The Arizona Daily Star

December 17, 2000
Tucson, AZ

New coal technologies could lower utility costs

By Richard T. Newcomb

Utility deregulation has raised public concerns about meeting the demands for electricity at reasonable cost in growing states such as Arizona without the use of coal.

In some parts of California, homeowners are paying more than twice as much per kilowatt hour as they did a year ago.

Yet, at the same time, environmental concerns have brought some people to the extreme of opposing the use of fossil fuels to provide electricity, deactivating the coal-fired plants which provide the cheapest power in the Southwest.

GUEST OPINION

Coal today is the only energy resource readily available in large supply to meet Arizona's increasing demand for power, which continues to grow at a rate of 3 percent annually. In the quest for clean power at reasonable prices, meeting both of these concerns seems impossible.

However there are promising green coal solutions. Research underway at Arizona's universities, such as University of Arizona College of Engineering, and the national laboratories, such as Los Alamos, confirm the existence of innovative solutions in the form of low- and zero-emissions clean coal (ZEC) technologies.

The success of technical change in lowering sulfur and nitrogen dioxide emissions is well demonstrated. By using clean-coal technologies, overall emissions in the United States have been cut in half since 1970, even as coal-based electricity has nearly tripled.

Some of the credit for this goes to the universities. The UA's College of Engineering faculty has been at the forefront of research reducing emissions of sulfur dioxides and nitrogen oxides.

True, global buildups of carbon dioxide as greenhouse gasses pose an unresolved potential problem. However, on this front, too, technical change promises a solution.

A consortium of U.S. and Canadian coal producers and utilities has joined the Los Alamos National Laboratories in establishing the Zero Emission Coal Alliance (ZECA).

Their research demonstrates the possibility of at least doubling the net efficiency of coal-based power generation while at the same time producing a stream of carbon dioxide that can be safely and permanently sequestered underground.

The hydrogen-electricity production process is capable of converting coal by gasification into hydrogen via a high-temperature solid-oxide fuel cell without creating either intolerable air pollution or greenhouse emissions. The gasification reaction requires no heat input.

The consortium's five-year target is to build a pilot plant to establish the commercial efficiency of ZEC using soft coals. Current work indicates that electricity can be generated at no more than one cent per kilowatt-hour over the cost of conventional coal-fired power.

If extrapolated to the "greening" of all classes of coals, the country could double or triple its current burn of one billion tons per year for a century without significantly increasing its electric power cost per hour.

Applications to transportation are equally feasible. ZEC similarly reduces the need for nuclear power, with its reactor safety and waste disposal problems.

The implications in all of this for Arizona are significant. Our state has both a well-established coal industry and a reputation for clean-coal research at its universities.

It would be unwise to neglect the promise of ongoing research regarding coal gasification technologies, especially in light of their success to date in mitigating air pollution.

For Arizona, the benefit/cost ratio of mitigation via coal research has been demonstrated to be significantly higher than that of subsidies to encourage wind power and solar energy use, to convert automobiles to natural gas and electric batteries.

With regard to greenhouse gas emissions, the prudent approach continues to be increasing financial support for research at the universities and the national laboratories. The stakes for Arizona, our country and the world are very high indeed.

Richard Newcomb is a professor in the University of Arizona's department of agriculture and resource economics.

FLORIDA TODAY

November 9, 2000
Melbourne, FL

Ignoring energy policy is irresponsible

LYNN WEAVER
Guest Columnist

In support of an expanding economy, America's appetite for oil is steadily growing. In 10 years, oil imports have doubled, and now account for more than half of our daily supply, while domestic production continues to fall.

Against all notions of prudence, that dependence pushed the 1999 trade deficit to $265 billion, which is a record and almost two-thirds larger than the previous record of $164.3 billion in 1998. This year the annual trade deficit is on track to reach $354 billion, of which $100 billion is in payment for shipments of higher-priced imported oil.

Those pundits who blithely claim that the rising tide of oil imports is nothing to worry about ignore the fact that OPEC has reasserted itself as the world's dominant oil producer. And OPEC has plenty of oil left, most of it in the politically volatile Middle East and extractable at low cost. This is likely to mean growing reliance on rogue countries like Iraq, whose giant oil fields already account for 1 million barrels of oil exported daily to the United States.

Today we see the results of the same complacency that caused the energy and economic debacle in the early 1970s. Using low-cost foreign oil to drive our economy, while not fully exploiting policies that encourage the development of domestic energy sources.

Regrettably, the United States has no viable energy policy, no strategy that encourages investment in alternative energy sources and advanced transportation technologies that can help make us less vulnerable to future oil shocks.

Given these facts, it is time to get serious about shaping a practical energy policy. The most effective way is through a substantial increase in federal investment to promote energy efficiency as a way to reduce fuel use. But we also must increase energy supplies. And that will require removing barriers, in an environmentally acceptable manner, to oil and gas production in Alaska's energy-rich areas, expanding the use of clean-coal technology, and establishing an industry consortium to build a number of new nuclear plants.

Why clean-coal technology? Nationally, coal accounts for 56 percent of our electricity supply, and it's being burned much cleaner, due in large part to improvements in pollution-control technology. Because coal will account for the bulk of the nation's power supply for the foreseeable future, it's time to move from a heated debate about greenhouse-gas emissions from coal burning to moving ahead with research to render coal environmentally benign.

One model for action is the Zero Emission Coal Alliance. It combines the capabilities of U.S. and Canadian mining companies and electric utilities with the scientific expertise of Los Alamos National Laboratory to demonstrate a process in the next five years in which the net efficiency of coal-based power generation is at least doubled, while not emitting any greenhouse gases. The carbon dioxide is captured and chemically turned into a solid and inert material to be permanently buried underground. It's a sterling example of a private and public sector partnership in which scientists and other researchers work together toward a common goal.

Ironically, higher costs for fossil fuels seem to have improved the climate for nuclear power's revival. Because there is no guarantee that oil and gas prices will subside, even some longtime critics of nuclear power have said that advanced nuclear plants might be part of the answer to the nation's energy needs.

The current hope — and it is no more than that — is for a nuclear plant order in the next two or three years. Recently, senior executives from five major electric utilities and three reactor manufacturers met in Washington with Energy Department officials to explore the idea of establishing a consortium to build a number of new nuclear plants. Such a partnership would be able to demonstrate that a plant using a standardized design that's already been certified by the Nuclear Regulatory Commission can be built on time and within budget.

There are no easy solutions to our energy needs. We need to make use of all of our technological resources and recognize the intrinsic economic and environmental value of increased energy efficiency and diversity. But beyond that we need a commitment to stay the course and not let changing national priorities divert us from paying attention to the need for a secure and stable energy supply.

Weaver is the president of Florida Tech in Melbourne.

The Star-Ledger

October 10, 2000
Newark, NJ

More coal and nuclear power can ease shortages

BY BENJAMIN STEVENSON

It has become one of the most familiar refrains in energy circles. Every time the demand for electricity gobbles up power reserves, as it did again this summer, officials at the Federal Energy Regulatory Commission assure us that there is little, perhaps nothing, to worry about.

We've dealt with booming electricity demand in previous years, the argument goes, and utilities are still able to provide power when it is most needed — during peak demand on hot summer afternoons. But in recent years, spurred by the growing economy and increased reliance on computers, wireless phones and other high-tech equipment, electricity demand has been increasing 2 to 3 percent a year, while production has lagged.

Meanwhile, reserves have dropped to below 15 percent of generating capacity, far below the 25 percent of a decade ago. And as more states deregulate and utilities grapple with rising demand, there is likely to be less opportunity for New Jersey utilities to buy power from other regions, putting additional strains on the system. The electricity grid in the mid-Atlantic won't be able to handle rising demand indefinitely.

The dangers of a do-nothing policy on electricity generation are now only too evident in California, where electricity shortages led to blackouts this summer and power bills that are double and even triple what they were a year ago. Fears of even worse shortages are rattling the Northeast and Midwest. The outlook is troubling because we have been very slow in building new power plants.

The only way to generate large amounts of electricity is to build plants that use coal and nuclear power, but we have stopped building them, and that's shortsighted. In New Jersey, we obtain 98 percent of our electricity from coal and nuclear power.

The basic attraction of coal remains its low cost and great abundance. No longer the dirty fuel of the past, coal is being burned much cleaner, due to improved pollution-control technologies. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

What should be recognized is that clean-coal technologies, such as plants using integrated combined cycles operating with synthetic gas, through their greater efficiency, emit less carbon dioxide into the atmosphere, relative to current commercial practice. These breakthroughs in coal technology also control the pollutants that produce acid rain and smog.

While there is no escaping more electric power problems in the short term, we can start making smart decisions. We need to become much more practical about energy because there is no perfect solution. For the long haul, we must begin to expand the use of coal and nuclear power in New Jersey. In electricity, as in politics, what matters is local power.

Benjamin Stevenson is associate professor of physics and nuclear energy at the New Jersey Institute of Technology.

THE NEWS-JOURNAL
Serving Volusia And Flagler Counties

September 27, 2000
Daytona Beach, FL

Coal taboo clashes with reality

By ALEX GREEN

COMMUNITY VOICES

Coal is making a comeback. This may come as a shock to some advocates of "green power" who are convinced that coal is on its way out and have been writing obituaries. These greens are so wrapped up in trendy solar-windmill energy sentiment that they ignore the fact that our digital economy requires more electricity, and coal is its biggest provider.

Forty-six percent of the electricity we use in Florida is produced at coal-fired power plants. These units continue to serve us well, providing affordable and efficient power that sustains our state's growing economy.

Economic reality — not arguments about fostering sustainable power with solar devices and wind turbines — ought to lead to informed energy decisions that are vital to Florida and the nation. Even with tax credits, solar and wind energy — which currently meet about one-tenth of 1 percent of U.S. energy requirements — would remain noncompetitive.

In Florida, we are recording a level of electricity use not expected until the next decade or beyond. Spurred on by increased reliance on computers, wireless phones and other devices in our digital economy, electricity demand has been increasing 2 percent to 3 percent a year, while electricity production has lagged. Meanwhile, the safety cushion has dropped to below 15 percent of generating capacity, far below the 25 percent of a decade ago. If we are to avoid power shortages, we will need all of our energy resources, especially fossil fuels.

The basic attraction of domestic coal remains its abundance and low cost. No longer the dirty fuel of the past, coal is being burned much cleaner, due in large part to improved pollution-control technologies. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

Recent improvements in clean-coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute in California forecasts that electricity use in the United States will rise a net 250 billion kilowatt hours by 2010, but emissions of carbon dioxide, the principal greenhouse gas, will decline by 685 million tons.

This is due to steady, incremental changes, year after year, from engineering breakthroughs in coal preparation, combustion, waste cleanup and state-of-the-art electronic instrumentation and controls. For example, plants that produce electricity from gasified coal use less water, produce fewer waste products and more reusable byproducts.

Disdain for coal from the environmentally orthodox is unwarranted, since plants using integrated combined cycles operating on synthetic gas — through their greater efficiency — contribute less carbon dioxide to the atmosphere, relative to current commercial practice.

Significantly, the goal of the Department of Energy's coal research is to reduce pollution emissions virtually to zero while boosting plant efficiency. Overall, any sensible program of carbon reduction would strongly encourage blending coal with fuel based on endlessly renewable, carbon-friendly wood chips. Used in the same way, cellulose from fast-growing plants would help reduce greenhouse buildup. And waste paper from landfills could also be utilized at coal-fired plants. Conceivably, the center for research on these greenhouse-efficient technologies could be the University of Florida, where much of the work on growing and using energy crops is done. The Clean Combustion Technology Laboratory that develops systems to convert biomass into clean gaseous, liquid or solid fuels will have to play a critical role in clean-coal research and involve others.

Anything the government can do to kick such ideas out of the laboratory and into the marketplace, where biomass could be used to help fuel coal-fired plants, might have more effect on global warming trends than all the government-imposed regulations combined.

Not so far into the future, this technology is likely to open the way for use of synthetic gas to power fuel cells in clean-burning automobiles that might be available for mass markets. Or the technology could be used to produce synthetic oil, thereby reducing our nation's dependence on foreign oil.

In the longer term, it might be possible to convert blends of coal and biomass into soil for the reforestation of depleted farmland, and thus rapid carbon dioxide absorption. After all, trees gobble up a lot of carbon dioxide.

Public-private cooperation in developing clean-coal technology will be important in achieving the breakthroughs in applied research and development that will be required. Working to realize the full potential of coal for powering the future in tandem with other domestic energy sources offers a significant opportunity. It's time to drop the taboo against coal and start supporting the use of clean-power technologies that are close to practicality.

Green is graduate research professor and director of the Clean Combustion Technology Laboratory at the University of Florida in Gainesville.

The Virginian-Pilot

September 19, 2000
Norfolk, VA

Fired up by coal power

BY MALCOLM J. MCPHERSON

The continued growing demand for electricity has focused attention on building new power plants to help prevent brownouts and blackouts. Yet government policy-makers continue to ignore the role of coal, the nation's No. 1 power plant fuel. What's because of the nation that all our country really needs is energy conservation and greater use of renewable energy sources such as solar and wind.

While the computer revolution and communications technologies have been primary factors in the expansion of the economy, this growth is completely dependent on a reliable and stable power supply. Economic as well as environmental concerns must be taken into account in energy decisions that are vital to Virginia and the nation.

Coal is important to America's energy future because of its low cost and abundance. The United States possesses more than 262 billion tons of recoverable coal reserves — 23 percent of the world's total. On a percentage basis, the U.S. has a greater endowment of the world's coal than Saudi Arabia does of the world's oil.

We use far more coal today than at any time in our history — more than 1 billion tons a year. Coal accounts for 56 percent of our nation's electricity production, with nuclear power a distant second at 20 percent. Almost half of Virginia's power is produced at coal-fired power plants.

Those who argue for the shutdown of coal-fired plants seem to ignore the economic consequences. Wind and solar energy have a role in providing supplementary energy in some locations, but they are far too dilute and variable to provide, 24 hours a day every day, the prodigious amounts of energy needed. Natural gas has a part to play although more liable to price fluctuations than coal-based energy.

Economic realities will assure that coal remains a primary world source of energy for the foreseeable future. It makes sense to concentrate research efforts into means of utilizing that fuel efficiently, and with as little waste emissions as possible.

Major improvements in clean coal technology have been achieved in recent years. U.S. coal use has doubled since 1977 while sulphurdioxide emissions have dropped by about 30 percent. New and improved coal combustion technologies have helped make this possible. Through their greater efficiency, combined-cycle coal gasification power plants sharply reduce carbon dioxide volumes.

But in the most dramatic development to date, researchers at Los Alamos National Laboratory have developed an innovative technique to gasify coal into hydrogen for use in fuel cells that generate electricity without causing any air pollution. Carbon dioxide is captured and solidified into an inert material for safe disposal underground.

The Zero Emission Coal Alliance, a coalition of coal companies and utilities, says the gasification process would cost about 6 cents more per kilowatt-hour than power produced by conventional coal-fired plants. The coalition's goal is to build a pilot plant within five years to demonstrate the potential for eventual commercialization.

Sequestering carbon underground would shatter several myths. First, it would disprove the idea that no amount of effort to combat global warming will succeed unless we stop using coal.

Second, it puts to bed the argument that command-and-control government regulation is required to reduce greenhouse-gas emissions. We are moving toward a solution, thanks to a research program, under which the coal industry and utilities are voluntarily taking steps to limit carbon emissions.

This has to be a better approach than arbitrary regulations that would have no chance of controlling earth's climate but which would have costly economic consequences for all Americans. It is sensible because only new technology will allow us to continue to grow our economy while managing the level of emissions.

Advances in clean-coal technologies already are being made available to developing countries through market mechanisms. With worldwide use of coal expected to double by 2020, a huge market for carbon-saving technologies is likely to emerge. U.S. industry is well positioned to capitalize on this market.

Malcolm J. McPherson is associate dean for research and graduate studies at Virginia Tech in Blacksburg.

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The San Diego
Union-Tribune.

September 17, 2000

OPINION

Start making smart power decisions

By Mary L. Walker

Just about 25 years ago, the United States pulled its head out of the sand far enough to open one eye. What we saw was the hazard in a domestic energy policy based upon an insecure source of high-priced fuel — the Persian Gulf.

If only we had dusted the sand from the other eye, we might have perceived other hazards right here at home, hazards associated with a do-nothing policy on electricity generation. The dangers of such a policy are now only too evident in electricity shortages and power bills that are double and even triple what they were a year ago.

The electric drought has its roots in the 1970s, when big, new base-load generating plants had most of the nation awash in too much power. State regulators punished the utilities for their over-exuberance by barring them from passing costs of unused power to customers. Such economic risks offered little incentive to build generation facilities, especially since the North American Electric Reliability Council estimated in 1990 that demand for electricity would grow 1.8 percent annually. Instead, it rose an average of nearly 3 percent annually, eating through reserves.

Now with "deregulation," California electrical companies are expected to invest in gas-turbine "peaking" units that may be required only during periods of extreme demand, with no ensured means of recovering their investment except by imposing the rates that bring understandable protests.

Apart from the uncertainty such deregulation creates, utilities' reluctance to invest in new generating facilities also is the result of public opposition to new large-scale power plants. Politicians should investigate why so little base-load supply is coming into production. They must be willing to make politically difficult decisions to encourage less consumption and more production.

The only way to generate large amounts of electricity is to build plants that use coal and nuclear power, but we have stopped building them, and that's shortsighted. Granted, both nuclear power and coal are anathema to many Californians, in the case of nuclear because of waste and safety, and in the case of coal largely because of concerns about greenhouse-gas emissions.

However, nuclear power companies have managed waste from power plants safely for many years and have a good safety record in the U.S. The basic attraction of coal remains its low cost and great abundance. No longer the dirty fuel of the past, coal is being burned much more cleanly, due to improved pollution-control technologies. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

Clean-coal technologies, such as plants using integrated combined cycles operating with synthetic gas, through their greater efficiency, emit less carbon dioxide into the atmosphere, relative to current commercial practice. These breakthroughs in coal technology also control the pollutants that produce acid rain and smog.

The Zero Emission Coal Alliance, a coalition of coal companies and utilities, plans to build a pilot plant within five years to demonstrate power generation from coal without any carbon byproducts. The carbon dioxide is captured and chemically transformed into an inert mineral to be permanently sequestered underground.

While there is no escaping more electric-power problems in the short term, we can start making smart decisions. We need new large-scale power plants to meet growing electricity demand. It certainly makes sense to use gas turbines for peaking units, but we need to become more practical about energy because there is no perfect solution.

Hopeful as some of us might be about the prospects for solar and wind power, these cannot be counted on within the next few years to make much of a contribution to our power supply problems. Planning for renewables should not be allowed to dominate our consideration of the electric supply problem to the extent we fail to use those sources of energy that can make a decisive contribution. We must consider a greater use of coal and nuclear power for a balanced energy policy.

Walker is an environmental lawyer in San Diego. She was formerly the assistant secretary for environment, safety and health at the U.S. Department of Energy.

28070

The News & Advance

September 10, 2000
Lynchburg, VA

VIRGINIA VIEWPOINT

Bright future awaits coal as fuel source

By Malcom J. McPherson

The continued growing demand for electricity has focused attention on building new power plants to help prevent brownout and blackouts. Yet, government policymakers continue to ignore the present and future role of coal, the nation's No. 1 power plant fuel, because of the notion that all our country really needs is energy conservation and greater use of renewable energy sources such as solar and wind.

While the computer revolution and communications technologies have been primary factors in the expansion of the economy, this growth is completely dependent on a reliable and stable power supply. Economic as well as environmental concerns must be taken into account in energy decisions that are vital to Virginia and the nation.

Coal is important to America's energy future because of its low cost and abundance. The United States possesses more than 240 billion tons of recoverable coal reserves — 23 percent of the world's total. On a percentage basis, the U.S. has a greater endowment of the world's coal than Saudi Arabia does of the world's oil. We use far more coal today than at any time in our history — more than 1 billion tons a year. Coal accounts for 56 percent of our nation's electricity production, with nuclear power a distant second at 20 percent. Almost half of Virginia's power is produced at coal-fired power plants.

Those who argue for the shutdown of coal-fired plants seem to ignore the economic consequences. Wind and solar energy have a role in providing supplementary energy in some locations, but they are far too dilute and variable to provide, 24 hours a day every day, the prodigious amounts of energy needed. Natural gas has a part to play although more liable to price fluctuations than coal-based energy.

Economic realities will ensure that coal remains a primary world source of energy for the foreseeable future. So it makes sense to concentrate research efforts into means of utilizing that fuel efficiently, and with as little waste emissions as possible. Major improvements in clean coal technology have been achieved in recent years. U.S. coal use has doubled since 1977 while smokestack emissions have dropped by about 30 percent.

New and improved coal combustion technologies have helped make this possible. Through their greater efficiency, combined-cycle coal gasification plants sharply reduce carbon dioxide releases.

But in the most dramatic development to date, researchers at Los Alamos National Laboratory have developed an innovative technique to gasify coal into hydrogen for use in fuel cells that generate electricity without causing any air pollution. Carbon dioxide is captured and solidified into an inert mineral for safe disposal underground. The Zero Emission Coal Alliance, a coalition of coal companies and utilities, says this gasification process would cost about a cent more per kilowatt-hour than power produced by conventional coal-fired plants. The coalition's goal is to build a pilot plant within five years to demonstrate the process for eventual commercialization.

Sequestering carbon underground would shatter several myths. First, it would disprove the idea that no amount of effort to combat global warming will succeed unless we stop using coal.

Second, it puts to bed the argument that command-and-control government regulation is required to reduce greenhouse-gas emissions. We are moving toward a solution thanks to a research program, under which the coal industry and utilities are voluntarily taking steps to limit carbon emissions. This has to be a better approach than arbitrary regulations that would have no chance of controlling earth's climate but which would have costly economic consequences for all Americans. It is sensible because only new technology will allow us to continue to grow our economy while managing the level of waste emissions.

Advances in clean-coal technologies already are being made available to developing countries through market mechanisms. With worldwide use of coal expected to double by 2020, a huge market for carbon-saving technologies is likely to emerge. U.S. industry is well positioned to capitalize on this market.

It is vital that the United States provides secure and reliable means of meeting the growing energy demands of the nation while maintaining a healthful environment. This can occur only if we use practical technologies and develop a balanced energy policy. The energy industries and government each bear a responsibility to support research in university, government and corporate laboratories that will enable our most abundant energy resource to be utilized without unacceptable environmental consequences. The stakes — for our nation and the world — are very high.

McPherson is associate dean for research and graduate studies in the College of Engineering at Virginia Tech.

28071

The Gainesville Sun

September 10, 2000
Gainesville, FL

Coal and electricity: We need them both

ALEX GREEN

This may come as a shock to some advocates of "green power" who are convinced that coal is on its way out and have been writing obituaries.

Some greens are so wrapped up in windmill-solar energy sentiment that they ignore the fact that our digital economy requires more electricity, and coal is its biggest provider.

Forty-six percent of the electricity we use in Florida is produced at coal-fired power plants. These units continue to serve us well, providing affordable and efficient power and air conditioning that sustains our state's growing economy.

Economic reality — not arguments about fostering particular forms of sustainable power — ought to lead to informed energy decisions that are vital to Florida and the nation.

Even with tax credits, solar and wind energy have remained non-competitive, and combined only meet about one-tenth of 1 percent of U.S. energy requirements.

In Florida, we are recording a level of electricity use not expected until the next decade or beyond.

Spurred on by increased reliance on computers and other devices in our digital economy, electricity demand has been increasing 2 percent to 3 percent a year, while electricity production has lagged.

SPEAK *continued on Page 4G*

SPEAK: Coal plants produce electricity

Continued from 1G

Meanwhile, the safety cushion has dropped to below 15 percent of generating capacity, far below the 25 percent of a decade ago. If we are to avoid power shortages, we will need all of our energy resources, especially fossil fuels.

The basic attraction of domestic coal remains its abundance and low cost. No longer the dirty fuel of the past, coal is being burned much cleaner due to improved pollution-control technologies and new technologies. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

Recent improvements in clean-coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute in California forecasts that electricity use in the United States will rise a net 250 billion kilowatt hours by 2010, but emissions of carbon dioxide, the principal greenhouse gas, will decline by 685 million tons.

This is due to engineering breakthroughs in coal preparation, combustion, waste cleanup, state-of-the-art electronic instrumentation and controls and new technologies. For example, plants that produce electricity from gasified coal use less water, produce fewer waste products and more reusable byproducts.

Disdain for coal from the environmentally orthodox must be tempered with reality. Facilities using integrated combined cycles operating on synthetic gas — through their greater efficiency — contribute less carbon dioxide to the atmosphere, relative to current commercial practice. Significantly, the goal of the Department of Energy's coal research is to reduce pollution emissions virtually to zero while boosting overall plant efficiency.

Overall, any sensible program of carbon reduction would strongly encourage blending coal with renewable, carbon-friendly wood chips. Used in the same way, other forms of biomass such as cellulose from fast-growing plants would help reduce greenhouse buildup. And waste paper from landfills could also be utilized at coal-fired plants.

