Ms. ABEND. Yes. Abend.

Ms. BIGGERT. All right. Thank you. It seems that we are in a technological revolution in most everything in our lives and yet we are still in the dark ages as far as some our technology for energy is and we have spent nothing really in the last 10 years probably with the energy policy. Does PIRG see a way to continue our economic and technology expansion and continue to improve our standard of living and provide for an increased population without gaining access to additional fossil fuel supplies?

Ms. ABEND. I think what we need to focus on right now is finding a smarter, cleaner energy future. We can meet 60 percent of our Nation's future energy needs through energy efficiency and renewable energy by 2020. Forty-eight percent of the 1,300 plants that President Bush proposes for his energy plan are already under construction. So I think that we do have adequate options for meeting our future energy needs.

Ms. BIGGERT. But--well, you talked about like 100 square miles of solar power would produce how much--

Ms. ABEND. Would produce as much energy as the United States uses annually.

Ms. BIGGERT. Why--if that was possible, why wouldn't be doing that now? You know, I have driven by those windmills in Palm Springs and they seem to be going like mad, but that is
a huge area that only powers such a small part of California.

Ms. ABEND. Right. Well, these programs don’t receive sufficient funding. And compared with the funding that fossil fuel programs receive, they are not on a level playing field. The Bush Administration cut funding for renewables by nearly 50 percent from 376 million to 186 million in its budget proposal. That is why we strongly support DOE’s energy programs, but we encourage these programs to be expanded.

Ms. BIGGERT. But--

Ms. ABEND. And DOE should increase funding for those to $750 million a year.

Ms. ABEND. And how long would that take to develop such a plan? And we--only 2 percent of our energy is--

Ms. ABEND. Well, the technology is already available. For example, wind power is already competitive with fossil fuel in some situations. Other countries are way ahead of this on this, and we should be the leaders of this technology. For example, Denmark, very soon is going to be having 50 percent of its power coming from wind. So these aren’t things that need to be so far off in the future if we increase funding for these programs.

Ms. BIGGERT. Well, I think we really need to look at renewables, but, you know, the size of Denmark compared to the size of the United States in trying--I don’t know, coming from Chicago, where we didn’t--
Ms. ABEND. Right.

Ms. BIGGERT. --see the sun for at least 3 weeks in a row.

How do you--

Ms. ABEND. Right. Well--

Ms. BIGGERT. How do you store that power?

Ms. ABEND. --6 percent would be--yeah, 6 percent of the continuous United States land area could actually produce 1-1/3 the amount of electricity that the United States used in 1999. So it is just really a matter of focusing on these programs.

Ms. BIGGERT. Mr. Mead, in your presentation, you talked about Governor Ryan's initiative and what is going on. How can--can you suggest ways in which the state programs and federal programs can increase their coordination and collaboration? Do you think there is enough of that right now or are there impediments in the federal program to really provide the benefit and usefulness to the--to Illinois and other states?

Mr. MEAD. There has been a lot of cooperation and collaboration over the years, as I address in my testimony. One of the factors that I think would be very useful is that both programs operate often on a competitive selection basis and independently. And so that a project selected through review by a federal agency may be different than one that is chosen at a state level. There could be, perhaps, greater
examination of the common issues and needs in a region where
projects that would have particular value for Illinois or the
Midwest could be factored into the federal program.
In addition, I want to emphasize again the critical need
for advanced research and development on issues that we do
not face today with our current regulation, but issues that
we expect to face in the future. The overall reduction of all
emissions is going to be crucial for the life of the coal
industry, such as Illinois. We have experienced this with the
sulfur issue. Now, we look ahead and see other issues for the
future.
This is where, I believe, the Federal Government can
really dovetail with state economic development efforts and
nearer-term state efforts.
Ms. BIGGERT. Thank you. Thank you, Mr. Chairman.
Chairman BARTLETT. Thank you very much. Ms. Hart.
Ms. HART. Thank you, Mr. Chairman. I am glad to see a
hearing being held on this issue. I--and I am sure a lot of
other members represent some very interesting technology
organizations. And I have a company in my district, actually,
called Export Tact that some of you may be familiar with. It
is developing and continuing to research advanced form of
clean coal technology--one that cleans the coal removing
mineral impurities using magnets resulting in a coal waste
that can be returned to the environment without being
hazardous and also, obviously, a cleaner burning coal.

