KEYNOTE SPEAKERS

U.S. SENATOR KENT CONRAD

U.S. Senator Kent Conrad (D-North Dakota) was first elected as North Dakota's State Tax Commissioner in 1980. As Tax Commissioner, Conrad received many national leadership awards. He was one of ten state officials nationwide chosen by *Washington Monthly* magazine for outstanding performance on an initiative. *Esquire* magazine honored him in 1984 as one of a "new generation of men and women under 40 who are changing America."

Mr. Conrad was elected to the U.S. Senate in 1986. He is a member of the Senate Agriculture, Budget, Energy, and National Resources Committees and the Select Committee on Indian Affairs. He is an outspoken advocate for the needs of rural America. Senator Conrad is considered a leading visionary regarding issues and opportunities facing the western coal industry. He has been a leader in expanding opportunities for western participation in the Clean Coal Program.

THE NEW COAL AGE--A BRIGHT FUTURE FOR NORTH DAKOTA

by Senator Kent Conrad

The development of North Dakota's vast coal reserves is one of the brightest stars on the horizon for our state's economic health, and for our nation's long-term energy security.

We stand at the threshold of what could be a new coal age in the United States and around the globe. As oil supplies dwindle, the world will demand new energy technology. North Dakota is already one of the world's foremost centers for coal research and development. The coming years will only see our state's prominence increase.

The role North Dakota can play in future energy markets is two-fold: producing power, new energy industries and new jobs at home; and exporting energy know-how to developing countries around the globe. That's what SynOps '90 is all about--the opportunities that exist for North Dakota in synthetic fuels, coal research and related industries worldwide. Like the first conference two years ago, SynOps '90 will also expand North Dakota's international reputation.

Technology transfer is the key to international markets, and the Asian nations of the Pacific Rim will be lucrative markets as their population and energy needs grow. The emerging democracies of Eastern Europe need assistance to expand their energy capabilities, and they desperately require pollution control technology.

Already, UND's Energy and Environmental Research Center (EERC) has launched a venture to find and develop low-rank coal technology markets in Asia and Africa. The Center, which has already hosted delegations from Yugoslavia, the Soviet Union and Czechoslovakia, is planning a 1991 conference in the Czech capital of Prague to strengthen ties to the Eastern European energy community.

Here at home, energy production and spin-off industries are the focus. The United States has sufficient coal reserves to meet our power needs for several centuries. Our recoverable coal reserves are estimated at nearly 300 billion tons. That's one-quarter of the world's coal supplies, and the energy equivalent of all the world's oil supplies. North Dakota alone as 35 billion tons of recoverable lignite coal.

This is an energy-intensive nation that must remain competitive in world markets. If we are to ensure energy supplies and keep the nation's economy vibrant, there is no responsible alternative to expanding the use of coal.

Our challenge is to use this precious resource wisely and well. That means finding cost-effective, environmentally sound coal technology.

The primary use for coal in the United States today is the production of electricity, and will be far into the future. However, our coal reserves have great potential for commercial and industrial use beyond power production. Facilities like the Great Plains coal gasification plant and the many projects underway or contemplated at EERC demonstrate that versatility.

For North Dakota, clean coal technology and by-product development hold the greatest promise. As a member of the Senate Energy Committee, I've sought a renewed federal commitment to clean coal research and development, with an emphasis on low-rank coals like our North Dakota lignite.

The development of low-rank coals presents special problems and special opportunities. The federal government must direct research into high-payoff technologies for our currently underutilized low-rank coal reserves--such as mild gasification, beneficiation techniques to increase the usefulness of low-rank coals, and coal cleaning methods.

Federal research must also focus on matching our coal resources with the most efficient applications. For example, the high reactivity of lignite coal makes it the preferred fuel for direct coal-fired diesel and turbine engines, an advantage we should emphasize over the long term.

Additional research and support for by-product production, as exemplified by the phenol recovery project just begun at Great Plains, offers almost limitless opportunities. This was one of the primary reasons we called the first SynOps conference in 1988. Since then, promising ventures in the production of xenon gas, krypton gas, and methanol have begun.