Conceivably, the energy crop and the coal-biomass conversion research at the University of Florida could lead a national effort for greenhouse-efficient strategies.

Anything the government can do to kick such ideas out of the laboratory and into the marketplace, where biomass could be used to help fuel coal-fired plants, might have more effect on global warming trends than all the government-imposed regulations combined.

Not so far into the future, this co-utilization technology is likely to open the way for using coal and biomass to make synthetic gas to power fuel cells in clean-burning automobiles that might be available for mass markets. Or it could be used to produce synthetic oil, thereby reducing our nation's dependence on foreign oil.

It might also be possible to convert coal and biomass to soil-humus in the reforestation of depleted farmland, and thus rapid carbon dioxide absorption. After all, trees gobble up a lot of carbon dioxide. Thinning out the understory of national forests could provide lots of biomass while reducing fire risks and the release of greenhouse causing smoke.

Public-private cooperation in developing clean-burning technology will be important in achieving the breakthroughs in applied research and development that will be required. Working to realize the full potential of domestic coal and biomass for powering the future offers a significant opportunity.

It's time to drop taboos against coal and biomass and start supporting the use of clean-burning technologies that are close to practicality.

Alex Green is a graduate research professor and director of the Clean Combustion Technology Laboratory at the University of Florida in Gainesville.

ASBURY PARK
PRESS

September 5, 2000
Asbury Park, NJ

Near-term power needs depend on old sources

Coal, nuclear generation are vital to meeting energy goals

By BENJAMIN STEVENSON

It has become one of the most familiar refrains in energy circles. Every time the demand for electricity gobbles up power reserves, as it did again this summer, officials at the Federal Energy Regulatory Commission assure us that there is little, perhaps nothing, to worry about.

We've dealt with booming electricity demand in previous years, the argument goes, and utilities are still able to provide power when it is most needed — during peak demand on hot summer afternoons. But in recent years, spurred by the growing economy and increased reliance on computers, wireless phones and other high-tech equipment, electricity demand has been increasing 2 percent to 3 percent a year, while production has lagged. Meanwhile, reserves have dropped to below 15 percent of generating capacity, far below the 25 percent of a decade ago. And as more states deregulate and utilities grapple with rising demand, there is likely to be less opportunity for New Jersey utilities to buy power from other regions, putting additional strains on the system. The electricity grid in the mid-Atlantic won't be able to handle rising demand indefinitely.

The dangers of a do-nothing policy on electricity generation are only too evident in California, where electricity shortages led to blackouts this summer and power bills that are double and even triple what they were a year ago. Fears of even worse shortages are rattling the Northeast and Midwest. The outlook is troubling because we have been very slow in building new power plants.

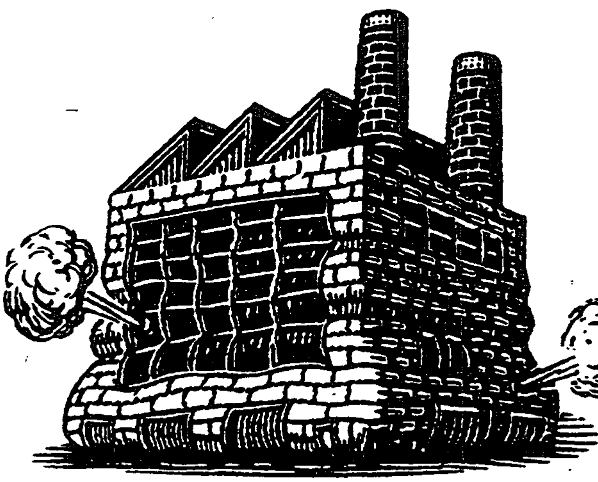
The electricity drought has its roots in the 1970s, when big, new base-load generating plants had most of the nation awash in too much power. State regulators punished the utilities for their overexuberance by barring them from passing costs of unused power to customers. Such economic risks offered little incentive to build generation facilities, especially since the North American Electric Reliability Council estimated in 1990 that demand for electricity would grow 1.8 percent annually. Instead, it rose an average of nearly 3 percent annually.

Now, with deregulation, New Jersey electrical companies are expected to invest in gas turbine "peaking" units that may be required only during periods of extreme demand, with no ensured means of recovering their investment except by imposing the rates that brings howls of protests.

Apart from the uncertainty that deregulation creates, utilities' reluctance to invest in new base-load generating facilities also is the result of public opposition to new large-scale power plants. Politicians should investigate why so little base-load supply is coming into production. They must be willing to make politically difficult decisions to encourage less consumption and more production.

The only way to generate large amounts of electricity is to build plants that use coal and nuclear power, but we have stopped building them. That's shortsighted. In New Jersey, we obtain 98 percent of our electricity from coal and nuclear power.

The basic attraction of coal remains its low cost and great abundance. No longer



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What should be recognized is that clean-coal technologies, such as plants using integrated combined cycles operating with synthetic gas, emit less carbon dioxide into the atmosphere, relative to current commercial practice. These breakthroughs in coal technology also control the pollutants that produce acid rain and smog.

Granted, coal and nuclear power are anathema to many New Jerseyans. In the case of nuclear power generation, it's because of nuclear safety and waste issues, and in the case of coal, largely because of concerns about atmospheric pollution and greenhouse-gas emissions. However, nuclear companies have managed waste from nuclear plants safely for many years and otherwise have a very good safety record in the United States. For coal, the Zero Emission Coal Alliance, a coalition of coal companies and utilities working in tandem with the Los Alamos National Laboratory, plans to build a pilot plant within five years to demonstrate power generation from coal without emitting any pollution, not even carbon byproducts. The carbon dioxide is captured and chemically transformed into an inert mineral, which can be permanently sequestered underground.

While there is no escaping electric-power problems in the short term, we can start making smart decisions. We need to become much more practical about energy, because there is no perfect solution. As hopeful as some people may be about the prospects of solar energy and wind turbines, they cannot be counted on to make much of a contribution to the electricity problem in the next two decades. Wishful thinking should not be allowed to dominate our thinking to the extent that we fail to develop those sources of energy that can make a decisive contribution. For the long haul, we must begin to expand the use of coal and nuclear power in New Jersey. In electricity, as in politics, what matters is local power.

□ *Benjamin Stevenson is associate professor of physics at the New Jersey Institute of Technology, Newark.*

Roanoke Times & World-News

August 8, 2000
Roanoke, VA

Gasified coal could be a pollution-free fuel

New research could make coal the energy solution

By [illegible]

THE CONTINUED growing demand for electricity has focused attention on building new power plants to help prevent brownouts and blackouts.

Yet government policy-makers continue to ignore the present and future role of coal, the nation's No. 1 power-plant fuel, because of the notion that all our country really needs is energy conservation and greater use of renewable energy sources such as solar and wind.

While the computer revolution and communications technologies have been primary factors in the expansion of the economy, this growth is completely dependent on a reliable and stable power supply. Economic as well as environmental concerns must be taken into account in energy decisions that are vital to Virginia and the nation.

Coal is important to America's energy future because of its low cost and abundance. The United States possesses more than 240 billion tons of recoverable coal reserves — 25 percent of the world's total. [illegible] the nation has a greater percentage of the world's coal than Saudi Arabia does of the world's oil.

We use far more coal today than at any time in our history — more than 1 billion tons a year. Coal accounts for 56 percent of our nation's electricity production, with nuclear power a distant second at 20 percent. Almost half of Virginia's power is produced at coal-fired power plants.

Those who argue for the shutdown of coal-fired plants seem to ignore the economic consequences. Wind and solar energy have a role in providing supplementary energy in some locations, but they are far too dilute and variable to provide prodigious amounts of energy needed 24 hours a day every day. Natural gas has a part to play, although it is more liable to price fluctuations than coal-based energy.

Economic realities will ensure that coal remains a primary world source of energy for the foreseeable future. So it makes sense to concentrate research efforts into means of using that fuel efficiently and with as little waste emissions as possible.

Major improvements in clean-coal technology have been achieved in recent years. U.S. coal use has doubled since 1977, while [illegible] emissions have dropped by about 30 percent.

New and improved coal combustion technologies have helped make this possible. Through their greater efficiency, [illegible] combined-cycle, coal-gasification plants sharply reduce carbon dioxide releases. [illegible]

But in the most dramatic development to date, researchers at Los Alamos National Laboratory have developed an innovative technique to gasify coal into hydrogen for use in fuel cells that generate electricity without causing any air pollution.

Carbon dioxide is captured and solidified into an inert mineral for safe disposal underground. The Zero Emission Coal Alliance, a coalition of coal companies and utilities, says this gasification process would cost about a cent more per kilowatt-hour than power produced by conventional coal-fired plants. The coalition's goal is to build a pilot plant within five years to demonstrate the process for eventual commercialization.

Sequestering carbon underground would shatter several myths. First, it would disprove the idea that no amount of effort to combat global warming will succeed unless we stop using coal.

Second, it puts to bed the argument that command-and-control government regulation is required to reduce greenhouse gas emissions. We are moving [illegible] thanks to research programs under which the coal industry and utilities are voluntarily taking steps to limit carbon emissions.

This has to be a better approach than arbitrary regulations that would have no chance of controlling Earth's climate, but which would have costly economic consequences. It is sensible because only new technology will allow us to continue to grow our economy while managing the level of emissions.

Advances in clean-coal technologies already are being made available to developing countries through market mechanisms. With worldwide use of coal expected to double by 2020, a huge market for carbon-saving technologies is likely to emerge. U.S. industry is well-positioned to capitalize on this market.

It is vital that the United States provide secure and reliable means of meeting the growing energy demands of the nation while maintaining a healthful environment. This can occur only if we use practical technologies and develop a balanced energy policy.

The energy industries and government each bear a responsibility to support research in university, government and corporate laboratories that will enable our most abundant energy resource to be used without unacceptable environmental consequences. The stakes — for our nation and the world — are very high.

[illegible] is associate dean for research and graduate studies at Virginia Tech.

Alabama Living

July 2000

Solid Science

No longer the dirty fuel of the past, coal today burns cleaner and more efficiently than ever before

by William B. Reed

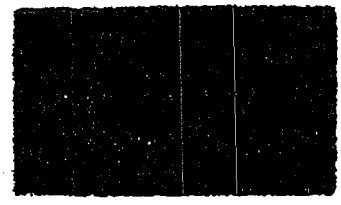
Concerns about air quality have spawned new technologies that burn coal cleaner and more efficiently. By capturing chemicals that cause acid rain and ozone smog, these breakthroughs in environmental protection hold great value for the United States and other countries that rely heavily on coal for their energy supply.

No longer the dirty fuel of the past, coal today sets the competitive benchmark for new "base-load" power generation. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

Yet environmentalists who claim that greenhouse-gas emissions are responsible for global warming demand that we back away from using coal. They advocate shifting to greater use of renewable energy sources such as solar and wind power. But replacing coal with uneconomical renewable sources is unwise and unnecessary, because it would result in electricity shortages and cause serious economic harm. Today solar and wind power combined provide less than one-tenth of 1 percent of the nation's energy and are not practical in most parts of the United States.

Nearly two-thirds of the electricity we use in Alabama is produced at coal-fired plants. (Nearly 80 percent of the electricity used by Alabama's electric cooperative consumers is produced by burning coal.) Together with nuclear power's contribution, these units serve us well, providing affordable and efficient power that sustains our state's growing economy.

Economic reality – not arguments about fostering "green power" with solar



devices and wind turbines – ought to inform energy decisions that are vital to Alabama and the nation. Because coal accounts for 56 percent of the U.S. power supply, any serious approach to greenhouse-gas reduction must focus on achieving further improvements in clean-coal technology.

Because of the growing demand for electricity to power our increasingly digitalized economy, we use far more coal today than at any other time in U.S. history. The basic attraction of coal remains its low cost and great abundance. And its economic value is likely to become even more pronounced as domestic oil and gas reserves are steadily depleted and hydropower stations are decommissioned.

Improvements to date in clean-coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute forecasts that electricity use in the U.S. will rise a net 250 billion kilowatt-hours by 2010, but that emissions of carbon dioxide, the principal greenhouse gas, will decline by 685 million tons. This is due to steady, incremental changes, year after year, from engineering breakthroughs in coal preparation, combustion, waste cleanup and state-of-the-art electronic instrumentation and controls.

COAL

Solid science – not hypothetical risks about climate change – ought to inform energy decisions. If, in fact, we are in a period of global warming and if man is contributing to it and there is something we can do to slow it down, then perhaps we should act. But we should act intelligently.◆

William B. Reed

William B. Reed is chairman of System Controls Inc., a design and manufacturing company in Birmingham.

Columbia Daily Tribune

July 25, 2000
Columbia, MO

Get real! Taboo against coal clashes with facts

By JOHN W. WILSON

The outcry over global warming has cast much-needed attention on efforts to curtail greenhouse gas emissions from coal-fired power plants. But in the name of protecting the environment, there is a move afoot in Congress to shut down research under way at Los Alamos National Laboratory and other scientific centers to develop emission-free coal technology for generating electricity in this country and abroad. That misguided approach would result over the long term in increased atmospheric concentrations of greenhouse emissions, potentially damaging the very environment we seek to protect.


Wilson

Those who disparage the use of coal ignore that it accounts for 84 percent of Missouri's electricity generation. Nationally, coal accounts for 56 percent of our power supply, with nuclear power a distant second at 20 percent, while the promise of nonhydrorenewable energy sources in the United States continues to recede despite expensive, highly subsidized research and development. The 1997 U.S. federal R&D investment per thousand kilowatt-hours was only 5 cents for nuclear and coal, 58 cents for oil and 41 cents for gas but was $4,769 for wind and $17,006 for solar photovoltaics.

Yet today wind and solar energy combined meet just one-hundredth of one percent of U.S. energy requirements. This has not deterred the Clinton administration from raising public expectations about renewable resources. Energy secretary Bill Richardson is pressing ahead with a plan to produce five percent of the nation's electricity from wind turbines by 2020.

Economic reality — not vague agreements about the benefits of distributed generation and green power — ought to influence decisions vital to the future of the United States and the world.

We use far more coal today than at any other time in our history, and the basic attractions of coal remain the same — low cost and great abundance. In terms of price, coal sets the competitive benchmark for new "base-load" power generation. And its economic value is likely to become more pronounced as domestic oil and gas reserves are steadily depleted and nuclear power plants are decommissioned.

No longer the dirty fuel of the past, coal is being burned much cleaner, due in part to the availability of emission-control systems. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled. That little-known fact can drive environmental lobbies to distraction.

Improvements to date in clean coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute in Palo Alto, Calif., forecasts that electricity use in the United States will rise a net 250 billion kilowatt-hours by 2010 but that emissions of carbon dioxide will decline by 685 million tons. This is due to steady, incremental changes, year after year, from engineering breakthroughs in coal preparation, combustion, waste cleanup and state-of-the-art electronic instrumentation and controls.

If the United States depends so heavily on coal, think about its importance to less prosperous developing countries. World population passed 6 billion in 1999 and is still increasing.

Yet one-third of the world — 2 billion people — lacks access to electricity and the economic development it can bring. The alternative is famine, poverty, disease, hopelessness and political instability.

An estimated 800 million people, mostly in developing countries, suffer from chronic malnutrition. Half of the world's population has no access to sanitary toilets. Electricity-driven economic development can solve these problems. Access to electricity can reduce infant mortality, improve sanitation, extend life expectancy and foster educational opportunities. Significant benefits could be realized within a single generation.

Electricity use worldwide is expected to reach 60 trillion kilowatt-hours a year by 2050 — roughly four times today's consumption. That means bringing new generating capacity on line at the rate of one base-load power plant every two days for the next 50 years. Russia, China and India will unquestionably use their vast indigenous coal reserves for power generation since the widespread availability of cheap electricity is crucial for their national economic development. China alone plans to add 150 to 180 power plants per year for the next two decades, about three-quarters of which will be coal-fired.

The market implications are enormous. "The United States can play a major role in the growing international market for new generating capacity by providing advanced technology for hundreds of new coal plants that will be needed over the next decades," says Kurt Yeager, president of the Electric Power Research Institute.

Since coal will account for the bulk of the world's energy supply for at least the next 50 years, it's time to move from a heated debate about global warming to developing economical ways to render coal environmentally benign. We need to conceive of bold, groundbreaking advances in technologies to capture and store carbon dioxide and turn them into working realities.

One model for action is the Zero Emission Coal Alliance. It combines the capabilities of U.S. and Canadian mining companies and electric utilities with the scientific expertise of Los Alamos National Laboratory to demonstrate a process in the next five years in which the net efficiency of coal-based power generation is at least doubled while not emitting any greenhouse gases. The carbon dioxide is captured and chemically turned into a solid and inert mineral to be permanently sequestered underground. It's a sterling example of a private- and public-sector partnership where scientists and other researchers work together toward a common goal.

Real headway is possible in the effort to achieve global electrification and maintain a livable environment, but only if we use practical technologies and maintain a balanced mix of energy sources. It's time to drop the taboo and start learning to live with clean coal.

John W. Wilson is chairman and professor of mining engineering at the University of Missouri-Rolla.

The Joplin Globe

July 23, 2000
Joplin, MO

Learning to live with clean coal

JOHN W. WILSON
GUEST COLUMNIST

The outcry over global warming has cast much-needed attention on efforts to curtain greenhouse-gas emissions from coal-fired power plants. But in the name of protecting the environment, there is a move afoot in Congress to shut down research under way at Los Alamos National Laboratory and other scientific centers to develop emission-free coal technology for generating electricity in this country and abroad. That misguided approach would result over the long term in increased atmospheric concentrations of greenhouse emissions, potentially damaging the very environment we seek to protect.

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Economic reality — not vague arguments about the benefits of distributed generation and green power — ought to influence decisions vital to the future of the United States and the world. We use far more coal today than at any other time in our history, and the basic attractions of coal remain the same — low cost and great abundance. In terms of price, coal sets the competitive benchmark for new "base-load" power generation. And its economic value is likely to become even more pronounced as domestic oil and gas reserves are steadily depleted and nuclear power plants are decommissioned.

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John W. Wilson is chairman and professor of mining engineering at the University of Missouri-Rolla.

BIRMINGHAM
POST-HERALD

July 19, 2000
Birmingham, AL

ENERGY

Don't dismiss coal as clean fuel source

By JACK WINNICK

In these days of the search for clean, efficient energy sources, coal might seem the last place to look. Coal-burning power plants bring to mind smoke stacks belching plumes of sulfur and soot. Environmentalists, and I like to consider myself allied with them, hope for the day when we can rely totally on emission-free, renewable energy sources like solar power.

While there is more than enough sunlight striking the Earth to fulfill our energy demand, it, like other renewable sources, is simply too dilute to collect and distribute effectively. And that's why we've come to depend on concentrated forms of naturally occurring energy, "fossil fuels": oil, natural gas and coal.

Fuel cells now seem destined to supply much of our electricity, in vehicles, homes and industry. They are vastly more clean and energy-efficient than other electricity producers. But as clean as fuel cells are, they need hydrogen. This hydrogen has to come from some other fuel: oil or natural gas, or coal.

Making hydrogen from coal involves mixing it with water in a complex process at rather extreme conditions. It's not a new process; we've known how to do it for nearly 100 years. It's called coal gasification: coal, oxygen and water make a mixture of, basically, hydrogen and carbon dioxide. And our domestic coal reserves can generate the enormous amounts of hydrogen we need to power our fuel cells for hundreds of years.

Fuel cells in cars also use hydrogen; but the hydrogen can't be efficiently stored on board. Instead, gasoline or methanol will be stored in the fuel tank and processed in much the same way as with coal to provide the hydrogen. Incidentally, methanol also is made from coal and water.

This brings up the subject of pollution. Coal is an inherently dirty substance. It contains, in addition to carbon and ash, varying amounts of sulfur. When coal is burned or gasified, the sulfur ends up as either sulfur dioxide, the primary acid-rain precursor, or the rotten-egg-smelling hydrogen sulfide. Neither of these is an acceptable emission option.

But part of the complexity of the gasification process that makes the hydrogen is due to the need to clean the gas, and to a greater degree than that required to meet environmental standards. This is because the fuel cells, and other parts of the process, are ever so sensitive to sulfur corrosion. This makes the whole process much cleaner than the familiar coal-burning power plant. What's more, and even more important, is that the efficiency of the energy generation — all the way "from coal-pile to bus-bar," as they say in the industry — is about 50 percent better than the standard power plant. This means 50 percent less carbon dioxide emitted for each unit of electricity; that's a lot less "greenhouse gas" and a lot less global warming.

There are even long-range plans to capture this reduced level of carbon dioxide. Engineers at the Los Alamos National Laboratory are working on an advanced version of the coal gasification process that soaks up the carbon dioxide produced in an abundant, naturally occurring mineral, so that no greenhouse gas or other pollutant results from the entire cycle. The carbon dioxide can also be used for what is called "enhanced oil recovery." It's pumped into depleted wells to push out the last remaining oil.

This ultimate "zero pollution" goal may not be reached for a few decades, but the basic idea has been successfully tested already, at several sites. It's still not ready for widespread use; there are some technical and economic issues to be solved, both in the gasification and the fuel cells. But solutions to these problems are coming at an ever faster pace.

No one denies that decreased energy use is the most effective short-term fix to all our energy-related problems, but energy efficiency alone cannot resolve the long-term scenario of pollution and global warming. Only our intelligent use of our resources can do that.

Our increased dependence on foreign oil has caused huge economic disruptions and forced compromises with medieval-style governments. A sensible energy policy is one that uses all our domestic sources: oil for transportation and chemicals, natural gas for home and commercial heating, and coal for electricity production. Continued development of coal gasification and fuel cells, both vehicular and stationary, will lead to a politically stable, economic and environmentally friendly energy policy.

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JOURNAL STAR
SERVING CENTRAL ILLINOIS SINCE 1855
July 16, 2000
Peoria, IL

Technology aims at cutting coal emissions

By C. JOHN MANN

Any serious approach to reducing global warming ought to include research into techniques that eliminate greenhouse-gas buildup from coal combustion. Paramount among the most promising ways to curtail greenhouse emissions is capturing and "sequestering" carbon dioxide underground. But Energy Secretary Bill Richardson seems too wrapped up in trendy renewable-energy sentiment to recognize this.

Instead of directing government research toward clean-coal technologies, Richardson is busily promoting use of wind turbines to generate electricity. The notion of Great Plains states becoming a "Saudi Arabia of wind" may sound great on paper, but simply isn't practical. Electric companies have been trying to produce cheap, renewable electricity from wind for decades and, notwithstanding recent advances in wind turbines and government tax credits, have obtained neither a sufficiently small price nor adequate energy, except locally in California. One utility has calculated that to produce electricity equivalent to the output of a large coal, nuclear for gas power plant would require wind turbines covering 400 square miles.

Throughout the Midwest, we are recording electric-power demands not expected until the next decade or beyond. A robust economy, combined with increasing digital microprocessors that already account for 8 percent of our nation's power consumption, has created a demand for electricity that shortly will exceed our capacity to generate it. In the critical period ahead — the next two to three decades — we shall need all available energy resources, especially coal and nuclear power, if we are to avoid crippling power shortages.

Until now, we have been able to avoid serious power shortages only by using electricity purchased from other regions and Canada. But now, as states move to deregulate the electrical industry, competition for available power supplies is certain to grow. Though new natural gas-fired power plants help, utilities that depend heavily on gas as a boiler fuel face the specter of declining domestic gas reserves and greater costs. Wholesale natural gas prices have risen more than 30 percent in the last year and probably will continue to increase.

These facts have not deterred the Clinton administration from turning its back on coal, the energy resource that currently supplies more than half this nation's electricity. The administration has attached a poor priority to research on fossil fuels, and coal is rarely discussed amid all the fashionable angst about carbon emissions.

Nonetheless, U. S. coal use has doubled since 1977 whereas smokestack emissions have decreased by about 30 percent. New and improved coal combustion technologies have made this possible. Deregulation of electricity has brought "baseload" power plant construction to a virtual standstill, because utilities are making better utilization of existing coal-fired plants to meet electricity demand. Coal remains the least expensive fossil fuel and is abundant domestically. Moreover, its cost advantage is likely to grow even more substantial as prices of other fossil fuels increase with diminishing supplies. Consequently, older coal plants are being refurbished for extended life and cleaner operations. These upgrades help make coal more attractive because they're being done much less expensively per kilowatt than building new natural gas-fired or nuclear plants.

Improvements in clean-coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute in Palo Alto, Calif., forecasts that electricity demand will rise a net 250 billion kilowatt-hours by 2010 but that emissions of carbon dioxide, the principal greenhouse gas released by human activities, will decline by 685 million tons annually. This is due to steady incremental changes, year after year, from engineering breakthroughs in coal preparation, combustion, waste cleanup and state-of-the-art electronic instruments and controls.

Clean-coal technologies — a result of cooperation between government and private industry — use less water, produce smaller qualities of undesirable waste products and more reusable byproducts, and, through greater efficiency, contribute less carbon dioxide to the atmosphere. These new technologies also minimize emissions of sulfur dioxide, nitrogen oxides, and other pollutants. The goal is to reduce emissions virtually to zero.

