficiency and conservation. However, NEMA acknowledges that, on a case-by-case basis, there is value in other interventions such as targeted government research and development, incentives and standards.

With regard to energy efficiency issues, NEMA specifically proposes the following concepts as guidelines:

- NEMA believes energy efficiency is a national concern that should be driven by market forces to achieve energy efficiency and conservation. The litmus for efficient products and control systems is technological feasibility, economic justification, energy savings and commercial availability.
- NEMA acknowledges the key role the federal government should play in fostering public use of energy efficient products and systems. Specifically, NEMA believes that the federal government should promote user education on energy efficiency; support energy efficient upgrades through programs such as the Federal Energy Management Program; encourage performance-based incentives in the private sector; and promote the use of economically sound energy efficient products and systems.

NEMA MEMBER COMPANY PRODUCTS AND SERVICES ACHIEVE ENERGY EFFICIENCY AND CONSERVATION

NEMA recognizes that a comprehensive national energy policy requires a mix of conservation and production, and the promotion of new technologies that promise greater efficiency and environmental protection. NEMA member products are at all stages of the electrical energy process from generators, transformers, wire and cable, to lighting, motors, and switches at the consumer and end-user points. An intriguing example of how technology can save energy, NEMA manufacturers have developed technology and products for the Intelligent Transportation Systems (ITS) a project under the auspices of the Department of Transportation. This project is a highly cost effective means of reducing transportation fuels consumption, associated air pollution, and also reduces the non-productive time workers spend commuting. As you will see in our recommendations, this and other NEMA products serve to make the system work better and faster without compromising availability. NEMA is able to do this by taking the best of industry technology and standardizing those products so that they are available globally, delivered locally, competitively priced, able to perform predictably and are safe and environmentally sound.

THE FEDERAL GOVERNMENT'S ROLE IN PROMOTING ENERGY EFFICIENCY

As mentioned earlier, NEMA acknowledges the key role the federal government should play in fostering public use of energy efficient products and systems. Industry appreciates those government programs that educate and inform business and the consumer about energy efficiency. Specifically, NEMA believes that the federal government should promote user education on energy efficiency; support energy efficient upgrades through programs such as the Federal Energy Management Program, the Department of Energy's Office of Industrial Technology, Building, Technology State and Community programs, and aspects of the Energy Star program; and promote the use of economically sound energy efficient products and systems.

I have communicated with NEMA manufacturers about a variety of federal government programs. They recognize the value of several energy efficiency programs. In the motors and industrial controls area, the Department of Energy Office of Industrial Technology Best Practices program works to promote those industry practices that promote efficiency. The Motor Challenge program adds credibility to efficiency messages and broadens the communications efforts beyond industry. In the lighting area, industry appreciates the "Light Right" and the "Vision 20 20" programs. These and other programs, such as the Federal Energy Management Program, all serve to help American consumers and businesses use energy more efficiently and effectively.

NEMA believes that the federal government can set the standard—and a good example—for energy efficiency by starting with the public's own facilities. In this regard, the Department of Energy's Energy Star Buildings Program has made significant advances in improving the efficiency of commercial buildings. However, the vast majority of Federal facilities have not yet achieved the Energy Star rating, a classification given only to the top 25% of buildings in terms of watts used per square foot. Therefore, NEMA recommends that existing buildings be upgraded to meet the Energy Star Building Program requirements.

A program to require energy efficient upgrades of building systems in existing federal buildings offers the potential for significant energy savings. As the President and Congress have recognized, the federal government is a major consumer of electrical energy. NEMA proposes that, with respect to existing buildings, the proposed program would not require adherence to a rigid standard, but rather would provide flexibility to agencies to adopt the most efficient systems that meet their needs. For new construction or buildings that undergo major renovation/remodeling, it is appropriate to require adherence to the most current consensus energy efficiency standards.

Finally, the Department of Energy has been instructed to follow provisions of the so-called "Process Improvement Rule." NEMA recommends that the federal government, and in particular the Department of Energy, follow the rule to achieve its intended results. By way of background, in July 1996, the Department of Energy published an interpretive rule setting forth procedures for the consideration of new or revised energy conservation standards for consumer products (*see* 61 *Fed. Reg.* 36973 (July 15, 1996). The "process improvement" rule was produced with the input of all stakeholders in the appliance and consumer products efficiency standards program. Designed to remedy standards process shortcomings utilized by the Department of Energy, the process improvement rule is designed to encourage consensus on energy efficiency standards. To this end, the rule language includes a series of rebuttable presumptions, agreed to by all sectors of industry and the energy efficiency community, which provide a basis for mutual understanding and cooperation in the development of consensus standards.

The process improvement rule incorporates critical principles for every stage of the energy efficiency standards setting process. Careful observance of these requirements is essential for any standards program to be effectively implemented. However, as good and practical this rule is, it is not a binding requirement on the Department of Energy. NEMA manufacturers—and all of the regulated community—require additional assurance that there will be careful adherence to all aspects of the process improvement rule in all future standards setting rulemakings for consumer, commercial and industrial products. Greater certainty will be provided if the process improvement rule is formally incorporated into the Department of Energy's regulations governing the establishment of energy efficiency standards.

BARRIERS TO THE WIDESPREAD APPLICATION OF ENERGY EFFICIENT PRACTICES AND TECHNOLOGIES

While much good has been done to promote energy efficiency, there remains work to be finished. NEMA believes the primary barriers to investing in energy efficient technology primarily includes: (1) the cost of investment in energy efficient technologies and whom should receive the financial benefit of the energy efficient investment; (2) the lack of awareness of a systems and controls based approach for energy efficient cost effectiveness; (3) and issues surrounding codes and standards.

Currently, the federal tax code does not fully encourage an investor to make energy efficient investments, upgrades or retrofits to facilities. To that end, NEMA recognizes the efforts by you and your colleagues to encourage the private sector use of energy efficient products and systems through a variety of tax incentives. While NEMA has not taken a position on the wide variety of incentive proposals currently being considered, we would generally emphasize the need to explore and promote those incentives that make the maximum use of energy efficient products and systems and delivers the incentive to the individual or entity that makes the investment.

NEMA believes that energy efficiency should be evaluated and rewarded on a energy savings and systems basis. When creating incentives, the beneficiary of the cost incentive should be the investor in the equipment. Very simply put, if a building owner makes the capital investment, that owner should get the benefit. As a result the energy savings benefit can get passed on down the line in the form of energy savings, including other electricity customers through lower rates.

While the technology exists to achieve broad cost savings through energy efficient devices and controls, there is a lack of awareness of the benefits of a systems and control based approach. This is opposed to a piecemeal component approach, to achieve the maximum level of cost effective energy efficiency. To that end, NEMA proposes that the federal government move from strictly encouraging products or components, to promoting the implementation of systems and controls to efficiently manage energy on a wider basis. For example, California recently enacted legislation that would provide energy efficient upgrades for lighting systems. California recognized the large efficiency gains that would be realized by encompassing lighting controls, occupancy sensors, and luminaires added to any upgrade. Similar efficiency gains can be achieved at the commercial level with industrial and automated controls.

Industry and government both strive to achieve the best performance. But for too long, the hopeful and anticipated approaches of both camps have been belied by the unintended consequences of mandated standards. Voluntary, consensus-driven codes and standards will achieve the greatest level of cooperation and distribution of energy efficient technology in the marketplace. Already, the marketplace recognizes industry-driven standards to achieve efficient products. In particular, the NEMA Premium(Motor program recognizes efficient motors above the standards contained in

current law. The same can be said for distribution transformer consensus standards represented by NEMA TP-1. Industry believes that industry consensus building codes can be a valuable part of ensuring that cooperative goals are achieved and efficiency gained.

RECOMMENDED STATUTORY OR REGULATORY REFORMS TO ENABLE THE GREATER USE OF ENERGY EFFICIENT TECHNOLOGIES

NEMA believes that technological solutions combined with industry consensus and proven results will lead to enhanced energy efficiency. This formula is made even stronger if the cooperative efforts of industry and policymakers are joined. To that end, NEMA proposes the following reforms to further enhance energy efficiency and conservation as part of a comprehensive national energy policy.

Motors.

The NEMA Premium™ motor program is a collaborative effort with the Department of Energy, motor manufacturers and electric utilities. It is an excellent model of how voluntary industry standards can improve efficiency thereby providing a benefit to consumers and the environment. It has broad support, as reflected in the recent endorsement from the Consortium for Energy Efficiency.

The NEMA Premium™ motor program expands high efficiency motors standards beyond current requirements. The program covers a broader range of motors than do minimum federal energy efficiency standards (up to 500 horsepower, whereas federal standards apply only up to 200 hp), and it is a more exacting standard. In fact, Department of Energy analyses shows that the NEMA Premium™ Motor program, including commercial and agricultural applications, would save 5,800 gigawatt hours of electricity and prevent the release of nearly 80 million metric tons of carbon into the atmosphere in the next ten years. Electric-motor-driven equipment consumes about 60% of all the electricity produced in the country, according to the Department of Energy.

The NEMA Premium™ motor program has real-life impact. The Cummins Engine Company's Columbus Engine Plant in Columbus, Indiana retrofitted energy efficient motors on to existing machining and transfer lines and installed the most efficient motors available onto the new lines. Cummins saw a 2.75 percent reduction in total energy costs for the Columbus plant and was hailed by company executives as a significant savings. The Department of Energy's Office of Industrial Technologies indicated that if every plant in the United States integrated motor system upgrades to the extent that Cummins did, American industry would save an estimated one billion dollars annually in energy costs. This would be the equivalent of the amount of electricity supplied to the State of New York for three months.

Recently, President Clinton issued Executive Order 13123 which seeks to encourage the acquisition of energy efficient products by the federal government. In addition, programs such as the Federal Procurement Challenge encourage agencies to buy energy efficient products. However, while the executive order and the Federal Procurement Challenge have resulted in many efficient upgrades, many agency heads have not had their feet held to the fire to comply with such orders. Many opportunities still exist in federal agency and Congressional offices to achieve energy efficiency.

NEMA, therefore, recommends that the federal government be required to purchase motors based on the NEMA Premium(motor standard. Doing so would enable all new equipment acquisitions to be based on current energy efficiency standards with the dual result of energy savings to the government and widespread market penetration of the most highly efficient technologies in energy-intensive equipment. It would also serve as a demonstration of energy efficient savings to the private sector.

Transformers.

In 1996, the Transformers Products Section of NEMA developed voluntary energy efficiency standards for distribution transformers. Distribution transformers help move electricity on the grid and reduce loss. The basic efficiency standard, known as NEMA TP-1 and the associated test and labeling standards (TP-2 and TP-3, respectively) have gained widespread acceptance as the industry norm for energy efficient transformers.

As another excellent example of industry led consensus standard making, if TP-1 were used nationwide, NEMA estimates an energy savings would be in the range of 2-3 quads over a 30-year period. This is an average energy savings of between 5 and 10 billion kilowatt-hours per year. By using NEMA Standard TP-1, the energy used by low-voltage transformers can be cut by one-third, and by twenty-five per-

cent for medium voltage transformers. Better yet, the payback period for such transformer investments is relatively short—only three to five years.

With these demonstrated savings in mind, NEMA recommends that the federal government should be required to use NEMA TP-1 transformers in its purchase specifications and be required to replace failed transformers with new units meeting TP-1 efficiencies. Moreover, the Department of Energy's current rulemaking should use NEMA TP-1 as a benchmark for standards discussions.

Building Efficiency.

Energy efficient buildings achieve some of the greatest cost savings when it comes to energy efficiency. There is, perhaps, no better example to demonstrate these savings than energy efficient lighting systems.

NEMA believes that lighting efficiency can be summed up in the following way: Efficient lighting means turning the lights off when your done, and using lighting at levels to complete the task at hand. NEMA manufacturers make products to do just that from systems and controls to draw the greatest light using the least amount of electricity all the while employing technologies to shut the lights off when no one is around.

The Department of Energy estimates that technologies developed during the past 10 years can help us cut lighting costs 30% to 60%. Lighting accounts for 20% to 25% of all electricity consumed in the United States. The cost savings distinction is even greater when looking at residences and business. An average household dedicates 5% to 10% of its energy budget to lighting, while commercial establishments consume 20% to 40% of their total energy just for lighting.

NEMA advocates a system approach to upgrading lighting efficiency in commercial buildings and, where feasible, residential housing. In a typical residential or commercial lighting installation, 50% or more of the energy is wasted by obsolete equipment, inadequate maintenance, or inefficient use. Where it is feasible, a systems approach is best, but components are just as important. Improved lighting quality makes visual tasks easier and saves 50% or more on energy costs. A dramatic example of how energy use for lighting can be reduced while improving the quality of lighting is the Jefferson Memorial relighting project. The energy use will be reduced from a current 126,000 watts to 16,000 watts, while dramatically improving the visual impact of this majestic monument, its inscriptions, and the magnificent statute of Thomas Jefferson.

That is why NEMA proposes the federal government update its federal building energy code to the latest model building code for energy efficiency in commercial and multifamily high rise residential buildings. This would avoid a time consuming regulatory process to adopt the latest update, which was itself developed through a consensus process involving a consortium representing the full range of interests in building sector energy efficiency, including the Department of Energy.

In addition, NEMA recommends that the Secretary of Energy issue a determination that the most updated model building code (ASHRAE/IESNA 90.1-1999), which was developed over the past ten years involving interested stakeholders, would improve energy efficiency in commercial buildings. Of note, the Department of Energy has already performed a quantitative analysis and a detailed textual analysis of the estimated differences between the 1989 and 1999 editions of Standard 90-1. No further analysis should be necessary for the Secretary to determine that the update will improve energy efficiency in commercial buildings. Moreover, a determination by the Secretary will encourage states to expedite consideration of the updated standard thereby encouraging energy efficiency.

CONCLUSION

In conclusion, let me reiterate the three points I began with today. A comprehensive electrical energy policy should rely on affordable, proven technology to address energy supply and demand. Second, it is critical to understand that energy efficiency and conservation don't mean sacrifice and reduced access, but rather doing more with existing capacity by achieving reduction in energy usage through the use of more efficient products and systems. Third, market-based solutions should be the primary vehicle to enhance energy efficiency and conservation. I thank the subcommittee and I am happy to answer your questions.

Mr. BARTON. Thank you, Doctor.

We would now like to hear from Mrs. Josephine Cooper who is the President of the Alliance of Automobile Manufacturers. And your testimony is in the record. We ask to you elaborate in 7 minutes. Thank you.

STATEMENT OF JOSEPHINE S. COOPER

Mrs. COOPER. Thank you, Mr. Chairman. On behalf of the 13 members of the Alliance of Automobile Manufacturers, it is a pleasure to be here today to provide the subcommittee with our position on the role of cars and light trucks in our national energy policy.

Today I would like to make three basic points:

First, existing energy policies, including auto fuel economy programs like CAFE, are not delivering anticipated results. That is really why we are here today.

Second, to be successful we must have a consumer focus. Consumers determine energy consumption every day through their purchasing decisions and the use of the products they buy. Artificial mechanisms to increase fuel economy are destined to fail unless consumers can be brought into the process.

Third, markets work. With your help, we can increase the fuel economy of the fleet and meet consumer demands by accelerating the induction of advanced technology vehicles that are very fuel efficient. That is why we support consumer credits for advanced technology vehicles.

The Federal fuel economy requirements are established by a regulatory program known as Corporate Average Fuel Economy, or we all call it CAFE. In 1992, the National Academy of Sciences called CAFE a flawed program in need of review. At the direction of the Congress, the NAS, National Academy, is once again reviewing CAFE and will issue a report later this summer. This report may well focus on CAFE which only addresses the supply side of the equation.

But I am not here to dwell on the inefficiencies in the CAFE program. I am here today to focus on the future of CAFE. Alliance members oppose any legislation that would increase CAFE standards. Congress does not need to set new standards or change the structure of CAFE. Current law requires the Department of Transportation to set new light truck standards at the maximum feasible level based on a number of prescribed criteria. The National Highway Traffic Safety Administration will start that process in October, after having the benefit of the analysis of the National Academy study. Meanwhile, auto makers have consistently increased the fuel efficiency of their models since the 1970's.

While car and light truck fuel efficiency continues to increase at 2 percent per year according to EPA data, their combined fuel economy has stabilized for one reason: Consumers are in the driver's seat when it comes to determining fuel economy. This is the demand side of the equation.

In surveys consumers indicate they want greater fuel economy, but in their purchases they don't want to sacrifice size, safety, cargo room, acceleration, towing capacity or other vehicle attributes to get it. Today manufacturers offer more than 50 models with fuel economy ratings above 30 miles per gallon. We also offer vehicles that achieve 40 miles per gallon or greater, but these highly fuel-efficient vehicles account for less than 2 percent of sales.

So here we are. CAFE only addresses the supply side of the fuel economy issue. And to be successful we have to maintain a consumer focus, a focus on the demand side. We all want greater fuel economy, but how do we get there from here? The auto industry

strongly believes that technology, not CAFE, will allow us to address energy conservation goals and still provide consumers with the vehicles that meet their family and business needs. That is why we support the alternative fuel and advanced technology provisions in Vice President Cheney's national energy policy. We also support consumer tax incentives such as the one in Congressman Camp's bill, H.R. 1864, the clean efficient automobiles resulting from advanced car technologies, or the CLEAR Act of 2001.

Mr. Chairman, consumer tax credits for vehicles like hybrids, which were described earlier and fuel cells, the brochure that you all received this morning, all of those will only be needed for a limited time. But we believe they are critical to prime the pump for these new technologies which initially are more expensive than the conventional ones they replace.

These credits will accelerate the market penetration of highly fuel-efficient vehicles. As a result, manufacturers can increase production and lower costs for consumers. Consumers will have more fuel-efficient vehicles, with the vehicle attributes they desire, and policymakers will see increases in fuel economy.

In conclusion, don't legislate increased fuel economy standards. As we go forward, we have to maintain a consumer focus. And last, let the markets work. Tax credits will accelerate the market penetration of highly fuel-efficient vehicles that consumers will buy.

Thank you, Mr. Chairman.

[The prepared statement of Josephine S. Cooper follows:]

PREPARED STATEMENT OF JOSEPHINE S. COOPER, PRESIDENT & CEO, THE ALLIANCE OF AUTOMOBILE MANUFACTURERS

Mr. Chairman, thank you for the opportunity to testify before your Subcommittee regarding energy policy issues. My name is Josephine S. Cooper and I am President and CEO of the Alliance of Automobile Manufacturers, a trade association of 13 car and light-truck manufacturers. Our member companies include BMW of North America, Inc., DaimlerChrysler Corporation, Fiat, Ford Motor Company, General Motors Corporation, Isuzu Motors of America, Mazda, Mitsubishi, Nissan North America, Porsche, Toyota Motor North America, Volkswagen of America, and Volvo.

Alliance member companies have more than 620,000 employees in the United States, with more than 250 manufacturing facilities in 35 states. Overall, a recent University of Michigan study found that the entire automobile industry creates more than 6.6 million direct and spin-off jobs in all 50 states and produces almost $243 billion in payroll compensation annually.

The Alliance supports efforts to create an effective energy policy based on broad, market-oriented principles. Policies that promote research, development, and deployment of advanced technologies and provide customer-based incentives to accelerate demand for these advanced technologies set the foundation. This focus on bringing advanced technologies to market leverages the intense competition of the automobile manufacturers worldwide. Incentives will help consumers overcome the initial cost barriers of advanced technologies during early market introduction and increase demand, bringing more energy efficient vehicles into the marketplace.

This year, there has been increased attention on vehicles and their fuel economy levels with particular discussion of the Corporate Average Fuel Economy (CAFE) program. The Alliance believes, however, that Congress does not need to set new standards or change the structure of the program. The law requires the Department of Transportation (DOT) to promulgate new light truck standards (pickups, SUVs, minivans and vans) at the maximum feasible level based upon certain prescribed criteria. The National Highway Traffic Safety Administration (NHTSA) will start that process this October. Automakers will be working with the DOT to ensure appropriate standards are set.

Additionally, Congress provided for a study of CAFE standards in legislation passed last year. The National Academy of Sciences (NAS) is now studying the effectiveness and impacts of the CAFE program and will issue its report this summer.

The Alliance has been focusing our resources on working constructively with the NAS panel on the future of the CAFE program.

Rather than simply engage in an exercise updating a program that was found by the NAS in 1992 to be flawed, Congress needs to consider new approaches for the 21st century, which **put the consumer first.** The Alliance and its 13 member companies believe that the best approach for improved fuel efficiency is to aggressively promote the development of advanced technologies—through cooperative, public/private research programs and competitive development—and then provide incentives to help pull the technologies into the marketplace as rapidly as possible. We know that advanced technologies with the potential for major fuel economy gains are possible. As a nation, we need to get these technologies on the road as soon as possible in an effort to reach the national energy goals quickly and efficiently.

The Alliance is pleased that Vice President Cheney's National Energy Policy report recommends and supports a tax credit for advanced technology vehicles. Specifically, it proposes a tax credit for consumers who purchase a new hybrid or fuel cell vehicle between 2002 and 2007. In addition, the report supports the broader use of alternative fuels and alternative fuel vehicles. This is consistent with the Alliance's position of supporting enactment of tax credits for consumers to help offset the initial higher costs of advanced technology and alternative fuel vehicles until more advancements and greater volumes make them less expensive to produce and purchase.

In reviewing House legislation that has been crafted to spur the sale of advanced technology fuel-efficient vehicles, the Alliance is in general agreement with H.R. 1864 introduced by Congressman Camp. Automakers would like to see some minor, technical changes made to the hybrid-electric vehicle section of the bill and would also support the inclusion of tax credits for advanced lean burn technology. The Alliance believes that the overall concepts and provisions found in H.R. 1864 are the right approach and would benefit American consumers.

The bill would ensure that advanced technology is used to improve fuel economy. Performance incentives tied to improved fuel economy are incorporated into the legislation in order for a vehicle to be eligible for the tax credits. These performance incentives are added to a base credit that is provided for introducing the technologies into the marketplace.

Automobile manufacturers believe that CAFE, however well-intended, has not achieved its desired goals and has had a number of unintended consequences. Meeting CAFE standards is not something that manufacturers can do by themselves. Because the standards are a sales-weighted fleet average, the ultimate outcome depends on what the consumer purchases. If not enough customers purchase the higher fuel economy models of a given manufacturer, then the fleet average for that automaker may not achieve the CAFE standard. Since manufacturers have widely varying fleet mixes and product offerings, the CAFE program has had widely disparate impacts on automakers and has afforded some manufacturers with significant competitive advantages at times.

Increasing CAFE standards will only exacerbate these problems. Higher standards may result in vehicles that are less attractive to customers in terms of meeting their needs for work and family. If consumer demand is not aligned with manufacturers production, there is the potential for significant negative impact on employment throughout the industry. Ultimately, any fuel savings that result will come at high cost to consumers, manufacturers and the economy. In short, automakers need to produce vehicles that appeal to customers. CAFE acts as a market intrusion that over time will create distortions and unintended adverse consequences.

Recent sales figures support this position. The top ten most fuel-efficient vehicles account for less than 2% of total sales. The ultimate goal for any business is to provide products consumers want to buy. Increasing CAFE standards will require automakers to produce less of the products that American consumers are actually purchasing today and more of the products that are in lower demand. These are some of the reasons why the Alliance is opposed to Congressman Olver's bill, H.R. 1815, which would require all light trucks, not just SUVs, to meet the same fuel economy standard as passenger cars. The bill would dramatically affect the functionality and performance of the pickup trucks, vans and SUVs that consumers currently find so appealing.

In the industry, CAFE regulations affect each Alliance member differently. Manufacturers whose fleets are comprised primarily of larger vehicles are more constrained in their product planning by CAFE standards than manufacturers with fleets comprised mainly of smaller vehicles. As each manufacturer attempts to design, produce and sell vehicles in their target markets, CAFE operates, for some manufacturers, as a roadblock to supplying their vehicles to the market.

Another consequence of CAFE has been the downsizing of the passenger car fleet. Weight and size reductions remain one of the prime means of achieving improved fuel efficiency. The basic laws of physics dictate that smaller lighter vehicles fare worse in accidents than larger, heavier vehicles, all things being equal.

A better way to improve vehicle and fleet fuel economy, and one that is more in tune with consumer preferences, is to encourage the development and purchase of advanced technology vehicles (ATVs). Consumers are in the drivers seat and most independent surveys show that Americans place a high priority on performance, safety, space and other issues with fuel economy ranking much lower even with today's gas prices. ATVs hold great promise for increases in fuel efficiency without sacrificing the other vehicle attributes consumers desire. Just as important, the technology is transparent to the customer.

Member companies of the Alliance have invested billions of dollars in research and development of more fuel-efficient vehicles. Automobile companies around the globe have dedicated substantial resources to bringing cutting-edge technologies—electric, fuel cell, and hybrid electric vehicles as well as alternative fuels and powertrain improvements—to the marketplace. These investments will play a huge role in meeting our nation's energy and environmental goals.

These advanced technology vehicles are more expensive than their gasoline counterparts during early market introduction. As I mentioned earlier, the Alliance is supportive of Congressional legislation that would provide for personal and business end-user tax incentives for the purchase of advanced technology and alternative fuel vehicles. Make no mistake: across the board, tax credits **will not** completely cover the incremental costs of new advanced technology. However, they will reduce the cost premiums that manufacturers face in pricing the new products. In short, tax credits will help bridge the gap towards winning broad acceptance among the public leading to greater volume and sales figures throughout the entire vehicle fleet. This type of incentive will help "jump start" market penetration and support broad energy efficiency and diversity goals.

Enabling consumers to make better choices, rather than mandating product design by government regulation, makes more sense to achieve the desired outcome. After all, the industry already spends a significant amount on compliance with government regulations while investing large sums in capital improvements and competitive designs.

Some of the discussion today has centered on the vehicles of the automobile manufacturers. But it is important not to forget about a vital component for any vehicle—the fuel upon which it operates. As automakers looking at the competing regulatory challenges for our products—fuel efficiency, safety and emissions—and attempting to move forward with advanced technologies, we must have the best possible and cleanest fuels. EPA has begun to address gasoline quality but it needs to get even cleaner. This is important because gasoline will remain the prevalent fuel for years to come and may eventually be used for fuel cell technology.

Beyond gasoline, the auto industry is working with a variety of suppliers of alternative fuels. In fact, the industry already offers more than 25 vehicles powered by alternative fuels. More than 1 million of these vehicles are on the road today and more are coming. Today, we find vehicles that use:

- Natural gas, which reduces carbon monoxide emissions by 65 to 90 percent;
- Ethanol, which produces fewer organic and toxic emissions than gasoline with the longer term potential to substantially reduce greenhouse gases;
- Liquefied petroleum gas (propane), the most prevalent of the alternative fuels, which saves about 60% VOC emissions; and
- For the future, hydrogen, which has the potential to emit nearly zero pollutants.