Research is only one of the federal government's responsibilities in guiding our national energy policy. Energy policy is shaped through pollution legislation, taxation, trade policy, and other environmental measures. Balancing these often conflicting priorities is not a simple matter.

For example, I am leading Senate opposition to a proposed tax on the carbon content of fossil fuels--natural gas, oil and coal. Backers say this "carbon tax" would raise $40 billion and encourage energy conservation. That may be true, but in the process such a tax would destroy the economies of

energy-producing states including North Dakota, and cripple the national economy with skyrocketing consumer energy prices and plummeting productivity.

Most legislation which affects our national energy policy is a balancing act, and most has the power to affect North Dakota's future as a premier center for energy research and production. The carbon tax proposal is a current and dramatic example.

How do we develop our resources, maintain a healthy, vibrant economy, and stay competitive in world markets, while at the same time protecting the health of our people and the environment? That's the challenge we face. I'm confident we will meet it.

U.S. SENATOR JAMES A. McCLURE

U.S. Senator James A. McClure (R-Idaho) is his state's senior senator, elected to the U.S. Senate in 1972. He is the ranking Republican member of the Senate Energy and Natural Resources Committee, is a member of the Senate Appropriations Committee, and is the ranking Republican on its Subcommittee on Interior and Related Agencies. In addition, he is a member of the Appropriations Subcommittees on defense, agriculture, energy and water development, labor, and health and human services.

McClure serves as chairman of the Senate Steering Committee, an informal group of conservative senators who meet to review legislation and discuss ways to further the conservative agenda. He has received 12 consecutive "Watchdog of the Treasury" awards for his efforts to curb federal spending and eliminate waste in government.

NO PAPER INCLUDED

ROBERT H. GENTILE

Robert H. Gentile is the Assistant Secretary for Fossil Energy, U.S. Department of Energy. He oversees the $5 billion Clean Coal Technology Program, the government's largest single energy and environmental initiative. He is also responsible for managing the federal fossil fuel research programs that involve nearly 700 government-sponsored projects carried out by universities, private industry, and federal laboratories.

Prior to his present position, Mr. Gentile headed the Office of Surface Mining Reclamation and Enforcement, was a founding member of the Mining and Reclamation Council, and was a charter member of the National Coal Council. Mr. Gentile holds a B.A. in political philosophy from Franciscan University and an M.B.A. in international trade and finance from the University of Toledo.

REMARKS BY

ROBERT H. GENTILE

ASSISTANT SECRETARY FOR FOSSIL ENERGY

U.S. DEPARTMENT OF ENERGY

TO THE

SYNOPS '90 CONFERENCE

IN

BISMARCK, NORTH DAKOTA

ON

AUGUST 28, 1990

It is a pleasure to be here today, and it is a particular pleasure to be able to talk about the potential for coal-based synthetic fuels. I will be honest--I have been looking for an opportunity to talk about this subject for some time now--even before the current Persian Gulf situation put the subject of alternative fuels back in the news.

The reason I've been anxious to have this opportunity is this: We have made very significant progress with synfuels in this country in recent years. The research we've been doing in this area is some of the most exciting and some of the most important research being done today in our energy program. What has been achieved is one of our success stories--something in which we can take a great degree of pride--something we can brag about.

And so, I'm going to do a little bragging this evening--but I also want to temper my optimism with a healthy dose of reality.

I'm going to paint for you, hopefully, the very clear picture that synthetic fuel technology is alive and well in this country.

I'm going to impress upon you, hopefully, the need to convey to the American people the importance of synfuels technology--the significance it holds for the long-term energy security of this country--and the potential it has for ultimately breaking the dangerous dependence we have today on unstable foreign oil.

But I don't want to oversell synfuels as a near-term response.

[HOLD UP NEWSPAPER]

Many of you may have seen this page from the business section of USA Today last week. Headline: OIL FROM COAL MAY CUT MIDDLE EAST DEPENDENCE.

The story was essentially accurate--but the headline implies that synfuels are an overnight solution. And of course, those of us here today know that they aren't--at least in terms of large-scale commercial deployment.

But that shouldn't detract from the imperative of continuing synfuels-related development.