In the near future, a new technique to capture and sequester carbon dioxide entirely underground in the coal mine will be demonstrated, something that was considered impossible only a few years ago. Researchers at Los Alamos National Laboratory have developed this technology which releases hydrogen from coal to generate electricity and simultaneously captures carbon dioxide in a naturally occurring solid mineral form that is returned to the mine. The Zero Emission Coal Alliance, a coalition of coal companies and utilities, plans to build a pilot plan, within five years, to demonstrate the feasibility of this process for commercial application.

Sequestering carbon underground will shatter several current myths. First, it will disprove the idea that coal should not be used because of global warming. Second, it destroys the argument that dictatorial command-and-control federal regulation is necessary to reduce greenhouse-gas emissions. Here, a solution that is both practical and economical will have been found through research and a voluntary utilities-coal industry effort to limit emissions.

This is a logical and sensible approach to an environmental problem; not an arbitrary political regulation that would have serious economic consequences for our nation and has no chance at solving root causes of the problem. Importantly, only new technology will permit our economy to continue its growth and continued use of natural resources without deleterious effects.

C. John Mann is emeritus professor of geology at the University of Illinois in Urbana.

Sequestering carbon underground will shatter several current myths. First, it will disprove the idea that coal should not be used because of global warming. Second, it destroys the argument that dictatorial command-and-control federal regulation is necessary to reduce greenhouse-gas emissions.

28080

NEWS & RECORD

July 16, 2000
Greensboro, NC

Coal has bright future; don't count it out

BY DAVID HENRY LUCAS

Imagine this: Greenhouse-gas emissions from the burning of coal are captured, solidified and deposited deep underground in abandoned mines. This is the dramatic possibility that seems not yet to have been glimpsed by the public in the discussion of the hypothetical threat of man-made global warming. If the predictions of so-called carbon "sequestration" are realized, it will mean a renaissance for coal with profound economic and environmental benefits in its train.

Coal remains one of America's critical fuels for good reason. It is important to our energy future because of its low cost and abundance. Our nation possesses more than 240 billion tons of recoverable coal reserves: 23 percent of the world's total. On a percentage basis, the United States has a greater endowment of the world's coal than Saudi Arabia does of the world's oil.

We use far more coal today than at any time in our history — more than 1 billion tons a year. Coal accounts for 56 percent of our nation's electricity production, with nuclear power a distant second at 20 percent. In South Carolina, recent numbers show that coal provides nearly 40 percent of utility generation. In Georgia, that number is 64 percent, and in North Carolina it's 62.4 percent. Without coal, we would not have enough electricity for our homes and businesses. Coal's economic value is likely to become even more pronounced as domestic oil and natural gas reserves are steadily depleted and nuclear plants are taken out of service by irrational fear-mongering.

Environmentalists who are determined to shut down coal-fired plants seem to disregard the economic consequences of their actions. Those who look to natural gas as a replacement fuel ignore the fact that there is no guarantee that cheaper and plentiful natural gas will last. Gas prices have increased more than 30 percent in the last year and are likely to keep rising. While wind and solar energy may have a role in providing supplementary energy in some locations, they are far too diluted and variable to provide, 24 hours a day every day, the prodigious amounts of energy needed.

Major improvements in clean coal technology have been achieved in recent years. U.S. coal use has doubled since 1977 while smokestack emissions have dropped by about 30 percent. The new and improved coal combustion technologies have helped to make this possible. Through their greater efficiency, combined-cycle coal gasification plants sharply reduce carbon dioxide releases.

In the most dramatic development to date, Los Alamos National Laboratory has developed an innovative technique to gasify coal into hydrogen for use in fuel cells that generate electricity without causing any air pollution. Carbon dioxide is captured and solidified into an inert mineral for safe disposal underground.

The Zero Emission Coal Alliance, a coalition of coal companies and utilities, says this gasification process would cost about a cent more per kilowatt hour than power produced by conventional coal-fired plants. The coalition's goal is to build a pilot plant to demonstrate it for eventual commercialization.

So it turns out that there are reasonable solutions to the dire predictions of coal-induced global warming. And they don't require bureaucratic command-and-control government regulation. We are moving toward that solution because of a research program in which the coal industry and the utilities are taking steps to limit carbon emissions. This free-enterprise approach should satisfy sensible environmentalists. Developing this new technology will be expensive for the private sector. Reasonable incentives should enable companies to proceed with environmental research and development.

In the Southeast, we cannot afford to risk the economic consequences of limiting coal use. With the new technology it seems possible that we can have inexpensive energy and a cleaner environment — together.

David Henry Lucas, a native of Greensboro who now lives in Mount Pleasant, S.C., is a member of the board of directors of the South Carolina Policy Council.

28081

Arkansas Democrat Gazette

July 15, 2000
Little Rock, AR

Coal can remain in energy equation

BY M.K. MAZUMDER
SPECIAL TO THE ARKANSAS GAZETTE

Guest writer

Environmental concerns have given rise to new power systems that burn coal more efficiently and cleanly. By capturing chemicals that cause acid rain and ozone smog, these breakthroughs in clean-coal technology hold great value for the United States and other countries.

No longer the dirt fuel of the past, coal today sets the competitive benchmark for "baseload" power generation. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity production has nearly tripled.

Yet environmentalists who claim that greenhouse-gas emissions are responsible for global warming demand that we back away from using coal. They advocate shifting to greater use of renewable energy sources such as solar and wind power.

But replacing coal with uneconomical renewable sources is unwise and unnecessary; it would result in electricity shortages and cause serious economic harm. Today, solar and wind power combined provide less than one-10th of 1 percent of the nation's energy and are not practical energy sources in most parts of the United States.

Fifty-three percent of the electricity we use in Arkansas is produced at coal-fired plants. Together with nuclear power's contribution, these units serve us well, providing affordable and efficient power that sustains our state's growing economy.

Economic reality, not arguments about fostering "green power" with solar devices and wind turbines, ought to inform energy decisions that are vital to Arkansas and the nation.

Since coal accounts for more than half of the U.S. power supply, any serious approach to greenhouse-gas reduction must focus on achieving further improvements in clean-coal technology.

Because of the growing demand for electricity to power our increasingly electronic economy, we use far more coal today than at any time in U.S. history. The basic attraction of coal remains its low cost and great abundance. And its economic value is likely to become even more pronounced as domestic oil and gas reserves are steadily depleted.

Energy experts forecast that coal's use will keep growing worldwide, notwithstanding pressure from environmentalists who blame fossil fuels for the rise in greenhouse-gas emissions. Backing away from coal would be illogical even if scientists could agree that the earth's atmosphere is getting warmer because of man-made carbon dioxide and other gases. But the notion becomes even more illogical given the fact that scientists are divided on the issue.

Solid science, not hypothetical risks about climate change, ought to inform energy policy decisions. If, in fact, we are in a period of global warming, and if man is contributing to it and there is something we can do to slow it down, then we should definitely act. But we should act intelligently.

Improvements to date in clean-coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute forecasts that electricity use in the U.S. will rise a net 230 billion kilowatt hours by 2010, but that emissions of carbon dioxide, the principal greenhouse gas, will decline by 685 million tons. This reduction will be due to steady, incremental changes brought about by engineering breakthroughs in coal preparation, combustion, waste cleanup and state-of-the-art electronic instrumentation and controls.

Not so far into the future, there may even be techniques to capture carbon dioxide emissions and pipe them underground.

Many technological challenges remain to be solved, but work on carbon sequestration is under way in the U.S., Japan and other countries. For example, scientists at Los Alamos National Laboratory in New Mexico maintain that it might be possible eventually to generate electricity from coal with very little emission of any kind. The idea is to use a mixture of water and coal to create hydrogen. A fuel cell would convert the hydrogen to electricity. Carbon dioxide emitted as a byproduct would be converted into a solid and inert mineral for underground disposal.

A consortium of utilities and coal companies plans to develop a pilot plant within five years to demonstrate this process.

If the world's most prosperous country relies so heavily on coal, developing countries absolutely depend upon it. World population is still increasing, having passed 6 billion in 1998. Yet one-third of that number, or 2 billion people, lack access to electricity. Development depends on energy, and the alternative is famine, poverty, disease and hopelessness.

Electricity use worldwide is expected to reach 60 trillion kilowatt hours a year by 2050, roughly four times today's consumption. That increase necessitates bringing new generating capacity online at the rate of one base-load power plant every two days for the next 50 years.

"The United States can play a major role in the growing international market for new generating capacity by providing advanced technology for hundreds of new coal plants that will be needed over the next decades," says Kurt Yeager, president of the Electric Power Research Institute in Palo Alto, Calif.

This state of affairs presents a historic opportunity. We need to share clean-coal technologies, especially systems being explored to convert coal into ultra-clean fuel for use in transportation with other countries.

The reason for coal's importance is clear. Electricity is the cleanest and most efficient energy source. Legitimate concern about greenhouse emissions should not be permitted to muddle what remains the essential point: We need to recognize the critical contribution of coal to energy supply now and in the future.

M.K. Mazumder is a professor of applied science at the University of Arkansas at Little Rock.

The Clarion-Ledger

July 10, 2000
Jackson, MS

WILLIAM SHUGHART

Investment vital to avoid electric power outages

Guest Columnist

The paralysis that has lately gripped capital investment in our nation's electric power supply system is raising the prospect of power shortages more widespread than those that struck the Midwest and Northeast last summer.

Over three decades, electric utilities have been pounded by politicians who demand low rates for their constituents and who pander to environmental lobbyists pushing solar energy and wind-driven turbines instead of seemingly old-fashioned "base-load" power plants.

Nor has there been much help from Wall Street, resulting in an almost complete lack of new power plant construction.

Meanwhile, power demand is rising faster than the system's ability to generate and deliver it, driven by a booming economy and the proliferation of home computers, TVs, air conditioners and the other amenities. Despite improvements in energy efficiency, consumption has risen each year for the past five years by 1.6 percent to 3.5 percent.

The implications of that kind of demand for electricity are enormous.

Internet fuels demand

Think about the explosive growth in the number of Internet users. Electricity use linked to the silicon devices has grown from essentially nothing 10 years ago to almost 8 percent of total U.S. electricity consumption today — more than the steel, pulp and paper and chemical industries combined.

By the year 2020 we will need 100,000 megawatts of new capacity, or the equivalent of 100 large power plants.

It is time that we invested in our electricity system. What we are belatedly discovering is that in the critical period ahead we will need all of our energy resources, especially coal, if we are to meet the growing demand.

Energy Secretary Bill Richardson seems too wrapped up in trendy renewable energy sentiment (or too worried about the nuclear secrets gone missing on his watch) to recognize this.

Instead of focusing on proven technologies, he is promoting the use of wind-powered turbines, though they provide less than one tenth of 1 percent of the nation's power and are not practical in most parts of the country.

Though new gas-fired power plants help, utilities that depend heavily on natural gas as a boiler fuel to generate electricity face the specter of declining gas reserves and higher costs. Wholesale gas prices have doubled in the past year and are likely to keep rising.

This has not deterred the Clinton administration from turning its back on coal, the source of more than half the nation's electricity and 40 percent in Mississippi.

Coal abundant, clean

The basic attraction of coal remains its low cost and abundance. In recent years there has been great progress in reducing coal power plant emissions. Since 1970, overall U.S. coal emissions have been cut in half, even as coal-based electricity generation has nearly tripled. These advantages are likely to grow as advanced clean coal technologies reach commercial deployment.

Considering that large regions of the country are veering toward major power outrages, it is time to stop worrying about whether power costs a further tenth of a cent per kilowatt hour and start putting a premium on reliability.

That means expenditures on major coal-fired power plants, not a handful of windmills and tiny dams on little streams, plus a full-scale review of the adequacy of our national power distribution system to meet growth needs and peaks.

The alternative is increasingly costly power failures that will quickly thwart what would have been prudent investments in a healthy power system.

William F. Shughart II is the Frederick A. P. Barnard Distinguished Professor of Economics and holder of the Robert M. Hearin Chair in Business Administration at the University of Mississippi.

Chicago Sun-Times

July 1, 2000

Not just another fossil, coal key to future

"Sequestering" technology will cut emissions while keeping plants humming, writes C. John Mann.

Any serious approach to reducing global warming ought to include research into techniques that eliminate greenhouse-gas buildup from coal combustion. Paramount among the most promising ways to curtail greenhouse emissions is capturing and "sequestering" carbon dioxide underground. But Energy Secretary Bill Richardson seems too wrapped up in trendy renewable-energy sentiment to recognize this.

Instead of directing government research toward clean-coal technologies, Richardson is busily promoting use of wind turbines to generate electricity. The notion of Great Plains states becoming a "Saudi Arabia of wind" may sound great on paper, but simply isn't practical. Electric companies have been trying to produce cheap, renewable electricity from wind for decades and, notwithstanding recent advances in wind turbines and government tax credits, have obtained neither a sufficiently small price nor adequate energy, except locally in California.

Throughout the Midwest, we are recording electric-power demands not expected until the next decade or beyond. A robust economy, combined with increasing digital microprocessors that already account for 8 percent of our nation's power consumption, has created a demand for electricity that shortly will exceed our capacity to generate it. In the next two to three decades we shall need still available energy resources, especial coal and nuclear power, if we are to avoid crippling power shortages.

Until now we have been able to avoid serious power shortages only by using electricity purchased from other regions and Canada. But now, as states move to deregulate the electric industry, competition for available power supplies is certain to grow. New natural gas-fired power plants help, but utilities that depend heavily on gas as a boiler fuel face the specter of declining domestic gas reserves and greater costs.

These facts have not deterred the Clinton administration from turning its back on coal, the energy resource that supplies more than half this nation's electricity. The administration has attached a poor priority to research on fossil fuels, and coal is rarely discussed amid all the fashionable angst about carbon emissions.

Nonetheless, U.S. coal use has doubled since 1977, whereas smokestack emissions have decreased by about 30 percent. New and improved coal combustion technologies have made this possible. Deregulation of electricity has brought "baseload" power plant construction to a virtual standstill, because utilities are making better utilization of existing coal-fired plants to meet electricity demand. Coal remains the least expensive fossil fuel and is abundant domestically. Moreover, its cost advantage is likely to grow even more substantial as prices of other fossil fuels increase with diminishing supplies.

Clean coal technologies—a result of cooperation between government and private industry—use less water, produce smaller quantities of undesirable waste products and more reusable by-products, and, through greater efficiency, contribute less carbon dioxide to the atmosphere. These new technologies also minimize emissions of sulfur dioxide, nitrogen oxides and other pollutants.

In the near future, a new technique to capture and sequester carbon dioxide entirely underground in the coal mine will be demonstrated, something that was considered impossible only a few years ago. Researchers at Los Alamos National Laboratory have developed this technology, which releases hydrogen from coal to generate electricity and simultaneously captures carbon dioxide in a naturally occurring solid mineral form that is returned to the mine.

Sequestering carbon underground will shatter several myths. It will disprove the idea that coal should not be used because of global warming. It destroys the argument that dictatorial command-and-control federal regulation is necessary to reduce greenhouse-gas emissions.

This is a logical and sensible approach to an environmental problem, not an arbitrary political regulation that would have serious economic consequences for our nation and has no chance at solving root causes of the problem. Coal is an important and necessary contributor to this nation's energy supply both today and many decades into the future.

C. John Mann is emeritus professor of geology, University of Illinois at Urbana-Champaign.

The News-Gazette

June 28, 2000
Champaign, IL

Federal government should not turn its back on coal

GUEST COMMENTARY

By C. JOHN MANN

Any serious approach to reducing global warming ought to include research into techniques that eliminate greenhouse-gas buildup from coal combustion. Paramount among the most promising ways to curtail greenhouse emissions is capturing and "sequestering" carbon dioxide underground. But Energy Secretary Bill Richardson seems too wrapped up in trendy renewable-energy sentiment to recognize this.

Instead of directing government research toward clean-coal technologies, Richardson is promoting use of wind turbines to generate electricity. The notion of Great Plains states becoming a "Saudi Arabia of wind" may sound great, but simply isn't practical. Electric companies have been trying to produce cheap, renewable electricity from wind for decades and, notwithstanding recent advances in wind turbines and government tax credits, have obtained neither a sufficiently small price nor adequate energy, except locally in California. Our utility has calculated that to produce electricity equivalent to the output of a large coal, nuclear or gas power plant would require wind turbines covering 400 square miles.

Throughout the Midwest, we are recording electric-power demands not expected until the next decade or beyond. A robust economy, combined with increasing digital microprocessors that already account for 8 percent of our nation's power consumption, has created a demand for electricity that shortly will exceed our capacity to generate it. In the next two to three decades we shall need all available energy resources, especial coal and nuclear power, if we are to avoid crippling power shortages.

Until now, we have been able to avoid serious power shortages only by using electricity purchased from other regions and Canada. But now, as states move to deregulate the electrical industry, competition for available power supplies is certain to grow. Though new natural gas-fired power plants help, utilities that depend heavily on gas as a boiler fuel face the specter of declining domestic gas reserves and greater costs. Wholesale natural gas prices have risen more than 30 percent in the last year, and probably will continue to increase.

These facts have not deterred the Clinton administration from turning its back on coal, the energy resource that currently supplies more than half this nation's electricity. The administration has attached a poor priority to research on fossil fuels, and coal is rarely discussed amid all the fashionable angst about carbon emissions.

Nonetheless, U. S. coal use has doubled since 1977 whereas smokestack emissions have decreased by about 30 percent. New and improved coal combustion technologies have made this possible. Deregulation of electricity has brought "baseload" power plant construction to a virtual standstill, because utilities are making better use of existing coal-fired plants to meet electricity demand. Coal remains the least expensive fossil fuel and is abundant domestically. Moreover, its cost advantage is likely to grow even more as prices of other fossil fuels increase with diminishing supplies. Consequently, older coal plants are being refurbished for extended life and cleaner operations. These upgrades help make coal more attractive because they're being done much less expensively per kilowatt than building new natural gas-fired or nuclear plants.

Improvements in clean-coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute in Palo Alto, Calif., forecasts that electricity demand will rise 250 billion kilowatt-hours by 2010 but that emissions of carbon dioxide, the principal greenhouse gas released by human activities, will decline by 685 million tons annually. This is due to steady incremental changes, year after year, from engineering breakthroughs in coal preparation, combustion, waste cleanup and state-of-the-art electronic instruments and controls.

Clean-coal technologies — a result of cooperation between government and private industry — use less water, produce smaller quantities of undesirable waste products and more reusable byproducts and, through greater efficiency, contribute less carbon dioxide to the atmosphere. These new technologies also minimize emissions of sulfur dioxide, nitrogen oxides and other pollutants. The goal is to reduce emissions virtually to zero.

In the near future, a new technique to capture and sequester carbon dioxide entirely underground in the coal mine will be demonstrated, something that was considered impossible only a few years ago.

Researchers at Los Alamos National Laboratory have developed this technology that releases hydrogen from coal to generate electricity and simultaneously captures carbon dioxide in a naturally occurring solid mineral form that is returned to the mine. The Zero Emission Coal Alliance, a coalition of coal companies and utilities, plans to build a pilot plant within five years to demonstrate the feasibility of this process for commercial application.

Sequestering carbon underground will shatter several current myths. First, it will disprove the idea that coal should not be used because of global warming.

Second, it destroys the argument that dictatorial command-and-control federal regulation is necessary to reduce greenhouse-gas emissions. Here a solution that is both practical and economical will have been found through research and a voluntary utilities-coal industry effort to limit emissions.

This is a logical and sensible approach to an environmental problem, not a political regulation that would have serious economic consequences for our nation, and has no chance at solving root causes of the problem.

Let's make certain that legitimate concerns about the environment do not muddle what remains an essential point: Coal is an important and necessary contributor to this nation's energy supply, today and for many decades beyond.

C. John Mann is an emeritus professor of geology at the University of Illinois at Urbana-Champaign.

Technologies make coal a clean-burning option

By WILLIAM B. REED

Concerns about air quality have spawned new technologies that burn coal more efficiently and cleanly. By capturing chemicals that cause acid rain and ozone smog, these breakthroughs in environmental protection hold great value for the United States and other countries that rely heavily on coal for their energy supply.

No longer the dirty fuel of the past, coal today sets the competitive benchmark for new "baseload" power generation. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

Yet environmentalists who claim that greenhouse-gas emissions are responsible for global warming demand that we back away from using coal. They advocate shifting to greater use of renewable energy sources such as solar and wind power. But replacing coal with uneconomical renewable sources is unwise and unnecessary, since it would result in electricity shortages and cause serious economic harm. Today solar and wind power combined provide less than one-tenth of 1 percent of the nation's energy and are not practical in most parts of the United States.

Electricity

Nearly two-thirds of the electricity we use in Alabama is produced at coal-fired plants. Together with nuclear power's contribution, these units serve us well, providing affordable and efficient power that sustains our state's growing economy.

Economic reality — not arguments about fostering "green power" with solar devices and wind turbines — ought to inform energy decisions that are vital to Alabama and the nation. Since coal accounts for 56 percent of the U.S. power supply, any serious approach to greenhouse-gas reduction must focus on achieving further improvements in clean-coal technology.

Because of the growing demand for electricity to power our increasingly digitized economy, we use far more coal today than at any time in U.S. history. The basic attraction of coal remains its low cost and great abundance. And its economic value is likely to become even more pronounced as domestic oil and gas reserves are steadily depleted and hydropower sites are decommissioned.

Energy experts forecast that coal's use will keep growing worldwide — notwithstanding pressure from environmentalists who blame fossil fuels for the rise in greenhouse-gas emissions. Backing away from coal would be wrong even if scientists could agree that the Earth's atmosphere is getting warmer because of man-made carbon dioxide and other gases. But it becomes worse as given the fact that scientists are divided on the issue.

Solid science — not hypothetical risks about climate change — ought to inform energy decisions. If in fact we are in a period of global warming, and if man is contributing to it, and there is something we can do to slow it down, then perhaps we should act. But we should act intelligently.

Improvements to date in clean-coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute forecasts that electricity use in the United States will rise a net 250 billion kilowatt-hours by 2010, but that emissions of carbon dioxide, the principal greenhouse gas, will decline by 665 million tons. This is due to steady, incremental changes, year after year, from engineering breakthroughs in coal preparation, combustion, waste cleanup and state-of-the-art electronic instrumentation and controls.

Capturing emissions

Not so far into the future, there may even be techniques to capture carbon dioxide emissions and pipe them underground. Many technological challenges remain to be solved, but work on carbon sequestration is under way in the United States, Japan and other countries.

For example, scientists at Los Alamos National Laboratory in New Mexico maintain that it might be possible eventually to generate electricity from coal without producing emissions of any kind. The idea is to use a mixture of water and coal to create hydrogen. A fuel cell would convert the hydrogen to electricity. Carbon dioxide emitted as a byproduct would be converted into a solid and inert mineral for underground disposal.

A consortium of utilities and coal companies plans to develop a pilot plant within five years to demonstrate this process.

If the world's most prosperous country depends on coal, think about its importance to developing countries. World population is still increasing, having passed 6 billion in 1999. Yet one-third of that number — 2 billion people — lack access to electricity. Development depends on energy, and the alternative is famine, poverty, disease and hopelessness.

Electricity use worldwide is expected to reach 80 trillion kilowatt-hours a year by 2050 — roughly four times today's consumption. That means bringing new generating capacity on-line at the rate of one base-load power plant every two days for the next 50 years. "The United States can play a major role in the growing international market for new generating capacity by providing advanced technology for hundreds of new coal plants that will be needed over the next decades," says Kurt Yeager, president of the Electric Power Research Institute in Palo Alto, Calif.

This state of affairs presents a historic opportunity. We need to share clean-coal technologies with other countries, especially systems being explored that might be effective in converting coal into ultra-clean fuel for use in transportation.

The reason for coal's importance is clear. Electricity is the cleanest and most efficient energy source. Legitimate concerns about greenhouse emissions should not be permitted to muddle what remains the essential point: We need to recognize the critical contribution of coal to energy supply now and in the future.

William B. Reed of Birmingham is chairman of System Controls Inc., which designs and manufactures electronic control panels for bulk handling systems.

The Birmingham News

June 18, 2000

Northwest Arkansas
TIMES

June 17, 2000

Fayetteville, AR

Coal can remain in energy equation

M.K. MAZUMDER
Special to the Times

Environmental concerns have given rise to new power systems that burn coal more efficiently and cleanly. By capturing chemicals that cause acid rain and ozone smog, these breakthroughs in clean-coal technology hold great value for the United States and other countries.

No longer the dirty fuel of the past, coal today sets the competitive benchmark for new "base-load" power generation. Since 1970, overall coal emissions in the U.S. have been cut in half, even as coal-based electricity production has nearly tripled.

Yet environmentalists who claim that greenhouse gas emissions are responsible for global warming demand that we back away from using coal. They advocate shifting to greater use of renewable energy sources such as solar and wind power. But replacing coal with uneconomical renewable sources is unwise and unnecessary: It would result in electricity shortages and cause serious economic harm. Today, solar and wind power combined provide less than one-tenth of 1 percent of the nation's energy, and are not practical energy sources in most parts of the U.S.

