This morning, I will let the other distinguished Panel members here speak to the successes of the program and I will highlight some of the problems that we observed over the last decade. As you know, as auditors, we are best at identifying problems.

1989--as the first awards were made, there were many company financial problems and delays in getting the business arrangements made. The awardees raised issues to DOE relating to their reluctance to repay the federal cost share. Again, concerns over viability in a competitive marketplace.

Proprietary data issues arose over the possible public release of competitive information that may have disadvantaged companies. Again, frustrating delays in achieving and obtaining various permits, either at the national or state or local levels, and not surprisingly, with any new federal program, there were cumbersome headquarters approval processes.

1990--as we looked at DOE, as how they were evaluating, ranking, and selecting the projects, we found that some of the awards that appeared weak in meeting all of the evaluation criteria, especially as it related to solving some of the acid rain issues. Some technical readiness issues were observed that surfaced, that showed up in major project delays and completion date slippages. This caused us to
think, in the early '90s, that perhaps too much money may be chasing less than the best projects. We suggested that the program be slowed down a little bit in awarding new money to new projects again in 1990.

We also did some work looking at the potential for the utilities to use the clean coal technology and found, at that time, a cloudy vision for the future. Their interest was relatively low at the time. Most utilities were not sure what the future demand for coal was going to be, given the expanding natural gas availability and pricing structure. We are uncertain, at this time, and suspect that the future and the vision still may be cloudy today.

1991--we raised concerns about how we were using federal funds to support projects that were close to commercialization. We also raised concerns related to being unable to find buyers for the developed products and the technologies.

1994--we commended DOE for doing good cost-sharing features of the cooperative agreements that they put in place to be used in the Clean Coal Program. The process of using multiple solicitations in stages allowed DOE, as the program progressed, to make major improvements and adjustments to how the program was being run. Some earlier problems with financing, with proprietary data handling and sharing of costs were improved. However, the instances of continuing
project delays, cost increases, and compliance issues, and
projects still changing locations throughout the country,
remained.

1996--we looked in general at recovering federal investments in technology, especially if the-products were being used overseas. Having flexible repayment provisions, such as was used in the Clean Coal Program, was found to be a positive thing. Adjustments were made and an increased federal cost recovery was achieved. However, again, some of the companies continued to be concerned about lowering their rate of returns which may have, at that time, discouraged some participation. Even the agency themselves worried about the administrative burden of negotiating, auditing, and enforcing repayment provisions.

Year 2000--our most recent work for the House Budget Committee were, we were asked to go in and focus on the money that was left in the program and what was happening with 13 of the projects that were remaining that had millions of dollars unspent. Five of those projects were nearing completion and the remaining eight showed signs of the same problems that we had seen over the years--serious delays in being completed--2 to 7 years; continuing financial problems with company financing, including ongoing bankruptcy procedures--proceedings. And once again, we observed that projects continued to be moving around the country, cities to
cities, owners to owners, in some sense, continuing to look
for success.

In summary, I think I will stop here, Mr. Chairman. My
time is running out. The Clean Coal Program clearly has had
its ups and downs. Today, as you and fellow-Members of the
Congress are addressing today's energy challenges, we would
hope that you would take some of the lessons learned from the
Clean Coal Technology Program to allow you help decide how
you would like to spend your future research dollars. Mr.
Chairman, this concludes my short summary and I would be glad
to answer questions at the end of the Panel presentation.

Thank you.

[Statement of Mr. Wells follows:]

**************** INSERT 4 ****************
Chairman BARTLETT. Thank you very much. Ms. Abend, welcome, and you may proceed. Could you turn on your microphone, please?
STATEMENT OF KATHERINE ABEND, GLOBAL WARMING ASSOCIATE, U.S.  
PUBLIC INTEREST RESEARCH GROUP, WASHINGTON, D.C.