There is no question--absolutely none--that the day will come when synfuels will be commercially viable. The only question is when?

In the many speeches I've given since becoming the Assistant Secretary for Fossil Energy, I've repeated one thought time and time again. Usually I save it for the end of the speech--to wrap everything up. But today, I want to use it at the beginning--because I believe it characterizes very clearly our rationale for continued synfuel development.

I firmly believe that the mark of a mature society is its will and capacity to invest in its future--to allocate resources not only to solve immediate problems but to produce a stream of benefits well into the future.

Today, the crisis in the Persian Gulf is a test of that maturity.

Our nation stands ready to solve immediate problems. The President has taken forceful action to stop aggression. He has been joined by an unparalleled cadre of nations who recognize the need to protect vital interests and who understand the strength that comes from multinational solidarity.

Here at home, Americans have been asked to do their part to reduce demand for Mid East oil. The nation's energy industry has been asked for increased production where possible--and they have largely responded to the call. Should the situation worsen, we stand ready to draw upon the Strategic Petroleum Reserve at a moment's notice from the President.

Together, these actions create a formidable response to the aggression of Saddam Hussein--both militarily and domestically. But these are immediate reactions--important and essential--but short-term.

But if we are truly a mature society, we will recognize that the linkage between energy and our national wellbeing does not go away when Saddam Hussein disappears off the front pages.

If we are truly a mature society, the real victory will not be won on the sands of the Middle East but on our own turf here at home.in the U.S., where we must come to grips with the recognition that energy--stable, reliable and affordable--is the fundamental component of our economic security, our wellbeing, and ultimately world peace.

Three times we have been confronted with harsh lessons from the Middle East. Three times we have been given a glimpse of a future that repeatedly will bring the world to the brink of war over energy--unless, and until, we take action to change it.

Winston Churchill once said that "we will know the true value of water only when the well runs dry." That's certainly true. But for oil, the disturbing fact is that its true value--or its true cost--must also be measured in the lives of young Americans placed in harm's way to protect the flow of that oil.

And if we are truly a mature society, we will ask ourselves the question: "How long do we want to continue paying that cost--and how long do we want to risk the chances that one day, one very dark day, we will ask our young men and women to pay the ultimate price for foreign oil?"

These are harsh realities that most Americans would just as soon not confront. But world events make that impossible.

Twice before, when these realities have been put in front of us, we ultimate y turned our heads, refusing to recognize the dangers. Now, as a nation, we are being forced to look again at threats from a region that is unstable, unpredictable and governed by cultures unfamiliar to us.and yet a region that is vital to our national health and wellbeing.

And the question is: as a nation facing harsh realities for the third time in just two short decades, how will we respond? Can we change the course of future events? Have we learned our lesson? Will we ever learn?

A lot of people are saying today that we have wasted the last 17 years since the Persian Gulf sent out its first economic tremors. A lot of people like to point fingers and say that the nation squandered opportunity after opportunity--that we sat idly by while the Middle East tinderbox continued to smolder.

I'm not one of those people. I don't believe we have wasted 17 years. I don't accept the accusations that we've done nothing to change the future. And to show evidence of that, I have to look no farther than the subject we are discussing here today.

A large part of our energy problem today is a liquids problem--no different from 1973 or 1979. A large part of our answer to that problem is American coal--also no different from 1973 or 1979. But today, a major part of our arsenal is new technology--and here, there are major differences.

During the 1970s, the state-of-the-art in coal liquefaction produced a product costing $70 a barrel or thereabouts--economically promising when projections showed oil prices hitting the $100 per barrel mark in the 1990s.

By the time we entered the 1980s, the technology had improved and projected costs were in the range of $50 to $60 per barrel.

Despite these improvements, synfuels technology was still very much a brute-force approach--single-stage concepts relying on high heat and severe pressures with, perhaps, a catalyst or two thrown into the pot.

I would speculate that most people think the concept of making liquids from coal died when the crash program started by the Carter Administration did just that--crashed. But one of the great untold energy stories has been the fact that coal liquefaction didn't die. Rather, it retreated back to the laboratory. And in the laboratory, we made great strides.