The Alliance also supports an extension of the CAFE credits for dual fuel vehicles produced through 2008. Current law provides CAFE credits—up to 1.2 mpg—for manufacturers that produce vehicles with dual fuel capability. These vehicles can operate on either gasoline or domestically produced alternative and renewable fuels, such as ethanol. However, the dual fuel credits end in model year 2004 unless extended via rulemaking by the National Highway Traffic Safety Administration. The Alliance believes an extension is important so that these vehicles continue to be produced in high volume to help encourage the expansion of the refueling infrastructure and giving consumers an alternative to gasoline.

In addition to alternative fuels, companies are constantly evaluating fuel-efficient technologies used in other countries to see if they can be made to comply with regulatory requirements in the United States. One such technology is diesel engines, using lean-burn technology, which have gained wide acceptance in Europe and other countries. Automakers have been developing a new generation of highly fuel-efficient clean diesel vehicles—using turbocharged direct injection engines—as a way

to significantly increase fuel economy and reduce greenhouse gas emissions. However, their use in the U.S. must be enabled by significantly cleaner diesel fuel.

Earlier this year, EPA promulgated its heavy-duty diesel rule that the Alliance supports, as far as it goes. The rule reduces the amount of sulfur in the fuel. Low sulfur diesel fuel is necessary to enable the new clean diesel technology to be used in future cars and light trucks. Providing cleaner fuels, including lowering sulfur levels in gasoline and diesel fuel, will provide emission benefits in existing on-road vehicles. Sulfur contaminates emissions control equipment, such as catalytic converters. Efforts to reduce sulfur content will provide environmental benefits and allow vehicles to operate more efficiently. Unless there are assurances that fuels will be available, companies will not invest in new clean diesel technologies.

As you can tell, the automobile companies—from the top executives to the lab engineers—are constantly competing for the next breakthrough innovation. If I can leave one message with the Subcommittee today, it is to stress that **all major manufacturers** have advanced technology programs to improve vehicle fuel efficiency, lower emissions and increase motor vehicle safety. These are not "pie in the sky" concepts on a drawing board. In fact, many companies have advanced technology vehicles in the marketplace right now or have announced production plans for the near future. That's why now is the perfect time for the enactment of tax credits to help spur consumers to purchase these new vehicles which years of research and development have made them possible.

Higher CAFE standards, with all of the disparate impacts inherent in that program, would divert limited resources from these ongoing efforts and distort the market for our products. Competition will drive improvements and success in the area of increasing vehicle fuel economy. This powerful market force should be allowed to work where it can and should be enhanced with incentives where they are needed to "prime the pump."

We would urge that public policy decisions focus on the steps that will achieve real improvements in fuel consumption and benefits our environment. We believe that advanced technology vehicles and appropriate tax policy are a better way to increase fuel efficiency than the policy of CAFE that effectively limits consumer choice, adversely affects safety and affordability and creates "winners and losers" within the auto community.

Thank you for the opportunity to testify before the Subcommittee today. I would be happy to answer any questions you may have.

Mr. BARTON. The gentleman from Louisiana.

Chairman TAUZIN. I would like to make a unanimous request. As you know, the House adjourned for the weekend, and unfortunately many of our members made different plans because they needed to be home for events. One of our members, Mr. Whitfield, is on a tight schedule with a plane commitment to be home. I wondered if you might, by unanimous consent, recognize him out of order for 5 minutes.

Mr. BARTON. Without objection. For what purpose does the gentleman from Kentucky wish to be recognized out of order?

Mr. WHITFIELD. I want to make a brief statement, Mr. Chairman, because I know that you enjoy my remarks.

Mr. BARTON. The gentleman is recognized for 5 minutes.

Mr. WHITFIELD. Mr. Chairman, I want to just thank you for this hearing, and particularly I wanted to thank the witnesses. We have a number of witnesses today who are here talking about the very important subject of conservation and energy. And as we strive to work forward in implementing a major energy policy for our country, I just wanted them to know that even though there are very few members here today, I for one am taking the testimony and will actually be reading it on the plane. I know other members will be reading this testimony as well because we do value your input and your suggestions. I don't have to tell you this is a complicated subject and there are not any easy solutions to it.

But the conservation provisions are going to be a major part of our package that Chairman Tauzin and Chairman Barton and the

ranking minority member, Mr. Boucher, have been working on. So I just want to thank you for being here and tell you that we all look forward to working with you as we strive to help solve the crisis facing our country today.

Thank you, Mr. Chairman.

Mr. BARTON. We thank the gentleman. We would now like to go to Mr. David Nemtzow who is President of the Alliance to Save Energy. You are recognized for 7 minutes.

STATEMENT OF DAVID M. NEMTZOW

Mr. NEMTZOW. Thank you, Mr. Chairman and thank you for inviting me to testify today. It has been such an interesting morning, and in the interest of time I am tempted not only to shorten my testimony but perhaps abandon it all together. In fact, I am tempted to yield my time, if I could, to you and Mr. Boucher and Mr. Tauzin and the other members who today have displayed, on a bipartisan, multiregional basis, your continued support for energy efficiency.

Chairman Tauzin was very articulate earlier today about the political choice that this committee and this Congress is facing. You have heard the poll numbers, and I have all the poll numbers you want from the New York Times and the Washington Post, and they are very clear that Americans favor energy efficiency as their first choice for energy policy, not their only choice.

My group, the Alliance to Save Energy, a bipartisan group of leading companies such as Johnson Controls, supports energy efficiency and we also think we need new supplies in this country. I think that is also of wide view. But Americans think efficiency and conservation should be No. 1. Not only that, Mr. Chairman, if I could highlight one observation from these polls—and they are very congruent, the different polls—not only do Americans support conservation first but the numbers are going up over time.

When you look at the tracking polls within either of these polls, we see that support for conservation is going up. In the New York Times yesterday, it has gone from 60 percent to 68 percent in just a month's time. I think that pattern is not surprising and it is very important.

Second, the percent of Americans who have no opinion on energy is remarkably small. In fact, if you look in either of these polls at the series of issues, they ask about education, tax cuts, how the President is handling the economy, the smallest number of "don't knows" is energy. I think that is something that you probably appreciate after all your hard work and the members of the committee's hard work on energy issues to have a full engagement of the American public. I think you have that.

I think now, if I could say, the easy work is over. And the easy work is, I think that it is clear we need more energy efficiency in this country. The hard work—this committee, this Congress led by this committee, will now make the tough decisions about how to embrace energy efficiency and how that works in the real world that helps companies make money by making more efficient products and helps consumers cut their own energy bills.

If I could address that in my few remaining minutes, the work that you have done in the past—I have a chart on your right—

looks at if we considered energy efficiency and energy resource the same way we would oil or gas or coal, we would see that today the green bar is our No. 2 energy resource in this country.

This is the success of this committee over the years. The laws that you have passed and Congress has endorsed has made energy efficiency our number 2 energy resource. Oil is still No. 1 in this country. Of course, over half of oil is imported. That is the red part of my chart. So if you think of domestic energy resources, energy efficiency is in fact number 1. So we are number 2. I guess we are Avis. We would like to be Hertz, we want to be number 1. But we are ahead of natural gas and coal and nuclear and hydro and the other renewables.

Of course, that does not mean our work is done. There are many opportunities left, and I don't think any of us need a lesson on how Americans are still not using available technology and are still being wasteful. And so that is the challenge before this committee and this Congress: Have you encouraged remaining energy efficiency improvements?

I would like to cite just a few policy areas that are really the key areas for this committee. Some are within the jurisdiction of this committee some are not. Number 1 is this issue that you heard earlier, the public benefit fund issue that belongs in part of any national energy legislation. This is a small non-bypassable fee. So there are no competitive impacts. That can be used for a variety of public policy purposes: energy efficiency, low-income assistance, research and development, et cetera. And by doing that, we can help electricity consumers cut their own demand in the future. Nineteen States have done this. Republican Governors and Democratic Governors alike have signed them into law.

Number 2 is the issue of tax credits for highly efficient products. There are a series of tax credits that have been proposed in this Congress and that the Ways and Means Committee will be addressing quite soon. We hope that you will engage in that debate and will support tax credits for hybrid cars, as Mrs. Cooper talked about, as well as for highly efficient new homes, for upgrading existing homes for combined heat and power, and certainly for highly efficient appliances.

Number 3 is the issue of fuel economy. I have to disagree strongly with Mrs. Cooper. I would submit it is one of the most successful energy policies this country has ever adopted, perhaps the second after rural electrification; I think the most important policy, period. It saves 3 million barrels per day already. Unfortunately, because light trucks and SUVs are treated more leniently than passenger cars, we are missing the opportunity to save at least 1 million barrels per day just from that part of the sector. So you need to tighten the fuel economy standards in general and particularly for light trucks and SUVs. That should be part of a broader approach that helps educate consumers, that provides tax credits, but also ask Detroit to put their pedal to the metal, as it were, to improve fuel economy.

Next is the issue of Department of Energy and EPA efficiency programs. Mr. Walden talked earlier—I appreciate your support for the Energy Star program. I think it is the poster child of how you want to help consumers in this country. And there are other public

education programs. That is the single leading one. And this committee has jurisdiction not only over the appropriations but over the oversight of those, and I hope you will come back and oversee those. You are allowed to oversee programs that you think are working as well as the ones you think are not working. I hope you will do that and look at those deployment programs.

Finally is the issue of appliance standards. We heard a very spirited conversation about that. I will just add one of the problems with the DOE analysis is that it is old. They use 1996 numbers. I don't have to tell anybody in this room that if you use 1996 projections at future electricity prices, you are going to get it wrong. Electricity prices have gone up dramatically in the past 4 years and their analysis does not reflect those new costs. California and Oregon's price increases alone have increased the national—the average national energy bill by over a quarter of a cent per kilowatt hour. That alone justifies the increase to a SEER of 13, if not beyond, and your consumers are feeling that every day.

Mr. Wagner talked about Federal facilities, school facilities, and on the other side of this subcommittee's jurisdiction are the cap and trade programs which also promote energy efficiency.

I thank you again for holding this hearing and I appreciate the hard work that you have done to try to turn the theory of energy efficiency into real live policies. I think you have some good choices ahead of you, Mr. Chairman. I look forward to working with you.

[The prepared statement of David M. Nemtzow follows:]

PREPARED STATEMENT OF DAVID M. NEMTZOW, PRESIDENT, ALLIANCE TO SAVE ENERGY

Mr. Chairman and Members of the Committee, thank you for the opportunity to testify before you today about the role of energy efficiency in serving as the foundation of national energy policy.

My name is David Nemtzow. I am President of the Alliance to Save Energy, a bi-partisan, non-profit coalition of business, government, environmental, and consumer leaders dedicated to improving the efficiency with which our economy uses energy. Senators Charles Percy and Hubert Humphrey founded the Alliance in 1977; it is currently chaired by Senators Jeff Bingaman and James Jeffords as well as Representative Ed Markey.

Over seventy companies and organizations currently belong to the Alliance to Save Energy. If it pleases the Chairman I would like to include for the record a complete list of the Alliance's Board of Directors and Associate members, which includes many of the nation's leading energy efficiency firms, electric and gas utilities, and other companies providing cost savings and pollution reduction to the marketplace.

The Alliance has a long history of researching and evaluating federal energy efficiency efforts. We also have a long history of supporting and participating in efforts to promote energy efficiency that rely not on mandatory federal regulations, but on partnerships between government and business and between the federal and State governments. Federal energy efficiency programs at the Department of Energy (DOE), the Environmental Protection Agency (EPA), and other agencies are largely voluntary programs that further the national goals of environmental protection, as well as broad-based economic growth, national security and economic competitiveness.

I. INTRODUCTION

Energy-Efficiency: A Bipartisan Tradition

From the days of our first national nightmare of gas lines and soaring fuel prices, energy efficiency has had champions in Congress from both sides of the aisle. Sen. Charles Percy, who founded the Alliance to Save Energy in 1977, recognized the need to promote energy efficiency to address a glaring hole in our nation's economic security. He knew that a partnership between business, government, environmentalists, and consumer advocates would not only result in benefits for each sector, it

would help avoid the need for coercive regulation when our problems reach crisis level.

Support of action by the federal government to promote energy efficiency has also been historically bipartisan. Though the establishment of the Department of Energy and energy efficiency programs is most often associated with the Carter Administration, key advancements in federal efforts were made under the Reagan and Bush Administrations. While funding was cut severely from Carter-era levels, President Ronald Reagan signed the National Appliance Efficiency and Conservation Act (NAECA) the law requiring DOE to set energy efficiency standards for appliances and other equipment. That program has led to tens of billions of dollars in savings for the American people and significant carbon emissions reductions. The first Bush Administration, in the context of its support for the Rio Treaty, began to significantly expand funding for DOE energy efficiency and renewable energy efforts and created the Green Lights and Energy Star programs at EPA. In addition, former President Bush signed the Energy Policy Act of 1992, which expanded the scope and magnitude of energy efficiency efforts.

The House and Senate caucuses devoted to promoting renewable energy and energy efficiency continue that tradition of bipartisanship. Currently, the House Renewable Energy Caucus features well over 100 members from both parties. Such support from all parts of the political spectrum is what has made clean energy a driving force in the American economy.

Today's Testimony

I am here today to testify on how investment in energy-efficient technologies can help address our energy needs, ease strain on our energy supply, reduce air emissions harmful to the environment, and save taxpayers money. At no time since the late 1970s has energy been such a prominent topic of public debate. The release of President Bush's energy plan, and now the consideration of comprehensive legislation by Congress, have served as platforms for a great national conversation regarding what we want out nation to look like as the 21st Century proceeds.

Mr. Chairman, all energy sources are not created equal. Some cost more than others. Some pollute more than others. Some require the approval of local communities to be transported from one place to another, whereas others do not. Some generate profits that accrue only to a few, while others disperse benefits widely among the public.

By virtue of its ability to ease strain on energy supplies thus reducing energy prices, increase reliability of supply, not only not exacerbate—but reduce—pollution, increase our national economic security, and disperse benefits widely over the population, energy efficiency is a superior choice for investment by the federal government.

Let me also say that while energy efficiency should be the cornerstone of national energy policy, the nation will also need clean, new energy supplies. Our energy problems are severe enough that we will need major contributions from both the supply and the demand side of the meter.

Americans Choose Energy Efficiency

Americans want a true, aggressive effort to achieve energy efficiency, Mr. Chairman. The American public is concerned about our nation's energy use and believes that energy efficiency and conservation are key components to addressing our energy needs. A Gallup poll published in mid May found that 85% of the U.S. public showed strong support for mandating more energy efficient appliances, buildings and cars. And support is only rising. An ABC News/ Washington Post poll released on June 5th found that of the 1004 adults surveyed, ninety percent support action by the federal government to encourage more energy conservation by business and industries. Ninety percent also support action by the federal government to encourage more energy conservation by consumers. An overwhelming 89 percent of those polled said they would "*require* car manufacturers to improve the fuel-efficiency of vehicles sold in this country."

I hope the recent debate over energy policy has resolved at least one point. When we talk about energy efficiency, we are not talking about personal sacrifice, or any other reduction in economic well-being or quality of life. Energy efficiency means providing the services that our modern economy and lifestyles demand—lighting, heating, cooling, transportation, IT, and much more—but doing so with less energy input. Energy efficiency means relying on technologies—many of which are familiar, while others are still innovative or even still in the laboratory that can provide the same or superior services, productivity and comfort while using less energy input. And lessening energy input means reducing the numerous pollutants and environmental stresses that result from our currently wasteful energy practices.

II. ENERGY EFFICIENCY AND THE ECONOMY

Energy efficiency makes money and puts people to work. The economic gains from energy efficiency come in two forms. The greatest benefit comes from displaced costs—money that households and businesses can spend elsewhere because they no longer have to spend it on energy. That spending includes additional investment and hiring additional workers. Direct economic benefits come from growth in industries that generate energy-efficient products and services. Companies that sell insulation or efficient windows domestically and/or for export employ Americans in high-skill service and manufacturing jobs. Secondary economic benefits come from businesses and consumers re-spending these newfound energy savings in sectors of the economy which are more labor-intensive than energy supply.

Energy efficiency Must Be Measured as an Energy Source

Our energy system operates against the backdrop of a U.S. economy that has become significantly more energy-efficient over the past quarter-century. But we often fail to realize the actual contribution of energy efficiency to our GDP and national well being.

Mr. Chairman, it isn't easy to compare the contribution of energy efficiency to the environment and the economy with more traditional energy sources such as oil and coal. It requires the observer to regard saved or unused energy as created energy in the same way that oil comes out of the well and coal comes out of the mine. In addition, I think that any economist would tell you that energy efficiency measures have increased the supply of energy and thus helped to lower the price. Energy not used is just as salable and usable when conserved as when produced. Upgrades in energy efficiency made to home appliances, industrial equipment, building systems, or car and truck fleets serve as an energy source that increases our overall supply of electricity, coal, oil, and natural gas.

Energy-Efficiency, our Number 2 Energy Source in 1999

Alliance research shows that, for 1999, the most recent year for which we have complete data, energy efficiency was the second leading source of energy for U.S. consumption, and if we consider only domestic energy sources, it's number one. Mr. Chairman, it would have been number-one if we declined to count oil imports, now more than half of this nation's oil consumption. Our analysis of 1999 energy consumption shows that energy efficiency provided the nation with 27 quadrillion Btus (quads), approximately 22 percent of U.S. energy consumption. While energy efficiency trails our mammoth oil consumption (38 quads), it significantly outstrips the contribution of natural gas (22 quads), coal (22.0 quads), nuclear (8 quads) and hydro (4 quads).

Mr. Chairman, the contribution of energy efficiency to our nation's overall supply is now so great that we cannot regard it as an esoteric externality anymore. We must promote and support it in the same way we do the coal belt and the oil patch, which enjoy a variety of tax breaks and subsidies based on their use of fuel.

These figures show energy efficiency for what it is—an unparalleled driver of environmentally sound economic growth.

Mr. Chairman these economic snapshots of efficiency show an energy industry that spans the economy and the populace. But it is not an energy industry that looks like what we have known in the past. However, all the functions of traditional energy industries are represented. But with energy-efficiency, the miners are businesses trying to cut their costs. The roughnecks are homeowners trying to keep their families warmer in the winter. The geologists are mechanical engineers working to get more out of less. Energy efficiency is highly dispersed throughout the economy. And because of its diffuse nature, energy efficiency doesn't carry the political clout of the coal-mining regions, or of the oil and gas-producing regions. There is no "energy efficiency patch."

By the same token there is not a defined energy efficiency industry. Whirlpool makes highly efficient appliances but they sell washing machines and refrigerators, not energy efficiency. Honeywell sells controls that regulate building systems that can save a company millions of dollars a year, not energy efficiency. Owens-Corning sells fiberglass insulation which can make a house warmer, more comfortable, and more economical to live in, but they sell insulation, not energy-efficiency.

So when we have to make tough choices about what we do with federal dollars and initiative, we must think about energy efficiency as what it is—an energy source that is essential for the economic health of our nation—and one that thus far has paid off like a gusher for the American people. And yes, Mr. Chairman, that energy is produced cleanly, displacing both conventional air pollutants as well as ones believed by many to be causing a warming of the Earth's climate. It enhances our national security, as this year we again went to war to protect our interests in

Mideast oil fields. Energy efficiency cuts costs for businesses and consumers, and it increases our international competitiveness—all the things we have traditionally talked about.

The tough choices on energy must be made with a clear eye on the contribution to the environment, the economy, national security, and international competitiveness delivered in the past and promised for the future by energy-efficiency.

III. ACCURATELY ASSESSING OUR ENERGY NEEDS

Whether in relation to volatility in oil supplies and gasoline prices, electricity, or price spikes in home heating fuels, we must consider the range of options available to deal with our national energy problems. That requires a close look at demand side as well as supply side measures. Prudent decisions require the comparison of costs and an assessment of what the benefits are and where they accrue.

How Many New Power Plants Will We Need?

Let's look at the electricity situation. Earlier this year, Vice President Cheney cited the Energy Information Administration (EIA) projection that we would need at least 1300 additional power plants to satisfy our new electricity needs through 2020. His comments left the impression that this was a fait accompli, and that Americans would have to face that fact as surely as the Sun setting in the west.

When we look more closely at the facts, Mr. Chairman, building 1300 new plants is only one item on a menu of alternatives we can employ to meet our electricity needs. But, in fact, aggressive investments in energy efficiency could free up enough electricity supply to eliminate the need for most of those 1300 plants. And it would do it in a way that would be much better for the environment, dispersing benefits much more broadly across the economy.

Let's examine the facts behind the 1300-powerplant argument. DOE's forecast is based on the Energy Information Administration's Annual Energy Outlook, which uses a macroeconomic model called the National Energy Modeling System (NEMS). But NEMS, like all models, can miss the mark. For example, in 1999 NEMS predicted no increases in natural gas prices. The 1300-powerplant forecast would drop dramatically if it used these inputs:

- 230 of the 1300 power plants are for replacing current units, a task much easier than building completely new units. So the net new demand for power is actually **1070** plants.
- 300 power plants' worth of capacity, already in the pipeline, will come on line by the end of 2002. That leaves the need at **770.**
- Appliance efficiency standards for clothes washers, water heaters, and air conditioners, passed by the Clinton administration in January, and agreed to by the Bush administration, will reduce demand by 127 power plants in 2020. That cuts the need to **643.**
- If the Bush administration supported the air conditioner standard at the SEER 13 level approved by Clinton, instead of the reduced SEER 12 level they announced in April, another 43 plants would be saved, reducing the need to *600*. Pursuing strong standards for commercial air conditioning would save another 50 plants, cutting the need to *550*.
- Programs to reduce energy use in new buildings, such as building energy codes, tax credits, and public benefit programs, would avoid 170 power plants. That means reducing new homes' demand by one 1 kW per home, and new commercial building demand by 1 watt per square foot. Modern building codes alone can easily achieve those kinds of savings; doing so takes the need down to **380** power plants.
- Programs to improve existing buildings, by targeting residential air conditioners, commercial lighting, and commercial cooling, can trim demand projections by another 210 power plants. That leaves the tally at **170**.

Since our electricity industry is producing 300 plants over the next two years, it is reasonable to assume that another 170 can be brought on line over the following eighteen. Many if not all of those could be renewable-energy plants, producing little or no pollution.

Realizing the energy efficiency gains, especially the 380 power plants from new and existing buildings, will take a concerted effort, involving increased R&D funding, aggressive support for building codes, new federal tax credits, and public benefits funding from electricity sales to support state-based efficiency programs.

Before we arrive at what the solutions to our energy problems should be, Mr. Chairman, we need to do this kind of analysis. What are our options? What can be done quickly and cleanly. What is the relative cost of the options?

IV. ENERGY-EFFICIENCY POLICY MEASURES

The Alliance to Save Energy believes that the following five items should be contained in any national energy policy legislation:

1.) National System Benefits Trust Fund
2.) Targeted Tax Credits for Highly Efficient Products and Technologies
3.) Increased Fuel Economy in the Transportation Sector
4.) Increased Investment in Energy Efficiency Research and Development
5.) Expand the Appliance Standards Program

National System Benefits Trust Fund

Many parts of the nation are facing on unprecedented challenges in preventing electricity shortages, reducing air pollution, and responding to high consumer energy bills. Energy efficiency provides the cleanest, fastest, and cheapest way to respond to these needs. A federal public benefits fund is the most effective national means to support these needed investments.

One of the reasons that demand-growth overtook electricity supply in California is the fall-off in energy efficiency spending by utilities in beginning in 1995. The onset of competition in California changed the traditional relationships between state regulators, utilities, and the need to provide public benefits, such as energy efficiency and renewable energy investments and low-income programs. These programs had been highly successful in California up until that time. The Rand Corporation issued a report in 2000 that quantified the benefits of the state's utility energy efficiency programs, finding that between 1980 and 1995, utility efficiency investments generated roughly $1000 in returns for every $1 spent. Rand also found that the overall economic benefit to the state from these programs was responsible for 3 percent of the California gross state product in 1995. Finally the study concluded that energy efficiency programs had avoided a 40 percent increase in stationary source air pollution during that period. Some have characterized energy efficiency in California as a failure and a cause of current gap between demand and supply. That is highly inaccurate. In fact, it was wildly successful. They just didn't grab enough of it.

The Alliance supports the creation of a systems benefit trust fund, to augment state spending on just the kind of measures that were so successful in California. The fund would come from a non-bypassable charge on electricity, which would then go to match state expenditures on energy efficiency, low income programs, renewable energy, and state-based research and development.

States are spending about $1.7 billion this year on public benefits programs, including efficiency, renewables, low-income programs, R&D, and related public goods. A federal match at this level would raise another $1.7 billion annually. The residential share of this would amount to about $6 per year per family—about 50 cents a month.

The benefits would be enormous; they are projected to include: 92,000 Megawatts of electric capacity savings by 2020 (equivalent to about 300 powerplants); 1.24 trillion kWh saved over 20 years, cutting consumer energy bills by $100 billion; and 150,000 tons of nitrogen oxides emissions avoided.

The public benefits fund is off-budget, providing an efficient way to support the states in their efforts to respond to their mandates for reliability, clean air, and affordable energy. 50 cents a month is a very small price to pay for keeping the lights on, the air clean, and energy bills down.

Tax Credits for Energy Efficient Products and Technologies

Members of both parties in both the House and Senate have introduced legislation to promote tax credits to spur energy-efficient technologies and products. The Alliance believes that tax credits provide strong mechanisms to both attack market obstacles to the adoption of efficient products and provide an incentive for the rapid adoption of the next generation technologies that are not yet produced on a mass basis.

The Alliance supports establishing tax incentives in the following areas:

- Residential tax credits for the construction of highly-efficient new single family homes and substantial upgrades of existing homes.
- A production tax credit to manufacturers of extra-high efficiency refrigerators and clothes washers.
- A tax deduction for investments in new multi-family and other commercial buildings.
- An investment tax credit for purchases of highly efficient hybrid gas-electric and fuel cell vehicles.

- A tax credit and/or accelerated depreciation schedule are provided for investment in combined heat and power systems

The intensive of analysis of specific proposals is currently taking place in the Ways and Means Committee. I urge this Committee to work with that Committee to promote these important energy-related tax incentives.

Increased Fuel Economy

The fuel economy of today's cars and light trucks are at their lowest point in twenty years. But while fuel economy has fallen, oil imports and oil prices have continued to rise. U.S. oil imports have more than doubled over the past 15 years and prices of petroleum imports hit $110 billion, or one quarter of the U.S. trade deficit in 2000. Cars and light trucks consume 40 percent of the oil used in the U.S. every day and emit 20 percent of U.S. carbon pollution. With gasoline prices rising across the country America has found itself in a crisis of its own making. We must raise the fuel economy of the vehicles on American roads.

Fuel economy standards are popular everywhere but Detroit, thus making them a bone of contention in Congress. In fact, eighty-nine percent of the adults polled this month by ABC News/Washington Post support action by the federal government to require car manufacturers to improve vehicle fuel efficiency in the U.S.

There are many ways to increase fuel economy including closing what is known as the light-truck loophole which would make the SUV parked in the supermarket meet the same 27.5 mile per gallon CAFE standard as the car beside it. In 1999, this loophole cost consumers $27 billion at the pump; closing it would save at least 1 million barrels of oil a day. Another option is increasing the fuel economy of cars and light trucks to meet a 40-mile per gallon standard that could save 1,500 gallons of gas per second. Or, a consumption cap could be applied to encourage manufactures to continue to increase their fleet fuel efficiency without the standard CAFE formulation. Offering tax credits for high efficiency vehicles can contribute to the transformation of America's gluttonous vehicle market.