Ms. ABEND. Good morning. My name is Katherine Abend, and I am the Global Warming Associate for U.S. PIRG. Thank you, Mr. Chairman, and the Subcommittee for the opportunity to testify on our views on the Department of Energy’s Clean Coal Technology Program.

U.S. PIRG is the national lobbying office for the state Public Interest Research Groups. The PIRGs are nonprofit, nonpartisan and work on environmental, consumer, and good government issues across the country.

We believe that the so-called Clean Coal Program is mismanaged and threatens public health and the environment by subsidizing the burning of dirty coal. Since 1985, the DOE’s so-called Clean Coal Technology Program has received more than $2.3 billion in federal funds, as well as hundreds of dollars through a separate DOE coal research and development program. Unfortunately, there is no such thing as clean coal. Proposed clean coal plants will still emit carbon dioxide, which causes global warming, smog-forming nitrogen oxide, lung-damaging particulates, toxic mercury, which contaminates water and land.

Now President Bush wants to waste an additional $2 billion subsidizing the coal industry. It is time to protect our pocketbooks and stop wasting money on so-called clean
coal programs, and it is time to protect our health with stronger clean air standards. It is time for the wealthy coal industry to finance its own research.

No Clean Coal Technology Program can eliminate carbon dioxide pollution, nor would they need to. Reducing carbon dioxide emissions is not a criterion for the program. In fact, some attempts to reduce emissions of NOx, SOx, and mercury from coal-fired power plants results in greater emissions of carbon dioxide, the main component of global warming pollution. In all, coal-fired power plants are responsible for 27 percent of total U.S. global warming pollution. Last week, the National Academy of Science released a report confirming that there is a consensus in the scientific community that global warming that has occurred in the last 50 years is likely the result of increases in greenhouse gases.

Extreme weather events, which are associated with global warming, are on the rise. According to U.S. PIRG's recent report, worldwide, the number of great weather disasters in the 1990s was more than five times the number for the 1950s and the damages were more than ten times as high, adjusted for inflation. In the United States, extreme weather caused $204 billion in economic losses during the 1990s. Clearly, global warming is too expensive to ignore.

Coal-fired power plants emit 90 percent of all pollution
from the electric industry. The four main pollutants, NOx, SOx, CO2, and mercury, cause serious environmental health threats, including smog, particulates, acid deposition, and toxic impacts to health and ecosystems.

Fine particulate pollution from U.S. power plants is responsible for the deaths of more than 30,000 people each year. Eighteen thousand of these could be avoided with a 75-percent reduction in emissions. A typical coal-powered plant releases about 170 pounds of mercury, a neurotoxin, into the air annually. Less than a teaspoon deposited in a 25-acre lake can make the fish unsafe to eat. Most so-called clean coal systems in use remove less than 30 percent of mercury.

Clearly, burning coal has a huge impact on our health and environment. Unfortunately, the Department of Energy’s optimistically named clean coal programs subsidize burning more dirty coal. Billions of dollars have been spent, yet our health and that of the planet is threatened by dirty coal plant emissions. So called clean coal still leads to more dirty air. According to a General Accounting Office report, emerging coal technologies will probably not contribute significantly to the reduction of acid rain causing emissions in the next 15 years.

The DOE’s own evaluations of some of its projects show that new coal technologies were 40 percent less effective in
removing SO2 emissions than conventional smokestack scrubbers.

Clearly, more subsidies will not help protect public health. Unfortunately, some coal supporters are proposing to squander even more money and explicitly roll back health protections. Twenty-four senators have co-sponsored S.60 an industry-backed bill to spend $1 billion over 10 years for research on clean coal, and up to $6 billion in tax breaks for utilities to upgrade plants or building new ones using the technology. This bill would exempt even new coal technology from its promises. Congress should oppose this and other harmful bills that would waste our money and weaken clean air protections.