Fifty-three percent of the electricity we use in Arkansas is produced at coal-fired plant. Together with nuclear power's contributions, these units serve us well, providing affordable and efficient power that sustains our state's growing economy.

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Dr. M.K. Mazumder is a university professor of applied science at the University of Arkansas at Little Rock.

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THE INDIANAPOLIS STAR

June 11, 2000

The role of coal in long-term energy supply

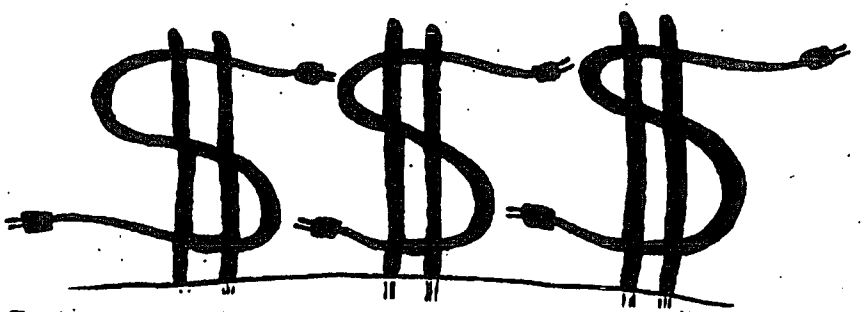
BY DAVID A. REED

Building an energy system that's largely powered by solar and wind resources is a desirable goal. But as the weather gets hotter and people turn on their air conditioners, we should be mindful of serious dangers from the "green" approach to the nation's electric-power supply advocated by environmentalists and some government policymakers who prefer renewable forms of energy.

In Indiana and elsewhere in the Midwest, we are already recording a level of electricity use not expected until the next decade or beyond. A robust economy has created a demand for power that could soon exceed our capacity to generate it. In the 20 to 30 years ahead, we will need all of our energy resources, especially coal, if we are to avoid serious power shortages.

Yet Energy Secretary Bill Richardson seems too wrapped up in trendy renewable energy sentiment to recognize this. Instead of focusing on proven technologies, he is promoting the use of wind turbines to produce electricity, though they provide less than one-tenth of 1 percent of the nation's power and are not practical in most parts of the country.

Until now, we have been able to avoid serious power shortages by using electricity purchased from other regions and Canada. But as states move to deregulate the electrical industry and nuclear plants are decommissioned, competition for available power supplies is certain to grow.



Margaret Scott Illustration

Though new gas-fired power plants help, utilities that depend heavily on gas as a boiler fuel to generate electricity face the specter of declining gas reserves and higher costs. Wholesale gas prices have jumped more than 50 percent in the past year and are likely to keep rising.

This has not deterred the Clinton administration from turning its back on coal, the source of more than half of the nation's electricity. The administration attached a low priority to coal research and development.

If the politics of coal has never seemed so anguished, the economic prospects have never seemed more promising. Despite all of the criticism coal receives, the Department of Energy expects its use to keep increasing in the years ahead. Economic growth requires more energy, and coal is its biggest provider.

The basic attraction of coal remains its low cost and abundance. No longer the dirty fuel of the past, coal is being burned much cleaner due in large part to improved pollution-control technologies. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

Though electricity deregulation has brought "base-load" power plant construction to a virtual standstill, utilities are making better use of existing coal-fired plants to meet growing demand. Today, capacity factors at coal plants are averaging at least 10 points higher than in 1970.

Capacity factor is a standard performance measure that expresses a plant's actual output as a percentage of its maximum potential output.

These plant upgrades help make coal even more economically competitive, since they're being done much less expensively per kilowatt than building a new gas-fired plant.

Improvements to date in clean-coal technology have barely scratched the surface of what is possible. The Electric Power Research Institute forecasts that electricity use in the United States will rise a net 250 billion kilowatt hours by 2010, but that emissions of carbon dioxide, the principal greenhouse gas, will decline by 685 million tons.

This is due to steady, incremental changes, year after year, from engineering breakthroughs in coal preparation, combustion, waste cleanup and state-of-the-art electronic instrumentation and controls.

For example, the newest plants convert gasified coal into electricity. Because they are more efficient to operate, these units release less carbon dioxide than conventional power plants. They also use less water, produce fewer waste products and more reusable byproducts.

Significantly, the goal of the Department of Energy's coal research program is to cut pollution emissions virtually to zero while boosting overall plant efficiency.

Not so far into the future, there may even be techniques to capture carbon dioxide emissions and sequester them underground or on the ocean floor, which was considered impossible only a decade ago. Researchers at Los Alamos National Laboratory are working on a promising technology that generates hydrogen from coal for use in power plants and motor vehicles, while converting carbon dioxide by-products into an inert mineral for underground disposal.

Public and private cooperation will be especially important in achieving breakthroughs. Sharing the cost of the Los Alamos research with the government is a consortium of coal companies and utilities known as the Zero Emission Coal Alliance. The alliance plans to develop a pilot plant within five years to demonstrate how carbon might be sequestered underground.

Our energy policies should focus on the long term. We need to maintain a balanced mix of energy sources and pay special attention to the benefits of clean-coal technology and the potential for capturing and sequestering carbon.

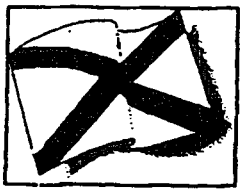
Reed is an economist at Marian College

MONTGOMERY ADVERTISER

June 5, 2000
Montgomery, AL

Rush to abandon coal unwise policy

By William R. Reed



Alabama Voices

Concerns about air quality have spawned new technologies that burn coal more efficiently and cleanly. No longer the dirty fuel of the past, coal today sets the competitive benchmark for new "base-load" power generation. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

Yet environmentalists who claim that greenhouse-gas emissions are responsible for global warming demand that we back away from using coal. They advocate shifting to greater use of renewable energy sources such as solar and wind power.

But replacing coal with uneconomical renewable sources is unwise and unnecessary, since it would result in electricity shortages and cause serious economic harm. Today, solar and wind power combined provide less than one-tenth of 1 percent of the nation's energy and are not practical in most parts of the United States.

Nearly two-thirds of the electricity we use in Alabama is produced at coal-fired plants. Together with nuclear power's contribution, these units serve us well, providing affordable and efficient power that sustains our state's growing economy.

Economic reality — not arguments about fostering "green power" with solar devices and wind turbines — ought to inform energy decisions that are vital to Alabama and the nation.

Since coal accounts for 56 percent of the U.S. power supply, any serious approach to greenhouse-gas reduction must focus on achieving further improvements in clean-coal technology.

Solid science — not hypothetical risks about climate change — ought to inform energy decisions. If, in fact, we are in a period of global warming, and if man is contributing to it, and there is something we can do to slow it down, perhaps we should act. But we should act intelligently.

Improvements to date in clean-coal technology have barely scratched the surface of what is possible.

For example, scientists at Los Alamos National Laboratory in New Mexico maintain that it might be possible eventually to generate electricity from coal without producing emissions of any kind. The idea is to use a mixture of water and coal to create hydrogen.

If the world's most prosperous country depends on coal, think about its importance to developing countries. Development depends on energy and the alternative is famine, poverty, disease and hopelessness.

This state of affairs presents an historic opportunity. We need to share clean-coal technologies with other countries, especially systems being explored that might be effective in converting coal into ultra-clean fuel for use in transportation.

The reason for coal's importance is clear. Electricity is the cleanest and most efficient energy source. Legitimate concern about greenhouse emissions should not be permitted to muddle what remains the essential point: We need to recognize the critical contribution of coal to energy supply now and in the future.

William Reed of Birmingham is chairman of System Controls Inc., which designs and manufactures electronic control panels for bulk handling systems.

POST-TRIBUNE

June 4, 2000
Gary, IN

Coal is still a vital energy source

By David A. Reed
Guest Columnist

Building an energy system that's largely solar- and wind-powered is a desirable goal. But as the weather gets hotter and people turn on their air conditioners, we should be mindful of serious danger from the "green" approach to the nation's electric-power supply advocated by environmentalists and some government policymakers.

Not the least of these is the fact that in Indiana and elsewhere in the Midwest, we're recording a level of electricity use not expected until the next decade or beyond. A robust economy has created a demand for power that could soon exceed our capacity to generate it.

In the next 20 to 30 years, we will need all of our energy resources, especially coal, if we are to avoid serious power shortages.

Yet Energy Secretary Bill Richardson seems wrapped up in trendy renewable-energy sentiment to recognize this. Instead of focusing on proven technologies, he is promoting the use of wind turbines to produce electricity, though they provide less than one-tenth of 1 percent of the nation's power.

While renewable energy sources may have a role to play in providing supplementary power in some locations, they are far too dilute and variable to provide it 24 hours a day every day.

Until now, we have been able to avoid serious power shortages by using electricity purchased from other regions and Canada. But as states move to deregulate the electric industry and nuclear plants are decommissioned, competition for power supplies is certain to grow.

Though new gas-fired power plants help, utilities that depend heavily on gas to generate electricity face declining gas reserves and higher costs. Wholesale gas prices have jumped more than 30 percent in the past year, and are likely to keep rising.

This has not deterred the Clinton administration from turning its back on coal, the source of more than half of the nation's electricity. Not only has the administration attached a low priority to coal research and development, but it's rarely discussed by people in government or the environmental movement.

If the politics of coal have never seemed so anguished, the economic prospects have never seemed more promising. Despite all of the criticism coal receives, the Department of Energy expects its use to keep increasing in the years ahead.

Economic growth requires more energy, and coal is its biggest provider. Backing away from coal would be unwise, even if scientists could agree that the earth's atmosphere is getting warmer because of carbon dioxide and other gases.

The basic attraction of coal remains its low cost and abundance. No longer the dirty fuel of the past, coal is being burned much cleaner, due in large part to improved pollution control technologies. Since 1970, coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled. This little fact drives environmental lobbies to distraction.

Today, the output at coal plants is at least 10 points higher than in 1970. All indicators of efficiency and reliability have increased dramatically — and are expected to reach 83 percent by 2020.

Consequently, older coal-fired plants are being refurbished. These upgrades help make coal more economically competitive, since they're being done much less expensively per kilowatt than building a new gas-fired plant.

Improvements in clean-coal technology have barely scratched the surface. The Electric Power Research Institute forecasts that electricity use in the U.S. will rise 250 billion kilowatt-hours by 2010, but that emissions of carbon dioxide, the principal greenhouse gas, will decline by 685 million tons. This is due to steady, incremental changes, year after year, from engineering breakthroughs in coal preparation, combustion, waste cleanup, and electronic instrumentation and controls.

The newest plants convert gasified coal into electricity. Because they are more efficient, these units release less carbon dioxide relative to conventional power plants. They also use less water, produce lower quantities of waste products and more reusable byproducts.

Not so far into the future, there may be techniques to capture carbon dioxide emissions and sequester them underground or on the ocean floor — something that was considered impossible only a decade ago. Researchers at Los Alamos National Laboratory are working on technology that generates hydrogen from coal for use in power plants and motor vehicles, while converting carbon dioxide byproducts into an inert mineral for underground disposal.

Public and private cooperation will be important in achieving scientific and engineering breakthroughs. Sharing the cost of the Los Alamos research with the government is a consortium of coal companies and utilities known as the Zero Emission Coal Alliance, which plans to develop a pilot plant within five years.

Let's make sure legitimate concern about the environment not be permitted to muddle what remains the essential point: Our energy policies should focus on the long term. We need to maintain a mix of energy sources and pay special attention to the benefits of clean-coal technology and the potential for capturing and sequestering carbon.

David A. Reed is an economist at Marian College in Indianapolis.

Pittsburgh Post-Gazette

June 2, 2000

Clean coal for a cleaner world

A better way to make electricity can be developed in our region

Efforts to combat the threat of global warming are not likely to succeed unless we find cleaner ways to burn coal.

Yet, despite studies that suggest it may be possible to reverse the current rise in atmospheric carbon dioxide levels by capturing and "sequestering" this gas in chemical by-products undergrounding and beneath the ocean, some power company and government officials seem too wrapped up in trendy renewable-energy sentiment to recognize this.

Indeed, some are busily promoting the use of wind turbines to produce electricity, though they provide less than one-tenth of 1 percent of the nation's power and are not practical in most parts of the country.

Economic reality — not vague arguments about the benefits of distributed generation and green power — ought to inform decisions vital to the future of the United States and the world. Since coal accounts for 56 percent of the nation's power supply, any serious approach to greenhouse-gas reduction must focus on achieving further improvements in clean-coal technology.

We use far more coal today than at any other time in our history, and the basic attractions of coal remain the same — low cost and great abundance. Moreover, its economic value is likely to become even more pronounced as domestic oil and gas reserves are steadily depleted and nuclear power plants are decommissioned.

If the United States depends so heavily on coal, think about its importance to less prosperous, developing countries. World population passed 6 billion in 1999 and is still increasing. Yet, one-third of the world — 2 billion people — lack access to electricity and the economic development it can bring. The alternative is famine, poverty, disease, hopelessness and political instability.

An estimated 800 million people, mostly in developing countries, still suffer from chronic malnutrition. Half the world's population has no access to sanitary toilets. Electricity-driven economic development can solve these problems. But developing countries won't be able to improve their quality of life unless they make use of their vast coal resources to produce electricity.

This state of affairs presents a historic opportunity for our region with its vast resources of coal.

If clean-coal systems can be developed to reduce carbon dioxide buildup in the atmosphere, coal will

command new respect. We must capitalize on the need for carbon sequestration technologies.

Our universities and colleges already have substantial know-how about advanced clean-coal technologies, and Pittsburgh and Morgantown are the home of the nation's newest national laboratory, the Department of Energy's National Energy Technology Laboratory (NETL).

The fundamentals are in place to do the necessary research and development to achieve success in the coming decades. And there promises to be substantial international market opportunities and interest in the products of this work.

Clearly, a major way to satisfy basic human needs in the developing world is to establish access to electricity. China alone plans to add as many as eight to 10 power plants per year over the next two decades, about 75 percent to burn coal. India, Pakistan, and Russia will also be relying heavily on coal for new power.

According to the Electric Power Research Institute, worldwide electric power needs over the next 50 years may reach three times current capacity. This would require a new 1,000-megawatt plant to be brought into service somewhere in the world every two to three days over this period and a capital investment of almost $2 trillion per decade.

Sequestering carbon will be necessary to reduce the environmental impact of this projected growth. The availability of clean-coal technologies across the world is crucial.

While many scientific challenges remain to be solved, work on carbon sequestration is under way at NETL and other places. The Japanese are exploring deep-ocean disposal of carbon dioxide at a depth of 5,000 feet, where it spreads out as a liquid on the seafloor. A European team has been injecting carbon dioxide into an aquifer under the North Sea.

Public-private cooperation in developing clean-coal technology will be important in achieving the scientific and engineering breakthroughs that will be required, something that is a continuing hallmark of our region. NETL will have to play a critical role and involve others.

The Los Alamos research, for instance, is funded by a consortium of coal companies and power producers known as the Zero Emission Coal Alliance, which plans to demonstrate the sequestration process within five years for eventual commercialization.

Working to realize coal's full potential for powering the future offers this region a significant technical and financial opportunity. Our institutions and organizations must take action now, not wait for the inevitable realization that renewable sources of energy will be too little and too late to help the world.

Edgar Berkey is vice president and chief science officer of Concurrent Technologies Corp., based in Johnstown (www.ctc.com). He is a member of both the Environmental Protection Agency's Science Advisory Board and the Department of Energy's Environmental Management Advisory Board.

WISCONSIN STATE JOURNAL

May 22, 2000
Madison, WI

Should the United States be weaning itself off of coal?

No, unless we want costs to be huge

By J. Allen Wampler

The question that keeps surfacing in public forums on global warming is: If the United States can't afford to forgo the use of fossil fuels in generating electricity, which country can?

That kind of inquiry can begin by recognizing that economic growth remains one of the world's critical needs, no matter what the claims about global warming are. When economies grow, their energy consumption rises. It is no accident that nations with the highest standard of living have the highest per capita use of energy, about 85 percent of which comes from fossil fuels.

Every credible forecast predicts continued economic growth and increased consumption of fossil fuels in industrial and developing nations. Anyone who thinks that rising atmospheric levels of greenhouse-gas emissions will deter developing countries from increasing their energy use should consider that one-third of the world's population — more than two billion people — still do not have access to electricity.

PRO COAL

The world needs more energy. According to the Electric Power Research Institute in Palo Alto, Calif., the global demand for electric power over the next half-century may reach three times current capacity. This would require a new 1,000-megawatt plant to be brought into service somewhere in the world every two to three days over this period and a capital investment of almost $2 trillion per decade.

These numbers should bring home a clear message: The United States has the know-how to play a major role in the huge global market for new power generation.

Everyone seems to recognize this except U.S. environmental groups and those politicians who are eagerly courting their endorsement.

Unfortunately, policy makers in the Clinton Administration want to replace coal with renewable energy sources like solar and wind. That misguided approach would be a monstrous waste of money, since coal electricity accounts for 56 percent of the nation's power supply, while the promise of non-hydro renewables in the United States continues to recede, despite expensive, highly subsidized research and development.

The 1997 U.S. federal research and development investment per thousand kilowatt-hours was only 5 cents for nuclear and coal, 58 cents for oil, and 41 cents for gas, but was $4,709 for wind and $17,006 for solar photovoltaics. Yet today, wind and solar energy combined meet just one-hundredth of 1 percent of U.S. energy requirements.

Those who are trying to force the shutdown of coal-fired plants ignore that U.S. coal use has doubled since 1977 while smokestack emissions have dropped by about 30 percent. New and improved coal combustion technologies have made this possible.

Since fossil fuels will almost surely account for the bulk of our electricity supply, it's time to move from a heated debate about global warming to a discussion of what can be done in the longer term. If we are in a period of global warming, and if man is contributing to it, and if there is something we can do to slow it down, then we should act. But we should act intelligently.

One model for action is the Zero Emission Coal Alliance. It combines the capabilities of coal mining companies and electric utilities with the scientific expertise of Los Alamos National Laboratory to demonstrate a process in the next five years in which the net efficiency of coal-based power generation is at least doubled while not emitting any greenhouse gases. The carbon dioxide is captured and chemically transformed into a solid and inert mineral to be permanently sequestered underground. It's a sterling example of a public-private partnership where scientists and other researchers work toward a common goal.

The "zero alliance" is the coal industry's contribution to the global warming solution, but it can serve as a model for a much broader joint research effort involving all the major industries in the country and the research resources of the federal government.

Technological innovation in our use of coal will help ensure that we can maintain a livable environment. The right way to accomplish this is through public and private cooperation in scientific research.

The wrong way would be to fundamentally change our energy system and to impose enormous costs on the nation's economy. We would pay a huge price for such shortsightedness in electricity shortages, in closed industries and in lost jobs.

Wampler is former assistant secretary of the U.S. Department of Energy for fossil energy.

Star Tribune
NEWSPAPER OF THE TWIN CITIES

Minneapolis, MN
May 15, 2000

Coal can remain in energy equation

By J. Allen Wampler

WASHINGTON, D.C. — The question that keeps surfacing in public forums on global warming is: If the United States can't afford to forgo the use of fossil fuels in generating electricity, which country can?

That kind of inquiry can begin by recognizing that economic growth remains one of the world's critical needs, no matter what the claims about global warming are. When economies grow, their energy consumption rises. It is no accident that nations with the highest standard of living have the highest per capita use of energy, about 85 percent of which comes from fossil fuels.

Every credible forecast predicts continued economic growth and increased consumption of fossil fuels in both industrial and developing nations. Anyone who thinks that rising atmospheric levels of greenhouse-gas emissions will deter developing countries from increasing their energy use should consider that one-third of the world's population — more than 2 billion people — still lacks access to electricity.

The world needs more energy. According to the Electric Power Research Institute in Palo Alto, Calif., global demand for electric power over the next half century may reach three times current capacity. This would require that a new 1,000-megawatt plant be brought into service somewhere in the world every two to three days — a capital investment of almost $2 trillion per decade.

Russia, China and India, for example, will unquestionably use their large indigenous coal reserves for power generation, since the widespread availability of cheap electricity is crucial for their national economic development and for breaking the cycle of poverty, disease and hopelessness. China alone plans to add 150 to 180 power plants per year for the next two decades, about three-quarters of which will be coal-fired.

These numbers should bring home a clear message: The United States has the know-how to play a major role in the huge global market for new power generation. Everyone seems to recognize this except U.S. environmental groups and the politicians eagerly courting their endorsement.

Unfortunately, a number of policymakers in the Clinton administration want to replace coal with renewable energy sources like solar and wind. That misguided approach would be a monstrous waste of money, since coal electricity accounts for 56 percent of the nation's power supply, while the promise of non-hydro renewables in the United States continues to recede, despite expensive, highly subsidized research and development. The 1997 U.S. federal R&D investment per thousand kilowatt-hours was only 5 cents for nuclear and coal, 58 cents for oil, and 41 cents for gas, but was $4,769 for wind and $17,006 for solar photovoltaics. Yet today wind and solar energy combined meet just one-hundredth of 1 percent of U.S. energy requirements.

Those who are trying to force the shutdown of coal-fired plants ignore that U.S. coal use has doubled since 1977 while smokestack emissions have dropped by about 30 percent. New and improved coal combustion technologies have made this possible. The goal of the Department of Energy's coal research is to cut emissions of sulfur dioxide and nitrogen oxides virtually to zero, while boosting over-

all plant efficiency, thereby sharply reducing carbon dioxide releases.

Since fossil fuels will almost surely account for the bulk of our electricity supply, it's time to move from a heated debate about global warming to a discussion of what can be done in the longer term. If in fact we are in a period of global warming, and if man is contributing to it, and if there is something we can do to slow it down, then we should act. And it may be prudent to assume the worst until we know better. But we should act intelligently.

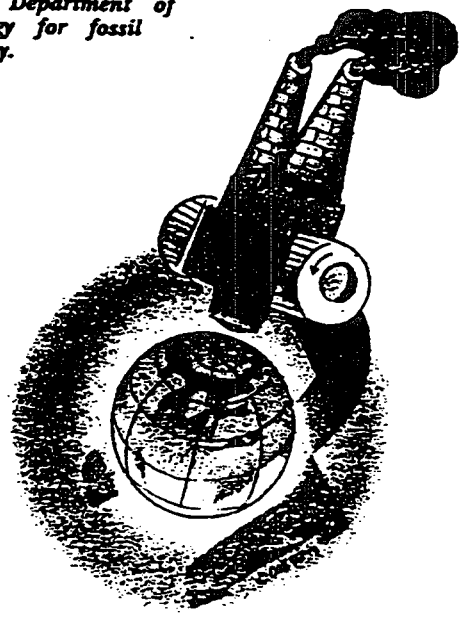
One model for action is the Zero Emission Coal Alliance. It combines the capabilities of coal mining companies and electric utilities with the scientific expertise of Los Alamos National Laboratory to demonstrate a process in the next five years in which the net efficiency of coal-based power generation is at least doubled, while not emitting any greenhouse gases. The carbon dioxide is captured and chemically transformed into a solid and inert mineral to be permanently sequestered underground. It's a sterling example of a private- and public-sector partnership where scientists and other researchers work together toward a common goal.

The "zero alliance" is the coal industry's contribution to the global warming solution, but it can serve as a model for a much broader joint research effort involving all the nation's major industries and all the research resources of the federal government.

Technological innovation in our use of coal will help ensure that we can maintain a livable environment. The right way to accomplish this is through public and private cooperation in scientific research — and we are doing that.

The wrong way would be to fundamentally change our energy system and to impose enormous costs on the nation's economy. We would pay a huge price for such shortsightedness in electricity shortages, in closed industries, and in lost jobs. And in the end, if we ignore the aspirations of developing countries, we would damage the very environment we seek to protect.

— J. Allen Wampler is former assistant secretary of the U.S. Department of Energy for fossil energy.



Foster's Daily Democrat

May 12, 2000
Dover, NH

Coal as a fuel can be made environmentally safe

J. Allen Wampler
Washington, D.C.

The question that keeps surfacing in public forums on global warming is: If the United States can't afford to forgo the use of fossil fuels in generating electricity, which country can?

That kind of inquiry can begin by recognizing that economic growth remains one of the world's critical needs, no matter what the claims about global warming are. When economies grow, their energy consumption rises. It is no accident that nations with the highest standard of living have the highest per capita use of energy, about 85 percent of which comes from fossil fuels.

Every credible forecast predicts continued economic growth and increased consumption of fossil fuels in both industrial and developing nations. Anyone who thinks that rising atmospheric levels of greenhouse-gas emissions will deter developing countries from increasing their energy use should consider that one-third of the world's population more than 2 billion people — still do not have access to electricity.

Research Institute in Palo Alto, California, the global demand for electric power over the next half-century may reach three times current capacity. This would require a new 1,000-megawatt plant to be brought into service somewhere in the world every two to three days over this period and a capital investment of almost $5 trillion per decade.