I know that there is a lot of other technologies out there and I am glad to see them. I think it has been a long time in coming and I am also pleased to see some of the progress, you know, made by organizations within the government and some of the research.

I think I have a general question, basically, for the Panel. As far as, you know, we are focused on the first Panel pretty much on clean coal technology, but I am interested in a general question of future resources to--future sources of energy, future sources of energy, especially electricity. And as we look to the future, unfortunately, I think, we have taken a turn toward using natural gas for electricity. And I would like your opinion on that as a direction. I would like to know if you think we made a wrong turn and if you think that we have to turn more heavily toward coal from natural gas.

Mr. KRIPOWICZ. I think the industry turned to natural gas because it was the cheapest available alternative and the industry will go to the most economic thing that they can do. And the problem with exclusively burning natural gas, of course, is that you run into supply problems. At least you do on any foreseeable basis that we can imagine. There is a very large supply of natural gas in the country, but demand, even with reasonable expansion of the electricity
market, is supposed to go up by 60 percent by the year 2020. 
So there is a tremendous demand on natural gas, mainly from 
the utility business. And at that, natural gas would still 
only be about 25 percent of the installed utility capacity. 
So you need to continue to look at the other resources and 
coal is one of those.

Now, I would be the first to say that what we don’t want 
to do is put in coal plants that are just like the ones that 
have been in existence for the past 25 years. We want to 
build cleaner, more efficient, coal plants, that have much 
less environmental impact. I think we also need to look at 
the nuclear option to see whether we can extend the existing 
uclear plant life and increase the efficiency of those 
plants over a period of time.

And we also have to look at renewables. Not just hydro, 
but solar, as other Panel members have said, because in 
certain circumstances, those kinds of technology will be 
economic. But I believe we need to look at all of those 
things.

Mr. YAMAGATA. Ms. Hart, if I may just add to that? Let me 
quote to you a quote from William Wise, the Chairman and CEO 
of the El Paso Corporation, which happens to be the world’s 
largest natural gas pipeline company. He says—-I quote in the 
Utility Spotlight of March 5, 2001—-‘‘Conventional sources of 
natural gas in North America won’t be able to produce enough
deliverability to meet the kind of demands that power
generation is going to drive.' And I think the point that
you made is absolutely right on.

I want to second what Mr. Kripowicz has said, and that
is, it seems to me we need to be looking at...and trying to
develop all of our energy resources, as well as all of our
efficiency and energy conservation and renewable
endeavors that we have in mind. Frankly, we need them all.

One of the issues that has not yet been made in this
Panel discussion is, with respect to coal and with deference
to my other Panel colleagues here is, we are not just going
to use coal in the United States where we have a 250-year
supply and it supplies 51 percent of the current electrical
base in this country. We are going to use it around the
world. We are going to use it in China and India and other
places like that. And the promise of better, cleaner coal
technologies is something that we ought to be aware of. It is
a technology transfer and an export opportunity for this
country, but it is also something that is the resource
itself, that is going to be used around the world. And we,
perhaps, as stewards of the planet, have an obligation, it
seems to me, to try and make that use as clean as possible.

Ms. HART. Go ahead, Mr. Wells.

Mr. WELLS. In terms of your resource question, whether it
is $2 billion or the current proposal of the 10 or $20
billion, the niche in the market for GAO would be to look at whether these resources are spent effectively and efficiently and we are getting the biggest bang for the buck. I would agree with my panelists that history has shown us that you need a balance of energy sources, and much of what we have seen in the natural gas market right now would be the demand far exceeded the supply and it was driven by some policy considerations that put the market in and up and down situation. So future deliberations on energy sources should include a balance from all sources, including coal.