Environmental problems are not the only shortcomings of the clean coal programs. Since its conception, clean coal technology has been marked by mismanagement. The GAO has released at least seven reports documenting waste and mismanagement in the Clean Coal Technology Program. Last year, in a sampling of 13 government-supported clean coal projects, GAO watchdogs found 588 million in unspent federal funds. As of March 2000, 1/5 of the total projects had either been withdrawn or eliminated.

The Clean Coal Technology Program is redundant with the Clean Air Act Amendments of 1990, which already create financial incentives to develop cleaner burning coal
technologies by allowing utilities to buy, sell, and trade emissions allowances to reach required emission levels.

For the past 8 years, U.S. PIRG has been working to cut polluter pork programs, federal spending or subsidies that harm the environment at taxpayer expense. Our coalition of environmental, taxpayer, and safe energy groups has helped to save taxpayers nearly $24 billion by cutting funding for harmful programs. In February, the PIRGs released with other groups, the Green Scissors Report, which recommends cutting 74 wasteful, environmental-damaging programs to save taxpayers $55 billion. One of these programs is the so-called Clean Coal Technology Program.

The coal power industry is mature and lucrative. At a time of scarce federal dollars, these industries should be weaned from the federal dole. Some of the Nation's largest and wealthiest corporations are also--are beneficiaries of the program, including General Electric, United Technologies, and Westinghouse. General Electric reported record earnings of over $3 billion for the first quarter of 2001.

The GAO seems to agree that these mature, profitable companies do not need subsidies. In an audit, the GAO noted that clean coal technology spending may not be the most effective use of federal funds. For example, some projects are demonstrating technologies that might have been commercialized without federal assistance.
Any legislation from the House Science Committee authorizing funding for the DOE should phase out wasteful spending on clean coal programs and increase funding for energy efficiency and renewable energy programs. Continued subsidies for the polluting coal industry creates an unfair playing field for clean energy sources. Congress should reauthorize the 588 million in unused clean coal funds to pay for part of the following proposals.

There are clean, affordable energy alternatives. Energy efficiency offers the fastest, cleanest, cheapest solution. Americans today consume 40 percent less energy and thus have 40 percent lower energy bills as a result of smart energy efficiency policies created over the past 25 years.

President Bush's proposed energy budget would cut funding for some energy efficiency and renewable—would cut funding for energy efficiency and renewable energy programs in half. Instead, this Committee should direct the Department of Energy to double funding for energy efficiency between 1998 and 2003.

According to the DOE, 100 square miles of solar panels could meet the annual electricity needs of the United States. Meanwhile, wind energy is now cost competitive with fossil fuel energy in some areas. The Bush Administration cut funding for renewables by nearly 50 percent. Instead, this Committee should direct the DOE to increase funding for
renewable research and development to over $750 million per year.

In conclusion, we believe that the so-called Clean Coal Program is mismanaged and threatens public health and the environment by subsidizing the burning of dirty coal. This Subcommittee should seize the opportunity to end the oxymoronic Clean Coal Program. Thank you.

[Statement of Ms. Abend follows:]

*************** INSERT 7 ***************

Obtained and made public by the Natural Resources Defense Council, May 2002
Chairman BARTLETT. Thank you very much, Mr. Mead.
STATEMENT OF JOHN S. MEAD, DIRECTOR, COAL RESEARCH CENTER,
SOUTHERN ILLINOIS UNIVERSITY, CARBONDALE

Mr. MEAD. Thank you, Mr. Chairman. Mr. Chairman, and, members of the Subcommittee, while the future of coal's use is really a national concern, some states have taken a leading role in supporting clean coal research, development, and deployment. Midwestern states, with their high-sulfur coal reserves, have been significant stakeholders since the 1970 Clean Air Act Amendments. These states, particularly Ohio and Illinois, have been frequent participants in U.S. DOE clean coal projects.

In the past year, the State of Illinois has taken dramatic steps to increase the development of new power generation with a strong emphasis on development and deployment of clean coal technologies. Mr. Chairman, I think I can say that Illinois is very enthusiastic about clean coal technology.