Russia, China and India, for example, will unquestionably use their large indigenous coal reserves for power generation since the widespread availability of cheap electricity is crucial for their national economic development and for breaking the cycle of poverty, disease and hopelessness. China alone plans to add 150 to 200 power plants per year for the next two decades, about three-quarters of which will be coal-fired.

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Guest Commentary

and wind. That misguided approach would be a monstrous waste of money, since coal electricity accounts for 56 percent of the nation's power supply, while the promise of non-hydro renewables in the United States continues to recede, despite expensive, highly subsidized research and development. The 1997 U.S. federal R&D investment per thousand kilowatt-hours was only 5 cents for nuclear and coal, 20 cents for oil, and 41 cents for gas, but was $4,[illegible] for wind and $17,006 for solar photovoltaics. Yet today wind and solar energy combined meet just one-hundredths of 1 percent of U.S. energy requirements.

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J. Allen Wampler is former assistant secretary of the U.S. Department of Energy for fossil energy.

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Houston
BUSINESS JOURNAL

April 28, 2000

Taboo against coal clashes with electric reality

By Dale E. Klein
Special to Houston Business Journal

If ever there was a symbol of hope clashing with reality, it was the much-publicized national goal of producing 20 percent of our electricity from solar, wind and other renewable energy sources by now. Unfortunately, renewable energy's promise of abundant electricity is still unfulfilled. Renewable sources provide just 3 percent of the nation's electricity today.

Consider our recent experience with "wind farms." The notion of the Great Plains states becoming the "Saudi Arabia of wind" may sound great on paper. But electrical companies have been trying to produce cheap, renewable energy from wind for decades and, notwithstanding recent advances in wind turbines and government tax credits, have gotten neither a sufficiently low price nor much energy.

While it might be true that you can't compare construction costs at wind farms with those at conventional power plants, because a fossil-fuel unit can operate 24 hours a day, the fact is wind turbines operate only when the wind is blowing.


Klein

One utility has calculated that to produce electricity equivalent to the output of a large power plant would require enough wind turbines to cover 400 square miles, an area equal to one-third the size of Rhode Island.

The drive to find a miracle solution to the increasing demand for electricity should not so dominate considerations that the nation fails to make use of a broad mix of fuels to generate electricity – coal, nuclear, oil, gas, hydropower and renewables. The next few years loom as a challenging time. If we are not careful, the next energy crisis will be a widespread electricity shortage.

Despite gains in energy efficiency, most regions of the country are recording electric-power demand not expected until the next decade or beyond. In the Northeast, the region where the supply crunch is most serious, people are using 40 percent more electricity than in 1985, but generating capacity has grown only 8 percent to 10 percent.

Power demand in the Midwest is also outpacing power plant construction. A robust economy, combined with our digital microprocessors, has created a demand for electricity that could soon exceed the nation's capacity to generate it.

The dangers are only too clear, with large regions of the country veering toward shortages of electricity that could cause brownouts or cascading blackouts this summer. Electricity is among the most essential commodities, and no region can afford to lose power when temperatures soar.

What we are belatedly discovering is that in the critical period ahead – 20 to 30 years, say – we will need all of our energy resources, especially coal, if we are to meet the growing demand for electricity.

Advocates of "green power" who are trying to force the shutdown of coal-fired power plants ignore that these units currently account for 56 percent of the electricity generated in the United States and that nuclear power is a distant second at 20 percent.

The basic attraction of coal remains its low cost and abundance. And in recent years there has been great progress in reducing power-plant emissions from coal burning. Since 1970, overall coal emissions in the United States have been cut in

See COMMENTARY, page 20A

Commentary

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half, even as coal-based electricity has nearly tripled. These advantages are likely to grow even more substantial in the years ahead as advanced clean-coal technologies reach commercial deployment.

Not so far into the future, there may even be fossil-fuel techniques that eliminate the buildup of greenhouse-gas emissions – something that was considered impossible only a decade ago.

Researchers at the Los Alamos National Laboratory, for example, are working on a promising coal technology that generates hydrogen from coal for use in electricity-producing fuel cells, while capturing carbon dioxide in a solid form for underground disposal. Because it could double the net efficiency of coal-based generation, the process would be in society's interest regardless of environmental considerations.

The trouble is, environmental lobbies cling to the pretense that this country should use only "appropriate" technologies like solar energy and wind, along with energy efficiency. The importance of fossil-power techniques in countering the buildup of greenhouse emissions is rarely discussed, if at all, within the Clinton Administration.

Such disdain for coal is unwarranted, since plants using integrated gasification combined cycles operating on synthetic gas – through their greater efficiency – contribute less carbon dioxide to the atmosphere, relative to current commercial practice.

Besides, advanced coal technologies enhance U.S. competitiveness in an expanding area of international trade. Current estimates suggest that $1.7 trillion will be invested in new power generation in the developing countries alone through 2020. Electricity's role will be to provide an essential foundation for economic development and to bring improvements in the quality of life for billions of people.

So let's make sure that legitimate concern about the environment should not be permitted to muddle what remains the essential point: We need to recognize the important contribution of coal to energy supply now and in the future.

Real progress is possible in the effort to achieve global electrification and maintain a livable environment, but only if we use practical technologies and maintain a balanced energy policy. ■

Dale E. Klein is vice chancellor for special engineering programs at the University of Texas System in Austin.

The Dallas Morning News

April 25, 2000

Power generators unable to supplant coal

DALE KLEIN

If ever there was a symbol of hope clashing with reality, it was the much-publicized goal of producing 20 percent of the nation's electricity from solar, wind and other renewable energy sources by now. Unfortunately, renewable energy's promise of abundant electricity still is unfulfilled. Renewable sources provide just 3 percent of the nation's electricity.

Consider the recent experience with "wind farms." The notion of the Great Plains states becoming the "Saudi Arabia of wind" may sound great on paper. But electrical companies have been trying to produce cheap, renewable energy from wind for decades and, notwithstanding recent advances in wind turbines and government tax credits, have gotten neither a sufficiently low price nor much energy. One utility has calculated that to produce electricity equivalent to the output of a large power plant would require enough wind turbines to cover 400 square miles.

The drive to find a miracle solution to the increasing demand for electricity shouldn't so dominate considerations that the nation fails to make use of a broad mix of fuels to generate electricity — coal, nuclear, oil, gas, hydropower and renewables. The next few years loom as a challenging time. If we aren't careful, the next energy crisis will be a widespread electricity shortage.

Despite gains in energy efficiency, most regions of the country already are recording electric-power demand that hadn't been expected until the next decade or so. In the Northeast, the region where the supply crunch is the most serious, people are using 40 percent more electricity than in 1985, but generating capacity has grown only 8 percent to 10 percent. A robust economy, combined with our digital microprocessors, has created a demand for electricity that soon could exceed the nation's capacity to generate it.

The dangers are only too clear, with large regions of the country veering toward shortages of electricity that could cause brownouts or cascading blackouts this summer. Electricity is among the most essential commodities, and no region can afford to lose power when temperatures soar.

What we belatedly are discovering is that in the critical period ahead — say, 20 to 30 years — we will need all of our energy resources, especially coal, if we are to meet the growing demand for electricity. Advocates of "green power," who are trying to force the shutdown of coal-fired power plants, ignore that such units currently account for 56 percent of the electricity generated in the United States and that nuclear power is a distant second at 20 percent.

The basic attraction of coal remains its low cost and abundance. And in recent years, there has been great progress in reducing power-plant emissions from coal burning. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled. Those advantages are likely to grow even more substantial in the years ahead as advanced clean-coal technologies reach commercial deployment.

So let's make sure that legitimate concerns about the environment don't muddle what remains the essential point: We need to recognize the important contribution of coal to the nation's energy supply. Real progress is possible in achieving global electrification and maintaining a livable environment, but only if we use practical technologies and follow a balanced energy policy.

Dale E. Klein is vice chancellor for special engineering programs of the University of Texas system.

THE DOMINION
Post

April 22, 2000
Morgantown, WV

Global market for clean coal

BY EDGAR BERKEY

Efforts to combat the threat of global warming are not likely to succeed unless we find cleaner ways to burn coal. Yet, despite studies that suggest it may be possible to reverse the current rise in atmospheric carbon dioxide levels by capturing and "sequestering" this gas in chemical by-products underground and beneath the ocean, some power company and government officials seem too wrapped up in trendy renewable-energy sentiment to recognize this. Indeed, some are busily promoting the use of wind turbines to produce electricity, though they provide less than one-tenth of 1 percent of the nation's power and are not practical in most parts of the country.

Economic reality — not vague arguments about the benefits of distributed generation and green power — ought to inform decisions vital to the future of the United States and the world. Since coal accounts for 56 percent of the nation's power supply, any serious approach to greenhouse-gas reduction must focus on achieving further improvements in clean-coal technology. We use far more coal today than at any other time in our history, and the basic attractions of coal remain the same — low cost and great abundance. Moreover, its economic value is likely to become even more pronounced as domestic oil and gas reserves are steadily depleted and nuclear power plants are decommissioned.

If the U.S. depends so heavily on coal, think about its importance to less prosperous, developing countries. World population passed 6 billion in 1999 and is still increasing. Yet, one-third of the world — two billion people — lack access to electricity and the economic development it can bring. The alternative is famine, poverty, disease, homelessness, and political instability. An estimated 600 million people, mostly in developing countries, still suffer from chronic malnutrition. Half the world's population has no access to sanitary toilets. Electricity-driven economic development can solve these problems. But developing countries won't be able to improve their quality of life unless they make use of their vast coal resources to produce electricity.

This state of affairs presents a historic opportunity for our region with its vast resources of coal. If clean-coal systems can be developed to reduce carbon dioxide buildup in the atmosphere, coal will command new respect. We must capitalize on the need for carbon sequestration technologies. Our universities and colleges already have substantial know-how about advanced clean-coal technologies, and Pittsburgh and Morgantown are the home of the nation's newest national laboratory, the Department of Energy's National Energy Technology Laboratory (NETL). The fundamentals are in place to do the necessary research and development to achieve success in the coming decades. And there are promises to be substantial international market opportunities and interest in the products of this work.

Clearly, a major way to satisfy basic human needs in the developing world is to establish access to electricity. China alone plans to add as many as 6-10 power plants per year over the next two decades, about 75 percent to burn coal. India, Pakistan, and Russia will also be relying heavily on coal for new power. According to the Electric Power Research Institute, worldwide electric power needs over the next 40 years may reach three times current capacity. This would require a new 1,000-megawatt plant to be brought into service somewhere in the world every two to three days over this period and a capital investment of almost $2 trillion per decade.

Sequestering carbon will be necessary to reduce the environmental impact of this projected growth. The availability of clean-coal technologies in all parts of the world is crucial. While many scientific challenges remain to be solved, work on carbon sequestration is under way at NETL and other places. The Japanese are exploring deep-ocean disposal of carbon dioxide at a depth of 5,000 feet, where it spreads out as a liquid on the seafloor. A European team has been injecting carbon monoxide into an aquifer under the North Sea. In the U.S., the Los Alamos National Laboratory in New Mexico is developing a technology to generate electricity from coal without producing emissions of any kind. The carbon dioxide by-products react chemically with a common type of silicate rock to form an inert solid mineral that could be buried underground.

Public-private cooperation in developing clean-coal technology will be important in achieving the scientific and engineering breakthroughs that will be required, something that is a continuing hallmark of our region. NETL will have to play a critical role and involve others. The Los Alamos research, for instance, is funded by a consortium of coal companies and power producers known as the Zero Emission Coal Alliance, which plans to demonstrate the sequestration process within five years for eventual commercialization.

Working to realize coal's full potential for powering the future offers this region a significant technical and financial opportunity. Our institutions and organizations must take action now, not wait for the inevitable realization that renewable sources of energy will be too little and too late to help the world.

EDGAR BERKEY [illegible] Concurrent Technologies Corp. [illegible] Environmental Protection Agency's Science Advisory Board and the Department of Energy's Environmental Management Advisory Board. [illegible] The Dominion Post.

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The Tribune-Democrat

April 21,2000
Johnstown, PA

Cleaning up coal could make it king once more

With region's vast resources, a historic opportunity awaits

By EDGAR BERKEY

Efforts to combat the threat of global warming are not likely to succeed unless we find cleaner ways to burn coal. Yet, despite studies that suggest it may be possible to reverse the current rise in atmospheric carbon dioxide levels by capturing and "sequestering" this gas in chemical by-products underground and beneath the ocean, some policy, company and government officials seem too wrapped up in trendy renewable-energy sentiment to recognize this. Indeed, some are busily promoting wind turbines to produce electricity, though they provide less than one-tenth of 1 percent of the nation's power and aren't practical in most parts of the U.S.

Economic reality – not vague arguments about the benefits of distributed generation and green power – ought to inform decisions vital to the future of the United States and the world. Since coal accounts for 56 percent of the nation's power supply, any serious approach to greenhouse-gas reduction must focus on achieving further improvements in clean-coal technology. We use far more coal today than at any other time in our history, and the basic attractions of coal remain the same – low cost and great abundance. Moreover, its economic value is likely to become even more pronounced as domestic oil and gas reserves are steadily depleted and nuclear power plants are decommissioned.

If the U.S. depends so heavily on coal, think about its importance to less prosperous, developing countries. World population passed 6 billion in 1999 and is still increasing. Yet, one-third of the world lacks access to electricity and the economic development it can bring. The alternative is famine, poverty, disease and political instability.

An estimated 800 million people, mostly in developing countries, still suffer from chronic malnutrition. Half the world's population has no access to sanitary toilets. Electricity-driven economic development can solve these problems. But developing countries won't be able to improve their quality of life unless they make use of their vast coal resources to produce electricity.

This state of affairs presents a historic opportunity for our region with its vast resources of coal. If clean-coal systems can be developed to reduce carbon dioxide buildup in the atmosphere, coal will command new respect. We must capitalize on the need for carbon sequestration technologies. Our universities and colleges already have substantial know-how about advanced clean-coal technologies, and Pittsburgh and Morgantown are the home of the nation's newest national laboratory, the Department of Energy's National Energy Technology Laboratory (NETL). The fundamentals are in place to do the necessary research and development to achieve success in the coming decades. And there promises to be substantial international market opportunities and interest in the products of this work.

Clearly, a major way to satisfy basic human needs in the developing world is to establish access to electricity. According to the Electric Power Research Institute, worldwide electric power needs over the next 50 years may reach three times current capacity. This would require a new 1,000-megawatt plant to be brought into service somewhere in the world every two to three days over this period and a capital investment of almost $3 trillion per decade.

Sequestering carbon will be necessary to reduce the environmental impact of this projected growth. The availability of clean-coal technologies in all parts of the world is crucial. While many scientific challenges remain to be solved, work on carbon sequestration is under way at NETL and other places. The Japanese are exploring deep-ocean disposal of carbon dioxide at a depth of 5,000 feet, where it spreads out as a liquid on the sea floor. In the U.S., the Los Alamos National Laboratory in New Mexico is developing a technology to generate electricity from coal without producing emissions of any kind. The carbon dioxide byproducts react chemically with a common type of silicate rock to form an inert solid mineral that could be buried underground.

Public-private cooperation in developing clean-coal technology will be important in achieving the scientific and engineering breakthroughs that will be required, something that is a continuing hallmark of our region. NETL will have to play a critical role and involve others.

Working to realize coal's full potential for powering the future offers this region a significant technical and financial opportunity. Our institutions and organizations must take actions now, not wait for the inevitable realization that renewable sources of energy will be too little and too late to help the world.

Edgar Berkey is vice president and chief science officer of Concurrent Technologies Corp. in Pittsburgh and a member of both the Environmental Protection Agency's science advisory board and the Department of Energy's environmental management advisory board. CTC's headquarters are in Richland Township.

THE MORNING CALL

April 19, 2000
Allentown, PA

By Edgar Berkey

Clean-coal technology, not wind, is answer to world's power needs

PITTSBURGH — Efforts to combat the threat of global warming are not likely to succeed unless we find cleaner ways to burn coal.

Yet, despite studies that suggest it may be possible to reverse the current rise in atmospheric carbon dioxide levels by capturing and "sequestering" this gas in chemical byproducts underground and beneath the ocean, some power company and government officials seem too wrapped up in trendy renewable-energy sentiment to recognize this. Indeed, some are busily promoting the use of wind turbines to produce electricity, though they provide less than one-tenth of 1 percent of the nation's power and are not practical in most parts of the country.

"This state of affairs presents a historic opportunity for our region with its vast resources of coal. If clean-coal systems can be developed to reduce carbon dioxide buildup in the atmosphere, coal will command new respect."

Economic reality — not vague arguments about the benefits of distributed generation and green power — ought to inform decisions vital to the future of the United States and the world. Since coal accounts for 56 percent of the nation's power supply, any serious approach to greenhouse-gas reduction must focus on achieving further improvements in clean-coal technology. We use far more coal today than at any other time in our history, and the basic attractions of coal remain the same — low cost and great abundance. Moreover, its economic value is likely to become even more pronounced as domestic oil and gas reserves are steadily depleted and nuclear power plants are decommissioned.

If the United States depends so heavily on coal, think about its importance to less prosperous, developing countries. World population passed 6 billion in 1999 and is still increasing. Yet, one-third of the world — 2 billion people — lack access to electricity and the economic development it can bring. The alternative is famine, poverty, disease, hopelessness and political instability. An estimated 800 million people, mostly in developing counties, still suffer from chronic malnutrition. Half the world's population has no access to sanitary toilets. Electricity-driven economic development can solve these problems. But developing countries won't be able to improve their quality of life unless they make use of their vast coal resources to produce electricity.

This state of affairs presents a historic opportunity for our region with its vast resources of coal. If clean-coal systems can be developed to reduce carbon dioxide buildup in the atmosphere, coal will command new respect. We must capitalize on the need for carbon sequestration technologies. Our universities and colleges already have substantial know-how about advanced clean-coal technologies, and Pittsburgh and Morgantown are the home of the nation's newest national laboratory, the Department of Energy's National Energy Technology Laboratory (NETL). The fundamentals are in place to do the necessary research and development to achieve success in the coming decades. And there promises to be substantial international market opportunities and interest in the products of this work.

Clearly, a major way to satisfy basic human needs in the developing world is to establish access to electricity. China alone plans to add as many as eight to 10 power plants per year over the next two decades, about 75 percent to burn coal. India, Pakistan and Russia will also be relying heavily on coal for new power. According to the Electric Power Research Institute, worldwide electric power needs over the next 50 years may reach three times current capacity. This would require a new 1,000-megawatt plant to be brought into service somewhere in the world every two to three days over this period and a capital investment of almost $2 trillion per decade.

Sequestering carbon will be necessary to reduce the environmental impact of this projected growth. The availability of clean-coal technologies in all parts of the world is crucial. While many scientific challenges remain to be solved, work on carbon sequestration is under way at NETL and other places. The Japanese are exploring deep-ocean disposal of carbon dioxide at a depth of 5,000 feet, where it spreads out as a liquid on the seafloor. A European team has been injecting carbon dioxide into an aquifer under the North Sea. In the United States, the Los Alamos National Laboratory in New Mexico is developing a technology to generate electricity from coal without producing emissions of any kind. The carbon dioxide byproducts react chemically with a common type of silicate rock to form an inert solid mineral that could be buried underground.

Public-private cooperation in developing clean-coal technology will be important in achieving the scientific and engineering breakthroughs that will be required, something that is a continuing hallmark of our region. The National Energy Technology Laboratory will have to play a critical role and involve others. The Los Alamos research, for instance, is funded by a consortium of coal companies and power producers known as the Zero Emission Coal Alliance, which plans to demonstrate the sequestration process within five years for eventual commercialization.

Working to realize coal's full potential for powering the future offers this region a significant technical and financial opportunity. Our institutions and organizations must take action now, not wait for the inevitable realization that renewable sources of energy will be too little and too late to help the world.

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(Edgar Berkey is vice president and chief science officer of Concurrent Technologies Corp. in Pittsburgh and a member of both the Environmental Protection Agency's Science Advisory Board and the Department of Energy's Environmental Management Advisory Board.)

The Salt Lake Tribune

April 9, 2000

A Balanced Energy Policy Includes Burning Coal for Power

BY MARY L. WALKER

Just about 25 years ago, the United States pulled its head out of the sand far enough to open one eye. What we saw was the hazard in a domestic energy policy based upon an insecure source of high-priced fuel — the Persian Gulf.

If only we had dusted the sand from the other eye, we might have perceived other hazards right here at home, hazards associated with an energy policy shaped to confer special favors on renewable energy sources. The dangers of such a policy are now only too evident. Electrical companies have been trying to produce cheap, renewable energy from solar, wind, and biomass for decades and, notwithstanding special tax advantages, have produced neither a sufficiently low price nor much energy. Renewable sources provide just 3 percent of the nation's electricity today. This has not deterred the Clinton Administration from raising public expectations about renewable energy sources. Energy Secretary Bill Richardson is pressing ahead with a plan to produce 5 percent of the nation's electricity from wind turbines by 2020, up from one tenth of one percent now. One utility has calculated that to produce electricity equivalent to the output of a large power plant would require enough wind turbines to cover 400 square miles, an area equal to one-third the size of Rhode Island. And plans for new wind farms have run into opposition even from environmental groups, the very groups who maintain that reducing greenhouse-gas emissions must be the nation's top environmental priority. According to the National Audubon Society, "more eagles are killed by wind turbines than were lost in the disastrous Exxon Valdez oil spill."

The tragedy of the matter is that Richardson's promotion of wind technology comes at a time when large parts of the United States are veering toward electricity shortages that could shut down cities. Despite gains in energy efficiency, most utilities are recording electric-power demand not expected until the next decade or beyond. Nationally, we are planning for 1 percent a year electricity growth and experiencing almost 3 percent, and particular regions of the country with more rapid growth rates are already beginning to feel the strain.

These trends are especially disturbing because the Clinton Administration has failed to educate Americans about the vital need for a broad mix of fuels to generate electricity — coal, nuclear, oil, gas, hydropower and other renewable energy sources. The Administration's failure to support research on inherently safe reactors is evident in its budget proposal for fiscal year 2001, in which there is disproportionate research and development funding for renewables — $452 million for solar, wind, and biomass — versus $40 million for nuclear power. Nor is there adequate funding for new technology to reach deep undersea deposits of oil and natural gas.

Other fuels generate equal disdain within the Administration. Paramount among them is coal. One might suppose the Administration would have recognized its importance, since it accounts for 56 percent of the electricity generated in the United States, with nuclear power a distant second at 20 percent. Yet the subject of expanding the use of clean coal technology is taboo. Not only has the administration attached a low priority to coal research and development, but it's rarely discussed by people in government or the environmental movement amidst all the fashionable angst about carbon emissions.

The basic attraction of coal remains its low cost and great abundance. This little fact can drive environmental lobbies to distraction. No longer the dirty fuel of the past, coal is being burned much cleaner, due to improved pollution-control technologies. Since 1970, overall coal emissions in the United States have been cut in half, even as coal-based electricity has nearly tripled.

Notwithstanding pressure from environmental groups who claim that the fault for rising greenhouse emissions lies to a great extent with coal burning, virtually all energy experts expect coal's use to keep growing. Economic growth requires more energy, and coal is its biggest provider. Backing away from coal would be an unwise and unnecessary move even if scientists could agree that the earth's atmosphere is getting warmer because of man-made carbon dioxide and other gases. But it becomes more so given the fact that they can't.

Solid science -- not hypothetical risks about climate change — ought to inform energy decisions. If in fact we are in a period of global warming, and if man is contributing to it, and there is something we can do to slow it down, then perhaps we should act. But we should act intelligently.

What should be recognized is that clean coal technologies, such as plants using integrated gasification combined cycles operating on synthetic gas — through their greater efficiency — contribute less carbon dioxide to the atmosphere, relative to current commercial practice. These breakthroughs in coal technology also control the pollutants that produce acid rain and smog. And they make possible a more holistic approach to environmental protection, since they use less water, produce lower quantities of waste products and more reusable byproducts.

Besides, advanced coal technologies enhance U.S. competitiveness in an expanding area of international trade. Current estimates suggest that $1.7 trillion will be invested in new power generation in the developing countries alone through 2020. Electricity's role will be to provide an essential foundation for economic development and to bring improvements in the quality of life for billions of people. Electricity use worldwide

is expected to reach 60 trillion kilowatt-hours a year by 2050 — four times today's consumption. That means bringing new generating capacity on-line at the rate of one base-load power plant every 2 days for the next 50 years. "The United States can play a major role in the growing international market for new generating capacity by providing advanced technology for hundreds of new coal plants that will be needed over the next decades," says Kurt Yeager, president of the Electric Power Research Institute in Palo Alto.

The implications of that kind of demand for advanced coal technologies —attributable to the growing need for new electricity generating capacity — appear enormous. Sound far-fetched? Coal is the fuel that runs economies as diverse as the U.S., Germany, China, and India, all with strong economic and security incentives to use their indigenous resources.