Ms. HART. Thank you. I see my time is up, Mr. Chairman.

Chairman BARTLETT. Thank you very much. And now, our Full Committee Chair, Mr. Boehlert.

Mr. BOEHLERT. Thank you very much, Mr. Chairman. Ms. Abend, I agree with much of what you say and it probably will come as no surprise to anyone in this room, given where I come from, acid rain entered the Nation’s vocabulary as a result of the havoc being wrecked on the beautiful Adirondacks in my neighborhood. And I certainly agree with your comments on global climate change. It is for real. It is not some vast left wing conspiracy. And I also agree with your commentary about the need for a greater investment, not lesser investment, in renewable energy sources and energy efficiency. And I am trying my darnedest to convince the administration that they should take a different path in some
of these areas as they address the energy problem we face in America.

But some of what you say gives me pause. You summarily dismiss clean coal technology almost out of hand. I don’t think that is the right thing to do. I have been supportive in the past. I have been skeptical. I am still supportive. I am still skeptical. I would like to think that this Committee would authorize programs where we have guaranteed success all the time. That is not the nature of research and development. We have to venture forward and with the best hopes and expectations.

And as I look over some of the testimony, I—and I refer specifically to Professor Mead. And one part of his testimony says, the eventual application of ultra clean systems will hold tremendous value to a Nation whose greatest fossil energy resource is coal. We can’t escape the fact that coal now provides more than 50 percent of our electricity-generating capacity in America, nor should we ignore the potential for wind energy and solar energy and hydro energy and biomass.

I think what we have to do is come up with a balanced program, and I am trying very, very hard to convince the Administration of that. I think the initial proposal advanced by the Administration focused almost exclusively on supply. We can’t drill our way out of this problem, but we can’t
conserve our way out of the problem. We need balance. And I
am also mindful of the statement made by Mr. Wells as he
looked at the Clean Coal Technology Program. And, among other
things, he pointed out there have been successes and there
have been failures, and some of those failures have been
costly. But I would suggest that the investment, if very
carefully monitored, can offer us what Mr. Mead wants and
what we all want.

And, as Mr. Wells said in his testimony, this program
serves as an example to other cost share programs in
demonstrating how the government and the private sector can
work effectively together to develop and demonstrate new
technologies. That if my hope for this program.

You said there is no such thing as clean coal, and I
would essentially agree. But there is such a thing as much
cleaner coal, much lower emissions. And that is what I am
driving at. I have the definitive bill in this session of
Congress to deal not just with nitrogen oxide and sulfur
dioxide, but also with mercury and CO2, which is for real.
And the President has now acknowledged that CO2 is for real.
Those are the words I would like to see some deeds follow.
And I think working constructively with the Administration,
we will see them.

But I guess in this long commentary, I would just urge
you and your associates in PIRG, not to summarily just
dismiss something that has potential of doing the right thing
for all the right reasons, but try to work with us to develop
a program that is responsive to our needs, that is
cost-effective, and moves us in the direction, I think, you
and I would agree we should move on.

With that, let me just ask you if you--if there is any
hope that we can convert you to have sort of a glimmer of
hope that maybe, maybe, we could get something positive out
of the Clean Coal Technology Program, given the proposition
that I agree with you, more investments needed in renewable
energy sources, more investments needed in energy efficiency.
We have to forthrightly address CO2. There are a lot of
things we have to do and so there is a lot of area of
agreement. But I will give you the opportunity now.