We learned that making liquids directly from coal was not one complex chemical reaction that had to be engineered by brute force.

Instead, it was a series of chemical steps:

-- steps that could be separated and tailored to achieve maximum effectiveness
-- steps that could be optimized by the right combination of conditions, suited solely for that part of the liquefaction process
-- steps that could be made efficient by the addition of more effective catalysts

In short, the science of synfuels grew enormously in sophistication during the 1980s. It was time not wasted. Today, tests at our Wilsonville liquefaction facility in Alabama show the prospects of producing coal liquids at $35 per barrel--half the costs of the 1970s.

And let me read you a sentence from a recent report:

"There are clearly many opportunities to improve the economics of direct coal liquefaction. DOE hopes to reduce costs at Wilsonville by another 15 percent within the next 3 or 4 years. This target seems conservative."

That's not DOE talking. That's what the National Academy of Sciences told us in their study "Fuels to Drive Our Future." They concurred with our view that we are on a path to break the $30 per barrel threshold during the 1990s.

$30 a barrel oil from coal...what does that buy America?

Well, what it buys America is a cap on the long-term price of foreign oil.

Does that mean it will create a revitalized commercial synfuels industry? That remains a question mark. Price thresholds are only one part of the

equation. Price stability is an equally important part. Obviously, companies are not going to risk the enormous front-end investments required for coal liquefaction facilities unless they know that prices will not only start out competitive but remain competitive.

Still, we are making progress. And that progress will absolutely put downward pressure on the world price of oil.

That's why coal liquefaction research has been elevated to one of our highest R&D priorities. That is why we are putting together a major new effort to take the next quantum step.

As the National Academy pointed out, we can make further improvements in the processes tested today. But more importantly, we can also potentially leapfrog those incremental improvements.

- Pretreating the coal -- through physical, chemical or even biological means -- offers exciting possibilities.

- New reactor configurations, building upon the staged concept or moving into slurry phase reactors with dispersed catalysts, could be another approach.

These, and other techniques, could open the door to $25 a barrel liquids from coal. And that will certainly make the world--particularly the Persian Gulf--sit up and take notice.

A mature society has the will and the capacity to invest in its future. That's what we see driving our coal liquefaction research.

Ten years ago, the federal government signed a research contract with a company known as Air Products to investigate a concept known as "liquid phase methanol synthesis." Five years ago, we began operating a pilot facility to test this advanced method for making methanol from coal gas.

Today, after half a decade and more than half a million gallons of production, we have a technology on the doorstep of commercialization. And if all goes as planned, the Great Plains project will serve as the host for its final scaleup to commercial operation.

The Great Plains Coal Gasification Plant remains one of our nation's outstanding technological achievements. Now we have the opportunity to build on that achievement--but perhaps not in the same way as we envisioned 10 or 15 years ago.

In the 1970s, coal gasification was viewed as a way of replacing natural gas. Today, we know that more natural gas exists than we imagined a decade ago. But interest in coal gasification remains, and it is growing--driven today not by the need to find a substitute for natural gas but by the need to generate increasing amounts of electricity cleanly, efficiently and economically.

Combined cycle gasification can give us that "ultraclean," high-efficiency power option. We think so. Dow Chemical thinks so. Shell Oil thinks so. Texaco thinks so.

Commonwealth Energy in Massachusetts thinks so. They are planning a 400-megawatt commercial-scale plan patterned after the Cool Water facility to be built in the first half of the 1990s.

CRS-Sirrine and Combustion Engineering think so. They've been selected in our Clean Coal Technology Program to build the next generation of gasification combined-cycle demonstration facilities.

And as we move into the coming decade and into the next century when fuel choices will be dictated largely by their impact on the environment, coal gasification--as the core of a utility power plant--will grown in significance. It will grow because of the groundwork laid in the 1980s.

Have we wasted the last 17 years since the first oil crisis? No, not at all. Energy may have dropped off the front pages, but thank God, it did not

drop off the R&D agendas of either the federal government or much of the private sector.