The American public is tired of paying too much at the pump because they don't have the choices at the auto dealership to get the car they want with the high-efficiency technology that is available. And it is available. A report by the Union of Concerned Scientists released Wednesday shows that US automakers could produce a fleet of cars and trucks that get an average of 40 miles per gallon by 2012, and 55 mpg by 2020 with no decrease in safety or performance. This increased fuel efficiency would save consumers billions of dollars each year, cut 273 million tons of annual greenhouse gas emissions by 2010 and 888 million tons by 2020, and create tens of thousands of new jobs in the auto industry.

Increased Research, Development, and Deployment at DOE and EPA

In 1996, Mr. Chairman, the General Accounting Office did a study of a variety of success stories detailing energy and cost savings to the Nation which DOE had published in 1994. Unfortunately, the purpose of the study appeared to be political, and it attempted to discredit energy efficiency programs by attacking DOE's methodology for preparing the success stories. But rather than achieving this goal, it ended up validating billions in energy savings for a few key technologies which far outstrip out entire national investment in energy efficiency over the past 20 years.

Mr. Chairman, the accumulated success of these programs at saving money for American consumers and taxpayers is remarkable. The GAO study validated DOE's assertion that just five technologies[1] developed or assisted by the DOE buildings program resulted in $28 billion in energy savings over the past 20 years for an approximate $8 billion in investment as of 1994. DOE has updated results for those programs which credits them with returning $50.9 billion to the U.S. economy through 1999. Add gains from the low-income Weatherization Assistance Program, state energy programs, and building and appliance standards work, and returns total $89.6 billion. Add FEMP gains and it moves to $101 billion. Add the hundreds of other technologies to come out of the business, industrial, and transportation programs and the additional accrued energy savings of the past 5 years and you get a portrait of an overwhelmingly cost-effective effort which has contributed significantly and directly to the quality of life of Americans.

Mr. Chairman, I have yet to know of a federal program that has returned more than $100 billion to the economy for the relatively small investment of $12.0 billion through 1999.

By the same token, the EPA Energy Star and Green Lights programs, as well as other EPA climate programs, have already returned more than $40 billion in energy

[1] The technologies are: low-emissivity windows, electronic ballasts, advanced refrigerator compressors, the flame retention head oil burner, and DOE-II building design software.

savings to the economy from less than $750 million in federal investment through 1999. In addition, these federal partnerships with businesses, state and local governments, school districts, non-profits, and other organizations have yielded reductions of more than 300 million metric tons of carbon equivalent pollution.

Expand the Federal Appliance Standards Program

One of the true top performers in energy efficiency has been the appliance standards program at the Department of Energy. Every refrigerator that is sold today is well more than twice as efficient as the comparable model from 25 years ago. The same is true for a variety of other products. These improvements have been very successful and cost-effective. A key route to increasing the energy efficiency of the economy is to expand the appliance standards program to include additional products such as commercial refrigerators, torchieres, ice makers, traffic lights, and exit signs, as well as reducing the stand-by power requirement of electronic appliances. The savings in 2020 are estimated to reach $20 billion per year from expanding this highly successful program.

In addition, Mr. Chairman, the Alliance strongly supports the rule promulgated by the Department of Energy earlier this year to raise energy standards for residential central air conditioners and heat pumps to a Seasonal Energy Efficiency Rating (SEER) of 13. Soon after taking office, the Administration elected to rollback the rule and to reduce the proposed increase to SEER 12. This was done despite the fact that due to worsening electricity problems in Western, and perhaps other, states and increases in electricity prices, the SEER 13 standard is even more cost-effective and justified than it had been earlier. Furthermore, all major air conditioner manufacturers already sell models that meet the 13 standard and that two of them strongly support the original rule. Additionally, as you know, earlier this week, a lawsuit was initiated by the Natural Resources Defense Council, the Consumer Federation of America, three state Attorneys General and others to reverse that decision. I ask this Committee to urge the Administration to take into account the new facts governing the nation's electric reliability and prices and to re-affirm the SEER 13 standard.

VI. CONCLUSION

A comprehensive national energy policy must seize the opportunity to exploit energy efficiency in each of these critical areas. Public opinion is overwhelming that a true effort to increase efficiency is desired by the nation. Many times, Mr. Chairman, I have sat in hearings and listened to Members say that, despite our best efforts at energy efficiency, we still need to focus on production. I do not now, nor have I ever said that energy-efficiency can do all that needs to be done to provide for the energy needs of this country. I will say, however, that—as a nation—we have not even begun to give our best effort to make our economy more efficient.

A balanced, comprehensive energy policy must take aggressive steps to save energy wherever it is cost-effective and feasible. Energy-efficiency may be our second largest energy source, but it should be our first energy priority.

Thank you for the opportunity to testify before your Committees today. I'm happy to address any questions you might have.

Mr. BARTON. Thank you, sir. We now want to hear from Mr. Gary Swofford who is the Vice President and Chief Operating Officer for Puget Sound Energy. We will put your statement in the record and ask you to elaborate on it for 7 minutes.

STATEMENT OF GARY B. SWOFFORD

Mr. SWOFFORD. Thank you, Chairman Barton, Congressman Boucher, and Congressman Walden, thank you for the opportunity to testify before THE subcommittee this morning.

I want to say a few words about the important role that real-time electricity pricing can play in solving current problems as well as securing our energy future, and also a couple of comments about the program our company has put in place on a real-time pricing program we call Personal Energy Management.

Simply put, to achieve the levels of energy efficiency in the use of electricity, customers need to see the real price of electricity that they are purchasing before they make the purchase decision. Cali-

fornia is the poster child for the kind of results we get when we have wholesale prices that are unregulated and retail prices are fixed so that customers do not see the impact of the purchase decisions they are making. Failure to give customers the proper price signals promotes the wasteful use of energy, higher cost, and, quite frankly, just plain bad habits. With proper price signals in place, we get efficient use of energy, we get lower cost, and we get a sustainable energy use ethic in this country.

Wasteful use of energy also has severe environmental consequences. We use costly, inefficient, and polluting resources. We construct more generating resources while we need them more than would be necessary, and we construct more of a transmission and distribution system than we would need.

Substantial costs can be avoided by the implementation of real-time electricity pricing. There is a study that has recently been done by the McKinsey Company—I have included a copy in my testimony—where they have found that $14.8 billion annually can be saved by the implementation of real-time pricing in this country; 8 billion of that is in the residential sector.

In the energy study that was conducted last summer after the price spikes like we saw in California, they found that a 2.5 percent reduction in their usage at peak times would have saved Californians $700 million last summer. A study done by the Brattle Group, concluded that a 10 percent reduction in energy at peak usage time results in a 50 percent reduction in the cost of energy during that same peak period.

So what does it take to make real-time pricing of electricity available? It takes the integration of a couple of key technologies, the first of those being metering systems or so called smart meters. They gather the information in 15-minute increments. They store it. Communication systems can then transmit that information in daily intervals, in hourly intervals, whatever the market is demanding at any given point in time. That is then brought into new customer information systems. They take that information on usage, match it up with what is going on in the pricing area, contemporaneously, and then give it back to customers so they can see both what they are using as well as what the price is at any given moment.

At Puget Sound Energy, we began providing usage information to 410,000 of our customers last December. That is residential commercial and industrial. In addition to the monthly information we gave them in summary form in their monthly bills, they can also access that information daily via our Web site. So the customer now can get usage information, and in the time of what they are using and in the time block in which it is being used. They can now make decisions about how much they are using and in which time periods they are using it, because at peak times it is more expensive than it is at off-peak times. They can look the next day and they can see the consequences of choices they made to either reduce energy usage or to shift their energy usage.

In a study that we conducted just last month of how customers received this information that they were receiving, the survey showed that 80 percent of residential customers and 70 percent of commercial and industrial customers had taken actions to alter

their energy use. We think that was pretty fantastic results for a 4-month program that we had adopted.

On April 25 of this year, the Washington Utilities and Transportation Commission shifted that program from an information only, that approved the tariffs that we filed, to convert that to a billing and pricing program so that 300,000 of our customers will now be receiving bills based upon time of use that they are using their energy. It is an important first step to the actual delivery of real-time pricing for our customers.

As a matter of national energy policy, all customers need to have the ability to be able to see how much energy they are using at any given point in time. The emphasis to date on most programs has been in the commercial-industrial sector, while the McKinsey study shows that over half of the value in the avoided cost occurs in the residential sector.

So what is preventing the national deployment of real-time pricing? Well, there are several issues, but I want to focus on just one here for just a second. It is the upfront capital cost of installing new metering technology.

It is for this reason that we strongly support and urge Congress to pass a bill introduced by Congresswoman Jennifer Dunn, H.R. 1797, the Energy Efficiency and Conservation Incentive Act of 2001. If passed, this bill would provide utilities with a tax deduction for either retrofitting or installing the new technology metering systems for their customers.

In conclusion, I have submitted written testimony, and you have seen I have included the McKinsey white paper for you also. I would look forward to any opportunity to answer any questions you might have.

[The prepared statement of Gary B. Swofford follows:]

PREPARED STATEMENT OF GARY B. SWOFFORD, VP AND CHIEF OPERATING OFFICER—DELIVERY, PUGET SOUND ENERGY

Chairman Barton, Congressman Boucher and members of the Subcommittee, thank you for inviting me to testify before the Subcommittee on Energy and Air Quality.

My name is Gary Swofford. I'm the Vice President and Chief Operating Officer for the Delivery Business unit at Puget Sound Energy. Puget Sound Energy is a natural gas and electricity distribution company serving 1.4 million customers in Western Washington. I have been asked to speak to you today about our Personal Energy Management™ Program and the important role real-time electricity pricing can play in a national energy policy.

For the country to achieve the levels of efficiency that are possible in our use of electricity, customers need to see the real price of electricity before they make their purchase decisions. If we are to see wholesale electricity prices rationalize, then the retail prices that customers pay cannot remain fixed and unresponsive to the demand for more supply. We need only look at the chaos that has been associated with the price of electricity in California to see the effects of wholesale markets that are deregulated and retail markets that remain regulated. The remedy sought by California is a return to regulation through the use of caps on the price of wholesale electricity, when what they need is for customers to be able to see and respond to the price of electricity while needed new supplies are developed and brought on line.

The imperative for real-time electricity pricing is considerable. Failure to give customers proper price signals encourages 1) the wasteful use of energy, 2) unnecessarily high costs and 3) bad habits. On tile other hand, giving customers the proper price signals results in 1) tile efficient use of energy, 2) lower costs and 3) a sustainable energy use ethic.

In addition to driving up the costs, the wasteful use of energy has substantial negative environmental impacts. We use marginal resources that are both more expensive to operate and more polluting, and we build more resources and electric system

infrastructure than would otherwise be needed. In a recent analysis undertaken by the McKinsey Company, they found that the U.S. could avoid spending $14.8 billion annually by implementing real-time electricity pricing—with almost $8 billion of that avoided cost occurring in the residential sector (see figure 1).

A significant portion of that avoided cost comes from the large impact on the marginal price of wholesale electricity from a modest reduction in demand. The Electric Power Research Institute (EPRI) found that if California had been able to reduce its demand on peak this past summer by just 2½%, they could have reduced what they paid by $700 million. The Brattle Group in a report they did concluded that a 10% reduction in peak demand resulted in a lowering of the peak wholesale price of 50%.

Real-time electricity pricing is made possible by the integration of several key technologies that are all available today (see figure 2).

Customer usage data is gathered by using newly developed metering technology that gathers and stores this information in as small as 15-minute increments. This information can then be gathered and sent daily or even hourly if so desired. Newly developed customer information systems (CIS) can take that usage information and match it with what the market price is at the time of usage and can provide that information back to customers making it possible for them to make informed purchase decisions.

At Puget Sound Energy (PSE) we began providing usage information to 410,000 of our residential, commercial and industrial customers last December. In addition to monthly information in our billing statements, our customers can also gain access to their usage data over the most recent 24-hour period on our web site. They also see the time blocks their usage occurred in (see figure 3). If they don't have a computer, they can call our customer access center and talk to a representative who will review the information with them. The customer now has the usage information and the time blocks in which their usage occurred and the price of electricity in each of those time periods. They can now make decisions about how much energy they are using and when they want to use it. The next day they can look and see the impact of their choices (see figure 4).

Customer acceptance and use of this information has been exceptional. In a recently conducted survey of customers who have been receiving usage information from the program we call Personal Energy Management (PEM™), we were gratified to see that 91% of residential customers and 72% of business customers were aware of our information program (see figure 5), and that the most important things they learned were 1) the need to conserve energy, 2) how they used energy by time-of-day' 3) the need to shift to off peak energy usage, and 4) how to save and shift their energy usage (see figure 6). The survey also showed that 79% of residential customers and 70% of business customers had taken actions to alter their energy use (see figure 7), and finally that as a result of the information they received about their usage 43% of residential customers shifted when they used electricity, and 41% reduced their usage. For business customers 4% shifted their usage while 45% reduced what they used (see figure 8). These are truly outstanding results for an information program.

On April 25th of this year, the Washington Utilities and Transportation Commission (WUTC) approved our filing to move from information only to pricing electricity according to the time during which it is used, so called time-of-use pricing. This is a pilot program for 300,000 of our residential customers, and it is an important first step in providing customers with the information they need to manage their energy use and their electric bill. We are now working on a filing we plan to make later this summer that will bring this program to all classes of our customers and move us another step closer to real-time electricity pricing.

As you can see, we are very proud of our Personal Energy Management™ program. On June 5, 2001 PSE received the Edison Award from the Edison Electric Institute (EEI). This award is presented annually by EEI to the utility that demonstrates leadership and innovation in contributing to the advancement of the electricity industry for the benefit of all. We earned this award in recognition of our Personal Energy Management™ program, a program that brings realtime electricity pricing capabilities to our customers.

As a matter of national energy policy, all customers need to have the ability to receive real-time information about their usage and the price of electricity. The emphasis to date has been on large commercial and industrial customers, while the McKinsey analysis shows that over half of the annual avoided costs are in the residential area.

The integration and development of the systems needed to provide real-time electricity pricing for PSE customers demonstrates that the technology is available now. Our survey results show its value to customers. We have the means to achieve $15

billion in annual avoided cost savings and in so doing, reduce the cost of electricity to customers, ensure that we are using the resources we have as efficiently as possible, and only build the new resources that are necessary.

What is preventing a national deployment of real-time pricing?

We believe one of the issues for a utility is the up-front capital cost of installing new metering technology. For this reason, we strongly support and urge this Congress to pass a bill introduced by Congresswoman Jennifer Dunn—H.R. 1797, the "Energy Efficiency and Conservation Incentives Act of 2001." If passed, this bill would provide utilities with a tax deduction for either retrofitting or installing new real-time metering systems for their customers. We believe this bill will provide utilities with the financial incentive they need to deploy a real-time pricing on a much greater scale.

In conclusion, I have submitted written copies with my testimony as well as a copy of the McKinsey white paper I referenced in my remarks. Again, I appreciate the opportunity to address the subcommittee, and I would be happy to answer any questions you may have.

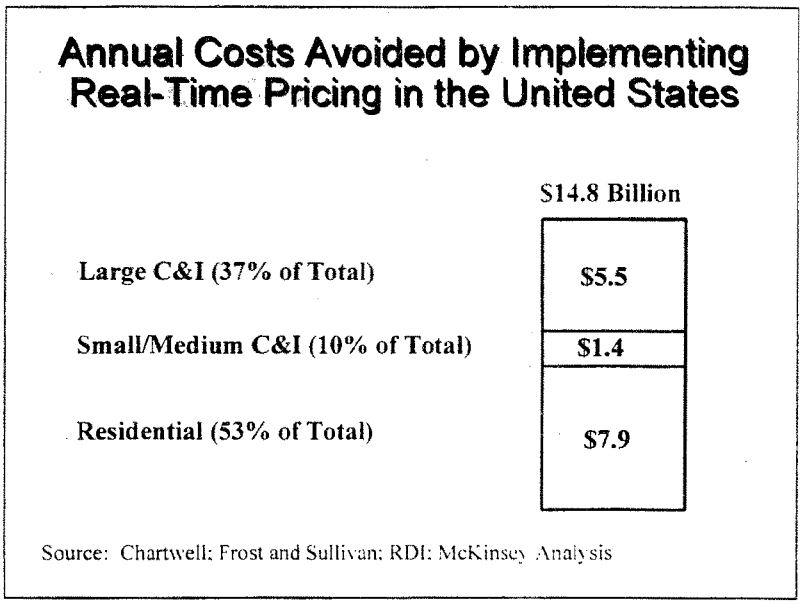

Figure 1.

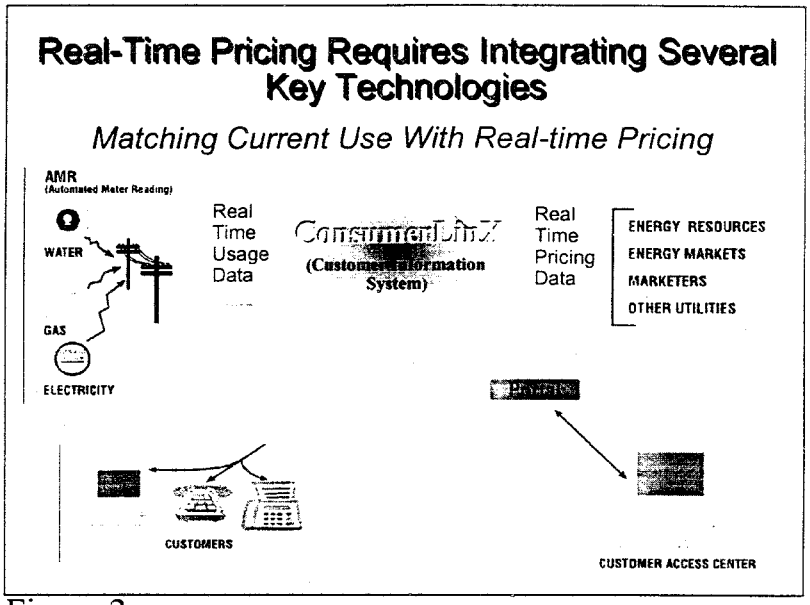

Figure 2.

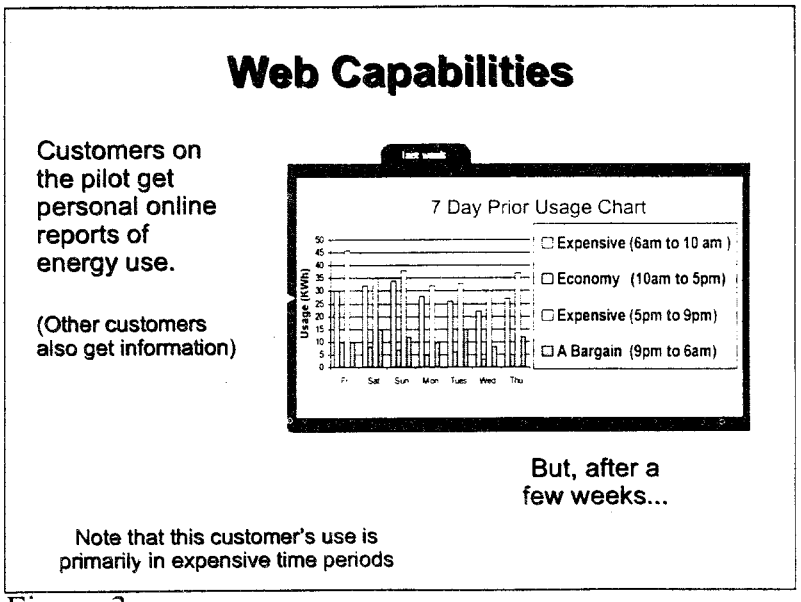

Figure 3.

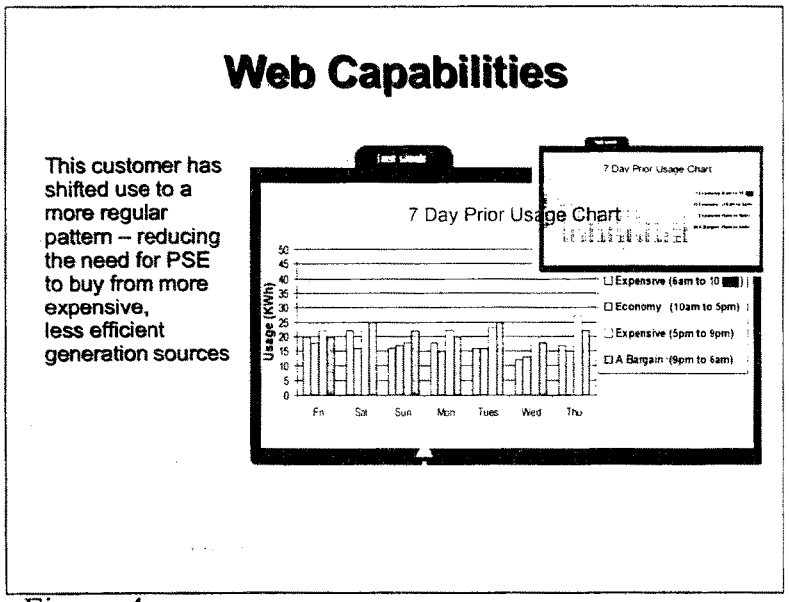

Figure 4.

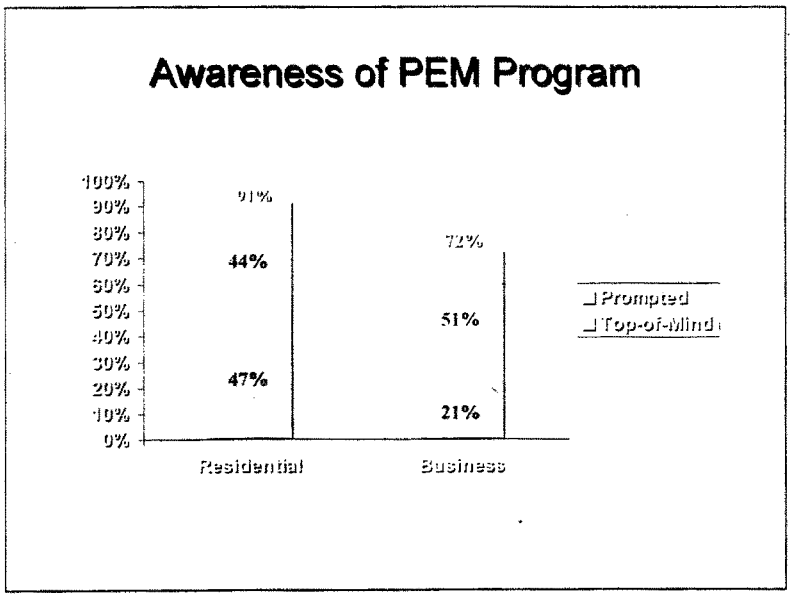

Figure 5.

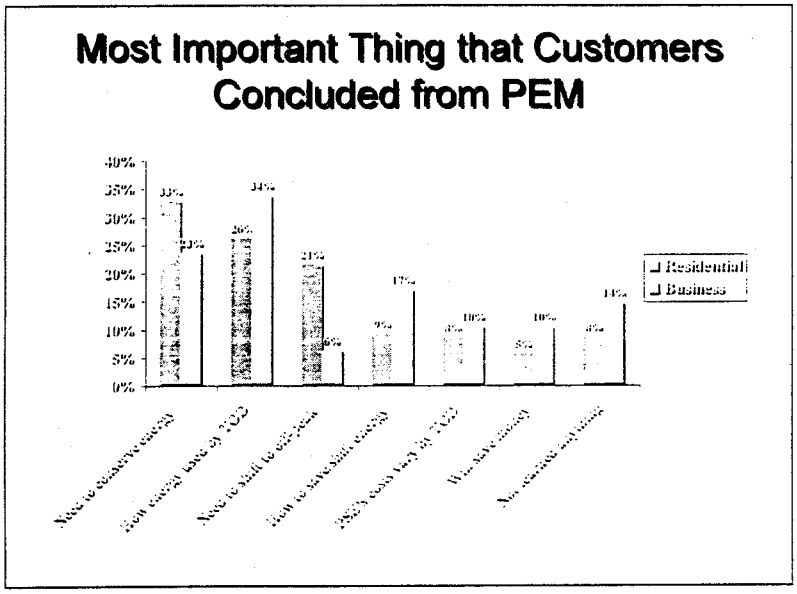

Figure 6.

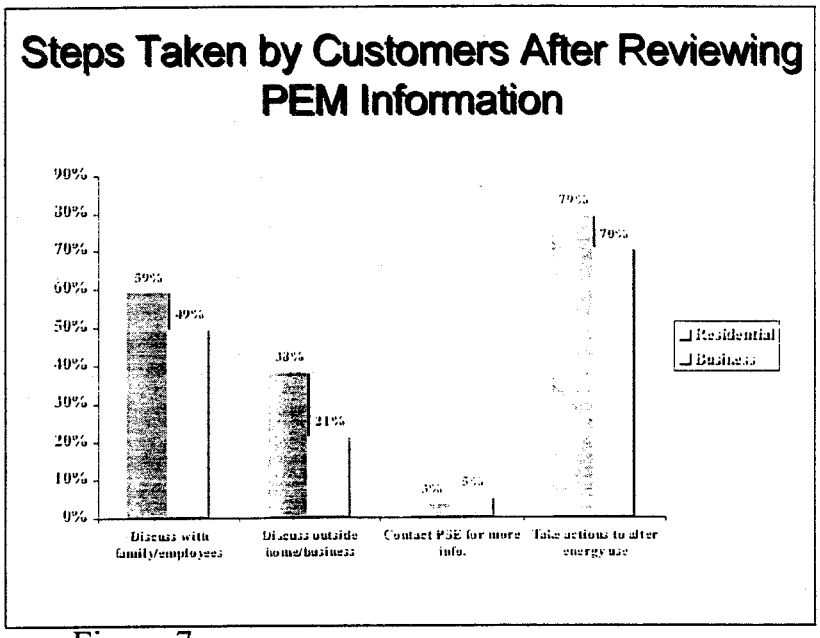

Figure 7.