Ms. ABEND. Well, first of all, I would like to say that
we strongly support your Clean Smokestacks Act of 2001 and,
you know, that would reduce NOx and SOx, or smog and soot
emissions, by 75 percent and mercury emissions by 90 percent
and global warming pollution or CO2 pollution to 1990 levels.
And I think the key there is that it imposes strong standards
that will need to be met. The truth is, that burning coal
will always produce pollution, especially carbon pollution,
which causes global warming. Burning coal accounts for about
1/3 of global warming pollution, and we feel that the Federal
Government should not be using taxpayer dollars to encourage

Obtained and made public by the Natural Resources Defense Council, May 2002
Now, obviously, as you said, we would rather have cleaner coal than dirtier coal. But we believe that polluters, not the public, should pay for cleaning up pollution. That is why we--

Mr. BOEHLERT. Let me reclaim my time, if I may, because you got a nice prepared statement and I appreciate that. But I would agree with you that coal is a problem right now and your figures are probably very accurate. I haven't verified them, although I have trust--the 1/3 figure you used. But I don't like that. You shouldn't like it either. I don't accept that. You shouldn't either. And that is why we are talking in terms of investing important and scarce taxpayer dollars in the research and development that is going to lead us to a better day. And I would just hope that you would give some consideration to the possible--to the potential for this program if we do it the way we should do it.

And I want to thank you very much for your commitment. And I want to thank all the witnesses because you are stars here. You are resources for the Committee and we really appreciate it. In fairness, since I am calling for a balanced policy, Mr. Yamagata, maybe I ought to give you some time to comment on my little discourse here.

Mr. YAMAGATA. Mr. Chairman, thank you very much. I will just take a second of the Committee's time and note, if I
may, that in the vein of the line of reasoning that you have so eloquently developed, it seems to me that our goal here ought to be to take issues about environmental concerns out of the question about whether or not we can and should use coal. And we need to do that, I think, by making a commitment to the development of those technologies that I believe both the government and industry believes is within the realm of the possible. It will take time. It will take a financial commitment. We have a history of having made real progress, really, since the 1970s in terms of emission reductions from the use of coal. It seems to me that is a better set of metrics from which to judge than one which simply says we shouldn’t use it at all.

Mr. BOEHLE. Thank you very much. Mr. Chairman, thank you for your indulgence.

Chairman BARTLETT. Thank you very much. Mr. Wu has joined us. Mr. Wu.

Mr. WU. Thank you very much, Mr. Chairman. In some respects, I am catching up a little bit to testimony which has been given earlier. But I would like the Panel to clarify for me that if we are not focused on clean coal or other clean technologies--let us just focus on clean coal. What would be the CO2 impact of alternative technologies to the coal technology that we are talking about?

Ms. ABEND. Obviously, there are a lot of renewable energy
sources that don't produce any CO2. We talked about wind technology, solar technology. And then I would just also like to stress that another alternative is just to improve efficiency. Like I said, we can meet 60 percent of our future energy needs by improving efficiency. One example of a way that we can do that is to improve auto fuel efficiency standards. If we increase those to 40 miles per gallon, we would save 15 times the oil in the Arctic National Wildlife Refuge. So there are a lot of viable solutions out there that don't produce any carbon dioxide, and we really need to focus on putting as much energy as we can into those solutions.

Mr. Wu. Let us come back to that in a second. Mr. Kripowicz.

Mr. Kripowicz. Mr. Wu, one of the things about the clean coal technologies that we are developing is that we—in the long term, we expect them to be almost double the efficiency of existing power generation technologies. So we would be talking about reducing CO2 emissions just with that technology itself by around 50 percent. In addition, the Department is working to develop economic methods of sequestering carbon from the air. And if we can do that on an economic basis, then we could essentially have zero carbon emissions coal technology as well as other technology.

If we can get indirect sources of—indirect ways of capturing CO2, we could actually help reduce the emissions
from other sectors of the economy than electricity also. It doesn't have to be coal related. It is any kind of carbon. So you could also affect the CO2 emissions of the transportation industry, for example.

Mr. YAMAGATA. Mr. Wu, if I may, a rule of thumb, if you will, with respect to increased efficiency of coal plants, for each percentage increase in efficiency, say, going from a 30-percent conversion—I take a lump of coal and I get 30 percent of its useful energy out of that coal if I produce electricity, which is kind of today's technology. But if I could produce 60 percent out of that lump of coal, I also, at the same time, reduce on a percentage-basis the amount of CO2 that I would emit in the reverse order, just as a point of reference.