Today, advanced two-stage catalytic liquefaction, liquid phase methanol synthesis, and gasification combined cycle are just three of the techniques that stand as testament to the perseverance and foresight of those who knew that coal remains one of this country's great energy strengths.

And in large measure, the country has those of you in this room to thank for that perseverance and foresight--and for the progress that has resulted.

Today, because of your work, we have the clearly preferable option of taking a technological route toward a more secure energy future--and that route can steer us away from the oil fields of the Middle East.

This country has enormous strengths. President Bush has called upon America to join with its allies in a massive demonstration of military strength--strength not meant for aggression but for protection.

But our greatest strength comes from our abundance of domestic resources here at home and our abundance of human talent determined to find better ways to use them.

Three weeks ago, the President began his address from the Oval Office by saying "In the life of a nation, we're called upon to define who we are and what we believe." When the choices meant stopping aggression or risking our freedoms, the nation spoke quickly and forcefully.

But ultimately we must ask the question, do we as a nation have the will to learn from the past?

Will we make greater use of all our strengths? Will we turn more to energy resources

- that don't require military escorts to transport,

- that don't require lines to be drawn in the sand,

- that don't require Americans to be placed in harm's way?

Will today's crisis be the turning point...the point at which America decides that energy security is no less important than national security? That, indeed, they are one-in-the-same?

How we answer these questions--and what resources we will bring to bear--I believe, will determine our energy and economic future. And I believe, those answers will be the most telling measure of our maturity as a nation.

Thank you very much for your attention this evening.

U.S. SENATOR MALCOLM WALLOP

U.S. Senator Malcolm Wallop (R-Wyoming), a ranger and businessman from Big Horn, Wyoming, was elected to the U.S. Senate in 1976 and reelected in 1982 and 1988. In March of 1985, Senator Wallop was chosen as one of 12 members of Congress to serve on the Commission on Security and Cooperation in Europe. In January of 1985, he completed the allowed maximum of 8 years of service on the Select Committee on Intelligence and also served as Chairman of the Subcommittee on Budget.

Senator Wallop is currently the ranking minority member of the Public Lands, National Parks and Forests Subcommittee, and is a member of the Mineral Resources Development and Production, Water and Power, and Rural Economy and Family Farming Subcommittees.

SPEECH OF SENATOR MALCOLM WALLOP

TO THE INTERNATIONAL SYMPOSIUM ON SYNFUELS TECHNOLOGY

Bismarck, North Dakota August 29, 1990

The Dictionary defines synthetic as something "produced artificially, or man-made". It has an aura of something which is not natural, but based on human effort. When someone mentions synthetic, most people think of rayon or polyester, man-made substitutes for cotton or wool. But, what do you imagine they think of when discussing synthetic fuels. For most, it likely conjures up images of an alchemist trying to turn stone into oil.

One of the basic problems of the synfuels effort is this issue of definition. Can we argue that tar sands, oil shale, or coal gasification are artificial, man-made fuel projects. Or, are they simply sophisticated extensions of fossil fuel recovery projects. They certainly resemble the latter. If that is the case, should they receive special incentives, such as preferential tax treatment or price supports, from the federal government. Or, should synthetic fuels be left to the challenges of the free market. Some would argue that they should be treated as any other fossil fuel extraction process. The inherent soundness of a project would presumably determine its success, rather than government directives.

While this broad free market theory has been the driving force behind our economy, it can malfunction in specific instances. If there are no investors of the financial, intellectual or physical resources, the project will stagnate. The potential for eventual reward, whatever the form, may not be evident or sufficient to encourage risk. Risk taking is a fascinating process. It is not an endeavor which is encouraged by federal bureaucrats to be sure. The private sector also can hinder innovation. Even after twenty years of intense competition with the Japanese, American corporate thinking too often focuses on the profit statement for the next six months. Long range planning and investment is stunted by the drive to provide annual dividends to stock holders.

The real bottom line is that too many of our incentives are misguided. For example, everyone has heard of the MacArthur Awards. The Foundation gives a one or two year award to individuals who have made significant contributions in a variety of fields. It is a recognition of past work. It is not an incentive for new creativity. A counter argument is that a more useful award would be one that rewards an individual for achieving a specific goal.Charles Lindbergh did not solo across the Atlantic merely for the media coverage. He was after the cash award that had been promised for the first non-stop flight between North America and Europe. His flight was preceded by many failures. The prize was the incentive for individuals to innovate and discover.