Real headway is possible in the effort to achieve global electrification and maintain a livable environment, but only if we use practical technologies, and maintain a balanced energy policy. The prerequisite is an understanding of each resource's vital role in meeting energy needs by those who can make a difference. If they don't, the public may wind up paying the huge costs of their neglect.

Mary L. Walker is an environmental lawyer and former the assistant secretary for Environment, Safety and Health at the U.S. Department of Energy.

A balanced energy policy includes coal

No longer the dirty fuel of the past, coal is being burned much cleaner, due to improved pollution-control technologies.

By Mary L. Walker

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Electricity use worldwide is expected to reach 60 trillion kilowatt-hours a year by 2050 - roughly four times today's consumption. That means bringing new generating capacity on-line at the rate of one base-load power plant every 2 days for the next 50 years. "The United States can play a major role in the growing international market for new generating capacity by providing advanced technology for hundreds of new coal plants that will be needed over the next decades," says Kurt Yeager, president of the Electric Power Research Institute in Palo Alto, Calif.

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If they don't, the public may wind up paying the huge costs of their neglect.

MARY L. WALKER is an environmental lawyer practicing in San Diego, Calif. She was formerly the assistant secretary for Environment, Safety and Health at the U.S. Department of Energy.

That is because the nation has a serious electricity shortage. Power blackouts and sky-high bills, which have besieged California, are a distinct possibility elsewhere in the country. The issue is a simple one: There is not enough electricity being produced, and in some places there are not enough transmission lines to get electricity to where it is needed. Just about every fuel and technology that can deliver affordable electricity in the quantities that the digital economy requires has encountered public opposition.

In Chicago, politicians placed a moratorium on small natural-gas power plants that are designed to switch on during periods of peak demand, after protests by homeowners who didn't want the "peaker" units in their neighborhoods. And when the Pacific Gas & Electric Co. wanted to anchor a floating power plant in San Francisco Bay to help avert potential brownouts, environmentalists objected, claiming that the plant's four turbines would pollute the air and spill fuel into the bay.

Even wind turbines — among the most renewable of energy resources — have come under fire. A proposed wind farm near Los Angeles was thwarted by bird enthusiasts. Plans for another wind farm near the abandoned Shoreham nuclear plant on Long Island were dropped after a local environmentalist group argued against it.

And environmentalists who oppose the system of hydroelectric dams and reservoirs in the Pacific Northwest because it impedes migratory systems recently succeeded in forcing dam operators to scale back operations. Their protests have worked to reduce the supply — and increase the cost — of hydropower in California and in neighboring states.

To make matters worse, the construction of coal-fired plants has ground to a halt, and nuclear energy has been demonized. Evidently many people seem unaware that coal and nuclear power together provide about three-quarters of the nation's electricity.

Is it possible we don't have the will to build power plants anymore? Not if we give in to opponents of public projects of all kinds so that whatever it is we try to do comes out second-best or worse. Did our ability to build for the future, and our children's future, finally succumb to NIMBYism?

Do environmental activists who are making it nearly impossible to construct power plants have a point of view we should consider? Of course. But officials need to balance those concerns against the greater public need for electricity at reasonable cost.

While there is no escaping electricity supply problems in the short term, we can start making smart decisions. The Energy Department estimates that between now and 2020, we will need about 300,000 megawatts of additional capacity, or the equivalent of 300 large, new power plants. It is time to make sure the plants get built in a timely fashion within sensible environmental bounds. State governments must insist on a balanced energy strategy, not relying on a single fuel for additional electricity, but rather a mix of coal, nuclear energy, natural gas and renewable sources.

The nation's demand for electricity is growing nearly 3 percent a year — double the rate of just a few years ago. Only a steady program of power plant construction, along with sound conservation practices, can ensure smooth operation of millions of air conditioners, personal computers, cellular phone chargers and plain old light bulbs. We need a commitment to stay the course and not let our attention be diverted from the need for a stable and secure energy supply.

May 3, 2001

Mr. Kirk Blalock
Deputy Director, Office of Public Liaison and
Special Assistant to the President
The White House
Office of Public Liaison
1600 Pennsylvania Ave., N.W.
Washington, DC 20500

Dear Kirk:

As a follow-up to our earlier conversation, enclosed is a list of ten (10) principles which are respectfully submitted for consideration by the Energy Policy Development Group.

These principles are endorsed by an ad-hoc group of energy consumers, as distinct from energy producers, consisting of: American Chemistry Council, American Forest and Paper Association, American Iron and Steel Institute, American Portland Cement Alliance, Electricity Consumers Research Council, Gypsum Association, and Process Gas Consumers Group.

If you or staff from the Energy Policy Development Group have any questions or would like to discuss them further, I am certain that representatives of the respective groups would be happy to meet with you, or the Energy Policy Development Group, at your convenience.

Sincerely,

Richard C. Creighton, President
American Portland Cement Alliance

cc: Frederick L. Webber, President & CEO
American Chemistry Council
W. Henson Moore, President & CEO
American Forest and Paper Association
Andrew G. Sharkey, III, President & CEO
American Iron and Steel Institute
John A. Anderson, Executive Director
Electricity Consumers Research Council
Jerry Walker, Executive Director
Gypsum Association
Dena E. Wiggins
Process Gas Consumers Group

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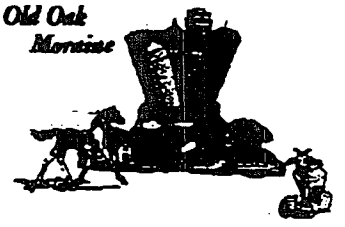

May 6, 2001

Senator Richard Durbin
Senator Scott Fitzgerald
Haynes Senate Office Building
Washington, DC 20001

Subject: Logical Comprehensive Energy Policy for the United States in the 21st Century.

Dear Senators Durbin and Fitzgerald:

As you are keenly aware the United States is in need of a logical, environmentally sound and economical Comprehensive Energy Policy for the 21st Century.

I believe that it is time for the United States to consider "Electrical Energy Parks" which use non-chemical means to produce plentiful, environmentally sound and economical electricity for the people of the United States. What are non-chemical means to produce electricity? Non-chemical electrical production can be achieved by non-combustible sources which include high efficiency nuclear fission direct cycle, solar photovoltaic direct cycle and wind mechanic direct cycle power generation devices and systems. It is my believe that these three sources should be located at the same sites to take advantage of reduced transmission and distribution costs which is more economical and less environmentally damaging. Putting these three sources together at the same sites would appease the "environmental" and "nuclear" factions at the same time. It is highly logical since in reality there is no difference from a physics standpoint between these sources of power. Nuclear direct and solar direct have been successfully used by NASA and other space agencies in space for almost 50 years.

The federal government could co-sponsor with industries such as Exelon and Duke Energy a series of demonstration non-combustible electrical energy producing sites similar to the old AEC demonstration nuclear reactor program of the 1950s and 1960s. The federal government could provide the land for these demonstration energy parks.

For example, the old Joliet Arsenal could be used by the federal government and Exelon to construct and operate a Pebble Bed Modular High Efficiency Inert Gas Direct Cycle nuclear reactor as well as literally fields of solar photovoltaic panels and low-medium velocity wind generation towers.

The Pebble Bed Modular High Efficiency Inert Gas Direct Cycle (PBMR) nuclear power plant is much more economical to build and is economical and much safer to operate than a water cooled pressurized or boiling type nuclear fission reactor. It is over 43% efficient, whereas a water cooled reactor (except the old AEC superheated steam nuclear power plant) is only 31-32% efficient in its conversion of thermal energy to electrical energy. The PBMRs do not have to be shut down to refuel. The PBMRs can be used to convert Th-232 to U-233 and be used to efficiently burn up the Plutonium-239 created during the cold war which is now being stockpiled. The PBMRs can do this with a much more efficient and safer fuel design. Since they are modular and small (100 MW electric), after one is built, operated and starts to make a profit, a second one is built and so forth. This reactor design had been proven at Julich Germany for over 25 years.

The same construction and engineering economics methodology can be incorporated when constructing the solar photovoltaic and wind towers on this fairly large converted federal site. The solar panels would work best in the summer time when they are needed the most for air conditioning in the city and suburbs. They have little maintenance requirements. The wind towers would take up the slack in Spring or Fall when the PBMR could be temporarily shut down for routine maintenance (which is much less than a water cooled reactor type).

These alternative non-chemical electrical energy parks are much more logical and environmentally safer (in the case of the PBMR more efficient) than the "chemical" ethanol/oil or natural gas (NG) fueled mini and micro turbine-generator farms that are cropping up all over the United States. These NG mini-turbine-generator farms may lead to even higher natural gas prices and reduced supply of natural gas. They may require the United States to build a NG pipeline from Alaska in the near term. These NG turbine-generators which are essentially jet engines are only 18-20% efficient in converting thermal energy to electrical energy. However, as you are aware, natural gas can be 97% efficient making home heat. In both cases, the consumed natural gas produces carbon dioxide which is a primary "greenhouse" gas.

It is my belief, we can either start what I have proposed now at a modest pace or be forced into doing this 15-20 years down the road when the old behemoth large water cooled nuclear power stations start shutting down permanently.

If you need assistance in getting this project started I would be happy to assist you.

I would appreciate it if you would consider what I have proposed and share this with other senators, representatives and executive branch directors at your convenience. Thank you.

Sincerely yours,

Paul W. Shafer

Paul W. Shafer
Nuclear Scientist and Physics Teacher
6498 N. 16750 East Road
Momence, IL. 60954

e-mail: paulwilliam_s@yahoo.com

28107

PETROLEUM COMMUNICATION FOUNDATION

FONDATION DES COMMUNICATIONS SUR LE PÉTROLE

9 May 2001

Spencer Abraham
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Secretary Abraham,

Those of us in Canada who are involved in the petroleum industry, even peripherally, are very interested in your upcoming "continental energy policy". With this thought in mind, let me introduce you to The Petroleum Communication Foundation.

We are a not-for-profit organization created in 1975 to inform Canadians about our petroleum industry. We do not advocate, lobby or speak for any sector of the industry. We do however produce a variety of balanced and factual booklets and publications on virtually all aspects of our national petroleum industry.

Among the publications and programs that we produce and distribute are the three publications I am sending to you today. Covering the three subjects that will be pivotal in any energy policy benefiting the citizens of our two great nations - Oil Sands, Natural Gas and Pipelines, these publications provide the reader with an overview of each of these components of the Canadian energy mix.

In an effort to foster ever greater, and mutual understanding, we offer these booklets for your information. We know you will find them very informative. Should you wish, we would be pleased to provide more copies.

We would like to take this opportunity to wish you and your family well throughout your term as Secretary of Energy.

Yours sincerely,

Roger Rowley

Roger CG Rowley
Executive Director

Cc: Mr. John Percic, President, Petroleum Communication Foundation

PCF/RR/Secretary of Energy.dot

409, 100 - 4 Avenue SW, Calgary, Alberta, Canada T2P 3N2 (403)264-6064 Fax: (403)237-6286 www.pcf.ab.ca

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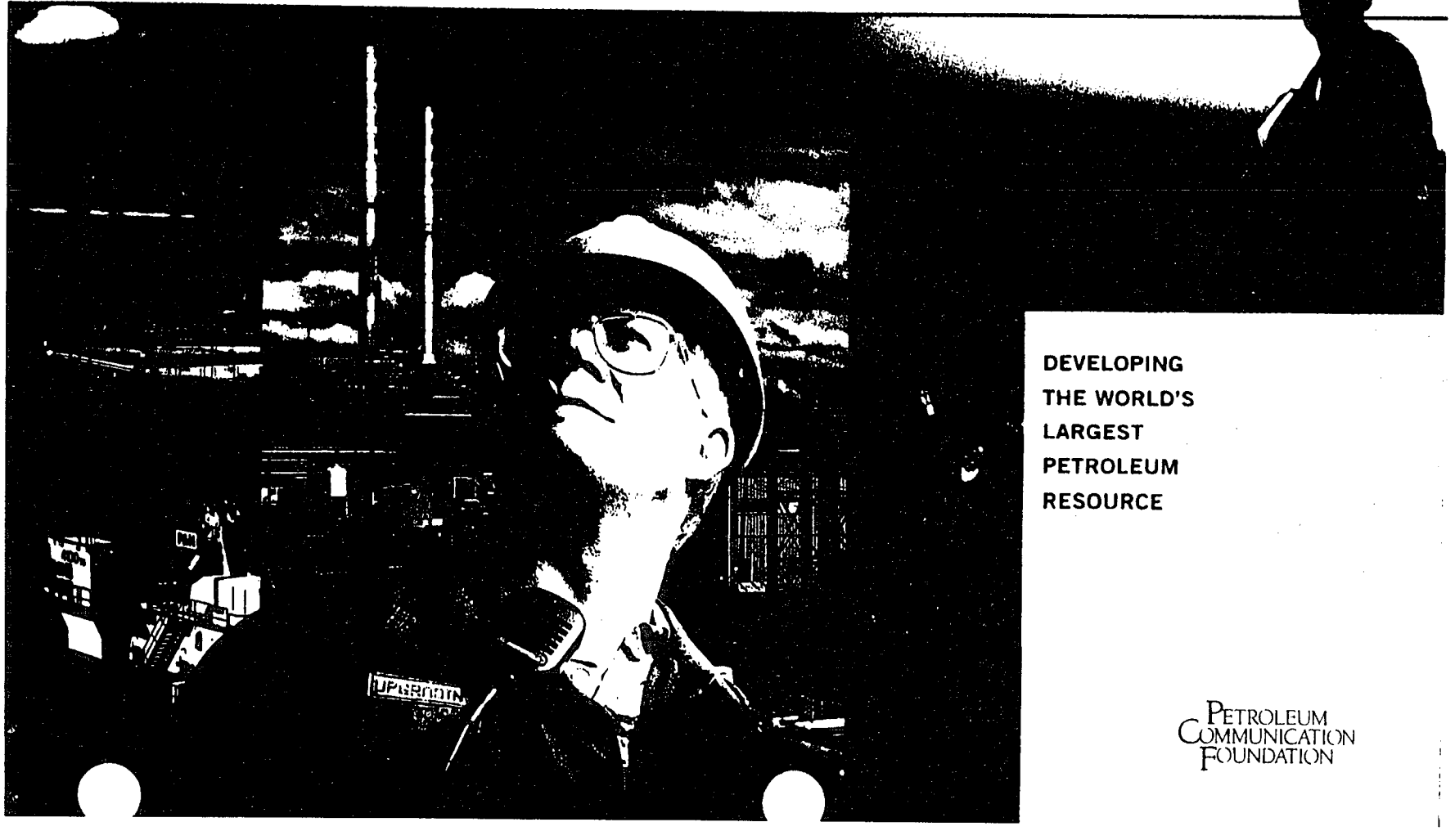

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NOVEMBER 2000 $3.00

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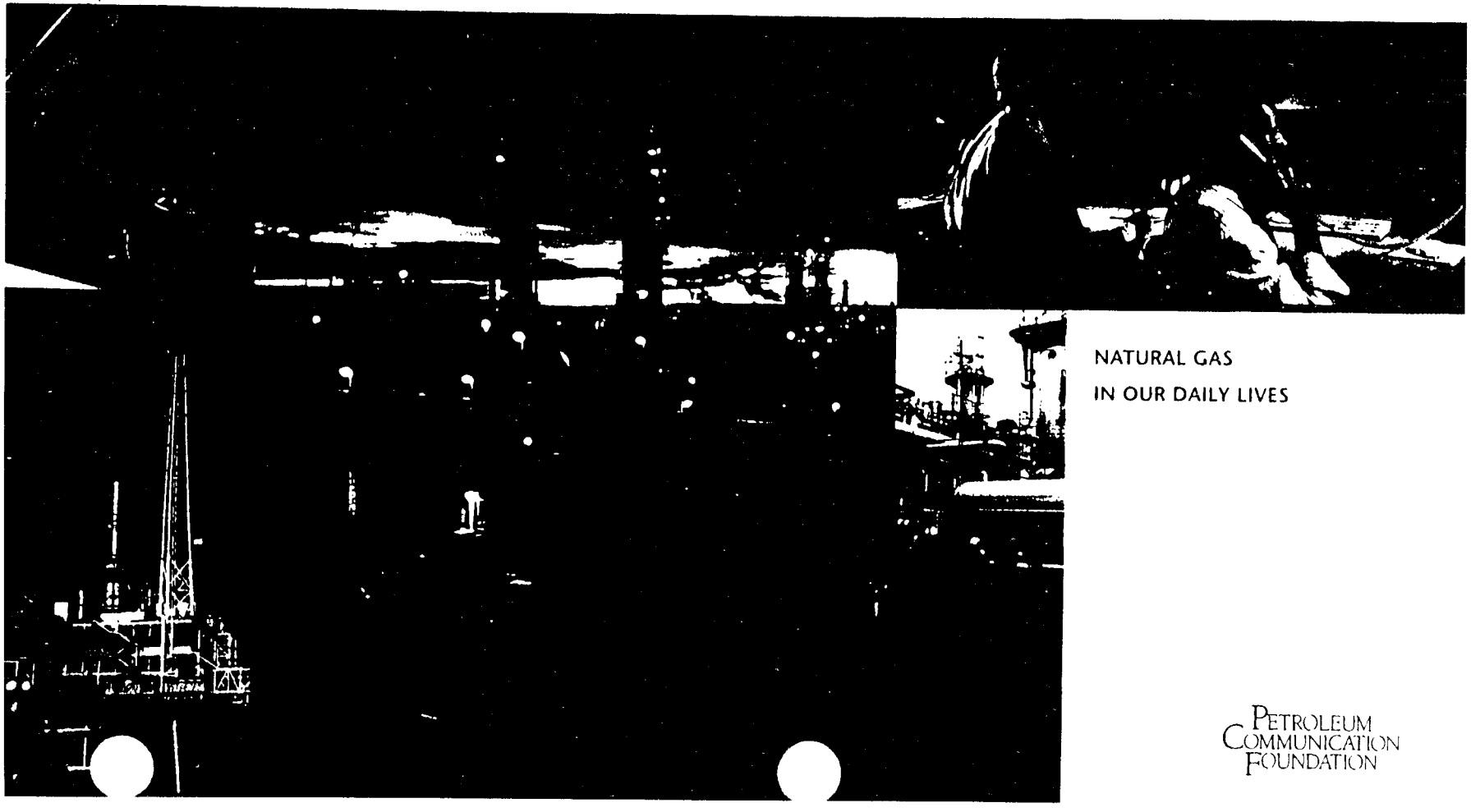

NATURAL GAS
IN OUR DAILY LIVES

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STATE OF MICHIGAN
OFFICE OF THE GOVERNOR

JOHN ENGLER
GOVERNOR

Date: 5/9/01

Time: _____

Total Pages (including cover sheet): 3

TO: The Honorable Spencer Abraham

FAX NUMBER: (202) 586-4403

FROM: Gov. Engler

MESSAGE:

If this transmission is not complete, please call: _____

Telephone number: (_____)_____

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STATE OF MICHIGAN
OFFICE OF THE GOVERNOR

JOHN ENGLER
GOVERNOR

May 9, 2001

The Vice President
The White House
Washington, D.C. 20050

Dear Mr. Vice President:

The peak summer driving season is nearly upon us, and once again Michigan and parts of the Midwest are experiencing dramatically higher prices for gasoline than many other regions of the country. These higher gasoline prices create a hardship for consumers and can only have a detrimental effect on the Michigan economy.

During the period of nationwide high gasoline prices last summer, the Midwest sustained significantly higher prices at the pumps. Compounded by rising crude oil prices, severe fuel supply constraints drove self-serve, regular unleaded gasoline prices to $2.15 per gallon in the Detroit-area last summer. Several factors caused supply constraints in our region, including a loss of regional refining capacity, distribution problems, and a major pipeline disruption. Additionally, last year's change-over from winter to summer fuels, and expectations for lower future crude oil prices contributed to motor fuel inventories reaching extremely low levels.

Gasoline inventories for the Midwest have recently been lower than levels described as critically low at this same time last year. Midwestern refiners are operating at maximum capacity, yet the "balkanization" of our motor fuel supplies, as the result of a proliferation of "boutique" fuels, coupled with a lack of refining and pipeline capacity, may actually drive gasoline prices even higher than they were last year. The average cost of unleaded gasoline in Michigan went from $1.47 on April 1, 2001, to $1.71 on May 1, 2001. The 24 cents per gallon increase reflects both seasonal price increases typically seen this time of year and concerns that low inventories could lead to distribution problems and increased price volatility. The April 28, 2001, fire at the Tosco refinery in Wood River, Illinois, demonstrated the volatility of the current situation. Following this refinery fire, prices rose 14 cents from the May 1st average of $1.71 to $1.85 on May 7, 2001. Prices of nearly $2.00 per gallon have already been reported in some areas of the state. Although regional inventories appear to be building, the average retail price in Michigan of $1.85 per gallon is nearly 17 cents higher than the national average.

The acceleration of these price increases, in addition to their magnitude, strains our economic vitality. The degree of these price increases is also difficult to understand in light of crude oil prices that have remained relatively stable during this time. Any further significant supply disruptions could push retail gasoline prices to record levels.

We did not arrive at the current situation overnight, and we recognize that there are no simple short-term solutions to address this problem. As the National Energy Policy Task Force proceeds with their work to develop a comprehensive national energy policy, I request that you look closely at the issue of higher than average gasoline prices in the Midwest. Identifying practical solutions to reduce the requirements for multiple types of special gasoline, and working with the states on a regional basis to increase refinery capacity and improve the distribution system should be imperative national objectives. In addition, federal environmental requirements that impede the construction of refineries, such as the Clean Air Act "New Source Review" program, should be reformed. Michigan Department of Environmental Quality officials have developed recommendations on how this could be achieved without compromising environmental quality and have provided these recommendations to the U.S. Environmental Protection Agency.

Motor fuel composition must continue to play an integral role in reducing automobile emissions, and I have expressed my support for reasonable policies to reduce sulfur levels in gasoline in order to achieve greater mobile source emission reductions and air quality improvements. However, as we move toward requiring cleaner fuels and cleaner cars, we must address the patchwork of requirements that have resulted in the required use of 15 different types of gasoline nationwide, seven types in the Midwestern states alone. We must significantly reduce the number of fuels currently required to two or three different types nationwide. This number could accommodate clean air objectives, depending on the air quality designation of the area in which they are used. This policy decision can only be made at the federal level.

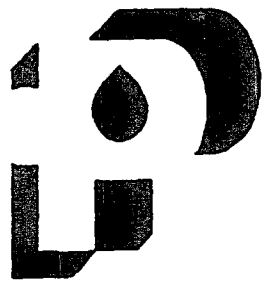
The gasoline supply issue in the Midwest exemplifies the problems we face because our nation lacks a comprehensive national energy policy. I applaud President Bush's foresight and your leadership in undertaking this daunting but necessary challenge.

Sincerely,

John Engler
Governor

JE/brdc
cc: The Honorable Spencer Abraham
The Honorable Christine Todd Whitman

2001-012791 5/22 P 12:00



PETROLEUM PRODUCTS INC

May 9, 2001

Mr. Spencer Abraham
Department of Energy Secretary
The White House
1600 Pennsylvania Avenue
Washington, DC 20500

RE: **White House Energy Briefing – April 25, 2001**

Dear Secretary Abraham:

I am writing to thank you for the outstanding briefing you provided to me and several of my customers and colleagues from the West Virginia coal industry at the White House last week regarding the Administrations efforts to address our Nation's energy problems. I felt very privileged to attend this meeting with a delegation from the West Virginia coal industry and I can assure you that we are all very excited and in fact relieved that we have an administration who understands how important coal is to our future energy mix.

As a supplier and vendor to various production companies, it is critically important that we establish a policy that our country can depend upon for its energy requirements. I was very impressed with all members of the briefing team and the "no-nonsense" approach to articulating the problem and addressing the solutions. We in private industry have a difficult time of providing our goods and services and planning for future production requirements when we have a "start – stop" energy policy which does not allow for long range planning and production requirements. I am particularly excited about the long range thinking your group is obviously doing in projecting for the year 2020!

Please know that the members of our company stand ready to assist you and the administration in any way possible to both deliver this important message to the American people and to support your efforts to execute your plans. We believe West Virginia has a very important role to play in the solutions to this problem for our country. Thank you again for your hard work on this very important problem.

Very truly yours,

Patrick C. Graney III
President

500 River East Drive
Belle, WV 25015

PH: (304) 926-3000
FAX: (304) 926-3009

PCGIII/pw

28114

STATE OF MAINE
HOUSE OF REPRESENTATIVES
2 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0002

May 9, 2001

The Honorable George W. Bush
The President of the United States of America
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear Mr. President:

As a result of our tremendous prosperity, the United States has become the most energy consumptive society on the planet, and the developing world looks to us for leadership and example. The United States is blessed with extraordinary natural resources. However, the growth of population and industry has resulted in tremendous pressure on our natural resources, including threats to the quality of air and water and increased warming of the planet. Therefore, in order to ensure a safe and healthy environment, and thus the continued well-being of our planet, we must properly steward the planet and its precious natural resources.