Illinois has been a pioneer in the development of these technologies, dating back to the early 1970s, with the development of the first generation of fluidized bed combustion, the earliest gasification tests, and other technologies designed to help the high-sulfur coal reserves of the state.

That has continued with a partnership with the U.S. Clean Coal Technology Program and with significant state programs.
that are— that have been developed with industry and without federal government support.

This year, the Illinois General Assembly, with the support of Governor Ryan, developed a dramatic new set of coal-enhancement programs, including a total of $3.2 billion of state resources dedicated to the development of new power generation capacity, particularly coal-fired capacity. These incentives include $500 million in potential grants from state funding for new development of projects; $1.7 billion in revenue bond authority to provide loans for the development of new power plants; and $300 million in the development of advanced systems, including alternative technologies, the improvement of the infrastructure of power transmission.

And included in this will be an examination of where it may be appropriate to increase and further strengthen the state's Clean Air Act laws as they are applied to older, existing power plants. And these are power plants that will have higher emission levels than new generation because of the nature of the requirements for new power plants under the Clean Air Act.

Exploratory clean coal research and development with an emphasis on eventual commercial adoption of clean coal technologies, is another hallmark of Illinois' program. Southern Illinois University has been involved in the
development of an exciting new program, based on $25 million
of funding from a major state utility, to develop and
commercialize more advanced coal technologies. We issued our
first request for proposals one year ago and we are very
excited to receive 16 proposals from projects that would
total over $400 million in investment in new power generation
capability. This was a single program developed by a single
state at one of its universities. A very dramatic
development--and I think one that in the recent months has
been amplified in Illinois and throughout the country with a
tremendous increase in the interest in new power generation.

While Illinois is really emphasizing the development of
commercial projects, there is a very significant need for the
continued development, aggressive development, of very
advanced ultra clean coal-fired capacity for this country.
This is still at the level of exploratory research and pilot
scale development. This is an area where a single state or
groups of states interested in coal production and power
generation cannot, on their own, solve these technical
scientific problems. We need the help of the Federal
Government. We need the continued support of the Department
of Energy.

Mr. Kripowicz and Mr. Yamagata talked about the need for
the development of these high-performance, high-efficiency
systems. I agree. I believe that we need increased federal
support for these very advanced technologies that can promise
both reduced emissions of global climate-changing gases and
of the current criteria pollutants, as well as increased
efficiency and better mining methods. Together and
integrated, these technologies can provide a truly advanced
clean source of energy for our country for the next hundred
years. Mr. Chairman, thank you very much.

[Statement of Mr. Mead follows:]
Chairman BARTLETT. Thank you very much for your testimony. I want to thank all of the witnesses for their testimony. Obviously, some differences of opinion. I hope we will have a chance to explore those. And later on in the hearing, I will invite members of the Panel to pose questions for other members of the Panel because we want a full airing of all of the issues today. And a whole lot more wisdom is represented at the witness table than represented here at the dais. So we will invite you to ask questions of each other later.

I want to note now that we have been joined by my colleague, Mr. Hart, and by our Full Committee Chair. And I would like to yield my first-round questioning time to our Full Committee Chair.

Mr. BOEHLERT. Mr. Chairman, I appreciate the courtesy, but I prefer to take my turn. That is the way we operate in the Full Committee, first come, first serve, and those of you who have been through the entire hearing deserve to have their questions asked first. I will be the clean-up batter.

Chairman BARTLETT. Well, thank you, and I will follow you as clean-up batter then. So let me now turn to Mr. Costello.

Mr. COSTELLO. Mr. Chairman, thank you. Mr. Kripowicz, one is, you have testified, as some of the other members of the Panel have testified, that the Clean Coal Technology Program has worked. How do you see the $2 billion proposal that the
President has submitted to the Congress and to the American people for a clean coal technology impacting the future of technology in the area of clean coal?