In the energy field, our challenge is only too apparent. We must reduce cur dependence on foreign, fossil fuels by developing new energy sources. The energy glut of recent years and the "end" of the Cold War left us complacent. The tumultuous situation in the Mid East has been an abrupt, sobering experience. The world is not at peace, and plentiful energy is not a transcendent right. No one worried that over half of our oil comes from abroad -- until Saddam Hussein suddenly controlled twenty percent of all oil reserves.

We had developed a belief that a new inter-dependence existed between the Oil States and the West. The oil producers have invested heavily in the West, as well as in facilities to refine and market their oil. The Oil States have a vested interest in a stable world economy. This was the pundits' argument. We now realize that events in the Mid East are motivated by other factors. And, we are left with the threat of dependence, rather than interdependence.

The solution, the challenge, is to develop new energy resources. Discovering new oil and gas reserves is one answer. Yet more and more areas are being closed to exploration. New resources also involves alternative energy sources. At the extreme, some propose that solar and wind power are available to replace fossil fuels. While it is true that solar does and wind farms do now exist, they exist because prices are mandated, rather than determined by the marketplace. The mandates for the wind farms are expiring, and I wonder what will happen to areas like Altamont in California when they have to negotiate new prices at market rates. We this effort at risk taking while we subsidize it. If government has a hard time siting an oil well on public land, just imagine siting two to three thousand acres of windmills in Wyoming or North Dakota.

Another alternative is nuclear power. It has been interesting observing the greens discomfort in rediscovering nuclear energy as a "clean" energy source. They are finally acknowledging that nuclear power does have a role as a source of electric energy. It should be a ideal answer for the environmental concerns over both acid rain and global warming, the two new crises of the environmental movement. The nuclear industry, with the support of federal funding, is developing a new generation of safe and affordable reactors. But, the political climate in this country will have to shift before new investment in nuclear power plants will come about. The stupidity exhibited by opponents of the Shoreham and the Seabrook nuclear plants is comparable to an oil embargo in terms of the harm to our future energy security. Mothballing these investments was arrogant posturing -- and irresponsible in light of the up-coming heating problems in the Northeast.

A third source of new energy is the subject of your conference, the synthetic fuels. While they may seem as a natural source of energy, they have the same environmental and financial problems associated with nuclear and renewable fuels. But, they also have an additional perplexing problem. There are few risk takers willing to explore this field. At the moment, we have only one oil shale experiment on the Western Slope sponsored by Unocal. This facility has lost money ever year of operation. There is a chance they may break even this year. But will corporate headquarters continue to put resources into a project that has cost over one billion dollars to date? The problem is getting the engineering right to make the facility run consistently. Even if this is achieved, the cost of the oil produced is still two and a half times current market rates. Presumably, cost would come down as production improves. Since the oil shale reserves on the Slope are equal to the reserves of all of OPEC, it is somewhat surprising that the industry involvement is so meager.

Coal gasification has attracted more interest, as demonstrated by the Great Plains facility here in Bismarck. The technology has been around for decades. Companies, such as Texaco, have developed gasification plants as a commercial venture. As promising as this effort has been, the coal gasification project has attracted that negative aura that seems to follow all synthetic fuels projects. This may explain why even risk takers are scarce.

This aura includes two perceptions, or perhaps, misperceptions, about the synthetic fuels industry. It is viewed as an industry that consumes almost as much energy as it produces. This criticism reflects an impatience with technology. In all honesty, there is some truth to this view. Some of the projects in synthetic fuels and clean coal technologies have been suspect. The problem is determining when a project should be cutoff. It becomes even more difficult when the federal government has become involved, as the history of the Clinch River Breeder Reactor demonstrates.

The second misperception is the environmental issue. I recall discussing one clean coal project, and the question came up about the waste stream. The proponents stated it would be minimal. That proved not to be the case, and the question then became what was the benefit of the process. Thus, the challenge to the industry is to demonstrate technologies that have a net reduction in pollution and a net increase in energy -- alchemy!