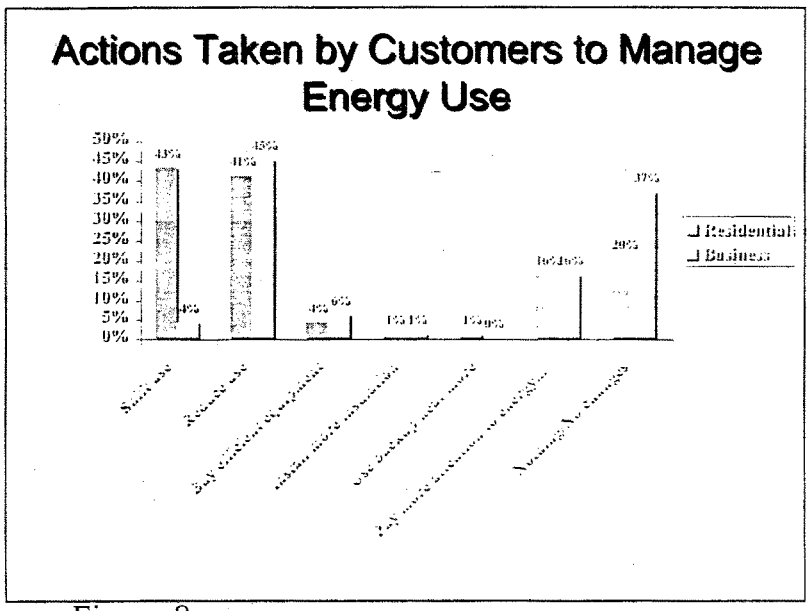

Figure 8.

Mr. BARTON. Thank you sir.

We now want to hear from Mr. Mark Rodgers who is the Chief Executive Officer of SmartSynch, Incorporated in Jackson, Mississippi.

STATEMENT OF MARK E. RODGERS

Mr. RODGERS. Thank you, Mr. Chairman.

Mr. BARTON. The gentleman from Louisiana.

Chairman TAUZIN. I want our witnesses to know and the chairman to know that we have had our first meeting with the House Administration officials about upgrading this room so that we can both be more energy efficient and more technologically smart. Apologize for the shortness of the wires.

Mr. RODGERS. Mr. Chairman and members of the subcommittee, I am Mark Rodgers. I am the President and CEO of SmartSynch, Incorporated, based in Jackson, Mississippi. SmartSynch is an emerging energy technology company that is fairly representative of the private sector's response to the energy crisis. Over the last 5 years we have seen venture capital backing of energy technology companies increase from as small as $50 million 5 years ago to over $1.1 billion in the current year. Clearly, the private sector is seeing the value of emerging technologies as one possible mechanism of providing energy efficiency and significant conservation programs.

SmartSynch has developed an end-to-end solution that provides the ability for energy utilities, for municipals, for even regional transmission organizations to communicate directly with their commercial industrial customers. I appreciate very much Mr. Swofford's introduction for me. If I didn't have a prepared text, I

would yield the balance of my time to him because he made the case very well, in fact, for smart metering systems.

SmartSynch is a company that has developed such a system. We use a combination of public wireless networks as well as the Internet to connect those commercial and industrial meters directly to the utilities. In the restructuring of the electric utility marketplace, we see now a tremendous impact of the transactions that used to be self-contained within a vertical utility. Currently we have now several different participants in the marketplace that need this information, starting with the generators that generate the power, the regional transmission organizations that are charged with the efficient transmission of that power, as well as the energy service providers and customers, end use customers.

Our technology actually enables the timely utilization of the data that is inherent at each one of these customers and brings those back in and allows that information to free-flow in two-way form to all the participating parties. As a result, smart metering provides the backbone for the real-time pricing that is necessary to see significant energy conservation, particularly in the peak demand periods.

Real-time pricing when properly implemented is certainly a win-win for end-use customers as well as the electric utility industry. First, it allows end-use customers to see the availability of the prevalent and prevailing low cost of power the majority of the time. Further, it does provide that price sensitivity and the connectivity of that price sensitivity to the end-use customer, allowing them to make economic decisions based on their ability to reduce load and change habits and change their operational procedures as a result of those increases in pricing.

In addition to that, as load curtailment programs continue to be evolved, one of the significant problems that regional transmission organizations face is the inability to accurately identify exactly how much load has been shed during these peak demand periods. Smart metering allows that information to come back into both the utilities and right onto the regional transmission organizations as recent as every 5 minutes during that load curtailment event, allowing for the very efficient flow of energy across the grid as a result. It also allows the energy suppliers to have a much better ability to forecast actual usage and actual curtailment, and thus have a much better opportunity to manage supply across the grid and ultimately avoid some of the rolling blackouts that we have certainly seen in California.

Smart metering provides many other benefits, one of which would be the ability to monitor the power quality and the power reliability at the point of customer presence. This will become increasingly important as alternatives are being evaluated to lower nominal voltage on the grid as one way of reducing power consumption. This could have a very significant impact on downstream sensitive devices, medical systems, and certainly a host of server-based economy companies that are needing not only power that is efficient but is reliable.

As a result, we have seen the rapid adoption of smart metering technology. And in summary, I would encourage you to look at the implementation of a plan on a national basis for smart-metering

technology to be deployed certainly at all Federal facilities and other government facilities across the country, and also the ability for both end-use customers, utilities, to recoup the costs, the upfront capital costs associated with such investments.

Again, I would like to thank you for this opportunity and certainly applaud the efforts of this subcommittee to implement a cohesive national strategy.

[The prepared statement of Mark E. Rodgers follows:]

PREPARED STATEMENT OF MARK E. RODGERS, PRESIDENT AND CEO, SMARTSYNCH, INC.

Mr. Chairman and Members of the Subcommittee, I am Mark Rodgers, President and CEO of SmartSynch, Inc. Thank you for the opportunity to testify on how technology advancements are affecting meaningful energy conservation programs and promoting energy efficiency. SmartSynch is a private, venture capital backed Company, headquartered in Jackson, Mississippi. Our technology enables energy and utility companies to communicate with their commercial and industrial ("C&I") electric meters using wireless communications and the Internet ("Smart Metering"). I greatly appreciate your efforts to create an effective National Energy Policy and believe that technology companies can play a vital role in reducing energy demand and creating new energy efficiencies.

The restructuring of the electric utility industry has exposed the importance of transactions that were formerly internalized within the vertical utility structure. These transactions are the foundation for efficient power delivery and peak demand conservation programs. Within the new horizontal structure, this requires two-way communications among regional transmission organizations, power generators, energy service providers, and end use customers. Smart Metering provides the backbone for this information flow by capturing not only actual power consumption, but also when the power is consumed. The availability of this information provides immediate benefits to all market participants.

Smart Metering provides the ability to implement meaningful real time pricing programs. Real time pricing is a win-win for energy users and energy suppliers. First, it allows the energy customer to take advantage of low cost wholesale power that is available the majority of the time. Additionally, it connects the customer to short term price fluctuations during peak demand periods, leading to load reduction programs that can substantially reduce overall system demand during these periods.

Smart Metering provides two-way communication flow on actual load curtailment during periods of high demand. The ability to access this information allows C&I customers to ensure that they have reduced load in accordance with curtailment programs. In addition, it allows energy suppliers to verify that load reduction is achieved and regional transmission organizations to better manage energy supply across the power grid, avoiding rolling blackouts that may be otherwise necessary during periods of high demand.

Smart Metering provides many other significant benefits, including the ability to monitor power quality and reliability. Monitoring power quality and reliability ensures that planned or exception based voltage reductions do not adversely affect critical process equipment at medical, public safety, and other customer facilities. Additionally, real time usage information will allow energy suppliers to improve load forecasts, avoid costly imbalance penalties, enter into meaningful long-term contracts, settle accounts, and significantly enhance customer service.

These benefits have propelled the rapid adoption of Smart Metering in the energy and utility marketplace. While the demand for Smart Metering is most prevalent on the West Coast, many utilities across the country are investing in Smart Metering to capture the benefits highlighted in this testimony, mitigate risk, and provide a new level of customer service in this rapidly shifting market.

In conclusion, I would like to applaud the efforts of this Committee to implement a cohesive, national energy policy and believe that energy technology solutions, like Smart Metering, should be considered within this planning environment.

Mr. WALDEN [presiding]. We thank you for your help and your testimony.

Now we would like to hear from Dr. Dean Peterson, Center Leader, Los Alamos National Laboratories, Material Science Technology

Superconductivity Technology Center. That is a mouthful. Thank you, Mr. Peterson, for being here.

STATEMENT OF DEAN E. PETERSON

Mr. PETERSON. It is a pleasure to have the opportunity to address the subcommittee on the topic of energy conservation efficiency. I am the director of the Superconductivity Technology Center at Los Alamos which is located in Los Alamos, New Mexico. The mission of the Superconductivity Technology Center is to collaborate with American industry to develop applications of high-temperature superconductivity. Superconductors are materials that when cooled to low temperatures lose all electrical resistance and don't have any resistive losses or heating. The high-temperature superconductors were discovered in 1987 and are superconducting at much higher temperatures than the previous materials that were available. High-temperature superconductor wires can actually carry as much as 100 times the current carrying capacity of, say, copper or aluminum, conventional conductors, and thus enable more efficient and powerful electrical equipment such as improved power transmission lines.

The U.S. Department of Energy, the Energy Efficiency Renewable Energy Office of Power Technologies has the lead Federal role in developing these new materials and developing electric power applications of these, and is responsible for coordinating the activities of seven DOE laboratories that work in partnership with American industry and universities.

An important part of the program is practical high-temperature superconductivity wire development that is done in parallel with research on large-scale electric systems, such as the development of transmission cables and transformers and motors generators, fault current controllers. These devices will enable electric utilities to deliver more power at much higher efficiencies. The ultimate benefits of this new superconductor activity will be a reduction in operating costs, the lowering of the frequency of power outages, as well as reducing environmental pollution while creating a new high-tech industry.And so it has been estimated that a high-temperature superconducting industry would create 150,000 new jobs while strengthening reliability of the U.S. power grid.

Superconductivity can fundamentally reshape the technology of electricity generation, transmission, storage and end use in the 21st century. Important technical progress has been made since the program began in the late 1980's, but there are still significant and numerous challenges remaining to really market this technology: successful development and commercialization of the HTS applications, a formidable task requiring working partnerships among the national labs, private industry, and the academic community. It has been estimated the HTS product market can be as large as 45 billion by the year 2020. And so it is very important that the United States maintain international leadership in this technology.

The U.S. currently leads the world in development of high-temperature superconducting wires and the development of power applications as the direct result of these strategic national lab/industry/university partnerships. About 300 miles of first-generation high-temperature superconducting tape is now annually produced

for sale in the United States, with plans to increase yearly production to 6,000 miles next year. The national labs, in partnership with industry, are developing this second-generation high-temperature superconducting coated conductor tape to dramatically improve properties. I am proud to be able to report to you that our Los Alamos team has played a seminal role in raising the performance of these coated conductor tapes to record levels. It is expected that these improved high-temperature superconductivity tapes will be commercially available for use in power applications within 3 years.

Over 10 percent of electricity generated in the United States each year is lost due to the resistance of copper and aluminum wire. And that if the energy lost were reduced, the saved electricity could supply the combined energy needs of California, Oregon, Arizona, New Mexico, as well as saving about $16 billion annually in wasted energy costs.

One of the most important uses of high-temperature superconductivity wires is in power transmission cables. In the United States today there exists over 200,000 miles of overhead and around 3,500 miles of underground electric transmission cable. Over 60 percent of the existing underground cables are nearing the end of their useful life. Therefore, there is a possible window of opportunity for renewing America's power infrastructure. High-temperature superconductivity cables are candidates to replace the conventional underground cables, enabling transmission into urban areas of significantly higher power levels with higher efficiencies.

The DOE has developed a national effort known as the Superconductivity Partnership Initiative, where national labs collaborate with private industry to accelerate the development of the superconducting power applications. Two of these SPI projects involve development of prototype high-temperature superconducting cable installations. A three-phase superconducting cable system has been reliable in running power to a corporate manufacturing facility in Georgia for over a year now. And high-temperature superconducting cables are also being installed in underground conduits in Detroit to transmit power from a substation to a transformer that will begin later this summer.

Large motors are the primary users of electricity, often requiring up to 70 percent of the power for any manufacturing process. High-temperature superconductive motors, in addition to being about 50 percent smaller and lighter, can have significantly lower losses than conventional motors. Similar advantages can be cited for superconducting flywheels, current controllers, transformers, and generators. And these superconducting power applications are being developed as part of the Department of Energy's SPI projects.

Major efforts are underway in Japan and Germany to be the first to market with high-temperature superconductive products. For example, Japan has a national superconductor effort funded at more than 100 million annually. The Department of Energy's superconducting program is currently funded at about 37 million for fiscal year 2001. To meet the challenge of foreign competition, I recommend that the committee consider supporting the substantial increase in the Department of Energy budget for high-temperature superconducting development and demonstration. This increase in

support will assure rapid commercialization of HTS products and continued U.S. leadership on the path to the future electric superhighway.

I wish to thank the subcommittee for the opportunity to testify.

[The prepared statement of Dean E. Peterson follows:]

PREPARED STATEMENT OF DEAN E. PETERSON, DIRECTOR, SUPERCONDUCTIVITY TECHNOLOGY CENTER, LOS ALAMOS NATIONAL LABORATORY

It is a pleasure to have this opportunity to address the Committee on the topic of Energy Conservation and Efficiency. I am director of the Superconductivity Technology Center (STC) at the Los Alamos National Laboratory located in Los Alamos, New Mexico. The mission of the STC is to collaborate with American industry to develop applications of high temperature superconductivity (HTS). Superconductors are materials that when cooled to low temperatures, allow electrical current to pass through them without resistive losses or heating. The HTS materials, discovered in 1987, are superconducting at much higher operating temperatures than were possible with earlier materials. HTS wires can have as much as 100 times the current-carrying capacity of ordinary conductors and so enable more powerful and efficient electric equipment such as improved power transmission cables.

The U.S. Department of Energy, Office of Power Technologies, has the lead federal role in developing electric power applications of HTS materials and is responsible for coordinating efforts of the seven DOE laboratories that are working in partnership with companies and universities. An important part of the program is practical HTS wire development that is done in parallel with research on large-scale electric systems such as transmission cables, transformers, fault current controllers, and motors. These devices will enable electric utilities to deliver more power at higher efficiencies. The ultimate benefits of this new superconductor technology will be the reduction of operating costs, the lowering of the frequency of power outages, and reducing environmental pollution while creating a new high-technology industry. It has been estimated that a HTS industry would create 150,000 new jobs while strengthening the reliability of the US power grid. Superconductivity can fundamentally reshape the technology of electricity generation, transmission, storage, and end-use in the 21st century.

Important technical progress has been made since the program began in the late 1980s; however, numerous and varied challenges remain. Successful development and commercialization of HTS applications is a formidable task requiring working partnerships between national laboratories, private industry, and the academic community. It has been estimated that the HTS product market will be as large as $45 billion by the year 2020. It is important that the United States maintain international leadership in this technology.

The United States currently leads the world in the development of HTS wires and power applications as a direct result of these strategic national lab-industry-university partnerships. About 300 miles of the first generation HTS tape are now annually produced for sale in the United States with plans to increase yearly production to 6000 miles next year. The national laboratories in partnership with industry are developing second-generation HTS coated conductor tapes with dramatically improved properties. I am proud to be able to report to you that our Los Alamos team has played a seminal role in raising the performance of coated conductor tapes to record levels. It is expected that these improved HTS tapes will be commercially available for use in power applications within three years.

Over 10% of the electricity generated in the United States each year is lost due to the resistance of copper and aluminum wire. If the energy lost were reduced, the saved electricity could supply the combined energy needs of California, Oregon, Arizona, and New Mexico as well as saving $16B annually in wasted energy costs. One of the most important uses of HTS wire is in power transmission cables. In the United States today, there exists over 200,000 miles of overhead and around 3500 miles of underground electrical transmission cable. Over 60% of the existing underground cables are nearing their end of useful life; therefore there is a possible window of opportunity for renewing America's power infrastructure. HTS cables are candidates to replace conventional underground cables enabling transmission into urban areas of significantly higher power levels with higher efficiencies.

The DOE has developed a national effort known as the Superconductivity Partnership Initiative (SPI) where national laboratories collaborate with private industry to accelerate development of HTS power applications. Two of these SPI projects involve development of prototype HTS cable installations. A three phase HTS cable system has been reliably providing power to a corporate manufacturing facility in

Georgia for over a year now. HTS cables are also being installed in underground conduits in Detroit to transmit power from a substation to a transformer beginning later this summer.

Large motors are the primary users of electricity, often requiring up to 70% of the power for any manufacturing process. HTS motors, in addition to being about 50% smaller and lighter, can have significantly lower losses than conventional motors. Similar advantages can be cited for HTS flywheels, current controllers, and transformers. These HTS power applications are being developed as a part of the DOE SPI projects.

Major efforts are underway in Japan and Germany to be the first to market with HTS products. For example, Japan has a national superconductor development effort funded at more than $100M annually. The DOE HTS program is currently funded at $37M for FY01. To meet the challenge of foreign competition, I recommend that the committee consider supporting a substantial increase in the DOE budget for HTS development and demonstration. This increase in support will assure rapid commercialization of HTS products and continued US leadership on the path to the future electric superhighway.

Mr. WALDEN. Dr. Peterson, thank you for your analysis and testimony and the research that you are doing. I look forward to asking you some questions.

Let's go to Mr. Silva, Project Attorney, Natural Resources Defense Council. Welcome. Thank you for coming today.

STATEMENT OF PATRICIO SILVA

Mr. SILVA. Thank you, Mr. Chairman and members of the subcommittee, for the opportunity to present recommendations on increasing energy efficiency opportunities. The Natural Resources Defense Council is dedicated to protecting the environment and public health on behalf of over 500,000 members nationwide. We have been engaged in energy efficiency advocacy now for over 30 years. And we have specific recommendations in our testimony that has already been submitted. I am just going to review some of the key highlights.

Analysis of markets and policies for promoting least-cost energy investments demonstrate that there are four generic types of Federal and State policies that are most effective and economical at achieving their objectives. They are:

Energy efficiency standards for major users of energy such as buildings, appliances, equipment and automobiles.

Targeting incentives for more efficient technologies based on performance. These incentives have been administrated primarily by utilities, although the State of Oregon has run successfully a tax incentive program of a similar nature.

Education and outreach on energy efficiency, although educational programs have worked best when performed in the context of financial incentive programs.

Research on energy efficiency technologies and systems. The three policies noted above only work when they are economically attractive options. As Dr. Peterson just pointed out, without deployment of HTS and similar technologies like that, there is very little in the pipeline. And that is for us an increasing concern.

Federally funded research has led to new opportunities for these other policies to work. They have also provided for a host of high-technology jobs across the country. Within each of these four categories there are significant roles that can be undertaken by the Federal Government. And first, Federal policy should begin with

the principle of "first do no harm." Unfortunately, this has not been the direction of the last few months.

Despite some kind words for energy efficiency in the administration's national energy policy, the actual substantive policies posed by the administration have pushed the country even further off the path toward minimizing energy costs for consumers or energy-related damage to the environment.

The most egregious example so far is DOE's proposal to roll back the final air conditioner standard published in the Federal Register in January. To be clear, the Natural Resources Defense Council has joined other petitioners in challenging that action by the Department of Energy. We feel quite confident that we will prevail once the court reviews the record and the requirements of the law. The rule being considered for weakening is actually a final rule that was promulgated 7 years late. It was due under a statutory deadline over 7 years ago. This rollback, if it were to succeed, would cause the need to construct 43 of those 300 megawatt power plants we have been hearing so much about by the year 2020 and would cost consumers billions of dollars that could be avoided. Had the Department of Energy promulgated this standard on time, over 7 years ago, rather than last January, the Western grid would be enjoying some 400 to 600 megawatts of peak power relief, half of which would have been achieved by last year. That alone could have curtailed some of the rolling blackouts that California suffered.

Proposed budget reductions and programs to promote appliance and building efficiency standards. These efforts are among the most cost-effective investments the Federal Government makes for any purpose. Every dollar invested in developing and enforcing energy efficiency standards for appliances yields between 200 to $1,000 in private sector benefits. Yet these activities, representing a tiny fraction of the Federal budget, are proposed for significant reductions. The office that currently handles rollout of the new standards is expected to lose approximately 40 percent of its funding which now stands at a modest $10 million. This proposal is all the worse because it hinders DOE's ability to meet the statutory deadlines that require these standards.

The proposed budget reductions for energy efficiency and research and development. While the national energy plan notes the importance of new technology for improving energy efficiency, it just doesn't happen. Someone needs to pay for it. And unfortunately, the market failures make it uneconomical for the private sector to shoulder this burden entirely. Government R&D on energy efficiency should be increased, not cut back as is currently proposed in the Department of Energy budget.

Why is this important? For virtually all of the last 3 decades, energy has been an important issue because of the impact of energy costs on economic growth and the environment. Even before the recent jumps in energy prices, our Nation's energy bill exceeded half a trillion annually or approximately 6 percent of the gross domestic product. This is much higher than in other industrialized countries. So in addition to harnessing household budgets and reducing the bottom line of energy-consuming businesses, energy is now a competitive drag on the U.S. economy.

Throughout the last 30 years, energy has been a major threat to the environment, accounting for the overwhelming bulk of air pollutants, most chiefly U.S. greenhouse gas emissions, and it has also been a significant fraction of threats to wilderness lands and recreation areas due to energy development. Promoting energy efficiency is perhaps the only approach that can both protect the environment and promote economic development. But last year specific new challenges arose that are impacting businesses and consumers: electric reliability and high costs of gas and heating oil.

These things could be alleviated by several pieces of legislation that are currently proposed and pending before this Congress. I would like to just take a moment to single out one of them. It is the Cunningham-Markey bill, H.R. 778, which could be a critical piece of a national solution to electric reliability problems. Air conditioners currently represent about 30 percent of summertime peak electric loads. Air conditioners that use a third less power can be purchased today, but they are not produced in large enough quantities to make a difference at peak load. If incentives were made available as are required under 778, they could make a significant cut in that peak load, especially for the West, and they could do that in a matter of months, not years.

A signal like enacting H.R. 778 could spur manufacturers of more energy-efficient air conditioners to get larger numbers of units out into the market, which could have, say, significant beneficial effect in shaving peak loads not just in the West but elsewhere. And we have a number of recommendations in our testimony that was submitted for the record.

[The prepared statement of Patricio Silva follows:]

PREPARED STATEMENT OF PATRICIO SILVA, MIDWEST COORDINATOR, AIR & ENERGY PROGRAMS, NATURAL RESOURCES DEFENSE COUNCIL

I. POLICY FRAMEWORK

Good strategic planning—whether for the national government or for a private business—requires that one first set a clear mission statement and overarching goals, and then develop objectives and policies that can implement the goals. One of the factors preventing a thoughtful debate on the subject of energy strategy is that we've jumped to the detailed steps before first discussing goals.

What is the goal of a national energy policy? Much of the current energy debate seems to be based on the overarching but unstated premise that it is the goal of national policy to balance energy supplies with projected energy demands. This was the view of many in the 1970's, as well.

The problem with this approach is that it requires top-down, central planning that stifles innovation: government is assumed to be responsible for assuring adequate supplies and, if necessary, doing something about demand. Since the 70's we have altered American energy policy to rely more and more on markets. Building supply to match demand is no longer a federal government function, if it ever was.

So what should be the purpose of national energy policy? NRDC submits that the purpose of a national energy policy should be to develop mechanisms and market incentives that satisfy growing demands for energy services and environmental protection at the least cost to the nation. Energy services are those valuable things that energy is used to produce, such as comfortable buildings, ways of getting to and from places we want to go, providing lighting systems and computers, and, in businesses, producing products that we can sell.

Fundamentally, most people don't care much about global issues of energy supply and demand. But they do care a lot about reliable electric service and what they pay for utility bills and for gasoline. And they also care about clean air and water, preserving wild environments from industrialization, and protecting the planet from the effects of accelerating global warming.

Energy services can be produced at a variety of different levels of efficiency, and with a variety of choices of fuel. Some of the choices are more environmentally damaging than others. As a matter of policy, we should pick the cleaner choices. Some of these choices are more expensive than others. As a matter of policy, we should get the cheaper ones first. Some of the choices are riskier than others. As a matter of national policy, we should balance risks and construct a portfolio of choices that minimizes risk.

If we accept the goal of societal cost minimization—which is strikingly similar to the goals Congress chose when it established DOE [1]—then the next step should be to produce an actual least-cost energy plan. This sounds like a daunting activity, but in fact has been undertaken successfully, at least for the electricity sector, for over 15 years. The Northwest Power Planning Council, beginning in the mid-1980's, developed a Northwest Power Plan which compared a range of choices on energy efficiency with all of the available options that could be identified on the supply side and ranked them in least-cost order. In calculating costs, risk and environmental cleanliness were taken into account. This was less difficult than might be imagined, because in general the cheaper options also turned out to be cleaner and lower risk. And all this was done in an open public process.

The results were good, in two respects. First, the Plan lessened the degree of political controversy over energy and replaced it with wide, if not total, consensus. Second, the region avoided some really bad investments and moved into a position of leadership on energy efficiency.

From analyses that have already been done at the state and regional level, as well as at the federal level, it is already clear that energy efficiency will be the cornerstone of a national least-cost energy strategy.

Once the measures that we are trying to implement have been identified, the next step is to look at markets and determine whether policy interventions are feasible and what sorts of policy actions would be most effective in achieving the objectives identified in the least-cost plan.

Looking at markets is critical because energy and most energy services are produced in markets. Many of these markets are global, and simple-minded interventions in such markets don't always have the desired effect.

Analysis of markets and policies for promoting least-cost energy investments demonstrates that there are four generic types of federal and state policies that are the most effective and the most economical at achieving their objectives. They are:

- Efficiency standards for major users of energy, such as buildings, appliances, equipment, and automobiles.
- Targeted incentives for more efficient technologies based on performance. These incentives have been administered primarily by utilities, although the state of Oregon has run a successful tax incentive program as well.
- Education and outreach on energy efficiency, although educational programs have worked best when performed in the context of financial incentive programs.
- Research on energy efficiency technologies and systems. The three policies noted above only work when there are economically attractive options available. Federally funded research has led to new opportunities for these other policies to work.

Within each of these four categories, there are significant roles that can be undertaken by the federal government.

Federal policy should begin with the principle: "first do no harm." Unfortunately, that has not been the direction of the last few months. Despite some kind words for energy efficiency in the Administration's "National Energy Policy," the actual substantive policies proposed by the Administration have pushed the country even

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[1] The Department of Energy was established by Congress, (42 USC § 7112) among other things, to:

- "Promote maximum energy conservation measures"
- Provide for a mechanism through which a coordinated national energy policy can be formulated and implemented to deal with the short-, mid- and long-term energy problems of the nation; and to develop plans and programs for dealing with domestic energy production and import [sic] shortages.
- Create and implement a comprehensive energy conservation strategy that will receive the highest priority in the national energy program.
- Place major emphasis on the development and commercial use of solar, geothermal, recycling and other technologies utilizing renewable energy resources.
- Promote the interests of consumers through the provision of an adequate and reliable supply of energy at the lowest reasonable cost.
- Assure incorporation of national environmental protection goals in the formulation and implementation of energy programs, and to advance the goals of restoring, protecting, and enhancing environmental quality and ensuring public health and safety."

farther off the path towards minimizing energy costs for consumers or energy-related damage to the environment. The most egregious examples so far are:

- The Department of Energy's proposal to roll back the final rule for air conditioner standards published in the Federal Register in January. NRDC, the Consumer Federation of America, and three states believe that this action is illegal on procedural grounds—the rule being considered for weakening is a Final Rule promulgated 7 years past the statutory deadline under a law that prohibits rollbacks of Final Rules—but it is also hard to defend on policy grounds.