The second point, to get back to the question you originally raised, that nuclear energy is—has no CO2 emissions, just as a point of reference.

Mr. WU. Would you care to discuss any other benchmark technologies other than nuclear?

Mr. YAMAGATA. I think you can look across the board at hydro. You know, there—the point here is that all of these resources that we are blessed with have their own constraints, whether it is nuclear or hydro or renewables, frankly. One of the large problems with our wind energy, which happens to be economic today, and we support it, is
just the siting of wind systems, which you may well be
familiar with. But they all have their problems.

Mr. BOEHLERT. I have got some locations in upstate New
York for you, if you would like.

Mr. YAMAGATA. I know you do, Mr. Chairman.

Mr. WU. While we prize our hydro systems in the Pacific
Northwest, we have become acutely aware of some of the
downsides of renewables, whether it is wind or hydro or other
sources. I guess leaving that fertile terrain behind for the
moment, perhaps some of you could address the topic of
burning, as you say, a lump of coal, and getting 30 percent
energy--useful energy out and, I believe, primarily using
that for electricity generation versus piping fuel directly
to the site where the electricity would otherwise be used and
the relative efficiency of those two different systems.

Mr. KRIPOVICZ. With distributed energy systems, which
I think is what you are referring to, in most cases, the fuel
you have to use is natural gas. You know, if you pump the
fuel directly to a small electric generator, the fuel you
have to use is natural gas. And the question then becomes how
much natural gas do you have available. I would also point
out that you can gasify coal and you can also use that to run
fuel cells and other kinds of distributed generation also. So
I mean, you know and there are there is a plant that has
been in existence for a long time in the United States in
North Dakota that produces pipeline quality gas that can do
the same thing from coal.

Mr. MEAD. I think another factor is that coal is also a
good source of other products, chemicals, carbon-based
materials. So power generation with a co-production of other
materials, is another way of gaining efficiency. And in some
sense, co-generation is another type of distributed power
generation. So coal, as our most plentiful source of
carbon-based products, is a very important resource beyond
energy. And the combination of energy and other products can
really raise the efficiency of the overall system.

Mr. WU. Mr. Chairman, thank you very much for recognizing
me. I think in what feels to me like record time, but I see
very quickly we are in the red-light zone already. Thank you
very much. Thank you to the Panel.

Chairman BARTLETT. Thank you very much. Mr. Kripowicz,
did I hear correctly that new techniques in Southern
California enabled them to find a million barrels of more
oil? Was that the correct number?

Mr. KRIPOWICZ. Yes, sir. They had actually produced over
the life of the field only about a million barrels. And--

Chairman BARTLETT. Now, they produced a million more. I
just wanted to put that--

Mr. KRIPOWICZ. And then they produced in this 3 or 4-year
period an additional million barrels. So the technique not
only allowed them to go back--

Chairman BARTLETT. Yeah.

Mr. KRIPOVICZ. --to the kind of production levels they
had before, but actually to exceed those levels.

Chairman BARTLETT. That is a lot of oil. But I just
wanted to put that in perspective. That is about 1/20 of one
day's use of oil in this country. Ms. Abend, recently I met
with the Vice President. I reminded him that this President
is my President, of whom I am very fond, by the way. And I
didn't want him to look dumb. And I asked the Vice President
to explain to me why cutting the energy budget, when we face
a potential energy crisis, particularly the budget for
renewables, wasn't dumb? And the Vice President asked OMB to
come to my office to brief me. And they came to my office and
pointed out that although they had cut a lot of R&D from the
renewables budget, that they had also put, in another part of
their budget, some tax credits--almost a dollar-for-dollar
offset tax credits for using renewables. Does this help?

Ms. ABEND. Obviously, tax credits can be an important
tool in forwarding renewable energy and energy efficiency. I
think that tax credits need to be accompanied by standards
and goals. For example, for renewable energy, we suggest a
goal of having 20 percent renewable energy by the year 2020.
Simply by, you know, having tax credits doesn't ensure that
we are going to get there. We also need to have sufficient
funding for these programs for the research and development of these programs.