Mr. KRIPOWICZ. Mr. Costello, I think it builds on what is already a successful program. You know, since the program was introduced, several things have happened. One, there have been tighter environmental controls put in place and there are prospective environmental controls, for instance, on mercury that are going to be put in place and in ozone coming up in the future. These things were not addressed in the original program.

Secondly, there is a large requirement for power plant construction that did not occur in the original period of the Clean Coal Program. Actually, over the past 10 years, there was only about 10,000 megawatts of coal capacity built in the United States. And so with the requirement for power we would expect a large increase in that requirement.

And, thirdly, there is a lot of new technology that is in the development stage now that was not available in the early '90s when this program was initiated. So the demonstration of that technology, which will lead to higher efficiency and lower pollution from coal plants is what the attempt of the new Clean Coal Program would be.

Mr. COSTELLO. On page 5 of your testimony, Mr., Kripowicz, you indicate the cost benefits of clean coal
technology. And I guess I have two questions. One, you say
that the American people pay over 200 billion a year for
electricity and you attribute the low cost of electricity to,
in fact, coal in the Clean Coal Technology Programs. In fact,
you say the lower cost clean coal technologies that have
become available in the '90s are one reason why the Nation's
utilities could meet new environmental standards with
imposing harsh price hikes on rate payers.

I wonder if you might rest two issues here. One is, what
initiatives are we currently working on as far as clean coal
technology? And, number two, as Ms. Abend has suggested, we
know that over 50 percent of the electricity generation today
through power plants is--that are coal-powered plants. And I
am wondering if we stopped the use of coal tomorrow, one, do
we have something to replace it with, and, number two, what
would happen to the rate payers?

Mr. KRIPOWICZ. Well, to answer the second question first,
it is apparent currently that with the large amount of
construction of natural gas-fired power plants, which are, I
will admit, somewhat cleaner than coal plants are currently,
we have run into a problem of natural gas supply. If you
remove the 50 percent of electricity that is generated from
coal, there would not be any substitute on an immediate basis
for that. So it wouldn't be a question of a rate hike, it
would be a question of not having enough electricity,
particularly in the short term.

In the long run you need a balance. It is clear that the utility industry is still going to build a lot of natural gas plants. As much as they can get a cheap natural gas-fired facility, they will go to that rather than building a slightly more expensive coal plant--for two reasons. One, because of the economics, and, two, because it is easier to meet the environmental requirements.

But in addition to coal and natural gas, you also have to look to nuclear and renewables and hydro and other things in order to meet the overall electricity requirements of the country. You need a balance--not just clean coal, not just natural gas. You need to do all those things.

Mr. COSTELLO. And--

Mr. KRIPOWICZ. I would also say you need to--in reference to some of the testimony, you do need to increase efficiency in the Administration, and their National Energy Policy has quite a few initiatives in that area.

Mr. COSTELLO. And the last question--what initiative are you currently working on that will improve the current clean coal technologies?

Mr. KRIPOWICZ. Our largest research and development initiative right now is what we call Vision 21, which is a flexible coal-fired power plant, which would, in the future, double the efficiency of coal plants and decrease the...
emissions of pollutants to well below the new source performance standards there are now. In addition, we are developing carbon sequestration technology and coal-burning technologies that would be compatible with that so that, in addition to reducing CO2 emissions by increasing efficiency, we would also be able to capture the remaining CO2 at reasonable costs.

Mr. COSTELLO. Mr. Chairman, I have other questions, but I see I am out of time. So hopefully we will have another round or two. Thank you.

Chairman BARTLETT. We will, indeed. Thank you very much.

We will recognize witnesses who were here at gavel fall in the order of their seniority. For those who appeared after gavel fall, in the order of their appearance at the Committee. So, Mr. Smith, you are recognized.