  The air conditioner rollback alone—were it to succeed—would cause the need to construct 43 new 300 megawatt power plants by the year 2020 and would cost consumers billions of dollars. Had the Department of Energy promulgated this standard on time rather than 7 years late, the Western grid would be enjoying some 400-600 megawatts of peak power relief, half of which would have occurred last year. That alone might have been enough to prevent rolling blackouts.
- Proposed budget reductions in programs to develop and promote appliance and building energy efficiency standards. The standards efforts are among the most cost-effective investments of the federal government for any purpose. Every dollar invested in developing and enforcing energy efficiency standards for appliances has yielded $200-1,000 in private sector benefits. Yet these activities, representing a tiny fraction of the federal budget, are proposed for drastic reductions. This proposal is all the worse because it hinders DOE's ability to meet statutory deadlines for standards.
- Proposed budget reductions for energy efficiency research and development (R&D). The National Energy Plan notes the importance of new technology for improving energy efficiency. But new technology doesn't just happen. Someone needs to pay for it. And, unfortunately, market failures make it uneconomical for the private sector to do so. Government R&D on energy efficiency should be increased, not cut back.

II. WHY ENERGY IS IMPORTANT IN SUMMER 2001

For virtually all of the last three decades, energy has been an important issue because of the impacts of energy cost on economic growth and on the environment. Even before the recent jumps in energy prices, our nation's energy bill exceeded half a trillion dollars a year[2]—or 6% of the gross domestic product (GDP). This is much higher than in other industrialized countries. So, in addition to harming household budgets and reducing the bottom line of energy-consuming businesses, energy is a competitive drag on the U.S. economy.

Throughout the last 30 years, energy has been a major threat to the environment, accounting for the overwhelming bulk of air pollution emissions, most U.S. greenhouse gas emissions, and significant fraction of threats to wilderness lands and recreation areas posed by energy development. Promoting energy efficiency is perhaps the only approach that can both protect the environment and promote economic development.

But in the last year, specific new challenges arose that are impacting businesses and consumers: electrical reliability and high costs of gas and heating oil.

Let's start with the problem of electric reliability. Not only in California and the West, but in many other regions as well, we are facing the risk of electrical blackouts and/or excessively high electricity prices this summer and next. Regions confronting these problems are trying to move forward aggressively both on energy efficiency programs and on power plant construction. But the lead times for most actions on the supply side are far too long to provide a solution. And demand-side approaches attempted on a state-by-state level are much less effective than coordinated national activities.

There are few policy levers that can be pulled that will address the problem of physical shortages. But that doesn't mean that there is nothing that federal policy initiatives can do. To the contrary, targeted incentives for those end-uses focused heavily on peak power reduction can begin to make a difference as soon as next summer.

Here, H.R. 778 could be a critical piece of a national solution to electric reliability problems. Air conditioners, for example, represent *about 30% of summertime peak electric loads.* Air conditioners that use a third less power can be purchased today, but they are not produced in large enough quantities to make a difference to peak load. If incentives are made available, manufacturers could begin to mass-produce

[2] Energy Information Administration's "Energy Overview" data for 1997 show $567 billion spent nationwide for energy, while GDP was about $8.5 billion.

these products in a matter of months, not years. Mass production and increased competition for tax incentives will drive prices sharply lower, so the incentives will be self-sustaining in the long-term. And with 5 million air conditioners being sold every year, a sudden increase in energy efficiency could have a significant effect in balancing electricity supply and demand even after less than a year.

Another peak power efficiency measure with a very short lead time is the installation of energy-efficient lighting systems—either new or retrofit—in commercial buildings. Some 15% of electrical peak power results from lighting in commercial buildings. Efficient systems, such as those NRDC designed and installed in our own four offices, can cut peak power demand by over two-thirds while improving lighting quality. Lighting systems are designed and installed with a lead time of months, so incentives for efficient lightings as provided in H.R. 778 could begin to mitigate electric reliability problems as soon as next summer.

The second major new problem is the skyrocketing cost of natural gas, which caused heating bills throughout the country to increase last winter. Improved energy efficiency can cut gas use for the major uses—heating and water heating—by 30%-50%. Much of this potential could be achieved in the short term, because water heaters need replacement about every ten years, and are the second largest user of natural gas in a typical household (and largest gas user in households living in efficient homes or in warm areas). Water heaters are covered by H.R. 778.

Clothes washers also turn over about every 15 years, and efficient clothes washers save natural gas by reducing the amount of hot water needed to get clothes clean and reducing the amount of time they must spend in the dryer. H.R. 1316 can provide the incentives to get large numbers of clothes washers out into the marketplace in time to reduce pressure in natural gas prices by winter 2002-3.

These types of quick-acting incentives help consumers in two different ways: first, they provide new choices that are not currently available in practice for families and businesses that want to cut their own energy costs while obtaining tax relief. Second, they help non-participants because reduced demand cuts prices for everyone.

III. SPECIFIC POLICY RECOMMENDATIONS

A. Energy Efficiency Standards for Appliances and Equipment

The two most effective energy policies of the past 30 years have been energy efficiency standards for appliances and equipment, and the Corporate Average Fuel Economy (CAFE) standards for automobiles. Appliance efficiency standards adopted to date will save the nation's consumers some $200 billion while reducing electricity consumption at the peak by a projected 12.6% in 2020. Even larger savings can be achieved by standards that could be adopted in the future by DOE or states. Congress has a key role to play in the adoption of these standards. Specifically, the following actions can produce immense economic as well as environmental benefits while encouraging American competitiveness and promoting new technologies:

1. Provide DOE with sufficient funding to get back on statutory schedule for all appliances. The National Appliance Energy Conservation Act (NAECA) of 1987 and its amendments of 1988, along with EPAct, established a continuing non-discretionary schedule of rulemakings on appliance and efficiency standards for DOE. Yet, DOE has fallen *years behind* statutory schedule on virtually all appliances. Much of this is due to an insufficient budget.

   Things are so stalled at DOE that it has conducted Prioritization Proceedings for the last several years to determine how to manage its failure to comply with the law. DOE looks at its existing resources and decides how many of its non-discretionary schedules it can meet, and where it could obtain the greatest bang for the buck for the schedules it does meet. This is a ridiculous way to conduct government policy. DOE should propose a budget that allows it to get back on schedule and Congress should provide sufficient funds and oversight to make sure that DOE is indeed on schedule.
2. Congress should establish legislative standards for a number of appliances and direct DOE to set standards for others. There is a long list of products, both used by business and by consumers, for which standards are not currently in effect and where immense potential for highly cost-effective savings exist. In many cases, states such as California are well on the way to adopting such standards. Congress could simply enact these same numbers legislatively, as it did in the previous three pieces of appliance efficiency legislation. For other products, additional administrative inquiry is necessary, and Congress should authorize such actions and set appropriate deadlines.
3. Congress could allow greater state discretion in setting appliance efficiency standards. States agreed to the previous pieces of appliance efficiency legislation in return for a strong national policy, in which DOE would set and update stand-

ards to the maximum level of efficiency that is technologically feasible and economically justified. This agreement is cold comfort to a state if the DOE rulemakings fall years behind schedule and show no sign, in many cases, of ever catching up. Congress could put a sunset on preemption by allowing states the freedom to set appliance efficiency standards if DOE falls more than three years behind its mandated schedule. Indeed, one of the most effective policies Congress could implement to address the California energy crisis is to allow it to enforce its own air conditioner efficiency standards by next summer.

4. Congress should extend the mandatory rulemakings in the appliance acts to require new standards to be considered every 5 or 7 or 10 years. When NAECA was first negotiated in 1986, it required DOE to consider revising standards for most products every 5 years, and for some products every 7 or 10 years *ad infinitum.* When the legislation was reintroduced in 1987, the number of rulemakings was limited, but there is no policy reason for this limitation. Just as labor productivity is expected to continue growing, even to grow at accelerated rates—so should we expect the efficiency of buildings and appliances to continue to grow. DOE should continue to evaluate appliance efficiency standards on a regular schedule as long as these evaluations keep showing, as they have, the opportunity for large savings in energy and money.

B. Energy Efficiency Standards for Buildings

1. DOE should set tougher efficiency standards for federal buildings and extend these rules to the private sector. Under EPAct, states are required to adopt national model standards for energy efficiency in commercial buildings and to consider the adoption of national model standards for residential buildings. Unfortunately, the models on which this legislation is based have not been managed effectively by their non-governmental sponsors: increasingly they fail to maximize cost-effective energy efficiency. The reference ASHRAE standard for commercial buildings has been revised only once since 1989, for an additional energy savings of a paltry 5% or less. At the same time, typical buildings in California often use 30% and 40% less energy than this standard, and NRDC's own buildings have been designed to operate at enhanced comfort and productivity levels for a third or less of the energy of the national model. DOE should be required to establish model standards that save at least 30% and these should be adopted by states. Similar percentages could be mandated for residential buildings at a net savings in money to consumers.
2. Almost a third of new housing construction is manufactured houses. The efficiency of manufactured homes is regulated at the national level, and the standards have not been changed in about 10 years, despite improvements in energy efficiency technologies and reductions in their cost. Congress should require the Department of Housing and Urban Development to revise its energy efficiency standards for manufactured housing based on minimizing lifetime owning and operating costs to the consumer, including analysis of the efficiency savings from higher efficiency heating, cooling, and water heating equipment.

C. Energy Efficiency Standards for Automobiles

1. Congress should set higher fuel economy standards. America's automobile efficiency standards, which contributed to improvements in fuel economy throughout the rest of the world as well as here in the U.S., were undoubtedly a major contributor to the low energy prices that prevailed in the decade and a half following their implementation. And the current stagnation in fuel economy standards, which have remained essentially unchanged since 1985, undoubtedly is a cause of OPEC's pricing power in today's market.
2. Congress should raise fuel economy standards for automobiles. Studies have shown that raising the CAFE standard to 40 mpg for cars and light trucks is feasible. Even though there is a significant lead time for manufacturers to design and mass produce new technologies for fuel efficiency, the lead time is still faster than that for developing new oil resources. Ultimately, if we are concerned about oil imports, the only solution is to use less domestically: supply options are grossly insufficient ever to allow a reduction in imports without aggressive demand side action.
3. Congress should set standards for replacement tires. It is a little known fact that auto manufacturers use highly-efficient tires to comply with current CAFE requirements, but comparable tires are not available to the consumers as replacements. Congress should require replacement tires to meet the same specifications as those sold on new cars. This measure alone would save over 70% more oil than is likely to be found if drilling were permitted in the Arctic National Wildlife Refuge.

D. Targeted Incentives for Energy Efficiency

Economic incentives have proven to be an effective policy for providing advances in energy efficiency technology and for making markets begin to work at supplying energy efficiency. Most of the effective incentives have been applied through the utility system; numerous third-party studies of these programs have shown that they typically have benefit/cost ratios of 2-1 or better.

Incentives have been even more effective at bringing major technological advances into the marketplace and getting them widely accepted. This is called market transformation. Market transformation incentive programs tend to require longer lead-times and more consistent availability of funding. This is what manufacturers have asked for, and this is what has worked in the modest number of examples where programs have been implemented. The scope of such programs can be vastly expanded by adding programs that operate through the tax system.

Specific policies that can accomplish this purpose are:

1. Congress should pass tax incentives for energy efficiency. Because tax incentives are in effect for a long time, it is important that they be designed carefully and to maximize competition on a level-playing field. NRDC urges your support for specific proposals that have been well-vetted and meet these criteria. These are all bipartisan proposals. They are:
   a. Enact Cunningham/Markey Bill, H.R. 778. This bill provides tax incentives for energy efficiency in buildings. Buildings account for over a third of energy use and air pollution, and almost half of total energy costs. This bill provides performance-based and fuel neutral incentives for large savings in energy—typically 30%-50%—and then phases out after 6 years. It is one of the very few opportunities that the federal government has to improve the peak power situation in the West, and in other regions facing this problem, as soon as 2002.
   b. Enact Nussle/Tanner Bill, H.R. 1316. This bill provides tax incentives for super efficient clothes washers and refrigerators, and was developed through a consensus process between states, utilities, energy efficiency advocates, and the appliance industry.
   c. Enact Camp Bill H.R. 1864. This bill was developed collaboratively between many of the nation's automobile manufacturers and public interest organizations. It provides tax incentives for a variety of advanced technologies and alternative fuel vehicles, including hybrids and those that run on fuel cells.
   d. Provide tax incentives for energy efficiency improvements in existing homes. In the few cases where trained energy inspectors can look at energy performance of homes, they will typically find the opportunity to save 30% or even 50% of energy cost with an investment so low that the interest payments on a loan to finance energy efficiency are smaller than the monthly utility bill savings. Yet market barriers prevent these retrofits from taking place in most cases. NRDC has suggested a modest and medium-term tax incentive for home retrofits that are certified by independent third parties to save energy and money.
2. Enact a matching public benefit trust fund that matches state public benefit trust expenditures on energy efficiency. This is similar to what was proposed in last year's S. 1369. Public benefit trust expenditures help businesses, both large and small, as well as consumers, improve energy efficiency. They can be managed by their implementers for maximum effectiveness. This is a program that has worked in the states where it has been tried, and should be expanded to take advantage of a greater fraction of the available opportunities.
3. Education, outreach, and information provisions have been other ways to promote energy efficiency. These methods work best when they are conducted in parallel with economic incentive programs. Thus, utilities that have developed energy information centers have found them to have a measurable favorable impact on the market in areas where the utilities were also offering economic incentives for efficiency. The federal Energy Star labeling and information program has been effective at establishing brand awareness for energy efficiency nationwide and even more effective in areas where it is complemented by utility-based incentives. Congress should provide increased funding for the Energy Star program. Parallel promotional efforts are likely to be handled by funding made available through the public benefits trust.

E. Research and Development

As noted by D. Allen Bromley, former President Bush's Science Advisor from 1989-1993, "the major driver of our nation's economic success is scientific innovation . . . the proposed [Administration's] cuts to scientific research are self-defeating

policy. Congress must increase the federal investment in science. No science, no surplus. It's that simple."

This observation applies even more strongly to energy efficiency, where we already know that many types of innovation appear feasible with additional research and that market barriers make it foolish for private sector companies to invest in this R&D.

The chilling effect of market failures on energy efficiency R&D is easy to understand. In today's market, most consumers will overlook investments in energy efficiency that payback their additional costs in as little as 2-3 years. Manufacturers know this and generally do not offer efficiency options at all, or else only offer those that payback exceedingly quickly. Thus, if there is a potential new technology that could reduce energy cost dramatically, but would payback in 3 years, manufacturers have no incentive at all to perform the research and development. A smart manufacturer quickly recognizes that even if the R&D is fully successful, and the product performs equally well and saves energy with a 3-year payback, it won't sell.

In order to meet the critical environmental goals of improving air quality and mitigating global warming, our nation must invest more money, not less, in federal research and development in energy efficiency and renewable energy sources. These options offer the best possibilities to meet environmental goals while promoting economic development and reducing energy cost, rather than raising costs and hurting the economy.

NRDC believes that compliance with the Kyoto Protocol goals would actually enhance economic development, and that compliance can be achieved largely through the types of policies discussed above. Energy efficiency policy offers a golden opportunity for the United States to promote national and global economic development while meeting our environmental goals: particularly the goal of protecting the global climate. Our research, and that of our colleague organizations in the public interest sector, shows that the United States can achieve compliance with the Kyoto Protocol through purely domestic policy actions at a net gain to the economy, not a cost. This solution comes about through the implementation of already existing technologies for improving energy efficiency and harnessing renewable energy resources.

Enhanced research and development would allow newer technologies to further reduce compliance costs and expand environmental benefits. Rather than cutting budgets for energy efficiency R&D, Congress should increase them.

F. A National Least-Cost Energy Plan

This testimony began with a discussion of the role that a National Energy Plan striving for achieving energy service needs at the least cost could play in simultaneously promoting environmental protection and economic development. Such a least-cost approach is fully consistent with the legislative instructions DOE was given when Congress established it. It is also a requirement of EPAct.

Despite the manifest reasons for developing a least-cost approach to national energy planning, the Department of Energy, under both Democratic and Republican Administrations, has failed to take a least-cost approach. Congress should explicitly require that subsequent national energy plans be based on an approach of minimizing the cost of providing energy services for an expanding economy. The Department has, through its national labs and other resources, the ability to do this work. A national least-cost plan will be the first step towards generating bipartisan and multi-interest-group consensus on national energy policy.

Mr. WALDEN. Mr. Silva thank you for your testimony and for being here today.

Now let's go to our final witness in the panel, Mr. Jordan Clark, President, United Homeowners Association. Mr. Clark thank you for being here. We look forward to your comments.

STATEMENT OF JORDAN CLARK

Mr. CLARK. Thank you, Mr. Chairman. I was hoping you would go alphabetically, either Clark or consumer, but I guess save the best till last.

Mr. WALDEN. Mr. Clark, since I'm at the end of the alphabet being W, that doesn't go far.

Mr. CLARK. You have my introduction and my written testimony. I am going to try to synopsize it. We represent the consumer in this whole discussion on the crisis of energy and want to remind every-

body that everything we buy has an energy cost conducted to it. And it is probably the most important thing that Congress is going to face this year and in the years to come.

The depressing part of my introduction is I realize I have been at this for 3 decades as part of the House of Representatives staff during the oil embargoes, and after I was with Mr. Garvin in 1983 and 1984 in the Energy Department, running conservation and renewable programs and have been a consumer advocate for the last 10 years. I guess in spite of realizing I am getting old and have been at this too long—we have been at this for 30 years also, and we are still asking the same questions. I guess that is the rub right here.

Are we going to solve these problems once and for all, at least make a serious attempt at it? I have to say that I am encouraged by the activities of the committee with Chairman Tauzin currently, and certainly Chairman Barton and the other subcommittees, and to a certain extent the White House, with the energy policy. At least we have something we can look at and react to. We may not agree with it all, but it is the first one I have seen since 1976 that is as comprehensive as it is.

Let me now go on to the questions we were asked. I will get off my soapbox. The chairman asked us to basically look at the role of energy efficiency and conservation in helping to meet our Nation's energy demands. I don't think efficiency is a product, I think it is a result. And when it comes to the consumer's efficient choice, that is kind of a chicken or egg problem, as I say in my testimony. We can't choose, as consumers, efficient products unless they are on the marketplace, unless they are affordable. It is pretty simple. It is a matter of mathematics when it comes to cost. It is a matter of how efficient this thing we are buying is, whether it is an appliance or air conditioner or whatever. If we don't know how efficient it is or we don't care how efficient it is, it is not a factor in our equation.

That doesn't mean as consumers we are exempt from making the right choice as far as energy is concerned. I guess this is tough love for a consumer advocate to say that consumers are probably as much to blame for some of our energy problems as are the manufacturers and transportation industry for not bringing us the most efficient products we can afford.

And I have no sympathy for someone filling their SUV up and complaining about gas prices, or a person sitting in his hot tub and wondering how he is going to pay his electric bill. I do have concern over people that can't afford it, and the fact that LIHEAP and weatherization have been funded better than they have in the past is encouraging. I would encourage this committee and others to make sure that that continues, and if supplemental appropriations are needed, to do so.

I am going to talk about the middle-income household here more than anything else. Conservation is probably the most important contribution that consumers can make. And it usually comes as a result of high energy prices or lack of supply, rolling blackouts, whatever you want to call it. So it is not a matter of it is the right thing, I should do as a consumer; it is a matter of it is hitting my

pocketbook so I better do it, because I will not be able to afford my electric bill or gas bill.

Whether or not there is the right motive is questionable. And what we can do about it I will have a little more to say later on. But the motive for consumers now is a pocketbook motive. It is not let's do the right thing, because they don't quite understand that we are still going to have an energy crisis problem unless we address our dependency on fossil fuels, alternative fuels, et cetera.

As I say in my testimony, conservation is not a voluntary consumer action; it is produced by substantial increases in prices and/or decrease in reliability.

What is the role of the Federal Government, specifically this body, the House of Representatives and the Senate, in promoting conservation, efficient use of energy? I hate to say this but I think your role as the House, the primary role is to look at legislation and regulation which as a result of legislation, has come out of this body. And I congratulate once again this subcommittee chairman for bringing us down this path. The administration has a great deal to do with it, obviously, but the Federal Government is really the consumer's advocate, friend, or enemy in this energy crisis we face.

For the first time, we are as consumers experiencing simultaneous energy crisis, the price of gasoline and the price of electricity, price of heating our homes, other than electricity, price of natural gas et cetera. And it is going to have an extraordinary effect not only now on our direct cost, which is our electric bill every month, but the indirect costs which have not yet been passed down to the consumer.

I had a chance to talk to one of the CEOs and the chairman of a top 10 company, Fortune 10 company, on Monday and he told me it is costing him over $100 million, and they haven't passed it to the consumer yet. So when that kicks in, we are really going to be more sensitive to the energy prices.

I think the government's chief role you can play—it all costs us money, obviously—is education. Consumers are going to make this move, correctly or incorrectly. They are going to put demands on not only you as politicians and elected officials they are going to put demands on manufacturers if they see there is a crisis that is not going to be solved. So educating them is extremely important.

I can go and buy an appliance—if I go and buy a washer and dryer, I don't know how much energy it uses. If I buy an air conditioner, I do. I have to make that a part of my decisionmaking process. If my energy bill was $80 this month and it is all of a sudden 300, that has become part of my energy decision process. And I think that is I don't see in the long-term future, the near future, any substantial reductions in our energy prices. But consumers have an obligation to look at energy as a decisionmaking process. If I want to make that decision, can I? Not always. I just bought a washer and dryer and I don't know what—frankly, the energy wasn't a decision. That was, you know, how much—how many gallons of water did it use, how big it was, and could it serve my family needs.

If I wanted to make the decision, I didn't have the opportunity to do so because there is no energy sticker on it. I think we rec-

ommend heartily that the standards be revisited, be increased, and that they be mandatory on all appliances. I think anything that goes in a home that burns energy, as a consumer, I should have a right to know how much it does burn. How can I affect my electric bills otherwise?

Whether that is going to be voluntary or mandated to the manufacturing industry, I guess is up to you. I think the history of voluntary standards is questionable at best. We saw that with CAFE. I think it was avoided for 20 years, and we created the sub, and no matter what you think it is, it didn't work as well as it should. Now we are revisiting them. Hopefully, we can have greater standards.

Mr. BARTON. Mr. Clark, could you summarize? You are about a minute over.

Mr. CLARK. Let me summarize it by using an example. I think this is the point I am trying to make. This is a Cuisinart coffee maker. Three things should happen when I buy this as a consumer, and I didn't. I mean, I bought this because it has a carafe at the bottom so we don't have to have two things on the counter.

The first is that I should have an energy choice with this. Is Cuisinart better than GE as far as energy is concerned? I don't know. Cuisinart didn't tell me. I am not picking on Cuisinart.

Second, should I know from the standpoint of the government? Yes, this should have an energy label on it whether or not Cuisinart likes it or not.

Third, Cuisinart missed a great opportunity, because this is probably the most energy-efficient coffee maker in the country because it doesn't have a heating element under it. It goes right into the carafe.

So when we get to the point where I as a consumer consider energy as a choice, and when we get to the point where I can make an educated decision, and when we get to the point where the market forces promoting Cuisinart and other manufacturers to use energy as a selling product, I guess we have solved this problem. Thank you.

[The prepared statement of Jordan Clark follows:]

PREPARED STATEMENT OF JORDAN CLARK, PRESIDENT, UNITED HOMEOWNERS ASSOCIATION

Mr. Chairman, members of the Committee, I appreciate the opportunity to testify today on the most important subject faced by Congress, the White House and 280 million Americans: ENERGY. I am Jordan Clark, President of the United Homeowners Association (UHA) a decade old non-profit organization representing the interests of homeowners here in Washington. UHA has been actively involved in energy issues for a many years. As a House Committee Staff Member during the oil embargoes and as administrator of the Department of Energy's Conservation and Renewable programs in the mid eighties, I have been personally involved in energy issues for three decades.

For homeowners across the country the cost of energy is finally taking center stage. A fact which is not missed by the 54 members of the California delegation and a growing number of members in other states, not to mention the White House. Unfortunately, despite the fact that, for decades, basic math and the laws of supply and demand could demonstrate beyond any doubt that our energy situation was precarious, it has taken a major decrease in supply and increase in cost to get the attention needed to start down the path of problem solving. I thank the committee for dealing with such a politically charged issue and hope that it will not rest until short, middle and long-term solutions are put into place.

In your letter of invitation, Mr. Chairman you asked me to address the issues of energy efficiency and conservation: Although tempted to pursue deregulation, generation, production, transmission, transportation, the recently released National Energy Policy, CAFE Standards, and other energy concerns affecting consumers, I'll resist temptation and proceed as requested.

THE ROLE OF ENERGY EFFICIENCY AND CONSERVATION IN HELPING TO MEET OUR NATION'S ENERGY DEMANDS.

Efficiency

Which comes first the chicken or the egg? Energy efficiency for the most part is in the hands of the manufacturing and transportation sectors. Consumers don't build products, they buy them. If we want more energy efficiency from consumers, manufacturing and transportation companies are going to have to produce more energy efficient refrigerators, air conditioners, water heaters, washers, dryers, toasters, light bulbs, vehicles (including SUVs), etc., etc., etc. Whether they will do this voluntarily or are forced to by legislation and or regulation is addressed later.

The fact that the private sector has not produced the most energy efficient appliances, heating and air conditioning systems or vehicles, doesn't excuse consumers from making wise energy choices. When we purchase a product, we should consider energy efficiency. Unfortunately, for other than the working poor and those on limited fixed income this consideration only occurs when energy prices sky rocket and is quickly forgotten when

prices recede. As much as manufacturers and the auto industry are to blame for not producing more energy efficient products, consumers have to share the blame for not being more energy conscious.

Conservation

There are some positive results of high-energy prices and lack of supply, consumers are being forced to be more efficient and more conservative in their energy use.

Will revived energy sensitive consumers have "an effect on helping to meet our energy demands?" Not much, unless they know how and are willing to take the necessary actions, such as, turning down the thermostat in the winter, up in the summer, consolidating their trips to the marketplace, carpooling, using public transportation if available, turning out the lights and more.

As stated so well in the National Energy Policy Report (p 4-1), "For a family or business, conserving energy means lower energy bills."

More explicity, if a consumer's electric bill goes from $85 a month to $185, that consumer will start to think about ways to reduce consumption. Conversely, if the bill remains around $85, lowering the energy bill is not an issue and conservation is forgotten. *Conservation is not a voluntary consumer action; it is produced by a substantial increase in price and/or a decrease in reliability.*

THE ROLE OF THE FEDERAL GOVERNMENT IN PROMOTING CONSERVATION AND EFFICIENT USE OF ENERGY.

For the first time, Americans are experiencing simultaneous increases in their electric and heating bills, gasoline prices and in some areas of the country reliability problems. If direct energy prices remain high (our monthly bills from utilities and gas pump receipts) and prices of goods and services continue to increase because of higher energy prices being paid by manufacturers and providers, the Federal government will be forced to address the problem. Wednesday's proposed rebate action by the FERC is a good example of forced action because of consumer interest.