I should warn you that the synthetic fuels industry will have an incredible environmental problem when the Clean Air reauthorization becomes law. I do not doubt that it will become law, since the Administration has given up on insisting on a reasonable cost bill. The only drama is over how onerous the final act will be for all industries. A new study prepared by the Clean Air Working Group estimates that the measure will cost $51 to $91 billion per year!

Some argue that syn fuels are a clean air substitute for normal fossil fuels. What the industry is doing, therefore, fits the goals of the Clean Air Act. It is true that the final products of various technologies will be cleaner than existing fuel, but the problem is getting to the end result. This is where the Clean Air Act will create challenge.

Will our mandated experiment with ethanol parallel Brazil's lack of success with its alcohol fuel program? Just as the United States and Europe are moving closer to using alternative fuels in cars, the country that pioneered them is abandoning the program as a failure. Alcohol producers are abandoning the industry and the four million Brazilian cars now powered by alcohol. Despite huge government subsidies, the program has not worked because of one uderlying fact of life -- when oil prices remain low, sugarcane alcohol is far too expensive at $50-60 a barrel to be competitive.

In particular, there are two titles in the bill which will disrupt, if not eliminate, syn fuel projects. The first is the Air Toxics section. There is a rather incomplete science which attempts to measure the health effects on humans of exposure to the various substances we encounter in an industrialized society. There is a fair amount of controversy over the measurement of risk. Much of the work is done through lab experiments on mice or through computer modeling. The intent is worthwhile, to determine what risks we face in our homes and workplaces.

But, there is not a consensus in the scientific community on risk measurement. You have heard about the exposure test used for air toxics. An individual will stand stark naked next to a factory or power plant twenty four hours a day for seventy years. Any health effects will be attributed to emissions from the plant. The offending emissions will then have to be eliminated. And, the individual can finally put his clothes on and go home.

This is the theory behind the computer model which will actually measure risk. Any substance which fits the model will have to be controlled, no exceptions. The cost factor for emissions control is subordinate to health risk. Unfortunately, the proponents of this title are driving by the utopian desire of a risk-free society. Unless this language is corrected in the Senate-House conference, you will face unachievable requirements. It does not matter that your end product will be the cleanest fuel ever developed. It is the process that will be affected by this title.

The second provision is the permitting requirement. While the permit language is one title of the bill, other titles will also require a permitting process. And, what a process it will be! I have seen a chart which shows the permitting process required by the Senate-passed bill. It will require at least six years to set up the review and approval program, and to issue permits. And, the final legislation may include a provision to require a permit for each modification, no matter how minor, of an existing facility. In fact, companies will have to go through a lengthy permit process even if they want to put in procedures which reduce pollution. This bill will be an excellent device to reduce the competitiveness of American industry. It will be a nightmare for an experimental facility, such as a syn fuels plant, which requires numerous modifications to operate properly. The cost in delays due to permitting could shut down some of these projects. Dealing with the clean air bill is one reason the fall session of Congress will be ugly.

You may have heard that we are actually developing a new National Energy Strategy. The Department of Energy has conducted hearings around the country, and put together an interim report. It simply reflects the various comments presented at the hearings. While there is reference to "non-conventional fuels", I could not find mention of synthetic fuels. Here is an immediate challenge for you -- to put together a coherent strategy for advancing synthetic fuels. But, please be realistic. It will be extremely difficult to obtain any new federal spending or tax credits in this area.

Now that the Mid East crisis has reawakened our energy awareness, perhaps we will develop a real energy policy out of the National Energy Strategy. It is discouraging to go through a briefing on the energy consequences of the latest Mid East conflict. The same briefings were given back in the late seventies during the last crisis. We have barely advanced in a decade.

Now we have a challenge. It is driven by crisis -- yet, major advances, such as the Manhattan Project, the space program, and now the AIDS research, have all come out of crisis. Perhaps a Mideastern despot will at last open political eyes long enough, to advance the science of independence from foreign energy and domestic pollution. This is a fight I pledge to continue.