In terms of energy efficiency, tax credits can be dangerous if they are not accompanied with actual standards for improving energy efficiency. For example, again, with automobiles, if you have tax credits without actually improving standards for auto fuel efficiency, then you can just have, at the other end of the spectrum, the industry is able to produce more polluting vehicles. So it is important to accompany these tax credits with improved standards.

Chairman BARTLETT. I am a big fan of renewables. I am also a big fan of efficiency. I was just told this morning that California has now reduced its electric consumption by 11 percent. Efficiency and conservation does work, doesn’t it, if they have reduced their consumption by 11 percent.

I also agree with you on the CAFE standards. I was the first person in Maryland and the first member of Congress to purchase a Prius hybrid electric car. We have now driven it over 16,000 miles. There is no reason that most of the cars on the road shouldn’t be this technology. Our auto manufacturers in this country have them on their drawing boards. They need to be in their showrooms. This car performs as well as any other car that we have owned and it pollutes as little as 1/10 as much as competing models. And for the last more than 500 miles, we have averaged 50 miles per
gallon on the car--now, the EPA mileage. If you don’t pay any
attention to how you drive, you will get 45. But it has a
computer screen there that kind of coaches you to do
efficient things in driving. If you do that, it is not very
difficult at all to get 50 miles per gallon.

I was disappointed they didn’t export to us the model
they built in Japan with a 1 liter engine. Ours has a
liter-and-a-half engine. I guess we like muscle cars and--but
I was disappointed they didn’t export here the car that they
market in Japan. It would have gotten about 60 miles per
gallon. And I would note that safety is all very relative.

There is no car on the road--there is no SUV that performs
much better than the smallest car when they have a
head-to-head confrontation with a tractor trailer. So it is
all very relative. Isn’t it? And the big SUV owner who now
claims that he is safer--if all the cars were smaller, they
would all have equal safety. And none of us are really all
that safe if we are going to run into a big tractor trailer
car.

Ms. Abend, I noted your remarks about coal and its cost
in terms of illness, its cost in terms of the environment. It
is not free, you know. It produces the lowest cost to
electricity. And that is a very compelling argument, don’t
you think, as to why we shouldn’t go to nuclear?

Ms. ABEND. Well, coal actually has not produced a profit
for the DOE. It has--the DOE has recouped only a small portion of taxpayers' money devoted to the program. A 1996 audit of DOE found that there was a potential loss of $133 million out of $151 million investment in six clean coal technology programs. So obviously, the money isn't really being spent in the most efficient way that we possibly could. And the point here is that we feel that the coal industry should be paying for its own research to reduce emissions. Chairman BARTLETT. That is another question. In another round, I will ask you that question--

Ms. ABEND. Uh-huh.

Chairman BARTLETT. --because Mr. Wells is the only, I think, relatively nonbiased person on the Panel today. So I would like to ask him that--but my question to you was, doesn't your arguments about the problems of burning coal--aren't they very powerful arguments as to why we ought to use more nuclear? It doesn't have any of those negatives that you talked about with coal. You see, if we don't burn coal, we have got a big, big problem. We don't have any way near enough electricity since coal produces half of it. Every fifth home is now powered by nuclear. And the argument you made about the problems with coal, aren't they powerful arguments as to why we have got to look harder at nuclear?

Ms. ABEND. Nuclear energy is unsafe. It is expensive. And, in the past, it hasn't been successful. It has required
a huge amount of taxpayer bailouts. And so I just feel like
that is--PIRG feels that that is not the solution to our
ergy problems. Obviously, energy efficiency is the
quickest, cheapest, and cleanest way to save consumers money
on energy bills to reduce pollution and also to help prevent
rolling blackouts.

Chairman BARTLETT. Well, I am with you a hundred percent
on conservation and efficiency. And we will get back in
another round, but my time is now up. And let me turn again
to Mr. Costello.