Because of its authority and responsibility under the interstate commerce clause of the Constitution and in light of a deregulated marketplace, the Federal Government is the key player in not only solving our short term energy crises, but also in insuring that long term policies are set in place which will fill our energy needs.

Education

Helping to educate consumers about energy use is the easiest role for the federal government to play. "The federal government can promote energy efficiency and conservation by including the dissemination of timely and accurate information regarding the energy use of consumers' purchases, setting standards for more energy efficient products and encouraging industry to develop more efficient products." This is a direct quote from the National Energy Policy Report and a recommendation which, we hope, Congress will act upon. However, we are not convinced that encouragement alone will be enough to move industry.

Since 20% of our monthly energy bills goes toward running our appliances we recommend that energy guide labels be required on all home appliances, not just some. We also recommend that energy labels be consumer friendly. The one accompanying my statement is not. It is from a water heater I recently purchased. Not only is it difficult to read, it is outdated and places the burden of comparison on the consumer. A burden which most consumers will not accept.

Energy Standards

We are also convinced that minimum energy efficiency standards must be revisited and revised. Manufacturers can do this voluntarily in reaction to market demand or involuntarily as a result of legislation and/or regulation. Unfortunately, the most effective increase in energy standards to date has been a result of legislation and regulation, not voluntary actions of manufacturers or the transportation industry.

I would like to believe otherwise, but if Congress wants energy efficiency to play a role in reducing our consumption of energy, it will have to impose greater energy efficiency standards on manufacturers, the auto industry and, if it had jurisdiction, the home building industry. If there are doubts about voluntary standards versus legislated, consider this quote from the National Energy Policy Report (p4-10) "Despite the adoption of more efficient transportation technologies, U.S. average fuel economy has been flat for ten years. In large part, this is due to the growth of low fuel economy pick up trucks, vans and sport utility vehicles."

"Growth" is an interesting choice of words by the author. Gas-guzzlers aren't grown, they are manufactured. The author also failed to mention that CAFE (Corporate Average Fuel Economy) standards were circumvented and SUV's were born. The lesson being, that revised energy standards must not have loopholes allowing either manufactures or consumers to circumvent the intended results of the standards.

We also recommend that Congress consider renewing the successful tax deductions/credits programs of the seventies and eighties for the installation of energy saving devices or materials by homeowners. However, contrary to the national Energy Policy Report, we do not recommend giving consumers "a tax credit for fuel-efficient vehicles." A more effective policy would be to place a substantial tax on manufacturers and consumers whose new vehicles do not meet fuel efficiency standards.

Just as important, Congress and the White House have to sufficiently fund the Low Income Energy Assistance Program (LIHEAP) and DOE's Weatherization Assistance Program. To its credit, the Appropriations Committee doubled the request for LIHEAP funding and the Administration substantially increased the budget request for Weatherization funds. However, with energy prices at an all time high and little hope for the immediate future, we implore Congress to consider supplemental appropriations as needed for these programs.

The use of new and/or existing technologies and barriers to their widespread application.

Consumers are at the mercy of industry and government when it comes to the application of technology in the goods and services they purchase. As taxpayers and the ones most effected by high-energy costs, we hope that industry has enough bottom line incentive to develop and offer us energy efficient products at reasonable prices. However, from experience, we know that energy efficiency has not been a "burning issue" for either the private or public sector.

Existing technologies which save energy and in many cases the environment are not always available to the public. For example, the technology to run our autos on natural gas has been available for years and has been proven by fleet use. Yet, the choice is not available to the public. In our homes 6% of our energy is consumed by lighting. Highly efficient bulbs are available, but most homeowners suffer sticker shock and buy the cheaper less efficient bulbs.

Even with my background in conservation and renewable energy, I don't pretend to know the scope of existing technologies available, nor like most consumers am I aware of new technologies that could be introduced. Those questions are best answered by DOE, other agencies and the private sector.

As for barriers to the efficient use of energy and conservation, there are many, the market place itself being one. Except for competition, there are little if any incentives for the producers of energy to promote efficiency or conservation. Their bottom line depends on consumers using energy, not conserving it. Our continued dependency on fossil fuels although we know the supply is limited, is the best example of market control over energy policy.

We consumers will continue to be barred from access to efficient and affordable energy use until the economic and social costs become too great for us to bear and change is demanded in the marketplace and political arena. A few more spikes in energy costs or rolling blackouts and we could be at that pivotal point.

I will be happy to answer any questions you have and appreciate the opportunity to present our views.

Mr. BARTON. Thank you, Mr. Clark.

The Chair would recognize the distinguished full committee chairman, Mr. Tauzin, for 5 minutes.

Chairman TAUZIN. Thank you, Mr. Chairman. Let me first mention, Mr. Clark, that I was just a recipient of one of the new Foreman grills. George Foreman on television is selling an awful lot of electricity appliances to an awful lot of consumers and teaching them how to live leaner, I suppose, but those are pretty inefficient-type cook units; and yet we are promoting them, as you know, in a big way.

I wanted to make a point, Mr. Chairman, because my friend from Massachusetts is back, and I listened to his concern about the SEER 12 and SEER 13 argument. So let me thank you for your kind comments and your note. But perhaps you don't know this, but my uncle was an air-conditioning man. He had a heating and air-conditioning company and a one-man operation. And my dad was an electrician.

And I spent most of my college years wiring up houses and crawling through blown-insulated attics in south Louisiana, in the middle of the summer, putting in air-conditioning systems and repairing broken air conditioners. I know a little bit about the business, and I know a little bit about air-conditioning, and I know a little bit about blown insulation and what it does to open pores when you crawl in a 120-degree attic, trying to install duct work.

What I do know, also, is that this rule was another one of these last-minute rules adopted when President Clinton was leaving town with a truckload of furniture. And I know that this is another problem we have to deal with because it is one of those last-minute decisions made by the administration that was not supported by DOE staff. We have to keep that in mind. DOE staff recommended the 12 SEER, and they did so for a good reason, as a minimum, because DOE staff understood, indeed, the balance: concerns about different regions of the country and how it might make better sense in my part of the country to use a 13 SEER, but it may not make that kind of sense in another part of the country.

He also knew that if you are concerned about poor people, that 13 SEER standard is going to be a heck of an economic cost to particularly the 30 percent of Americans who live in mobile homes and mobile units. And you better think about that as we go through this business, because we could really make an awful problem for those consumers who probably would go to air-conditioning rather than heat pumps because of the cost, and then you have blown your energy savings. We have got to think of all of these balancings.

Also, SEER 13 units are much bigger than SEER 12 units. When you change them, you have got to change the internal coils. And we totally neglected the cost of installation of larger units and of changing larger coil. None of that was considered in this rule.

So there are a lot of factors and complications in here that last-minute rules sometimes don't take into account, particularly when they go against the recommendations of the staff of the agency.

Now, if we can get a 20 percent energy saving in the new rule the administration wants to propose, and I still have the right in my home State to buy an available 13 SEER unit, that is a pretty good compromise, a pretty good—perhaps not just a compromise, but the right decision, because it might, indeed, mean that we are going to make decisions that are not only economically feasible but achieve the best energy savings without forcing some people to go to a higher energy-consuming system rather than a better energy-consuming system.

So it is not an easy one to decide. But we are going to, again, do our best to work through it.

Let me, however, turn to a subject where I think there are huge savings. And I want to compliment Mr. Peterson for the work that Los Alamos is doing here. In Detroit, they are putting down superconductive cables as we speak. And if 6,000 miles will be constructed for delivery next year, with new efficiencies developed by Los Alamos, we are making some big progress here.

I have been asking this question, I get a lot of different answers, but I think you gave me one the other day. I would like to get it on the record. How much energy do we use just transmitting it around the country? See, we have got a NIMBY problem. Nobody wants the electric power plant next to their backyard, next to their scenic overlook.

So if we build them further away, we have got to move the energy to the towns, to the cities and urban areas. And when we do that, we are losing energy in the transmission. We have got to build all these grids which are inadequate. So we have got a tension here.

How much do we lose in the transmission of the energy over these grids? Mr. Peterson, why don't you give us some idea?

Mr. PETERSON. About 7 percent of the energy is lost due to the transmission.

Chairman TAUZIN. Seven percent. That is a huge amount. When you multiply 7—energy demand increased 2 percent last year. If we could save that 7 percent, we would be in an extremely better position when it came to supply, demand and balance, would we not?

Mr. PETERSON. That is correct.

Mr. MARKEY. Mr. Chairman, Chairman Barton.

Mr. BARTON. The gentleman from Massachusetts, yes, sir.

Mr. MARKEY. Thank you, Mr. Chairman.

Mr. BARTON. I was in a conversation with the gentleman from Virginia.

Mr. MARKEY. And that is why I was trying to get your attention, because I know what a stickler you are for the 5-minute rule today.

Mr. BARTON. I am.

Mr. MARKEY. And it is at 5 minutes and 30 seconds.

Chairman TAUZIN. I will cease immediately, Mr. Markey. Thank you, Mr. Chairman.

Mr. BARTON. We become sticklers about a minute and a half after the 5 minutes. So he had another minute of leeway.

Chairman TAUZIN. But, Mr. Chairman, I will not take it.

Mr. BARTON. Okay.

Mr. MARKEY. I ask unanimous consent——

Chairman TAUZIN. And I will set a good example to my friend from Massachusetts.

Mr. MARKEY. I ask unanimous consent that the gentleman be given the full 6½ minutes.

Chairman TAUZIN. I ask unanimous consent that I not take it.

Mr. MARKEY. Excellent.

Mr. BARTON. Well, we are in good faith on both sides here. The gentleman's time had expired. And the gentleman—did the questioner get his—did you get your answer? We don't limit our answerers.

Chairman TAUZIN. Yes.

Mr. BARTON. Okay. So the gentleman from Virginia is now recognized for 5 minutes.

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

I want to commend this panel and thank each of you for taking the time to come and share this information with us today. I think the last hour and a half that you have been testifying here has been perhaps the single most informative session that we have had in a matter of months, and I want to express appreciation to each of you for the information that you have shared.

I would like to take just a moment to talk with this panel about some matters that I have some interest in. And while there is a lot of information that we could cover here, I am going to be quite selective in terms of these questions, and devote these to ways in which we can try to get greater use and efficiency from our existing generating capacity without having to build new capacity in some instances to meet our needs.

That translates to two basic areas. First of all, real-time metering and, second, demand-side management. What I would be interested in learning from members of this panel is, what steps do you believe we could take that would encourage real-time metering to a greater extent? And with regard to demand-side management, I would note that there has been approximately a 50 percent decline in the use of demand-side management as deregulation has made its way into the various States.

I would ask you if we should be concerned about that decline and the use of demand-side management and what recommendations you might have for ways that we could reverse that decline and perhaps encourage a greater use of demand-side management so as to level the peaks of electricity demand and get greater use and efficiency from the existing generating capacity.

I think Mr. Nemtzow, Mr. Nadel, Mr. Silva, Mr. Swofford, Mr. Rodgers might have comments in answer to these questions, but I would not limit the answers to those members. So in whatever order you choose to begin, I would like to hear from you. Mr. Nemtzow.

Mr. NEMTZOW. In the order that you used our names, rather than alphabetical, I would support that. Your observation is accurate, Mr. Boucher. The investment by utilities in demand-side management helping customers cut their own energy use has fallen by half during the 1990's. This is one of the consequences of competition. With all competition's benefits, this is one of the down sides.

The only policy that can be adopted at the national level that will reverse that is the adoption of a public benefit fund or public benefit trust, a very small fee that is charged not—it must be nonbypassable, that no generator has any advantage over any other, charge it on the transmission wires so that everybody participates. And that fund can be used to replace some of these activities.

In fact, I think you will see, as we have seen in New York and New Jersey and Massachusetts and several other States, that these new programs will be much more effective than the old ones because, by pooling the resources, you don't worry about each utility worrying about their own needs. You worry about a statewide approach to these problems.

And it is not just efficiency. It also can be used for low-income assistance or renewables and other public schools.

Mr. BOUCHER. And how would the monies from that fund be applied, and how would the application of those monies advanced to demand-side management—just a quick way how the fund would be used.

Mr. NEMTZOW. The right way to do it is to do a matching fund for the States, so that at the Federal level the money is collected. But it should not be spent at the Federal level. This should not be a new Federal bureaucracy. It should be left at the State level for the States and utilities to work together. And that could be an investment in real-time meters. It can be an investment in new technologies, in smart homes and appliances and controls. But that should be decided at the State level, with guidance from the Congress.

Mr. BOUCHER. All right. Other responses.

Mr. SWOFFORD. I would suggest that real-time metering is the next wave of demand-side management in putting the information in the hands of the consumer so that they can make wise choices about buying thermostats, buying insulation, buying doors, based upon what they see, the price they are paying. So from our perspective, giving customers usage and pricing information is, in fact, the next wave of demand-side management.

Now, with respect to encouraging demand real-time metering investments, the tax legislation that I talked about of Congresswoman Jennifer Dunn, is a piece of getting past the capital investment piece. The other would be anything that you all could do to encourage regulators, because this, again, is a State regulation area where State regulators get involved. Anything you can do to encourage them. There is a concern on there part——

Mr. BOUCHER. Let me ask, do you agree with Mr. Nemtzow, that if we choose to do anything to encourage a greater use of demand-side management, it would be this public benefits trust that he defined; or do you think there is something else we can do?

Mr. SWOFFORD. Personally, I think public benefits trust—I am not sure how all that money gets spent, how efficient it is that it gets spent.

Mr. BOUCHER. So you don't endorse that. But if we don't do that, what should we do? Do you have another alternative or setup?

Mr. SWOFFORD. I think we can provide incentives to utilities to invest in the things that they can do to provide information to cus-

tomers so that the customers will take the actions. And we have got a lot of manufacturers here that are willing to produce the kinds of goods and services that customers will need once they get the information. But I think that kind of thing, to encourage utilities to make the installation.

Mr. BOUCHER. Thank you. Mr. Rodgers.

Mr. RODGERS. I certainly concur with Mr. Swofford. I believe that we have to be practical, and the practical realities are real-time pricing is going to be effective with the commercial-industrial class of customers first, typically representing less than 10 percent of the customer base, but consuming well above 33 percent of the overall power.

There is not yet any clear evidence of a will for real-time pricing at the residential level. So a trust that is focused on residential today may or may not be an effective use.

I would agree with the recommendation that you use all efforts to influence the statewide regulatory bodies to go from what we are seeing today in California, which is a 200-kilowatt-and-above customer being a viable candidate for real-time metering systems, and bringing that down to 50-kilowatt customers.

And as a substantial incentive to do that, I think the ability to be remunerated for the cost of those meters, whether the end consumer, the end customer buys those meters, or whether it is from the utility or a new energy service provider, because I think we will see all three of those.

We are already working with several large——

Mr. BARTON. Could you shorten your answer so that we keep the questioner's time period within 8 minutes?

Mr. RODGERS. Working with several large national accounts that already are seeing the benefits of this information and are investing on their own, even in advance of utility of smart-metering systems.

Mr. BOUCHER. Thank you, Mr. Rodgers.

Mr. Chairman, I would like to pursue this a bit further, but I have heard what you just said.

Let me just ask any other members of the panel who would like to respond to the question, if you could send us a brief letter containing that response, that would be helpful. Thank you Mr. Chairman.

Mr. BARTON. Thank you. The gentleman from Oregon is recognized.

Mr. WALDEN. Thank you, Mr. Chairman. I will try and rip through these.

Mr. Wagner, I am just curious. You mentioned about the motion light switches, and I have seen those show up more and more. What is their cost? What is their savings? In a quick snippet.

Mr. WAGNER. It depends. There are any number of lighting controls—that varies—that you can do that. And payback on—and I just noticed one when I was in the restroom here, before I came in, which was encouraging.

Lighting controls generally have probably a very quick payback, because it is fairly low on the installation in terms of the equipment that goes in. So they can be anywhere from 3 to 5 years, David?

Mr. NEMTZOW. Three to 5.

Mr. WAGNER. On some of those things. What you can do oftentimes, if I may, is when you finance the project, you want to bundle those with higher capital investment things such as boiler or chiller oftentimes, and then have a project that is very payable.

Mr. WALDEN. I have seen those and I was curious. You see them more and more as you go in and out of restrooms and other rooms.

Mr. WAGNER. We have technology that can track people in buildings and see where they are, and just heat and cool and light rooms where they are moving.

Mr. WALDEN. I have constituents that believe all that, too. I don't dispute it.

Let me go to Ms.—I think we all have them. Then we get into the contrail issue.

Mrs. Cooper, I believe that is correct, the CAFE standards. The question I have is—and I have got several for others so we can move pretty quickly here—why are light trucks and SUVs treated differently than cars when it comes to the CAFE standards?

Ms. COOPER. I think when the original program was put in place, there was a recognition that passenger cars have different features, utilities, and performance than light trucks. And that is really the basis for it. The size, the drive train, the torque and things like that in light trucks really require——

Mr. WALDEN. They have different demands.

Ms. COOPER. That is right. They have different demands concerning fuel.

Mr. WALDEN. We talked some about using tax credits to promote purchase of these hybrid vehicles, and there is something in my mind that says Arizona tried this and something went sideways on them, about ate that budget alive.

Ms. COOPER. I believe, and I am not totally familiar with the Arizona situation, but the Arizona situation related to being able to retrofit vehicles to change, I think, the fuel for natural gas. It was an allowance after people bought the vehicles. So it was an aftermarket thing that was not involved with manufacturing.

Mr. WALDEN. For initial purchase.

Ms. COOPER. That is exactly right.

Mr. WALDEN. I was reading something, and they were exploding their budget.

Ms. COOPER. Yeah, they had a real challenge there to control their program.

Mr. WALDEN. Mr. Nemtzow, you talked about the polls regarding conservation and energy. I understand all that. I have also seen polls like in health care that people want all sorts of things; and then you say, but are you willing to pay for it? And all of a sudden, the poll numbers change dramatically. So we always have to balance that.

But there is another comment you made that intrigued me about the SEER's standards, because you said the Department of Energy relied on 1996 power price estimates. And we all know what power has done this year. I guess the question I have is, I have also seen projections for power purchase contracts out over the next 3 years, and this huge peak we have seen is coming back down.

Was this the anomaly, do you think; and so maybe the 1996 numbers when looked at, other than during this peak, may be legitimate numbers to use or may be slightly lower than what we are going to see later?

Mr. NEMTZOW. I think not. You know the old adage about never making predictions, especially about the future, and that certainly is a reminder here.

I think the 1996 numbers were the anomaly. In 1996, we were all very optimistic about what competition and decontrol would do to prices. When the EIA part of DOE did those projections in 1996, that was the height of optimism and, therefore, the lowest point of price projection. So I don't want to say that today's projections are perfect, but the 1996 ones are flawed.

The other point is to remember the difference between summertime rates and average rates. The reason I mention that is air conditioners, of course, are during summertime rates. In 1996, the difference between summertime rates and average annual rates was only about .5 cent per kilowatt hour nationwide. Now, because of the capacity constraints, we have seen the mid-Atlantic and West and elsewhere, that spreads about 2.5 cents.

So DOE would do summertime rates and current projections, then let the careerists go to work. Keep the political influence away from them. Just make sure that they use good numbers and good projections, and they will come up with the right answer, I am sure.

Mr. WALDEN. Mr. Rodgers, I have a question. The concept of this net metering makes a lot of sense to me. But I wonder about cost shifts that can occur in a market. I am curious to know, obviously if you can shift the amount you have to buy at peak, that is going to be a savings to the utilities and to the customer.

But what about industries? I think of my own. I am a radio broadcaster. My transmitter runs constant, hopefully, 24, 7. It is hard to shift. I might get my competitors to, if they are more powerful. That would be a good thing. What about those—would this result in——

Mr. MARKEY. Mr. Chairman, I hate to interrupt someone on a question like that.

Mr. BARTON. We know you hate to interrupt.

Mr. MARKEY. We have a precedent for interrupting people on littler questions than that.

Mr. BARTON. That is all right.

Mr. MARKEY. Mr. Walden, I am sure, appreciates attention to the specifics.

Mr. WALDEN. I certainly do.

Mr. MARKEY. I would want for him to be able to finish the sentence before he finished; but I did want to, for procedural purposes, raise the point in a very timely fashion.

Mr. BARTON. All right.

Mr. WALDEN. I appreciate that.

Mr. BARTON. He was at the 17 second over the 5-minute at the time you raised the procedural question. I want you to know, Mr. Markey, you have been the most consistent participant, which is a positive thing.

Mr. MARKEY. Thank you, Mr. Chairman.

Mr. BARTON. But you have also been the most consistent in not getting to the first question in your 5-minute question until after the 5-minute mark.

Mr. MARKEY. Well, I am Irish.

Mr. BARTON. So, you know, you have——

Mr. MARKEY. We have got to tell our story first, our personal stories first.

Mr. BARTON. You have been given the same amount, if not more flexibility, than any other member, and it is because you are a member who knows the issues and likes to elaborate on them, which is a positive thing for the hearing record. But I don't want you to go home to Massachusetts feeling that you have been put upon, that you somehow have been abused, mistreated, you know, malnourished in the ability to get your positions before the various hearings, because that is not the case.

Mr. MARKEY. If I can, if the gentleman will yield, there does seem to be a certain, at least for the purposes of this hearing, and I love the witnesses, all ten of them and——

Mr. BARTON. I consent.

Mr. MARKEY. [continuing] and the 7 minutes apiece that they each got for their opening statement. But there does seem to be a certain asymmetry to then having the five Members of Congress have 5 minutes to question 10 witnesses that had 7 minutes a piece.

Mr. BARTON. If we had all 31 members of the subcommittee here, the asymmetry would be opposite.

Mr. MARKEY. My point would be that given the paucity of attendance at this particular hearing on a Friday morning, and the fact that those of us that stayed here overnight rather than getting on a plane and going back to our districts, and the amount of obvious time that each of us could have to make the points that we wanted to, that there could be some flexibility, given the fact that all the other chairs are not occupied.

Mr. BARTON. And we were showing flexibility.

Mr. MARKEY. And the members who did come obviously were doing so in good faith.

Mr. BARTON. It is because you are here, to which I have commended you on.

Mr. MARKEY. That is my general objection.

Chairman TAUZIN. Mr. Chairman.

Mr. BARTON. The gentleman from Louisiana. We are having a nice little family discussion.

Chairman TAUZIN. I don't want to take any more time except to remind everyone here that this is still a hearing, and our job was primarily accomplished when we heard from our witnesses. The exchange we have with them is always good, but it is always a lesser part of this process. I want to thank all 10 of you for taking your job so seriously and using up your time to teach us. Thank you.

Mr. BARTON. Well, it is obviously—this is not only a hearing, it is a hearing that is going to result in legislative action within the next 3 weeks.

This subcommittee, the next time, it is going to have another hearing next Wednesday, and then we are going to go into the July 4 break. Then we are going to come back the second week in July,

and we will marking bills up, one of which will be a conservation bill that all 10 of you and the two witnesses before you and the 31 members of the subcommittee are going to be encouraged to be working on in a drafting and in a language-submitting process starting this afternoon.

So this is not just a hearing. It is a hearing that is going to result in a bill or bills that come out of this subcommittee within the next month.

Mr. WALDEN. Mr. Chairman.

Mr. BARTON. You are entitled to at least one question more after all of this.

Mr. WALDEN. Actually, I don't have a question more, but the same courtesy as I extended to Mr. Markey to allow the panelists to answer my question would be appreciated. I might suggest that, when this whole thing started, we ended up 9 minutes over the 5 minutes to accommodate the discussion, Mr. Markey.

Mr. BARTON. Discussion is good. Democracy requires debate.

Mr. WALDEN. All I want is an answer. Thank you.

Mr. RODGERS. I actually remember the question.

Mr. BARTON. Let us let the panel answer Mr. Walden's question. You are the next questioner.

Mr. MARKEY. I don't care how much time we take here, okay. We are alone, okay.

Mr. BARTON. Well, actually——

Mr. MARKEY. So if Mr. Walden has——

Mr. BARTON. [continuing] Mr. Boucher has a pending engagement. I have a plane to catch. So we may end up letting you Chair the hearing by yourself until midnight if that is the wish of the gentleman from Massachusetts. But let us let them answer Mr. Walden's question, and then you are the next questioner.

Mr. MARKEY. By unanimous consent, I second that motion.

Mr. RODGERS. The question, if I can go back, was how do industries that don't have the ability to——

Chairman TAUZIN. How do you remember the question?

Mr. RODGERS. I was so pleased to answer it because I was afraid, based on the earlier panel, that I was going to be asked about the missile defense system of which I know nothing about. So I am really focused on this one.

The benefits of real-time metering always extend to not just the commercial industrial accounts that are using that but to all participants because it is a peak demand load reduction. So what happens is the accounts that are actually using the system benefit, and it has a rollover effect to all other industries, not only within a SEER's territory of utility but within a regional transmission organization in total.

Mr. WALDEN. So while no one is looking—so you don't look at a different rate structure for those on a net metering versus those not?

Mr. RODGERS. Because it is a demand reduction program, the actual power prices on an hourly basis begin to mitigate back down toward the norm, which benefits all consumers.

Mr. WALDEN. Thank you.

Mr. BARTON. The gentleman from Massachusetts is recognized for 5 minutes.

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

Let me see here. Ms. Cooper, how come the Toyota and Honda manufacturers, rather than Ford or GM, were the first to introduce more efficient cars like the Honda Insight and Toyota Prius? What is wrong with those companies in America that are behind the foreign companies?

Ms. COOPER. Mr. Chairman, Mr. Member, I believe all of the automakers now, all the major manufacturers, are in fierce competition to introduce highly fuel-efficient technologies.

Mr. MARKEY. You can see I don't have much time. Why do they have models out on the market and you don't?

Ms. COOPER. I think the markets in Japan are different. The highway configurations in Japan are different. The fuel prices in Japan are different. They have been seeking highly fuel-efficient technologies for a long time simply because of the demands of their market.

Mr. MARKEY. So you are saying the marketplace in the United States doesn't work to create more efficient vehicle.

Ms. COOPER. Well, the automakers today have in the marketplace more than 50 models that get more than 30 miles per gallon.

Mr. MARKEY. But I am talking about the Prius and the Insight that get 60 or 70 miles a gallon. Are you saying that the American marketplace does not create the incentives for American automotive factories to produce those cars?

Ms. COOPER. Based on what our data demonstrates in terms of what consumers are asking for when they go to dealers and look for vehicles, fuel economy, fuel efficiency is number 25 on a list of 26 attributes that American consumers are looking for. That is why we say consumers are in the driver's seat here, and whatever we do——

Mr. MARKEY. I appreciate that. You understand, though, that national security is No. 1 on the list of American priorities, though; and our dependence upon imported oil is basically, you know, now deemed by this administration to be a national security issue, and that two-thirds of all oil that we consume in the United States goes into gasoline tanks. So if the marketplace can't respond, then obviously that leaves the government to respond.