Mr. SMITH. Mr. Chairman, thank you very much. You know, I am sorry I missed some of it. In the clean coal technology, if we were to be more aggressive with our research funding and our efforts, is it--could you foresee an effort where we could reduce 95 to 98 percent of the pollutants and cut in half the CO2 discharge? What are the possibilities technologically if we were to put our shoulder to the research wheel?

Mr. KRIPOWICZ. Mr. Smith, those are exactly the kind of targets that we have--to reduce the pollution by 95 to 98
percent and also to double the efficiency of coal-fired power
plants. The time frame in which that can be done, it depends
a lot on the existing coal-fired fleet. You just can't _economically replace that fleet all at one time, so it
will be done over a considerable period of time. But by the
year 2010 or 2015, we should be well on our way to replacing
a lot of that capacity which much higher efficiency
technology and lower polluting technology.

Mr. SMITH. Mr. Mead, any other comments?

Mr. MEAD. Yeah. I think it is a goal that science can
achieve. And research and further development in a variety of
energy sources is critical for this country. But the
investment in increasing the efficiency and the cleanliness
of coal, I think, is crucial because we are using so much
col today and are likely to continue to for some time. The
reduction of greenhouse gases, such as carbon dioxide, that
is one of the great issues in terms of technology today and
energy. But advances are being made. There are now concepts
out there that are past the point of just being discussed.
They are not being looked at in the laboratory. That is a
very good sign. The development of energy processes is a slow
task because of the size of the power plants. But I think
with government help we can accelerate that effort.

Mr. SMITH. The Chairman said earlier--Mr. Yamagata, did
you have a comment?
Mr. YAMAGATA. Thank you, Mr. Smith. Yes. In my testimony, I referenced a number to answer your shoulder-to-the-wheel question, of about $10 billion over the next 20 years, which is, at least in our estimation, a cost-share arrangement between the public sector and the private sector. And that kind of an aggressive program, that is time and money, over that period of time, will, we think, achieve the kind of performance criteria that you outlined, that is, cost-competitive, certainly exceeding the emission requirements and regulations that we have today and into the future, and also addressing issues like CO2 emissions.

Mr. SMITH. And would this—then does it become less relevant whether it is high sulfur coal or whether it is the cleaner, lower-sulfur coal? I mean, will the technology be so that it doesn’t make that difference—really much difference on what coal you use?

Mr. YAMAGATA. That is correct. It is nondiscriminatory to the type of coal that you use.

Mr. SMITH. In terms of our—the other areas becoming less dependent, the Chairman said earlier that it is a national security issue being—having this kind of dependency, especially on the OPEC suppliers for our petroleum energy. Are we looking—and I am trying to see whom ought to answer this question—it might be the next Panel. Are we aggressively looking at developing the kind of infrastructure
and laws in some of the other areas of the world in terms of importing some of our petroleum energy from those other countries rather than from the OPEC countries? Does anybody know that answer? Mr. Chairman, you probably know that answer.

Mr. KRIPOWICZ. Yes, sir. The Department of Energy, over the years, has worked a lot with countries outside of OPEC and is working very hard, for instance, with countries in this hemisphere also, Canada and Mexico, in particular, to develop their sources of oil so that we won't be entirely dependent on OPEC. There is no question that we need to develop diverse sources of oil in the world as well as our own resources.

Mr. SMITH. Do we--do I understand we have the technology now and it is simply making it more cost effective in utilizing that technology, or is it developing new technology? And I see my time has expired.

Mr. KRIPOWICZ. Mr. Smith, I think it is a combination of both. Some of it needs to be made more economic, but I am willing to bet that we will find new technologies, as we go along, that we don't have in place right now.

Mr. SMITH. Thank you for the opportunity, Mr. Chairman.

Chairman BARTLETT. Thank you. Ms. Biggert.

Ms. BIGGERT. Thank you, Mr. Chairman. Ms. Abend--is that right--Abend?