Accordingly, we the members of the Legislature of the State of Maine strongly urge you, the Congress of the United States, the Department of Energy, the Environmental Protection Agency, and the Department of the Interior to not sacrifice the long-term health of the planet for short term financial gain or hardship that might result, and work toward the following fundamental goals:

- Reduction of the levels of emissions of greenhouse gases and carbon dioxide from coal-fired power plants in adherence to the commitments of the Kyoto conference on Global Warming;

- Suspension of plans to drill for oil and natural gas in the Arctic National Wildlife Refuge;

- Creation and implementation of energy policy based upon conservation, reduction of emissions, and research and development of renewable energy sources;

- Protect National Forests against excessive road building;
- Require mining companies to maintain clean-up bonds to ensure comprehensive restoration of the mine environment and surroundings; and
- Restore protections against arsenic in water supplies around mines.

Again, we strongly urge you, the Congress, the Department of Energy, the Environmental Protection Agency, and the Department of the Interior to advance these important objectives as we enter the 21st Century.

Sincerely,

Members of the 120th Maine Legislature

CC:
Rep. John Baldacci
Rep. Thomas H. Allen
Sen. Olympia Snowe
Sen. Susan Collins
The Honorable Spencer Abraham, Secretary of Energy
The Honorable Christie Whitman, Administrator, U.S. Environmental Protection Agency
The Honorable Gale A. Norton, Secretary of the Interior

SIGNATURE PAGE FOR LETTER TO PRESIDENT BUSH

	William C. Savage
Stephen C. Estes	STEPHEN C. ESTES
Susan Dorr	Susan Dorr
	David Lemoine
Arthur F. Mayo, III	ARTHUR MAYO
Susan M. Hawes	Rep. Susan M. Hawes
Patricia T. Jacobs	Patricia T. Jacobs
	LAWRENCE BLISS
	DAVID ESNIER
	PAUL VOLENIK
Michael W. Quint	Michael W. Quint
Martha A. Bagley	MARTHA A. BAGLEY
Thomas D Bull	Thomas D Bull
Marilyn E. Canavan	Marilyn E. Canavan
Debbie Lundeen	
Deborah L. Simpson	Deborah L. Simpson
Elaine Fuller	ELAINE FULLER
William J. Smith	William J. Smith
Rosita Gagne	ROSITA GAGNE
William S. Norbert	William S. Norbert
Rep. Sharon Libby Jones	Sharon Libby Jones

Benjamin F. Dudley	Benjamin F. Dudley
Rep. Wm. R. Cote	REP. WM. R. COTE
Rep. Scott W. Conger	Rep. Scott W. Conger, House Chair Nat. Resources Com
	SPEAKER OF THE HOUSE
	MATTHEW DUNLAP HOUSE CHAIR COMM ON INLAND FISH + WILDLIFE
	FRANK J. TARAZEWICH
Pat Colwell	Pat Colwell
	Boyd P. MARLEY
	Jonathan R Thomas
	Charles F. Mitchell
	PETER. G. RINGS
	Charles C. LaVordier
	Janet L. McLaughlin
Christopher Muse	CHRISTOPHER MUSE
	CHRISTOPHER G.L. HALL
	EDWARD J. JOVICH
	JOHN McDONOUGH
	Elizabeth Watson
	TED KOFFMAN

May 10, 2001

Honorable President George Bush
White House
1600 Pennsylvania Ave
Washington, D.C. 20510

President Bush,

I am very concerned about the energy statements made recently by Vice President Cheney. However, it is what I would expect from an oilman who had not divorced himself from the industry upon taking public office. I am disappointed in his biased position.

The desert areas of California, Arizona and New Mexico have been over developed as a result of cheap energy to provide water and air conditioning. This overdevelopment has come at the expense of the east, particularly the mid west. Whereas we would all like to live in desert climates with air conditioning and green lawns, the basic concept behind this idea is irrational, indeed, insane. This area could have been a pilot area for the development of solar power - an available resource.

I encourage you to promote "sane" energy policies.

Sincerely,
Glenn Hagemann

28119

2001-012053 May 11 p 3:23

CHUCK HAGEL — FAX —

U.S. SENATOR — NEBRASKA

To:	**The Honorable Spencer Abraham**
Of:	***Department of Energy***
Fax:	**(202) 586-7644**
Subject:	**Hagel Energy / Climate Change Speech**
Pages:	**7, including this cover sheet.**
Date:	**May 11, 2001**

Senator Hagel wanted you to have a copy of the attached. It is a press release and the full text of a speech he gave yesterday on the Senate floor regarding the need to integrate energy and climate change policies. In the speech, he supports President Bush's efforts to craft a comprehensive energy strategy and a new approach to climate change.

From the desk of...

Deb Fiddelke
Press Director
Senator Chuck Hagel
248 Senate Russell Bldg.
Washington, D.C. 20510
(202) 224-4224
Fax: (202) 224-5213

UNITED STATES SENATOR • NEBRASKA
CHUCK HAGEL

PRESS RELEASE

FOR IMMEDIATE RELEASE
Thursday, May 10, 2001

Contact: Deb Fiddelke
(202) 224-4224

Hagel Calls for Integrated Energy/Climate Change Policy

Washington D.C.– United States Senator Chuck Hagel called for an integration of U.S. energy and climate change policies in a speech on the Senate floor today. Below are excerpts from that speech:

"Mr. President, in the midst of the energy challenges facing our nation lies a very unique opportunity. We have a chance to start afresh and build energy and environmental policies that work together. A clean environment and a strong energy policy need not be mutually exclusive.

The forces of reality have brought us to this point. We have an energy problem that we cannot ignore. We also have a new Administration which is re-evaluating our environmental policies, as any new Administration would do, to ensure that what we're pursuing, and how we're pursuing it, is relevant, realistic and achievable.

In the next few days, President Bush will release the Administration's new energy policy. This policy will provide a balanced approach to meet the supply and demand imbalance we're now facing in America. It will reflect our absolute need for a wide and deep energy supply portfolio, including the use of renewable energy and alternative energy sources.

It would have been easy to defer this challenge, to delay the tough choices. But that's what got us into this mess. For the last eight years, this country drifted without an energy policy - and today we're literally paying the price.

As we create a comprehensive and balanced policy to address our energy needs, we need to take into account our environmental priorities, particularly in the area of climate change. President Bush has said that his Administration will offer a science based, realistic and achievable alternative to the Kyoto Protocol. That is the responsible thing to do.

-MORE-

President Bush merely stated the obvious when he declared the Kyoto Protocol dead. Although his actions have been criticized, the forthrightness and clarity are refreshing on this issue. The Kyoto Protocol would never have been in a position to be ratified by the U.S. Senate. The Clinton-Gore Administration knew this as well. That's why they never submitted the treaty to the Senate even for debate and consideration.

There's a reason for that. The Kyoto Protocol wouldn't work. A treaty claiming to attempt to reduce global emissions of greenhouse gases has no chance of being effective when it exempts 134 nations, including some of the largest greenhouse gas emitters in the world -- nations like China, India, South Korea, Brazil and others.

My colleague from West Virginia, Senator Byrd, who I worked with in 1997 on S.Res. 98, addressed this point last week. S.Res. 98, which the Senate agreed to by a vote of 95 to 0, stated that the U.S. should not agree to any treaty in Kyoto, or thereafter, which would place binding limits on the United States unless "the protocol or other agreement also mandates new specific scheduled commitments to reduce greenhouse gas emissions for Developing County Parties within the same compliance period." As Senator Byrd reiterated last week, developing countries must be included in any international agreement to limit greenhouse gas emissions.

We have an opportunity now to discard an unworkable protocol and build a new consensus that will address climate change, and initiate efforts that are realistic and achievable.

In addition, by addressing this issue domestically, the United States can demonstrate our commitment to climate change and show that meeting this challenge can be done in an integrated way that ensures a sound energy supply and economic stability. The world will not be better off if the United States slips into an energy crisis or if our economy falters. Both would set off shock waves that would reverberate around the world. By creating our own integrated policy, we can provide direction for how the world can address the dual challenges of energy and climate change.

In the last Congress, Senators Murkowski, Byrd, Craig and I had legislation that would dramatically increase funding for the research and development of technologies to provide cleaner energy sources, and to incentivize efforts to reduce or sequester greenhouse gases. We are building upon that legislation and will be reintroducing it soon. It will improve our scientific knowledge and lay out positive steps that we can take now to address climate change.

As we enter the 21st century, we face a world that is integrated like never before in history. What we do in one policy area has dramatic implications for another - both in our nation and across the globe. Building sound policies for our future requires that we create integrated policies to address the challenges facing America and the world."

- 30 -

"The Need for Integrated Energy and Climate Change Policies"
Floor Remarks
U.S. Senator Chuck Hagel (R-NE)
May 10, 2001

Mr. President, in the midst of the energy challenges facing our nation lies a very unique opportunity. We have a chance to develop energy and environmental policies that work together. A clean environment and a strong energy policy need not be mutually exclusive.

The forces of reality have brought us to this point. We have an energy problem that we cannot ignore. We also have a new Administration which is re-evaluating our environmental policies, as any new Administration would do, to ensure that what we're pursuing, and how we're pursuing it, is relevant, realistic and achievable.

In the past, there has been a division of these issues. Energy and environmental policies have been considered separately – and mostly at odds with one another. This has led to an unnecessary gap of confidence in both efforts.

We have an opportunity to reverse this division and create integrated policies to pursue both critically important objectives of a steady energy supply and a clean environment.

In the next few days, President Bush will release the Administration's new energy policy. This policy will provide a balanced approach to meet the supply and demand imbalance we're now facing in America. It will reflect our absolute need for a wide and deep energy supply portfolio, including the use of renewable energy and alternative energy sources.

It would have been easy to defer this challenge, to delay the tough choices. But that's what got us into this mess. For the last eight years, this country drifted without an energy policy – and today we're literally paying the price.

Gas prices have hit record levels and are predicted to continue rising. The energy shortages in California will spread to other areas of this country during the hot summer months when the demand for energy will continue to outstrip supply.

Finding solutions to problems requires bold ideas, common sense, imagination and sometimes unpopular choices. President Bush has shown courage and leadership for his willingness to address the problem and develop solutions.

As we create a comprehensive and balanced policy to address our energy needs, we need to take into account our environmental priorities, particularly in the area of climate change.

Just one example of where we can do this is nuclear energy production. Like solar and wind power, nuclear power produces no greenhouse gases – zero emissions. It is one of the most cost effective, reliable, available and efficient forms of energy we have. Vast improvements in technology have made it one of the safest forms of energy production. Having nuclear energy play a vital role in our energy policy will enhance not only our energy supply but our environmental health.

President Bush has assembled a cabinet environmental task force to review climate change. They have been listening to and learning from some of the world's foremost meteorologists, climatologists, physicists, scientists, and environmental experts. The President has said that his Administration will offer a science based, realistic and achievable alternative to the Kyoto Protocol. That is the responsible thing to do.

President Bush merely stated the obvious when he declared the Kyoto Protocol dead. Although his actions have been criticized, the forthrightness and clarity are refreshing on this issue. The Kyoto Protocol would never have been in a position to be ratified by the U.S. Senate. The Clinton-Gore Administration knew this as well. That's why they never submitted the treaty to the Senate even for debate and consideration.

Despite the heated rhetoric on this issue from the other side of the Atlantic, no major industrialized nation has ratified the Kyoto Protocol. In fact, Australia has said it will follow us in rejecting the treaty.

There's a reason for that. The Kyoto Protocol wouldn't work. It left out 134 nations, some of whom are among the world's largest emitters of greenhouse gases. A treaty claiming to attempt to reduce global emissions of greenhouse gases has no chance of being effective when it exempts some of the largest greenhouse gas emitters in the world – nations like China, India, South Korea, Brazil and others.

My colleague from West Virginia, Senator Byrd, who I worked with in 1997 on S.Res. 98, addressed this point last week. S.Res. 98, or the Byrd-Hagel Resolution, which the Senate agreed to by a vote of 95 to 0, stated that the U.S. should not agree to any treaty in Kyoto, or thereafter, which would place binding limits on the United States and other industrialized nations unless "the protocol or other agreement also mandates new specific scheduled commitments to reduce greenhouse gas emissions for Developing County Parties within the same compliance period." As Senator Byrd reiterated last week, developing countries must be included in any international agreement to limit greenhouse gas emissions.

From the moment it was signed, the Kyoto Protocol was never a realistic or achievable way to move forward on climate change.

In the meantime, we've lost precious time when we could have been exploring achievable and realistic ways to reduce greenhouse gas emissions.

We have an opportunity now to discard an unworkable protocol and build a new consensus that will address climate change, and initiate efforts that are realistic and achievable.

The United States is still a party to the Framework Convention on Climate Change (Rio Treaty), which was signed by the United States and ratified by the U.S. Senate in 1992. We should go back to the framework of that treaty, before the Berlin Mandate that excluded developing countries from participation, and lay the groundwork for future international efforts.

This gives us a strong base to work from. Many of the discussions during the negotiations for the Kyoto Protocol have worked to build consensus on areas that will need to be part of any international initiative – flexible measures to reduce greenhouse gas emissions, the role of carbon sinks, and other areas. We can build on this progress in developing an alternative to Kyoto.

If we are creative and if our partners will work with us in good faith, we can negotiate arrangements that are responsible and proactive.

By addressing this issue domestically, the United States can demonstrate our commitment to climate change and show that meeting this challenge can be done in an integrated way that ensures a sound energy supply and economic stability. The world will not be better off if the United States slips into an energy crisis or if our economy falters. Both would set off shock waves that would reverberate around the world. By creating our own integrated policy, we can provide direction for how the world can address the dual challenges of energy and climate change.

Senators Murkowski and Breaux have introduced a comprehensive energy bill, of which I am an original cosponsor, that will increase our domestic resources, and increase the use of renewable and alternative fuels. In the last Congress, Senators Murkowski, Byrd, Craig and I had legislation that would dramatically increase funding for the research and development of technologies to provide cleaner energy sources, and to incentivize efforts to reduce or sequester greenhouse gases. We are building upon that legislation and will be reintroducing it soon. It will improve our scientific knowledge and lay out positive steps that we can take now to address climate change.

A forward-looking domestic policy will demonstrate our commitment to this important issue, enhance what we genuinely know about climate change, create more efficient energy sources, include the efforts of our agricultural sector, and have the additional effect of reducing air pollutants.

Mr. President, as I stated earlier, we have an historic opportunity to create policies that will address both our energy and environmental priorities in a way that is not mutually exclusive. Policies that compliment each other and work together.

As we enter the 21st century, we face a world that is integrated like never before in history. Just as foreign policy cannot be considered separate from national security or trade policy – energy policy cannot and should not be considered separate from environmental and economic policy. What we do in one policy area has dramatic implications for another – both in our nation and across the globe. Building sound policies for our future requires that we create integrated policies to address the challenges facing America and the world.

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NATIONAL PETROCHEMICAL
& REFINERS ASSOCIATION

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URVAN R. STERNFELS
President

2001-012127 5/14 P 3:13

May 14, 2001

The Honorable Spencer Abraham
Department of Energy
1000 Independence Ave S.W.
Washington, D.C. 20585

Dear Secretary Abraham:

Thank you for your recent letter asking for recommendations from our membership concerning short and long-term responses to petroleum product price and supply constraints. The National Petrochemical and Refiners Association (NPRA) welcomes the Administration's focus on these issues and looks forward to its upcoming recommendations on the future course of U. S. energy policy. We circulated your letter to our Board of Directors and this letter incorporates their comments.

In general, we urge that you continue to stress three key points: (1) U.S. energy supplies should be enhanced, at least in part through strengthening of the domestic refining and fuel distribution infrastructure; (2) environmental and energy policy objectives should be balanced to ensure continued environmental progress in conjunction with maintaining adequate and affordable energy supplies; and (3) reliance on markets is both the best foundation for policy and the best mechanism to rely on for a prompt response to any interruption in supplies.

NPRA's members include virtually all U.S. refiners as well as petrochemical manufacturers who depend on a secure supply of petroleum products for feedstock use and fuel requirements. The refining industry has been operating at near-peak capacity levels both before and during this period of serious concern about energy supply availability. The industry will continue these efforts, but both government and the public must realize that policy changes are necessary to assist in that task. Unfortunately, it will take time to mend the effects of earlier decisions made without appropriate attention to their impact on energy supplies.

Short-term Recommendations

In the short term, the steps that can be taken to address supply and price disruptions are limited. NPRA recommends that you focus on ways to augment industry's flexibility to increase and redirect supplies. Because refiners and fuel distributors are already stressed by existing fuel specifications and volume requirements, care must be taken to ensure that remedies do not add new uncertainties or complications that may adversely affect supply. Specifically, requests that

28127

RFG standards should be waived must be very carefully evaluated to determine whether any anticipated benefits are outweighed by other impacts. Potential drawbacks could be short-term interference with market signals and a longer-term disincentive to make Clean Air Act-related investments to meet requirements which might later be waived.

Longer-term Recommendations

Here is a brief summary of our longer-term recommendations:

Clean Air Act New Source Review Reform (NSR)

- Review EPA's retroactive "enforcement initiative;" this initiative has made it difficult for refiners to consider operational or maintenance steps that would increase energy productivity; the resulting uncertainty could inhibit future steps that might debottleneck or expand existing refinery operations
- Clarify when NSR is needed
- Develop a flexible, performance-based alternative to NSR

Fuels

- Balance energy and environmental goals in setting environmental requirements and determining leadtimes
- Avoid any further complication of the current supply and distribution system
- Seek simplifications that make economic and logistical sense and that do not reduce supply or increase costs
- Set fuel requirements based on performance standards that balance environmental goals with the need to keep refineries operating in order to maintain and expand U.S. refining capacity
- Provide refiners with flexibility by avoiding rigid product specifications
- Provide adequate leadtime for new requirements
- Rely on economic mechanisms, such as trading and incentive programs, that maximize flexibility wherever possible
- Reconsider the decision to implement EPA's diesel sulfur rule as issued; commission an **independent** study of the rule's feasibility, timing and fuel supply impacts

- Streamline and expedite the permitting process to enable refiners to comply with the Tier 2 gasoline sulfur reduction program

- Review the recent Mobile Source Air Toxics Rule for adverse gasoline supply impacts; many refiners are concerned that this rule punishes refiners which have already taken steps to reduce toxics and could make compliance impossible if MTBE usage is eliminated or severely reduced as some states have done; in the near term the rule could seriously reduce a refiner's flexibility to take steps that would increase supply

- Carefully analyze the effect on gasoline supply of any steps taken in response to concerns about MTBE usage

- Review the cumulative impact of the unprecedented stream of recent regulatory actions that affect refiners (see attached chart). Consider ways in which overlapping requirements could be prioritized and appropriately sequenced, as recommended by the June 2000 Refining Study issued by the National Petroleum Council.

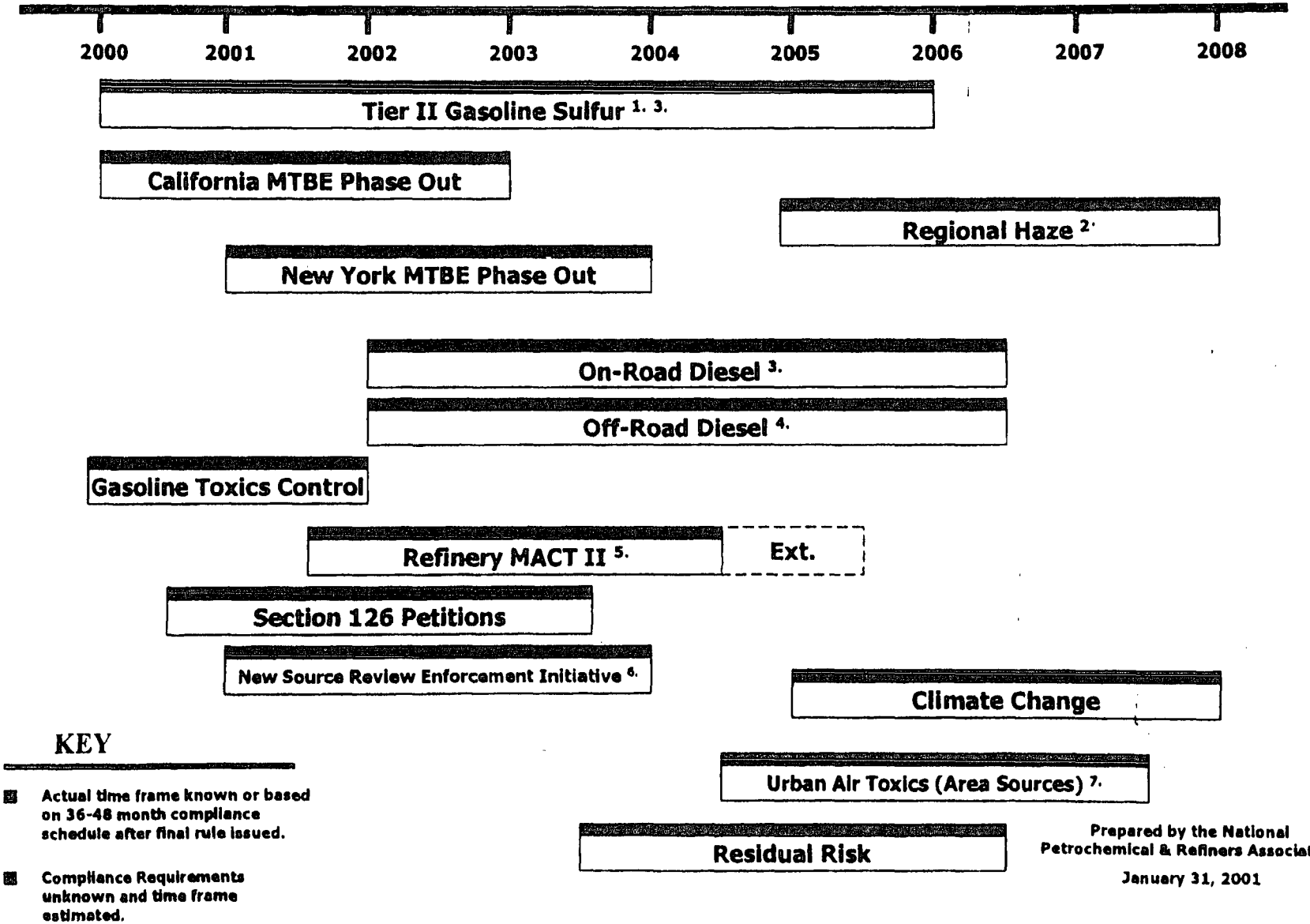
As previously mentioned, NPRA also represents U.S. petrochemical producers. The U.S. petrochemical industry is a world leader in size, scale of facilities and technological development. Its products-plastics, fibers, coatings and specialty applications-are used throughout the economy in everything from clothing to medicines, CDs and computers. The industry has been a leading net exporter for many years; however, recent high domestic natural gas prices have affected its global competitiveness.

The petrochemical industry is extremely dependent on both the U.S. refining and natural gas production industries for fuel and feedstocks. Policies that strengthen the U.S. refining industry and those which increase the supply of natural gas will help the petrochemical industry continue to make its important contributions to our economy. The U.S. needs to develop a balance in energy supply sources to avoid over reliance on natural gas, which can result from regulatory signals, particularly in the electric generation industry. Also, enhancements to the U.S. transportation infrastructure are critical to supply petrochemical facilities with feedstocks and to distribute their output. In addition, the petrochemical and refining industries will benefit from policies that encourage the production and distribution of electricity supplied from cogeneration technology.

Stable, reliable and affordable supplies of energy and efficient energy use are essential to maintaining living standards and supporting economic growth. We look forward to continuing to work with you and the Department to improve the nation's energy policies. If you have any questions regarding the suggestions we have raised or if you need to go into these issues in greater detail, please call me, Bob Slaughter or Betty Anthony at (202) 457-0480.

Yours sincerely,

Cumulative Regulatory Impacts on Refineries, 2000 - 2008



FOOTNOTES:

1. Longer compliance time for refineries in Alaska and Rocky Mountain states and small refineries covered by Small Business Regulatory Enforcement and Flexibility Act (SBREFA). Additional compliance time is available for these refineries if they produce ultra low sulfur highway diesel beginning in 2006.
2. Regional haze State Implementation Plans (SIPs) due 2005-2007. Earliest compliance date. Schedule may be impacted by National Ambient Air Quality Standard (NAAQS) litigation.
3. Longer compliance time for small refiners covered by SBREFA.
4. Estimated effective date based on proposed heavy duty vehicle standards.
5. Compliance date may be harmonized with Tier II schedule.
6. Based on Clinton Administration EPA statements to press. Estimated date for implementation.
7. Urban Air Toxics Strategy includes potential controls of gasoline loading facilities at refineries. Estimated compliance schedule.