Mr. Nemtzow, let me ask you about poor people and air conditioners. The administration official today testified that poor people are victims of a more efficient air conditioning standard. Can you deal with that question, please?

Mr. NEMTZOW. Yes. Just the opposite is true. As you pointed out from the numbers you ran through earlier, we are only talking about, at most, a million low-income households, a million low-income households who have central air conditioning. So the number of potential victims is quite small.

No. 2, there are actually beneficiaries. The bigger beneficiaries actually are senior citizens. The greatest threat to senior citizens is when the electric grid goes down, when there are rolling blackouts because of their health threats. So the reliability benefit of the higher SEER air conditioner helps poor people, it helps seniors, it helps all Americans, never mind the businesses that need quality power.

So just the opposite. Especially since so many live in rental housing, the cost of the air conditioner goes to the landlord. The benefits of the lower bills go to the low-income family.

Mr. MARKEY. Thank you.

Mr. Silva, could you tell us which statutory deadlines DOE is now failing to comply with?

Mr. SILVA. Those are under the national appliance——

Mr. MARKEY. Appliance efficiency standard.

Mr. SILVA. I am sorry, the National Appliance Energy Conservation Act of 1987 and its amendments of 1998. Currently, they have fallen at least 7 years behind the statutory schedule for the AC standard, and they are also several years behind the other standards. Currently, our best estimates are their current budget, which is facing a 40 percent reduction in fiscal year 2002, would require a tripling to allow the staff to simply catch up on the existing backlog.

Mr. MARKEY. So to meet the efficiency standards, DOE would need a tripling of its budget in its field?

Mr. SILVA. Yes, for that office.

Mr. MARKEY. Now, if they can't meet the deadlines that Congress establishes in the law, should we consider writing new standards directly into the law as it did back in 1987 and 1992?

Mr. SILVA. It certainly appears obvious that they have been forced to actually engage a prioritization schedule, sacrificing certain products and appliances for deferred action; and the result has been that we have actually stagnated. So in that light, yes, it seems obvious that it is desperately needed, an update to that law to encourage DOE, along with adequate funding. Because, again, without the adequate appropriations, you will not resolve this dilemma.

Mr. MARKEY. I think that there is an ethical dimension to this generation not improving the fuel economy standards dramatically and SUVs and other vehicles and appliances; and instead, first thing, we would go to the Arctic Refuge and other precious lands in the United States that should be preserved for subsequent generations.

I think this generation, the technology generation, has an obligation to first extract the highest level of efficiency that is technologically possible; and at this juncture, I think that we are about to engage in a historic debate over that choice.

I thank you, Mr. Chairman. I yield back.

Mr. BARTON. I thank the gentleman.

The Chair would recognize himself for 5 minutes.

I wanted to ask our electricity people on the smart meters, the net metering, what does a conventional meter cost today like I have in my home that just goes around and around? What does that cost?

Mr. SWOFFORD. Probably around $30 to $40.

Mr. BARTON. Thirty to $40. What would one of these net meters cost?

Mr. SWOFFORD. Well, the meter is the same. There is a device you put in that meter. So the meter is the same. You put a chip in there that actually——

Mr. BARTON. What does the chip cost then?

Mr. SWOFFORD. About $50.

Mr. BARTON. An additional $50. So a net metering device would cost 100 bucks.

Mr. SWOFFORD. If you put that chip in the—if you retrofitted it, that is about the cost. If you put it into a new manufacturing where it is more efficient, it is less than that.

Mr. BARTON. Well, if that is the cost, why do we need a tax incentive for that? I am all for net metering and smart metering, but why, if that is the cost, why a tax incentive? I mean——

Mr. SWOFFORD. There is more to the system, as I tried to describe, than just the metering costs that are associated with gathering the data and storing it. You have to transmit that data over a communications system, and you have to have a customer information system at the other end that takes all that information in and be able to match that up with pricing information. There is costs associated with that, also.

Mr. BARTON. So we want a tax incentive for a software program?

Mr. SWOFFORD. No. We want the tax incentive. I believe that the tax incentive, just based upon the metering system alone, is enough to get more utilities to move.

Mr. BARTON. Well, here is—I am not—I mean, I am for all this stuff.

Mr. SWOFFORD. I understand.

Mr. BARTON. But I am not sure—and I am not saying I am opposed to the tax incentive package or Congresswoman Dunn's bill. I am not saying that at all. But I am trying to say what is—if we are going to—why do we need to put a tax incentive in place to do the right thing which everything is—for which incrementally doesn't appear to be that expensive to begin with?

It is a little bit different deal when we get to the car part of this program. If we want to go to these hybrid vehicles, they are talking about an incremental cost of two to $3,000. Now, average consumer might be willing to fork out an additional $40 or $50 or $60 or $100 over a 12-month period if they actually save electricity. But to get the average consumer to fork out two to $3,000 to buy a hybrid vehicle when the incremental savings is not all that great, that is a little bit different deal. But there is a public purpose at work on that issue. So I am trying to get this worked out in my mind.

Mr. SWOFFORD. Let me say there is a regulatory issue here of a concern about being able to go to a commission ultimately to get your cost recovered. So I think that the incentive to give you some mechanism of what you are going to get your cost back is very important in this thing, also.

Mr. BARTON. All right. Let me go to Ms. Cooper, who has been strangely unquestioned, given the sensitivity of the issue that you are here to testify on.

There is a Wall Street Journal story today that says you were going to come and change the industry's position from a "just say no, we don't need any CAFE increase", that you were going to testify, "well, we don't want the Congress to do it; we want the technical people through the transportation association to do it". I didn't hear you say that. Are you aware of this Wall Street Journal story?

Ms. COOPER. I am not only aware of this article, all of my members have called about this article. My staff have written a letter to the editor before 9 a.m. This morning to basically dispose of the notion that the industry——

Mr. BARTON. So you are not here to change the industry's position. You are just as hardheaded and hardnosed as you were before you came—not you personally.

Ms. COOPER. I have been called worse, Mr. Chairman, I hate to tell you. But, yes, the industry does oppose changes in the CAFE standards.

Mr. BARTON. By anybody. You don't want the Bush Administration to do it, you don't want the Congress to do it, you don't want the National Highway and Transportation Administration to do it, you don't want anybody to do it.

Ms. COOPER. What we said, Mr. Chairman, is we are waiting for the National Academy of Sciences' panel report to come back with whatever recommendations they are going to make. And because the congressional freeze will not continue unless the Congress acts on it after October 1, we would fully expect the National Highway Traffic Safety Administration, using the criteria they use, to look at CAFE standards. But we do not support their increase, whether it is through legislation or through regulation.

Mr. BARTON. Okay.

Ms. COOPER. We don't think the program—we think, as the National Academy said in 1992, we believe the program is flawed. The real challenge is to get consumers into the formula, and that is really what needs to happen if fuel economy, fuel efficiency are going to be values that consumers look for when they purchase vehicles.

Mr. BARTON. My time has expired. We still have—we have one, two, three, four. Does any member wish to ask one follow-up question before we conclude the hearing?

Chairman TAUZIN. Can I clarify one thing?

Mr. BARTON. The gentleman from Louisiana is recognized.

Chairman TAUZIN. I just want to clarify because you raised this point. You testified, I believe, that the net metering device only costs $50. Sandia Labs and Los Alamos came jointly, and I looked at a metering device. They told me it cost $2,000. What is correct? Can you straighten that out for me?

Mr. RODGERS. I was going to make a point of record. That was the price for residential net meters which I think you were asking about. Commercial industrial meters have ranged from a high of $2,000. Now, typically, due to cost reductions, those are down around $800 to $1,000 installed.

Mr. BARTON. I want to thank this panel.

Mr. MARKEY. Mr. Chairman, if we can ask one additional question, I would appreciate it.

Mr. BARTON. The offer stands.

Mr. MARKEY. I thank you.

Back when I was elected in 1976, there was a big debate over whether or not we can improve the fuel economy standards of automobiles from 13 miles a gallon to 27 miles a gallon. The industry said it couldn't do it, but we were in the middle of an energy crisis. We passed that law. And to be honest with you, Gerald Ford, who

was the President from Michigan, from an auto State, had the courage to sign that law. That took a lot of courage. That was a lot of courage, going against his own history, his own State, his own philosophy.

While the industry said they couldn't do it, by 1981 they had it up to 24 miles per gallon. By 1986, we had OPEC on its back with $12 a barrel oil. Pretty big victory for technology, even though the industry said they couldn't do you it.

Now, the average fleet economy now for the auto industry is 24 miles an gallon, same as 1981, which is really not a good thing for our country since that is where two-thirds of all oil goes; and it is, by definition of this administration, a national security issue.

What standard, Ms. Cooper, do you think this industry can meet as a corporate average for SUVs like vans and for automobiles by the year 2010?

Ms. COOPER. Mr. Chairman, I can't give you a number. I think if you look at the industry's record, fuel efficiency of those vehicles has continued to go up since 1970 2 percent a year. It is the fleet mix of vehicles that has allowed the fuel economy standards to plateau, and it really relies on putting the consumer in the driver's seat.

Mr. MARKEY. Does your industry oppose congressional imposition of any higher CAFE standards for your industry?

Ms. COOPER. Yes, sir.

Mr. MARKEY. You do.

Ms. COOPER. We do oppose legislative changes in the corporate average fuel economy standards.

Mr. MARKEY. Do you also continue to maintain that it is economically unviable in an American economy to match the standard for efficiency which Honda and Toyota are now matching in the construction of their new vehicles?

Ms. COOPER. We think it is very important to deliver to consumers all of the features they want. And fuel economy, if that is a part of it, we have to be able to deliver the features that consumers are looking for.

Mr. MARKEY. I will tell you this final little anecdote, because I think your position is inconsistent with American national security and our long-term economic interests.

But I asked my father in 1976, I said: Pop, what was your first car?" he said, "Well, it was a Model A. We got it in 1930." I said, "Well, what did it get for mileage?" He said, "Well 12, 14 gallons a miles probably." I said, "What does your Ford Fairlane get?" he says, "Well, 12, 14 miles a gallon." Forty-six years later.

The industry told us in 1976 they couldn't improve on that. Congress mandated that they should, to double the efficiency. They didn't want to do it, but they did. Part of it was because they wanted to keep out these Japanese efficient cars that were coming in, so that we would put up barriers, only let them in a certain percentage of them to give them time to retool, to compete.

I am just afraid that we are repeating history here, Ms. Cooper; that the key to dealing with this energy crisis long term is to deal with where we put the oil, which is in gas tanks.

We don't have an electricity crisis across the country. There is none in Massachusetts or in Florida or in the Midwest. There is

one in California because of a stupid law and a drought in the Northwest.

But we do have an oil crisis. And the oil crisis is directly related to transportation, and transportation is related to fuel economy standards, and that is related to your industry, and you are telling us you can't meet it. And I am afraid that, at the end of the day, Congress is going to have to deal with that issue if we are going to deal with what is being described by this administration as an energy crisis that affects our national security.

Chairman TAUZIN. Mr. Chairman.

Ms. COOPER. May I respond?

Mr. BARTON. Briefly. There is a law of diminishing returns in fuel economy. There is also a law of diminishing returns in a hearing and continuing the process. But the gentlelady can respond, and we will give the full committee chairman the last word.

Ms. COOPER. All I wanted to say is I think the automakers are making an incredibly valiant effort to introduce new technologies into the marketplace. I think that is where the promise for the future is. Whether it is hybrid electric vehicles, fuel cell vehicles, I really believe that is the answer. We believe that is why it is important to support that through the tax incentive program.

Thank you, Mr. Chairman.

Mr. BARTON. Mr. Tauzin, and then we are going to conclude.

Chairman TAUZIN. Just to put a balance on this, I don't think your grandfather's Model A, nor mine, had power steering, nor power brakes, nor air conditioning, nor power windows, nor power locks and all the many other features that automobiles now contain that are powered and that require more power.

When you factor in the enormous new capacities of the American automobile with the Model A against the fuel efficiencies, I suspect you get a much different picture. And Americans I don't think are ready to give up their power steering and thier power brakes and the power windows and everything else that comes in a package.

Yes, we can do better. And, Mr. Markey, we have asked as a committee the automobile industry to come to the table before we finish this process with what they can contribute to new fuel efficiencies into the future. We will be discussing this. But we need to keep that in perspective.

Second, let me make a point, Mr. Markey, and I know you do care about poor people. I happen to have an awful lot of them in my State. And I know you care about air conditioning of my poor people. If you want to help us, let me ask you to do something for me. Why don't you help me equalize the formula for LIHEAP funding? Why don't you help me equalize the funding that goes to southern States where people die from the heat equal to the funding that northern States get where people need help with their heating costs in their homes?

When you are ready to equalize those two funding systems, then I will know you really care about the poor Louisiana folks dying in the heat, and I was almost one of them crawling through those attics.

Mr. MARKEY. Will the gentleman yield?

Mr. BARTON. We are not going to have a food fight between my two good friends.

Mr. MARKEY. Not at all. I am willing to go with the gentleman to see President Bush and ask him to raise the funding for LIHEAP.

Chairman TAUZIN. No, you didn't hear me. What I asked was to equalize the funding. I am not talking about raising it for you. I am talking about just raising it for us equal to what you folks get in the north.

Mr. MARKEY. But if the gentleman——

Mr. BARTON. Can we—I am going to recall regular order. I hate to call down my full committee chairman, because it means I won't be subcommittee chairman for another 30 seconds, but I want to do that.

Mr. MARKEY. But, Mr. Chairman——

Mr. BARTON. I hate to ask my good friend from Massachusetts——

Mr. MARKEY. But in defense of my father? My father?

Mr. BARTON. No. Mr. Boucher and I have planes to catch.

Mr. MARKEY. Twenty seconds for my father.

Mr. BARTON. No. I will give you an opportunity.

Chairman TAUZIN. For your mother, maybe.

Mr. MARKEY. She was sitting right next to him. She always nuzzles up right next to him.

Mr. BARTON. I want to thank this panel. We are going to legislate in the next 3 weeks. Any legislative language you need to, put forward to the various members of the subcommittee that you have the best working relationship with.

We appreciate the attendance, and the hearing is adjourned.

[Whereupon, at 1:20 p.m., the subcommittee was adjourned.]

[Additional material submitted for the record follows:]

PREPARED STATEMENT OF STEPHEN P. FARRAR, DIRECTOR OF INTERNATIONAL BUSINESS, GUARDIAN INDUSTRIES CORP. ON BEHALF OF THE PRIMARY GLASS MANUFACTURERS COUNCIL

Thank you, Chairman Barton and Mr. Boucher, for the opportunity to provide testimony to the Subcommittee on Energy and Air Quality. My name is Stephen Farrar, Director of International Business at Guardian Industries Corp. Today I represent the industry that manufactures flat glass. Flat glass, as you know, is an essential ingredient in today's homes and commercial buildings. Technological advances in recent years have made flat glass products highly energy efficient. I will explain today why these products are a critical part of a national strategy. The companies I represent strongly support President Bush's emphasis on increasing energy supply, but we are also convinced that energy conservation is both essential and economical.

All U.S. flat glass manufacturers strongly encourage the adoption and advancement of the following programs, initiatives, and actions. The reasons supporting each action are discussed in more detail below:

ENERGY STAR

- Promote widespread awareness and use of the Energy Star® program, especially the Energy Star® Home and Energy Star® Window programs, administered by the Environmental Protection Agency (EPA), in partnership with the Department of Energy (DOE).
- Ensure that the value of high-performance windows is emphasized in DOE and EPA consumer awareness campaigns to promote Energy Star® and energy conservation.
- Require the federal government to purchase, install, and utilize only energy-efficient fenestration products that carry the EPA's Energy Star® label.

STATE BUILDING CODES

- The DOE should require the States to review their residential building codes regarding energy efficiency against the standards contained in the International Energy Conservation Code (IECC) (formerly the Model Energy Code (MEC)), promulgated by Building Officials and Code Administrators International, Inc. (BOCA).
- The DOE should encourage the States to 1) align their codes with the IECC; and 2) promote the use of MEC*check*, a free software package developed by the DOE that explains requirements and simplifies calculations for builders.

WEATHERIZATION ASSISTANCE PROGRAM

- Include language in the appropriation for the DOE Weatherization Assistance Program, which provides grant funding to states and localities to encourage cost-effective, energy-saving home improvements, making it clear that high-performance windows are eligible for grants under the program.
- Encourage the Secretary of Energy and his staff to allocate program funds specifically for high-performance windows.

MORTGAGE ASSISTANCE

- Encourage energy efficiency through reduced home mortgage rates or other preferences to help offset the higher initial costs of energy-efficient building products.

TAX DEDUCTION AND/OR CREDIT

- Encourage energy efficiency by providing tax credits and/or deductions to individuals and businesses to offset the cost of purchasing energy-efficient glass products.

WHY PROMOTING ENERGY-EFFICIENT WINDOWS IS IN THE NATIONAL INTEREST

1. High-Performance Glass Products Have Tremendous Potential to Significantly Reduce Overall Energy Consumption by Individual Homeowners, Businesses, and the Nation.

Buildings and homes in the United States consume more than 40% of the national energy budget, *i.e.,* 35 quadrillion Btu's of energy (quads)—principally for heating, cooling, lighting, and operation of appliances. Residential structures consume more than half of this total—approximately 22% (19 quads). Lawrence Berkeley National Laboratory (LBNL) estimates that the 1994 stock of 19 billion square feet of residential windows accounts for approximately 2%, or 1.7 quads per year (1.3 quads for heating and .4 quads for cooling) of total U.S. energy consumption.

Glass products are an essential part of a home's exterior and, if chosen wisely, can have a significant effect on the amount of energy consumed. A wide array of energy-saving glass products are currently available. These products can reduce heat loss in northern climates by up to 70% compared to traditional products. Similarly, in southern, cooling-dominated areas, coated glass products can reduce solar gain, and therefore air-conditioning loads, by up to 60% compared to traditional non-coated products. Moreover, use of energy-saving glass products allows the use of larger window areas, which, in turn, permits better use of natural lighting, lowering energy use still further.

According to the LBNL analysis, if all new residential windows sold throughout the United States were energy efficient, the energy savings in the year 2010 would be approximately 0.5% of the total national energy budget, or .43 quads (.19 cooling and .24 heating). For illustrative purposes, .43 quads is equivalent to:

- Over 20 million short tons of coal, or enough coal to fill a coal train of railroad cars almost 2,000 miles long
- 418 billion cubic feet of natural gas
- Almost 3.5 billion gallons of gasoline, or more than 10 days of U.S. gasoline consumption
- Almost 10 hours of the entire world's energy use (based on consumption levels in 1996)
- Nearly half of the approximate annual primary consumption of any one of the following states: Arizona, Arkansas, Colorado, Iowa, Kansas, Mississippi, or Oregon (based on consumption levels in 1996)

This .43 quads represents a 39% total annual savings in cooling and a 19% savings in heating, or a total heat and cooling savings of approximately $2.5 billion per year by 2010 (given an adoption baseline of 1996).

This potential energy savings is comparable to eliminating the future need for approximately 20 (300 MW) power plants over the next decade and up to 60 power plants over the next 20 years.

This significant reduction in energy consumption offers an opportunity to likewise substantially reduce carbon dioxide (CO_2) emissions. More than one-third of CO_2 emissions—about 187 million metric tons—are directly related to the performance of the building envelope.[1]

2. While Use of Energy-Saving High Performance Glass Products is Becoming More Prevalent, Their Use Remains Far Below Potential.

Insulating glass, with its superior insulating performance, has been available for decades, but as of the early 1970's represented only about 20% of the windows used in the United States. It took the oil embargoes of 1974 and 1979 to propel more widespread use.

The introduction of low emissivity ("low-e") glass, which has even greater energy-conserving potential, is a more recent development.

Low-e glass usage has grown slowly during the past decade, averaging about 2% change per year, and is now used for almost 40% of the nation's window installations by surface area (see chart above). The total surface area put in place over the decade was 2.24 billion square feet. Low-e glass that is already in place greatly contributes to the reduction of heating and cooling-related energy consumption, and saves, on an annual basis, .58 quads.

Based on the trend indicated in the chart above, low-e glass usage will continue to grow but will only reach the 50% level in approximately five years. The recommendations in this statement are specifically aimed at accelerating the growth of low-e glass usage so that the significant energy-savings that are possible with increased use of high-performance glass will be realized.

3. The Bush Administration's Energy Plan Recognizes the Under-utilization of Advanced Window Products and Recommends Addressing the Problem Through Consumer Education Campaigns and Increased Funding.

In the *Report of the National Energy Policy Development Group* (the National Energy Report), the Bush Administration proposes that the Secretary of Energy be charged with strengthening the Energy Star® program and promoting greater awareness of the benefits of energy efficiency. The Administrator of the Environmental Protection Agency is charged with developing and implementing "a strategy to increase public awareness of the sizeable savings that energy efficiency offers to homeowners across the country."[2]

The Energy Star® program was introduced by the U.S. Environmental Protection Agency (EPA) in 1992 as a voluntary labeling program designed to identify and promote energy-efficient products in order to reduce CO_2 emissions. The EPA partnered with the U.S. Department of Energy in 1996 to promote the Energy Star® labeling program, which has expanded to cover a variety of products including windows, homes, residential heating and cooling equipment, major appliances, and other products. On its web site, the EPA notes that:

> If all consumers, businesses, and organizations in the United States [including governmental organizations] made their product choices and building improvement decisions with Energy Star® over the next decade, the national annual energy bill would be reduced by about $200 billion. With that would come a sizable contribution to reducing air pollution and protecting the earth's climate for future generations.[3]

The National Energy Report also recommends significantly increased funding for the Department of Energy's Weatherization Assistance Program, which provides grants for energy-saving improvements in homes around the country. The Report notes that:

> The energy burden on low-income households, as a proportion of income, is four times greater than for other American households. The Weatherization Program provides grant funding for a network of all states and some 970 local weatherization agencies to provide insulation, duct system improvements, furnace upgrades, and other cost-effective, energy-saving improvements based on the en-

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[1] The building envelope is the roof, walls, and foundation of a building. The envelope provides the thermal barrier between the indoor and outdoor environment and is the key determinant of a building's energy requirements. See Oak Ridge National Laboratory web site, "Questions and Answers about Building Envelope Research at ORNL" at http://www.ornl.gov/roofs+walls/q_and_a.html.

[2] See *Report of the National Energy Policy Development Group,* Chapter 4, "Using Energy Wisely: Increasing Energy Conservation and Efficiency," May 2001.

[3] See EPA web site at http://www.epa.gov/nrgystar/about.html

ergy needs of each home weatherized. Currently, each dollar spent on home weatherization generates $2.10 worth of energy savings over the life of the home, along with additional economic, environmental, health, and safety benefits associated with the installations and resulting home improvements. Typical savings in heating bills, for a natural gas heated home, grew from about 18 percent in 1989 to 33 percent today.

The Primary Glass Manufacturers Council strongly supports both of the initiatives proposed by the Administration. The use of high-performance low-e glass is one of the most important "cost-effective, energy saving improvements" that can be made to make homes more energy efficient.

4. But More Needs to be Done. In Particular, the Federal Government Needs to Encourage the States to Strengthen Their Building Codes to Require More Energy-Efficient Construction.

Section 101 of the Energy Policy Act of 1992 authorizes the Secretary of Energy to require states to review their residential building code(s) regarding energy efficiency and to determine whether the code(s) should be revised to meet or exceed the Council of American Building Officials (CABO) Model Energy Code (MEC), 1992, or successor codes. A successor code was adopted last year—the International Energy Conservation Code (IECC), 2000. The IECC sets standards for the entire building envelope. It requires high-performing windows, with both well-insulated frames and coated glass. It is under review in several states. A push from the DOE, by exercising its Section 101 authority, would help States understand and accept this significant step forward in energy-conserving building codes. The DOE has greatly facilitated the adoption of the IECC by developing MEC*check*, a software package that explains requirements and simplifies calculations.

5. Federal Support For Mortgages Is Necessary To Help Offset The Higher Initial Costs Of Energy-Efficient Glass Products.

A new home that meets Energy Star® can typically cost 5% more than a conventional home. Energy Star® mortgages, which effectively deduct this incremental cost from the qualifying amount, are available but are not widely understood or utilized.

In addition, the flat glass industry recommends that Fannie Mae provide preferential mortgage rates for buyers of Energy Star® homes and homes that exceed the IECC standard.

6. Finally, A Tax Credit Or Deduction Is Necessary To Help Offset The Higher Initial Costs Of Energy-Efficient Glass Products.

Energy-efficient low-e glass products are readily available and a broad industry infrastructure is in place to provide them, but still market acceptance has been slow and a huge potential for energy conservation remains unrealized. A credit against the tax of an individual homeowner or businesses for energy conservation expenditures or a deduction from the taxable income of homeowners is necessary to help offset higher initial costs and to encourage consumers to take full advantage of these energy-saving products.

This statement is submitted by the Primary Glass Manufacturers Council (PGMC) and its member companies, Guardian Industries Corp., PPG Industries Inc., and Pilkington North America, in conjunction with non-PGMC members AFG Industries Corp., Visteon and Cardinal. This diverse group of corporations accounts for 100% of the flat glass manufacturing capacity in the United States.

PREPARED STATEMENT OF THE AMERICAN CHEMISTRY COUNCIL

ENERGY AND THE BUSINESS OF CHEMISTRY

A comprehensive national energy policy is vitally important to members of the American Chemistry Council. We use energy products as fuel, electricity and steam for our operations. In addition, and this distinguishes us from most other sectors of the economy, we use energy as raw materials (feedstocks) for our production processes. In fact, the chemical industry converts some $20 billion in energy into more than $200 billion in products found in every American home, office, and automobile. Many of the products we make from energy resources actually help to make the nation more energy-efficient. Insulation materials and lightweight plastics are two examples of product innovations that play a vital role in making America more energy efficient.

Reliable and affordable energy helped make America's chemical industry globally competitive. Exports grew 13 percent in 2000 to $79.9 billion. We are the nation's largest export industry, but high energy costs and other factors have eroded our

competitiveness. As energy costs rose dramatically during 1999 and 2000, our trade surplus fell by half from $13.4 billion in 1998 to $6.3 billion in 2000. Reflecting further deterioration, the trade surplus for 2001 is projected to fall further to $2.0 billion. Selling into global markets provides jobs for about one-fourth of the one million Americans working in the industry. Unstable markets and rising domestic energy prices are, however, forcing key segments of the chemical industry out of world markets, resulting in layoffs and extended plant shutdowns.

Business of Chemistry Voluntary Programs

Chemistry companies, driven by competition, economics and a strong sense of environmental stewardship, have been improving their energy efficiency for many years, beginning long before the recent energy market disruptions.

In the current context of energy market disruptions and efforts to develop a comprehensive national energy strategy, as well as continuing concern about potential manmade climate change and efforts to reduce greenhouse gas emissions, members' energy efficiency improvement efforts assume even greater importance.

The results of our members' voluntary efforts over the years are impressive. Since 1974 the business of chemistry has reduced its fuel and power consumed per unit of output by 41%. Data submitted voluntarily to the Council by members participating in its annual **Energy Efficiency and Greenhouse Gas Emissions Survey** indicate that their energy efficiency continued to improve during the 1990s: by 1.9% per year since 1990, measured as Btu/1990$, and 3.3% per year since 1992, measured as Btu/pound of product.