Mr. COSTELLO. Mr. Chairman, I really have no further
questions. I had a couple of other questions, but they have
already been asked by other members. I would just like to
thank all of our witnesses for being here and to give them an
opportunity, at this time, if they would like to respond
to--or to add to any question that has been asked, starting
with Mr. Kripowicz. Anything you want to add at this point?

Mr. KRIPOWICZ. Only one thing, Mr. Costello. And that is,
that on balance--and even GAO agrees that on balance, I think
that the clean coal program was a model
effort with industry to produce clean technology. And we
would hope to avoid some of the mistakes and problems that we
had to some extent, in the original program, whenever we
go through the second clean coal technology initiative that
the President has recommended. And we think we have the
knowledge to be able to do that and to work with industry to
produce clean technology--cleaner and more efficient
technology than is available today for the country. Thank
you.

Mr. COSTELLO. Mr. Yamagata.

Mr. YAMAGATA. Thank you, Mr. Costello. Just an
observation that 2 percent of the 600,000 megawatts of
currently installed electrical generation in this country
comes from renewable energy; 51 percent comes from coal. We
would be ecstatic if 20 percent of the 3 or 400,000 of
additional capacity that the President has estimated could
come from renewable energy and we endorse that if that can
happen. But I think we need to be realistic.

Mr. COSTELLO. Mr. Wells.

Mr. WELLS. Not often as a GAO witness I get to talk about
something that is really working well and done good. But for
the Clean Coal Technology Program we did commend DOE and we
should commend the Congress for putting together provisions
that allowed a good cost-sharing agreement. The fact that the
Congress appropriated money over a longer-term period gave
confidence to the business world that the government was
committed to supply the funding necessary for success. The
fact that DOE gave clear instructions on the roles and
responsibilities, in terms of their partnership--the fact
that DOE came to the table and didn't pay for everything, but
much of the industry supported greater cost shares. And once
you learn that when industry puts more of their dollars in,
there is a likelihood or a greater chance of success. A lot
of things were done well and we think that much of that could
serve for even better cost-sharing provisions in the future.
So we commend DOE and the Congress for doing that sort of
thing.

Mr. COSTELLO. Ms. Abend.

Ms. ABEND. I would like to just respond to Mr. Yamagata's
comment on being realistic about alternative energies,
because I did talk a lot about Clean Coal Technology Program
being mismanaged in some ways. And I would just like to
stress that in comparison to Clean Coal Technology Program,
energy efficiency, the rate of return for those programs, has
been staggering.

According to the American Council for an Energy-Efficient
Economy, the DOE recently documented that 20 of its most
successful energy efficiency projects have saved the Nation
5.5 quadrillion BTUs of energy over the past 20 years, which
is worth about $30 billion in avoided energy costs. The cost
to taxpayers for these activities over the past decade was
$712 million, which is less than a 3 percent of the savings,
and the savings are increasing every year. So just in terms
of the rate of return for that program, it is pretty
astounding.
Mr. COSTELLO. Mr. Mead.

Mr. MEAD. Well, certainly, I want to emphasize the energy mix that we have in this country. We need to invest in all of our resources. But coal represents the largest single source of electric energy and it is the best source for base-load power production. And we need investment in new technology to see to it that we continue to have that reliable base load for our electric economy for the coming years.

Mr. COSTELLO. I thank all of the panelists and thank you, Mr. Chairman.

Chairman BARTLETT. Thank you very much. I just wanted to make one quick observation in response to Ms. Abend's frequent references to the efficacy of efficiency. During the Carter years, we were using, each decade, as much energy—as much oil as had been used in all of previous history.

Efficiency has changed that relationship so much. What that means is, of course, that when you have used half of all the oil in the world, you have only 10 years remaining if each decade you have used as much as has been used in all of previous history. We have now changed that, and it is due primarily to efficiency.

Worldwide now, we have now changed that dynamic, so that when we have used about half of all the oil in the world—and that is about now as we speak, by the way—or a few minutes ago or a few minutes in the future or years in the future or