To facilitate further energy efficiency improvement efforts by our member companies, to recognize their outstanding accomplishments, and to share information about their best practices, in 1993 the American Chemistry Council (then known as the Chemical Manufacturers Association) instituted an **Energy Efficiency Continuous Improvement Program** (EECIP) for its members.

The EECIP relies on voluntary actions by Council member companies. An underlying rationale for the EECIP is that conscientious voluntary efforts to continuously improve energy utilization efficiency will achieve significant and demonstrable reductions, per unit of production, in energy use and associated environmental impacts. A second underlying belief is that voluntary efforts are far preferable to government mandates or punitive taxes designed to achieve energy efficiency improvements.

One major element of the EECIP is the Council's annual **Energy Efficiency and Greenhouse Gas Emissions Survey** referred to above. Members participating in this survey voluntarily report their energy consumption and related CO_2 emissions; emissions of other important greenhouse gases; major changes in corporate structure or operations affecting energy use and emissions patterns; and, participation in voluntary Council and government programs to improve energy efficiency and reduce greenhouse gas emissions. Aggregation of companies' data allows the Council to obtain a picture of overall current performance as well as overall performance trends over time.

A second major element of the EECIP is the **Energy Efficiency Award Program.** This program is a way of publicly recognizing the energy efficiency improvement visions and practices of Council member companies. An annual competition, it demonstrates that companies engaged in the business of chemistry continually and voluntarily find innovative ways to improve energy efficiency in their operations and to substantially reduce greenhouse gases and other emissions. These improvements help American businesses compete globally and also help protect the environment.

In the most recent competition last fall, awards for 1999 activities were given in four categories:

- The "**Significant Improvement in Manufacturing**" award is given for activities that demonstrate improvement in energy efficiency resulting from technical innovations, creative projects or novel procedures or actions.
- The "**Environmental Impact**" award is presented for environmentally driven initiatives with associated energy efficiency improvements.
- The "**Energy Efficiency Program**" award is awarded for broad programs to achieve energy efficiency improvements, such as goal setting, communications, management and recognition.
- The "**Non-Manufacturing Improvement**" award is awarded for improvements such as energy efficient lighting, building improvements and other non-manufacturing energy efficiency improvements.

The **Attachment** to this statement lists all of the 1999 award winners. They are organized by award category and by corporate level. Each listing gives the facility

location and the name of the award winning activity. This list shows the diversity of membership, geography, and activity encompassed by this awards program.

American Chemistry Council members will continue the industry's long-standing tradition of improving energy efficiency and reducing the carbon intensity of our operations. However, many of our members believe that much "low-hanging fruit" has been picked, and that future energy efficiency and greenhouse gas emissions improvements with current technology will be more difficult and more costly than in the past.

ENERGY EFFICIENCY IMPROVEMENT TECHNIQUES

Some of this reported energy efficiency improvement over the years resulted in changes in the composition of the industry's product mix; that is, toward more higher value-added, less fuel-intensive specialty products. However, the bulk of the improvement resulted from chemistry companies using a variety of methods such as the following examples drawn from the Council's Energy Efficiency Award Program.

- **Cogeneration/Combined heat and power**

A company installed a new, highly efficient, state-of-the-art gas turbine generator with a large heat recovery steam boiler. This significantly reduced use of an aged cogeneration unit and boilers with significant NO_X emissions, displaced purchased electricity, and enabled intermittent sales of excess electricity back to the grid. Total plant NO_X emissions are lower than before even with much higher output, and energy savings are about 19.2% per unit of production.

A company installed a second gas turbine cogeneration system to meet expanded steam needs. The new unit has duel fuel capability and uses byproduct gas from another on-site process as well as natural gas. Use of byproduct gas displaced purchased natural gas and ended flaring of the byproduct gas. Energy savings are about 30%, with associated emissions reductions including NO_X reductions from selective catalytic reduction.

Because cogeneration/combined heat and power is especially important to the business of chemistry as a means of continuing to improve its energy efficiency and environmental performance, additional information about this technology is provided in the following section (page 8).

- **Improved process technologies**

The Tephram® Diaphram used as a separator between anode and cathode compartments of a chlorine production cell results in energy savings of about 4.4% and improves product quality. This proprietary technology is licensed to others.

By-product streams from three on-site locations that were formerly incinerated are now collected, processed and used as feedstock for another process. This results in energy savings of about 13%.

- **Increased use of insulation**

Insulation was installed on critical components of a hot oil furnace after analysis by infrared thermography indicated excessive heat loss through these components. This resulted in energy savings of about 11% per unit of production.

- **Higher-efficiency electrical motors and drives**

A corporate team from various sites and departments built on commercially available programs to develop comprehensive and detailed electric motor management guidelines for use throughout the company. Estimated potential energy savings expected to result when this program is fully implemented are in the 3-5% range.

- **Improved boiler and furnace technologies**

A new, energy efficient furnace designed by company staff replaced an existing furnace nearing the end of its useful life. The new furnace is 92% energy efficient compared to the old furnace's 82% efficiency.

Retrofit of an existing natural gas-fired boiler with a new, fuel-efficient burner and automated control system resulted in plant-wide natural gas consumption savings of about 9%.

Extensive modification of existing boilers to enable co-firing with hydrogen that was no longer needed elsewhere at the site reduced the need for natural gas and resulted in total site energy savings of 6.3%.

- **Computerization and other gains in process control technologies**

Software changes and better operator training improved the process control of a large air compressor, resulting in energy savings of about 1.3% per unit of production.

Sophisticated analysis of relevant variables affecting voltage in a mercury cell producing chlorine, development of a new computer program to calculate and report critical data in real time, and better operator training resulted in a 0.85% reduction in electricity use in this highly energy intensive device.

Physical connection of heating, ventilation and air conditioning (HVAC) systems in four office and research buildings, and installation of variable speed drives, temperature sensors and equipment controllers linked to a digital control system with computer interface resulted in retirement of newly-superfluous equipment and energy savings of 33.7% for the four buildings.

- **Improved recovery and use of waste heat, steam and by-products**

Stack temperatures from waste heat boilers' flue gas were 100-200(F too high because of inefficient heat transfer between the flue gas and feedwater tubes. Cleaning of the tubes under appropriate environmental safeguards improved heat transfer, lowered stack temperatures and resulted in energy savings of about 16%.

Slightly-impure process steam was previously vented. Following necessary analysis and low-cost infrastructure changes, this steam is now used for its heat content, displacing purchased steam, and the organic impurity is captured and remediated. Energy savings are about 1.8% per unit of production.

A stream from a hydrocarbon cracking plant contained hydrogen and fuel-gas, primarily methane. While the hydrogen was recovered, the fuel-gas often could not be recovered and was flared. Installation of new piping, control systems and operating software resulted in 100% recovery of the fuel-gas for use in boilers. Energy savings are about 1.5%.

- **Systematic energy efficiency improvement programs**

A joint venture combining operations of three companies determined to improve energy efficiency by identifying best practices among the three companies and implementing them throughout the joint venture. A comprehensive leadership structure and vigorous implementation plan resulted in energy savings of about 5.4% per unit of production.

A company established an energy efficiency improvement program in the early 1990s under a steering committee chaired by a division president and consisting of very senior corporate management . Notable aspects of the program included corporate technical support; site energy surveys and mid-term goals; a company award program; and publicity in the corporate newsletter. In 1999 energy savings were about 10% per unit of production.

COGENERATION/COMBINED HEAT AND POWER

Because many chemical plants are large users of both steam and electricity, they are ideally suited for cogeneration, which is the sequential production of electricity and steam (useful thermal energy) from the same energy input. Cogeneration units producing steam and electricity attain double the fuel efficiencies of a typical electric utility power plant.

Cogeneration units producing steam and electricity readily attain fuel efficiencies of 65%-75%, as compared to 35% for a typical electric utility. Even advanced gas turbine combined cycle electric utility units can only achieve a 50% overall efficiency. These same advanced gas turbines will achieve 75%-80% overall efficiency in a cogeneration application.

The reason for the efficiency advantage is that a chemical plant uses most of the steam from the cogeneration unit in its chemical processes. Without cogeneration, this steam would have to be supplied in some other manner (boiler steam, direct heating with natural gas, etc.). In contrast to cogeneration technologies, a typical utility unit would simply condense the steam and release the waste heat into the atmosphere or cooling water.

Cogeneration offers significant environmental benefits. By combining the production of steam and power, cogeneration facilities burn far less fuel and release fewer emissions, including greenhouse gas (CO_2) emissions, than the combined emissions from separate utility power plants and industrial steam generation facilities.

Cogeneration units built close to the sites where their power is consumed reduce power losses during transmission, alleviate transmission congestion and reduce the need to build additional transmission lines in many regions of the country. Reliability of power supplies to all electricity consumers is therefore improved as more cogeneration units generate "on-site" power.

The chemistry industry's cogeneration units provide steam and electricity to their own chemical plants and are connected to utilities' transmission and distribution systems. Section 210 of the Public Utility Regulatory Policies Act (PURPA) ensures that any excess electricity from a qualifying cogeneration unit can be sold to a local

electric utility. Equally important is that this section ensures that a qualifying cogeneration unit can receive backup and maintenance power from the utility at just and reasonable, nondiscriminatory rates.

Given the environmental benefits of cogeneration, its importance to the chemistry industry and the current need for every available kilowatt of power, now is not the time to repeal these provisions of PURPA. Properly structured energy policy legislation should spur the development of new cogeneration facilities that will help alleviate power shortages and transmission congestion that many high-growth states and regions are facing.

CHEMISTRY PRODUCT BENEFITS TO OTHER INDUSTRIES AND CONSUMERS

Council members will continue research and development of new energy saving product innovations. Many products of the business of chemistry are essential to intermediate consumers as well as end users in improving their energy efficiency and reducing their CO_2 and other emissions. Well-known examples are insulation, lubricants and plastics.

Over the last two years the American Chemistry Council and the American Plastics Council have contracted for life cycle analyses of popular chemistry products by outside consultants. Results of these analyses clearly demonstrate the energy and environmental benefits of insulation used in refrigerators and freezers; "housewrap" used in residential construction; and, most recently, plastic materials used in automobiles. The Council intends to continue to support such analyses as an important means of demonstrating and communicating the benefits of chemistry.

THE GOVERNMENT'S ROLE

Government can support and facilitate energy efficiency improvement and conservation throughout the economy in a number of ways. One important way government can help is to devise and implement appropriate fiscal and monetary policies to ensure the continued health of the U.S. economy. A healthy economy facilitates company earnings that can be used for investment in new plant and equipment and the turnover of capital stock, and for private research and development.

Second, government can help by supporting research and development of energy efficiency improvement and conservation technologies and implementation of energy efficiency improvement and conservation programs. Such activities, adequately funded, should be an essential component of any national energy policy.

Third, government can help by removing existing government barriers, and avoiding the creation of new barriers, to deployment of more energy efficient technologies and equipment. New and existing environmental policies should consider impacts, in particular unintended impediments, on the ability to explore, produce and use a variety of energy resources in an environmentally sound manner. The Administration's National Energy Policy Development Group has identified Clean Air Act New Source Review regulations, including administrative interpretation, implementation and enforcement actions as appropriate for review in this context. Current permitting and new source review interpretations can often have the effect of retarding and reducing energy efficiency upgrades and investment in new, cleaner, and more efficient technology.

Congress can promote energy efficiency improvement and conservation by providing financial incentives to industries that invest in highly efficient cogeneration units. Incentives might include faster capital cost recovery for cogeneration assets (e.g., shortened depreciation schedules), and amendment of technical rules that sometimes require a cogenerator to pay taxes on behalf of an electric utility to which the cogeneration facility is connected. As an industry leader in cogeneration, the business of chemistry will work with the Committee and the Congress to develop targeted incentives that will effectively promote these highly efficient forms of power generation.

The Council also strongly supports a market-based approach to encourage electricity customers to reduce their power consumption in times of peak demand. The Federal Energy Regulatory Commission (FERC) has approved such an approach for the Western electricity market, and we believe this should be extended nationwide. This approach would allow electricity customers to sell back their contracted power to the electric grid in times of peak demand. It promises to help reduce this peak demand when electricity is needed most and would have a tempering effect on prices by bringing demand closer into balance with supply.

The Council would like to emphasize that new government mandates that impose additional costs on the business of chemistry, whether punitive energy and/or emissions taxes, or hard caps on energy use or energy-related or other greenhouse gas emissions, would be self-defeating. They would reduce funds available to the chem-

istry business for investment and research and development. This in turn would limit our ability to invest in new, more energy-efficient and environmentally-friendly capital equipment, as well as research and development of new energy-saving and emissions-avoiding products and processes. Government mandates of this nature should be avoided if the business of chemistry is to fulfill its role in achieving energy efficiency and conservation objectives as part of a comprehensive national energy policy.

ILLUSTRATIONS OF ENERGY MARKET DISRUPTIONS' EFFECTS ON THE BUSINESS OF CHEMISTRY

Notwithstanding the successful efforts of the business of chemistry over many years to improve its energy efficiency, it remains vulnerable to energy market disruptions and has been seriously affected by recent energy market conditions. On February 28, 2001 the Council submitted to this Subcommittee, in connection with the Subcommittee's hearing on formation of a national energy policy, a statement for the record. In that statement, among other things the Council provided examples of how recent volatility in natural gas and electricity markets had disrupted operations at chemistry facilities across the country. We invite the Subcommittee's attention to that earlier statement. For convenience, we quote the following excerpt from that statement:

- A chemical plant in Chicago has recently seen dramatic increases in natural gas prices. In the year 2000, natural gas spending was 6.5% of the manufacturing budget but and today, with nearly the same output natural gas, now consumes 20% of the plant's manufacturing budget. Spending on natural gas has now overtaken the plant's spending on wages.
- A small Louisiana electro-chemicals producer eked out a modest operating profit of about $700,000 dollars in 1999. In 2000, the producer lost about $500,000. In 2001, if the plant operates at budgeted rates throughout the year, it will lose at least $6,000,000. The cause of the mounting operating losses is rapidly escalating energy costs. The plant's cost of power increased by 32% in 2000 and is expected to increase by another 40% in 2001, and there is no relief in sight.
- Because of the exceedingly high cost of electricity in the Seattle Washington area, local production of liquid nitrogen and oxygen via an Air Separation Plant was shut down. On some days the cost of power spiked to more than 35 times the normal price. Without local production, hospitals and industry in general are faced with shortages. Oxygen and nitrogen are products vital to public health and the safe operation of many industries such as the refining and chemical industries. Many end users of oxygen and nitrogen in the western United States who can get industrial gases are faced with surcharges, distribution fees, and shortages.
- An elemental phosphorus plant near Pocatello, Idaho, employing 440 employees and many contract workers, scaled back operations because of high electricity costs. The plant uses four huge electric arc furnaces to melt rock in extracting phosphorus during the production process. Approximately 100 employee and contractor jobs were displaced. Normally the plant's annual electricity cost is $45 million which translates to $125,000 per day. If the plant were to operate at full production today, which it cannot afford to do, that electricity cost would be approximately $750,000 per day or $275 million on an annualized basis.
- A composites manufacturer (produces unsaturated polyesters) experienced utility costs of $513,653 in January 2000. In January 2001 its costs were $1,067,095. That's an increase of $554,342. Almost all of this is due to the price of natural gas. Styrene is the manufacturer's number one raw material—the USA has gone from being the low-cost supplier to the high-priced supplier in under 5 months, mainly driven by increases in natural gas prices. The same company's emulsion plant experienced a 67% increase in energy cost mainly due to natural gas. In January 2000, the company paid $305,600 for natural gas purchases. In January 2001, the bill was $759,6000.

CONCLUSION

The American Chemistry Council strongly supports Congressional and Administration efforts to develop a national energy strategy to ensure dependable, affordable and environmentally sound energy resources, now and for the future. Energy efficiency improvement and conservation must be essential components of this strategy. We thank the Subcommittee for its contribution to those efforts. The American Chemistry Council is committed to working with Congress and the Administration as they proceed.

PREPARED STATEMENT OF SHARON KNEISS, VICE PRESIDENT FOR REGULATOR AFFAIRS, AMERICAN FOREST & PAPER ASSOCIATION

The American Forest & Paper Association appreciates the opportunity to provide testimony to today's meeting of the Subcommittee on Energy and Air Quality.

The American Forest & Paper Association represents more than 240 member companies and related associations that engage in or represent the manufacturers of pulp, paper, paperboard and wood products. America's forest and paper industry ranges from state-of-the-art paper mills to small, family-owned sawmills and some nine million individual woodlot owners.

The U.S. forest products industry is vital to our Nation's economy. We employ 1.5 million people and rank among the top ten manufacturing employers in 42 states, with an estimated payroll of $51 billion. Sales of U.S. forest and paper products top $250 billion annually in the United States and export markets. Products from America's forest and paper industry represent more than eight percent of our country's manufacturing output.

As the Nation's most capital-intensive manufacturing industry and one of the country's most energy-intensive, the forest products industry continues to look for ways to be more energy efficient and to make greater use of biomass—a renewable fuel. Therefore, we encourage policies that promote increased efficiency, development of more efficient technologies and the use of diverse energy sources. Furthermore, we encourage a regulatory approach that makes it easier for facilities to adopt new technologies.

Energy shortages and price increases are hurting the competitiveness of the forest products industry and putting additional pressure on the already strained financial resources of our member companies. This situation would be far worse, had it not been for our industry's commitment to fuel efficiency and energy independence over the past three decades. Since 1972, we have reduced our average total energy usage by 30 percent (per ton of product produced). In addition, we have reduced fossil fuel and purchased energy consumption by 53 percent and dramatically increased energy self-sufficiency. The strong emphasis by our member companies on research and development into cleaner, more efficient technologies has been responsible for this success.

One of the areas where we have seen the greatest improvement is in on-site electricity generation. Currently, the forest products industry meets nearly 60 percent of our own energy needs. At many mills, self-generated electricity not only serves our on-site production needs, but also provides supplemental electricity to the surrounding electric power grid. In fact, the forest products industry produces nearly 43 percent of our Nation's total self-generated electricity—more than any other manufacturing sector.

Biomass sources—including wood chips, bark, sawdust and pulping liquors—produce 85 percent of the onsite electricity generated in our industry. Cogeneration processes allow the industry to turn these waste materials into a renewable energy source, diverting the waste from landfills, reducing reliance on fossil fuels and offsetting greenhouse gas emissions. The forest product industry's use of renewable fuels represents the equivalent of 205 million barrels of oil per year—which is equal to taking 16 million cars off the road.

Following the1992 Energy Policy Act that provided incentives for efficiency research and development, the forest products industry was the first to develop a partnership with the Department of Energy (DOE). In 1994, the industry signed an agreement with DOE, formally establishing the Agenda 2020 program—a voluntary partnership that fosters cost-shared research and development projects. Over the past six years, this partnership has allowed the industry to embark on important research and development projects that promise new energy efficiency and other technological innovations. Together we have made some important breakthroughs, including the development of the Methane de Nox boiler that burns sludge with lower emissions.

The industry's next goal is to add biomass gasification to its energy technology portfolio. Black liquor is one biomass fuel created during the chemical pulping process. Gasification converts these pulping extractives into combustible gases that can be efficiently burned like natural gas. If fully commercialized, this technology could produce enormous energy and environmental benefits. First, it would render the U.S. forest products industry completely energy self-reliant. Second, it would generate a surplus of 22 gigawatts of power to the grid—the equivalent of one-half of California's peak summertime electric use. Finally, this use of biomass would remove 42 million tons of carbon emissions per year and significantly reduce SO_X, NO_X and other emissions. Thus, the realization of gasification technology would sig-

nificantly contribute to energy security, the use of diverse fuels, greenhouse gas reductions and overall environmental benefits.

Our member company, Georgia-Pacific, is building the first demonstration biomass (black liquor) plant in Big Island, Virginia. It is scheduled to go on-line in 2003. In addition, we hope to pursue other demonstration tests over the next several years. Yet, as with any investment with great potential for positive return, biomass gasification research and development is costly and risky. The forest products industry is moving forward, but we cannot do this alone. The industry needs a consistent and committed partner to ensure successful commercialization.

The Big Island project is part of the Agenda 2020 program. Forest product industry participants provide 50 percent of the investment capital for these demonstration projects. Partnerships, such as this, promise new energy efficiency and other technological innovations. We believe this sort of government-industry partnership should remain an important component of our national energy policy and Congress should continue to support these initiatives.

As research and development projects yield more efficient and environmentally friendly production methods, our attention must turn to making it easier for facilities to adopt new technologies. Right now, forest product industry facilities are hindered in their adoption of cogeneration and self-generation technologies by inefficient and counterproductive permitting restrictions.

With its expensive 18-month permitting process, the Environmental Protection Agency's New Source Review Program has had a pernicious impact on our economy and our environment. It forces companies to use fuels that are high in price and short in supply while discouraging new investment in energy-efficient and environmentally-friendly technologies and processes.

The one-two punch of increased fuel prices combined with an economic downturn is wreaking havoc on the competitiveness of American pulp and paper producers. As natural gas prices continue to spiral upward, forest product manufacturers desperately need the flexibility to substitute lower-cost alternative fuels to run their boilers. American firms cannot afford to be locked into a single, high-cost fuel source when they are literally fighting for survival in a global market characterized by unregulated competitors and razor-thin profit margins.

Mr. Chairman, we believe there is an immediate need for policy reforms that will accelerate—not hinder—projects that increase energy efficiency and conservation. Research and development of new technologies should be encouraged and supported. And streamlined permitting processes should provide maximum flexibility for facilities to meet energy needs in the most efficient, cost-effective and environmentally sound manner possible.

PREPARED STATEMENT OF CHEVRON ENERGY SOLUTIONS

Chevron Energy Solutions appreciates the opportunity to discuss the need for energy efficiency in our country, and barriers we have encountered in trying to do business with the Federal government to increase energy efficiency in public buildings. We believe that some small, but critical changes to current law would help increase the use of Energy Savings Performance Contract provisions which we, as well as many others, believe are underutilized. These changes would help both public officials and contractors cut through the "red tape", and get the job done of increasing energy efficiency in our public buildings.

By way of background, Chevron Energy Solutions is an energy services company headquartered in San Francisco, California, with 12 offices nationwide. In July 2000, Chevron acquired the retail energy services business of PG&E Corporation, and integrated the expertise into Chevron's own proven capabilities in this area. Chevron Energy Solutions has programs for energy management, energy efficiency, power quality, and power reliability to meet the ever-changing and growing demand of both private companies and public agencies. With the Federal government, over the past several years, we have done and continue to do a substantial amount of contract work for the Department of the Navy and other Federal agencies (many high security agencies) in both energy efficiency and infrastructure improvement upgrades. In the State of California alone, we have implemented energy performance contracts for community colleges and school districts, municipalities and other government agencies in an effort to assist them in meeting the challenges associated with energy shortages and escalating energy costs. We are also under contract with the Metropolitan Washington Council of Governments to make energy performance contracts available to their member agencies and departments throughout the greater metropolitan Washington area.

Energy Savings Performance contracts are an important and innovative tool for government agencies to fund energy efficiency measures. We estimate a savings of over $175 million in energy costs could be saved in Federal buildings alone under existing law—and substantially more if some changes are made to existing law. Government facilities represent a significant opportunity to help us meet our national energy goals. Our experience has shown that many of these facilities have aging and energy inefficient equipment and infrastructure that requires modernization to allow them to operate at peak efficiency. To help address these needs, and provide a financial mechanism to obviate the necessity of a large capital outlay, Congress included "performance contracts" as part of the Energy Policy Act of 1992 to allow energy upgrades to be paid for through savings obtained through energy efficiency.

We are very supportive of the energy contracting provisions in current law, but we have learned that "one size does not fit all", and increased flexibility is needed. We strongly advocate that changes be made in existing law to provide for some of this additional flexibility. If these changes were made, we believe that these provisions would be more workable and utilized by more Federal departments and agencies and could result in energy cost savings of greater than $500 million. In addition, State and local government agencies are adopting and implementing similar provisions, which mirror the Federal statute.

The focus of current law is on "cost savings" and not necessarily on "energy savings"—and it is important that we also address conservation as a means to help us meet our national energy goals. Reducing energy use does not always correlate with cost savings, although in many instances it does. The rising cost per unit of energy may also mean that a performance contracting initiative may result in a reduction in the total amount of energy consumed, yet there may be no cost savings at all. Therefore broadening the scope of the law is not only desirable, but it is entirely appropriate.

We would recommend that the following changes be made to existing law:

(1) **Broaden the definition of energy savings measures to include infrastructure improvements that contribute to energy conservation,** including operational efficiency of building heating, ventilation and air conditioning systems, lighting systems, building envelopes, domestic and hot water systems, measures that result in verifiable operational efficiencies within the building, and other comparable measures. Certainly, these measures should be a part of the overall definition because they represent the breadth of what energy efficiency is about—that certainly operational changes are key to achieving this goal. Efficiencies do not arise solely from one piece of equipment within a facility, but from the interrelationship of systems within the facility

(2) **Allow for a single contract to cover work that is related to implementing energy efficiency measures.** In order to install energy efficiency measures, often times other incidental work must be done first. For example, asbestos may need to be removed prior to revamping a building's electrical system or a roof repaired prior to revamping the heating system. Under current law, the agency must let a separate contract for this work although the work is related to installation of the energy efficiency measures. This work could very well be done, and should be done by the same contractor. If the Federal agency had the option to provide one umbrella contract for all work related to implementing the energy savings contracts, then this would eliminate "red tape", and the energy efficiency measures could be installed faster and less expensively. In addition, Federal agencies should have the option to finance these costs from their capital budgets.

(3) **Expand provision to cover "energy usage" as a factor that can be counted in determining the "savings."** This would provide incentives for conservation, and not restrict the "savings" solely to costs. We recommend that changes would provide for being able to account for a corresponding reduction or change in energy use. With rising energy costs, there may be no decrease in funds but yet energy is being conserved.

(4) **Provide incentives and educate school districts regarding performance contracting.** Public schools are continually plagued with aging inefficient energy systems, and lack funds up front to pay for the upgrades. Performance contracting is a tool that would allow public schools to do the necessary upgrades without expending capital funds up front. We recommend that DOE and the Department of Education work together to develop incentives for public schools to use performance contracts.

(5) **Provide some flexibility in the methodology in how the energy savings are verified.** In current law, an "annual energy audit" is required. An "annual audit" is not always necessary because energy efficiency standards are in place and the use of these conventional standards (which have already been verified) is accu-

rate measurement. For example, if there is a lighting retrofit, the specifications for those lights include energy use and costs—therefore, "an annual energy audit" performed by the contractor to verify energy savings is unnecessary and redundant.

Again, we appreciate the opportunity to submit testimony for the record and believe that these changes are needed to add flexibility to this provision so that it will be more fully utilized and ultimately increase energy efficiency at our government facilities. We are hopeful that Congress will include these changes in the energy legislation now being considered.

Thank you for your consideration.

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