— State of —
North Dakota
Office of the Governor

John Hoeven
Governor

2001-012458 5/17 3:39

May 11, 2001

Vice President Richard Cheney
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear Vice President Cheney:

Allow me to express my appreciation for your recent efforts to develop the much-needed and long-awaited national energy policy. Judging by all that I have read, the Administration understands the critical importance of developing the nation's domestic energy resources, including oil, natural gas and coal. I strongly support this emphasis and commend you for keeping it foremost in your policy development.

I am writing to reiterate the role that coal can and should play in meeting the United States' energy demands. In addition, I wanted to offer my assistance to you and President Bush in promoting coal and our other natural resources as key components in a national energy policy. If there is any way I can help in making the case for your energy initiatives, please feel free to put me to work.

It is appropriate that the President is coming to Minnesota on Thursday to address energy issues. Much of Minnesota's electricity is generated in North Dakota by coal-fired power plants. The lignite industry represents a significant part of our state's economy, and of course, we would like to develop it further in the coming decades.

The advantages of coal as an energy source are numerous, and from your years in Wyoming and Texas, I know you are well acquainted with the industry. Let me highlight coal's advantages as seen from a North Dakota perspective.

600 E Boulevard Ave
Bismarck, ND 58505-0001
Phone: 701.328.2200
Fax: 701.328.2205
www.discovernd.com

28132

- Supply – The lignite-bearing regions of western North Dakota and eastern Montana have more than a 1,000-year supply of lignite that is currently economically feasible to recover. (Based on 35 billion tons with the current production rate of 30 million tons per year.) Energy independence clearly should be a central goal of a national energy policy; given the abundant supplies, coal will help anchor that independence.

- Cost – Although the price of coal has recently faced upward pressure, it remains a comparatively inexpensive source of energy in the United States. America's competitiveness benefits greatly from low-cost energy supplies, and coal is well-equipped to fill the economy's needs.

- Environmental friendliness – Coal-generated electricity and clean air are certainly compatible. North Dakota's industry has been a leader in reducing emissions, and even with our healthy energy sector, our air ranks among the cleanest in the country. I applaud the President's commitment to developing clean-coal technologies, including his budget proposal to spend $2 billion on the coal-related environmental initiatives over the next 10 years.

- Versatility – Our coal industry is not limited to electrical generation. More than 13.5 percent of North Dakota's lignite is used to generate synthetic natural gas, at the only such plant in the United States. This technology holds tremendous potential for the future. (The Great Plans Synfuels plant is operating profitably, I would note.) In addition, about 7.5 percent of lignite is used to produce fertilizer products, such as anhydrous ammonia and ammonium sulfate.

North Dakota's commitment to coal is serious and long-term. Working in a partnership, the state and lignite industry recently launched the Vision 21 project, intended to lead to the establishment of at least one new coal-fired power plant. The 500 megawatt plant is estimated to require three million tons of coal a year while adding 1,300 new jobs.

In light of this goal, I am pleased to see reports that the President's energy strategy calls for regulatory steps that would expedite approval of new power plants.

By all accounts, the President's comprehensive energy strategy will strike a balance, encouraging conservation while promoting the wise development of all of our energy resources. While I am certainly an advocate for coal, I also support this balanced approach. Oil exploration and development should remain a priority, and there is an important place for renewable sources such as wind and bio-fuels.

The absence of a comprehensive, national energy policy has hampered our economic growth and contributed to the supply shortfalls and sudden price swings. The result is understandable political pressure to take short-term action that may, in fact, be counterproductive.

It is to the Administration's credit that you have sought to develop a long-term strategy with the appropriate emphasis on supply. I congratulate you for the effort, and stand ready to assist the President and you in whatever way would be helpful.

Sincerely,

John Hoeven
Governor

cc: Secretary Spencer Abraham, Department of Energy

38:27:41

456723

City of Seattle

Office of the Mayor

May 14, 2001

The Honorable George W. Bush
The White House
1600 Pennsylvania Avenue
Washington, DC 20500-0001

Dear President Bush:

I was interested to read your comments reported in the national press last week about the national energy policy you are developing. A national energy policy is a terribly complex undertaking, but we in the Pacific Northwest now know all too well how vital this work is to our regional and national economies. I look forward to working constructively with the Administration as this work goes forward.

While the City of Seattle may respectfully disagree with some of the directions you appear to be considering, I am intrigued by the comments you made about the role of energy conservation. The City of Seattle has aggressively pursued energy conservation for at least twenty years. Our citizens enthusiastically support our investments in energy efficiency; perhaps in part, because it is the right thing to do, but much more importantly because they know that each conservation investment must prove its worth in relation to the comparable cost of acquiring new energy generation. Energy conservation on this basis is just as good as any new generation plant development. While there are some administrative costs associated with our approach, they are nothing in comparison to the costs and difficulties incurred with new plant construction.

After twenty-plus years of "buying" conservation in our community on this basis, you might think that we must have been getting close to exhausting the supply. We have just completed a detailed assessment of the conservation potential remaining in our community, and I was a little surprised but pleased to see that we can not only continue the program, but we can also double the level of accomplishment — with only a modest increase in costs.

Conservation alone is not going to solve this country's energy problems. Conservation based on "doing without" is certainly not a reasonable part of the national energy approach. But real energy efficiency investments should be featured prominently in the Administration's plan. I was pleased to hear your comment last week that you recognized the value of real energy efficiency investments. I fear that you may be underestimating the amount of energy these investments might produce in a short time if we properly encourage them. I hope the Administration will continue to support federal incentives that can help make conservation an even bigger success.

Seattle City Light, our very successful municipal electrical utility, has a great deal of expertise with energy conservation. We offer our assistance to your task force in any manner you might find useful. Good luck with the national energy policy endeavor; we look forward to working with you.

Very truly yours,

Paul Schell

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Department of Energy
Washington, DC 20585

May 14, 2001

Mr. Walter L. Adams, Jr.
2221 Old Comfort Highway
Trenton, North Carolina 28585

Dear Mr. Adams:

Thank you for your recent letter to the Secretary of Energy expressing your support for the revival of the nuclear option for electrical power generation within the United States and for other energy production options.

One of President Bush's first acts was to create a National Energy Policy Development Group, headed by Vice President Cheney, to help the private sector and government at all levels promote dependable, affordable, and environmentally sound production and distribution of energy for our country. This group includes the Secretary of Energy, as well as the Secretaries of the Treasury, Interior, Agriculture and Commerce Departments, the heads of the Federal Emergency Management Agency, the Environmental Protection Agency, the President's Deputy Chief of Staff for Policy, and the Assistants to the President for Economic Policy and Intergovernmental Affairs. The National Energy Policy Development Group is considering ideas and recommendations of consumers, businesses, states and independent experts on how best to address the broad range of energy issues now facing the Nation. Your specific suggestions will be passed on for their consideration.

The Department of Energy (DOE) is working to ensure that nuclear power remains a viable energy alternative for power generators in the future. For this to happen, it is vital that existing nuclear power plants continue to operate economically and safely. In addition, future plants will depend on investments we make today in nuclear power plant safety, reliability, and economic competitiveness. We are actively pursing a number of means for stimulating new investments in nuclear power generating capacity.

The Department is making steady progress on the geological repository for high level wastes. The President has committed to ensuring that sound science governs the site characterization activities being conducted by the Department in support of a possible recommendation to continue development of a potential

repository at Yucca Mountain in Nevada. As for reprocessing, the Department is taking a fresh look at the nuclear fuel cycle to be sure that Government policies do not unnecessarily close off important energy options to the private sector.

Thank you for writing.

Sincerely,

Margot Anderson
Acting Director
Office of Policy

STATE OF MAINE
HOUSE OF REPRESENTATIVES
2 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0002

May 15, 2001

The Honorable George W. Bush
President of the United States of America
The White House
1600 Pennsylvania Avenue
Washington, D.C. 20500

Dear Mr. President:

We, the undersigned members of the Maine House of Representatives, are concerned about the United States' domestic supply of energy and are concerned that there has been no comprehensive, forward-looking energy plan created over the past several years. These concerns stem from the following facts: demand for oil is projected to grow one-third by 2020; the U.S. produces 39 percent less oil today than it did in 1970; by 2020, the U.S. will produce approximately half of what was produced in 1970; the U.S. imports 57 percent of its oil and it is projected that by 2020, imports will grow to 64 percent; not one new refinery has been built in the U.S. in over 25 years; and since 1980 the number of refineries has been cut in half.

Energy prices are too high, demand is great and the supply is limited. This is causing great apprehension and difficulties for American consumers. Therefore, we support any federal efforts to develop a national comprehensive energy plan with short-term and long-term solutions that will help increase domestic supplies of energy. Such a plan may include:

- Reviewing exploration on federal land so there can be energy development on federal lands;
- Increasing refining capacity through regulatory relief;
- Increasing pipeline transportation through FERC and DOE policies;
- Developing clean coal technology; and
- Re-licensing hydro projects.

We encourage you to continue to work with the Congress, the Department of Energy, the Environmental Protection Agency and the Department of the Interior to develop and implement a national energy plan. We appreciate your attention to this matter of vital importance to the citizens of the State of Maine and the entire United States of America.

Sincerely,
The Undersigned Members of the Maine House of Representatives

cc: The Honorable Olympia Snowe, United States Senator
The Honorable Susan Collins, United States Senator
The Honorable John Baldacci, United States Representative
The Honorable Thomas Allen, United States Representative
The Honorable Spencer Abraham, Secretary of Energy ✓
The Honorable Christie Whitman, Administrator, Environmental Protection Agency
The Honorable Gale Norton, Secretary of the Interior

The Honorable [signature]	District 113
The Honorable [signature]	District 124
The Honorable [signature]	District 114
The Honorable [signature]	District 42
The Honorable [signature]	District 137
The Honorable [signature]	District 27
The Honorable [signature]	District 110
The Honorable [signature]	District 112
The Honorable [signature]	District 88
The Honorable [signature]	District 60
The Honorable [signature]	District 138
The Honorable [signature]	District 4
The Honorable [signature]	District 142
The Honorable [signature]	District 78
The Honorable [signature]	District 123
The Honorable [signature]	District 007
The Honorable [signature]	District 41
The Honorable [signature]	District 13
The Honorable [signature]	District 47
The Honorable [signature]	District 125
The Honorable [signature]	District WHIP #85
The Honorable [signature]	District leader #38
The Honorable	District
The Honorable	District

The Honorable Joseph C. Perry	District #118
The Honorable Irvin Belanger	District # 147
The Honorable [illegible] E. Labrecque	District #23
The Honorable David R. Madore	District #95
The Honorable Donald P. Berry, Jr.	District 109
The Honorable Peter F. Mayo III	District 54
The Honorable Peter D. Chase	District #12
The Honorable Arlan R. Jodrey	District 65
The Honorable Ted Heidrich	District 64
The Honorable Ken Honey	District 58
The Honorable William D. Pendleton	District 132
The Honorable Lisa A. Snowe-Mello	District 71
The Honorable Henry O. Chouett	District 21
The Honorable [illegible]	District 45
The Honorable Mary B. Andrews	District 2
The Honorable E. Paul Waterhouse	District 46
The Honorable David Tuttle	District 59
The Honorable David Bowles	District 9
The Honorable Edgar Wheeler	District 143
The Honorable Harold A. Clough	District 22
The Honorable Mary Ellen Ledoux	District 116
The Honorable Thomas F. Shields MD	District 72
The Honorable Richard A. Nass	District 11
The Honorable Tom J. Winn	District 68

TED STRICKLAND
8TH DISTRICT, OHIO

COMMITTEE ON ENERGY AND COMMERCE

SUBCOMMITTEE ON HEALTH

SUBCOMMITTEE ON ENERGY AND AIR QUALITY

SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

Congress of the United States

House of Representatives

Washington, DC 20515–3506

HOUSE RURAL HEALTH CARE COALITION

OLDER AMERICANS CAUCUS

HOUSE EDUCATION CAUCUS

CONGRESSIONAL STEEL CAUCUS

CONGRESSIONAL MINING CAUCUS

CONGRESSIONAL CORRECTIONAL OFFICERS CAUCUS
FOUNDER AND CO-CHAIR

May 15, 2001

The Honorable Richard Cheney
Vice President of the United States
The Old Executive Office Building
Washington, DC 20501

Dear Mr. Vice President:

I am disturbed by early reports that the Energy Task Force recommendations fail to recognize the need to include a path forward for assuring that this country is capable of providing a reliable and economic source of nuclear fuel for commercial nuclear reactors. As you know, nuclear power is the second largest supplier of electricity generation in the country. Unfortunately, it is not unreasonable to expect that the U.S. could have an OPEC-like dependency on foreign sources of nuclear fuel supplies in the near future. To prevent such a situation, the U.S. needs to deploy cost competitive uranium enrichment technology or we will rely on foreign supplies to meet nearly one quarter of our electricity needs.

There have been adverse consequences to the nation's energy security as a result of the privatization of the United States Enrichment Corporation (USEC) in July 1998. USEC is the only domestic supplier of uranium enrichment services in the U.S. When it was privatized, USEC operated two gaseous diffusion plants located in Piketon, Ohio and Paducah, Kentucky. However, last June, USEC made the decision to cease operations at the Piketon Gaseous Diffusion Plant (GDP) ignoring the advice of the Departments of Energy and Treasury. The targeted date for turning the key to the "off position" is June 1, 2001.

A Department of Energy report issued on January 19, 2001 describes the need for the U.S. "to be able to reliably meet the continuing demand for approximately 11 million separative work units (SWU) per year." However, the Paducah plant can only produce approximately 4.5 million SWU per year in an economic manner. The balance of requirements comes from 5.5 million SWU derived from blended down weapons grade uranium imported from Russia under the U.S.-Russia HEU Agreement and some European supplies. It is evident that the operation of a single enrichment plant in the country, coupled with a history of five interruptions in the delivery of enriched uranium under the Highly Enriched Uranium Purchase Agreement with Russia, raises questions about the vulnerability of the U.S. to a disruption in the supply of enriched uranium.

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The need for a secure, domestic uranium enrichment supply is underscored by the fact that nuclear power is enjoying improved operating economics and increased average efficiency of reactors. Demand is likely to remain stable or grow, as approximately 40% of the domestic nuclear reactors are currently seeking license renewals. During a hearing on nuclear power before the Energy and Air Quality Subcommittee on March 27, 2001, there was discussion about building the next generation nuclear reactors in the not-so-distant future. These next generation reactors will require 8-10% U-235 enrichment, compared with the 4-5% levels required for the current generation of boiling water reactors. It is troubling that USEC is closing the Piketon facility which is the only U.S. enrichment plant that is licensed to enrich uranium to 10% assay, when there is a trend toward higher assay fuel.

During the March 27, 2001 Energy and Air Quality Subcommittee hearing, testimony was offered which stated:

> "USEC utilized only about 29% of its nameplate GDP capacity in 2000, and over the next year will supply a majority of its customers needs from Russian and U.S. HEU blending." (Testimony of John R. Longenecker, former USEC official).

Mr. Longenecker further states:

> "USEC is finding it more profitable to operate as a trader of blended HEU rather than as a primary producer. This approach appears to lead inevitably to USEC exiting the market as a primary producer. As a result, constructing replacement enrichment capacity in the U.S. should be the key focus for the decade ahead."

In addition, during a June 8, 2000 hearing before the Commerce Subcommittee on Energy and Power, testimony was submitted stating that the front end of the nuclear fuel cycle is endangered:

"Since 1998, expenditures for uranium exploration and mine development have declined by 59%; three uranium processing facilities have closed during 1999 (two in Texas and one in Louisiana); employment in U.S. uranium exploration, mining, milling and process has decreased by almost 30%. Last year, production at ConverDyn, the sole remaining uranium converter in the U.S. was cut back by 25% and employment was reduced by over 12%." (Testimony of Mr. James Graham, President and CEO of ConverDyn).

If this nation's energy policy is going to place a greater emphasis on nuclear power, it must do so in a comprehensive fashion. An energy policy that ignores the reliability of the front end of the domestic nuclear fuel industry falls short of assuring needed energy security in this country. I urge you to carefully consider the needs of the entire nuclear fuel cycle as you prepare

to issue your recommendations for a national energy strategy. I know you will agree that Americans would find it unwise and unacceptable to depend on foreign sources for the second largest supplier of U.S. electricity generation, nuclear power.

Thank you for your attention to this important matter.

Sincerely,

Ted Strickland

Ted Strickland
Member of Congress

cc: The Honorable Spencer Abraham
The Honorable Bob Taft
The Honorable Mike DeWine
The Honorable George Voinovich
The Honorable W. J. "Billy" Tauzin
The Honorable John Dingell
The Honorable Joe Barton
The Honorable Rick Boucher

2001-012567

University of Florida 1853

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Phone : (352) 392-2001 Fax : (352) 392-2003 Email: aesgreen@ufl.edu

May 15, 2001

The Honorable Spencer Abraham
Secretary of Energy
United States Department of Energy
Washington, DC 20585

Dear Secretary Abraham,

As a result of our book Coal Burning Issues [Green ed.1980] and my appointment to the National Coal Council (NCC) by past Secretaries Herrington, Watkins, O'Leary, Peña and Richardson I have been advocating utilization and co-utilization of all domestically available fuels and conducting R&D on such possibilities. Since your office is in the process of re-examining National Energy Policy I thought I should send to you some material related to my considerations that may now be timely. These include

1). A 2 page statement on the national need for domestic fuel co-utilization.
2) A 2 page description of my R&D and missionary efforts on co-utilization.
3) Another missionary effort on advanced methods of co-utilization.
4) A 1994 statement on the need for a National Solids Fuel Council that I submitted when the NCC was reconsidering its charter. It had little effect
5) A suggestion to past Secretary of Interior Bruce Babbitt on co-utilizing the understory fuel in national forests that did not get a favorable response
6) Two layman articles describing European Union advanced co-utilization efforts.

The USA that now consumes about 100 quads could probably make fairly near term use of some 10 extra quads of waste and cultivated biomass with substantial environmental benefits. This, however, would require the fresh and fossil biomass sectors to work together closely yet somehow our infra structure does not lend itself to such co-operation. While item 4 was a suggestion to deal with this problem perhaps more politically and economically astute methods can be implemented during your administration.

Hopefully these considerations can be helpful to you in formulating a sensible National Energy Policy. I can assemble more technical material that support the national benefits of co-utilization of domestic fuels if so requested.

Respectfully Yours

Alex E. S. Green

Alex E. S. Green

P.S. A 7th attachment is also included

28144

THE NEED FOR SENSIBLE CHANGES IN NATIONAL ENERGY POLICY

In addressing national energy-environmental (EE) problems and policy changes that might mitigate them each fuel sector might now look beyond its typical "turf". Thus the coal sector could well look beyond its traditional domain from anthracite to lignite into peat and various forms of biomass, the precursors of peat. The biomass sector might well consider co-utilization of coal and other domestic fuels to help overcome the "recalcitrant" properties of biomass as a fuel. Such co-utilization of domestic fuels can significantly reduce national reliance on imported fuels while mitigating NOx, SOx, CO_2 and other undesirable emissions. Co-firing of coal and biomass for steam turbine power generation is a near term co-utilization approach that can make use of existing coal facilities with relatively minor modifications. However, co-gasification and co-liquification by providing fuel for more efficient combustion turbine systems including combined cycle, co-generators and fuel cells have much greater EE potential. In particular the development of optimum thermo-chemical (TC) co-conversion systems can be advanced by fostering cooperation between the biomass sector that enjoys a good environmental image, the coal sector that carries the nation's main electricity load as well as premium fuel sectors (petroleum and natural gas).

To illustrate the need to develop cross-cutting national interest type solutions for problems mired in political controversy let us examine in greater detail the transitional problem of reducing greenhouse gas (GHG) emissions with a minimum disruption of our domestic economy. In such an effort the USA, the coal Industry, coal based utilities, forestry and agriculture could significantly benefit by cooperative endeavors. Essentially coal can benefit by life extensions of coal based facilities using small proportionate (~10%) co-firing with biomass and using the sequestering potential of trees. As a low density fuel biomass cannot economically be transported over distances much greater than 50 miles. However, locally available biomass can be brought closer to the competitive domain by blending with coal in existing coal facilities. To alleviate our excessive dependence on imported oil, the major source of fossil fuel CO_2 emissions today, biomass could become a CO_2 neutral source of liquid transportation fuels. By fuel blending in gasifiers biomass could become a source of renewable fuel in electrical generation using highly efficient gas turbines and fuel cells. Given below is a summary of possible joint programs and mutual benefits of making greater co- use of our domestic energy resources.

I. What can Biomass do for Coal?

A. Cofiring Biomass with Coal
   1. Lower CO_2, SO_2 and NOx (reburn) emissions
   2. Extend life of coal facilities

B. Cogasifying Biomass with Coal
   1. Biomass + coal,
      (a) agricultural residues, , (b) waste paper, (c) yard waste
      (d) fuel in forest understory (e) energy crops
   2. Municipal sludge + coal (waste disposal and reduce methane generation)
   3. MSW + coal (waste disposal and reduce methane generation)

C. CO_2 Sequestration
   1. Federal land reforestation,
   2. New national parks
   3. Interstate highway plantings,
   4. Urban forests (new elms)
   5. Wood buildings and products
   6. Restoration of mined lands
   7. Phytoremediation of superfund sites
   8. Extra-territorial reforestation

II. What can Coal do for Biomass?
   A. Overcome obstacles to biomass - energy
   B. Lower capital cost of near term biomass utilization (co-firing)
   C. Foster biomass use in efficient electric generation (co-gasifying)
   D. Foster production of liquid fuels (co-liquifying)
   E. Foster production of charcoal, activated carbon, humic acid, useful chemicals

III. What can Serious Cooperation do for the U.S.A.?
   A. Reduce oil imports, (1) transportation fuel (2) industrial fuel
   B. Lower CO_2 and CH_4 emissions
   C. Develop useful environmental agents
   D. Buy time to develop long range measures

The solid fuels: coal, biomass and large components of municipal solid waste (MSW), in common, have useful energy content but cannot directly fuel reciprocating internal combustion engines, gas turbines or fuel cells. Because of higher hydrogen/carbon and oxygen/carbon ratios, biomass is significantly more volatile than coal and generally requires fewer thermal steps in conversion to combustible gases or liquids. However, in view of the seasonal nature of biomass availability, its low energy density, diverse physical properties and limitations on economic transport distances it is prudent to develop co-utilization technologies with coal, a compact, more storable high energy fuel abundantly available in the USA.

Gas turbines have higher efficiencies than steam turbines and when used in combined cycle or co-generation modes can convert much more of the fuel value of the feedstock to useful energy. Gasification also offers three extra pollution prevention stages for minimizing pollutant or toxic emissions from thermal plants. In addition to front end sorting to avoid toxic forming materials, blending dolomite, lime rock or other high temperature sorbents in the reactor itself can reduce sulfur emissions. A gas clean up system following the gasifier but before the turbine combustor protects the turbine and reduces final particle emissions. The fact that the volume of gas to be cleaned before combustion is much less than the volume to be cleaned after combustion has many advantages. It could, for example, be useful in reducing toxics such as mercury, arsenic or other volatile toxic metals in coal or in biomass. Co-gasification has been pursued in the EU, as a part of a transitional CO_2 reduction and oil back-out strategy. It could also serve in the USA to help ease adjustments of the coal industry, nurture the infant biomass industry and buy time to resolve many controversial Greenhouse issues. Here the "closed loop" policy in current legislation on biomass support might be modified until a biomass fuel infrastructure is developed.

Fast pyrolysis biomass liquifiers are under intensive development in Europe and Canada and are a complementary path to gasification, since the liquids in principle, can more easily be stored. While the EU is investing in thermo-chemical liquification technologies the major approach to satisfying the USA's need for liquid transportation fuels has been to generate ethanol via fermentation processes. Clearly the US should develop a broader liquid fuels program that considers thermo-chemical (TC) processes that are much faster than bio-chemical processes. Conversion by TC processes is more natural for utilities and the co-use of carbonaceous fuels.

A change in government policy is needed in which the government focuses more of its "R&D on projects with high potential payoffs for society as a whole. Such projects frequently would not be on topics that that industry would support based upon expected short term returns. Recent practice of the DOE has been to emphasize developments that require substantial industrial cost sharing which generally favors short term low risk non-innovative projects. There is also a large and long overdue need to strengthen the Applied Energy R&D effort of the Department of Energy. To facilitate this need the DOE could transfer "fundamental" R&D that fails to show reasonable energy linkage, to NSF or other national agencies with fundamental science missions. Then the primary role of the Department of Energy to ensure "reliable, affordable supplies of energy" for the USA would be clear to the public. This would support the importance of energy and energy R&D to the nation's future.

The current DOE organizational structure almost parallels the divisions of the domestic fuel industry and has tended to reinforce the fuel competition that has plagued the USA since WW II. At this time DOE should provide strong support for programs that foster the overall national energy interests and the optimal environmental and economic use of all domestic energy sources even when they require fuel sector cooperation instead of the traditional fuel sector competition. For example, in addition to co-firing coal DOE should encourage R&D on co-gasification and co-liquification and middle term cross cutting options in which coal, petroleum, or petroleum coke, natural gas or nuclear provide the heat to thermally liquefy biomass into suitable transportation fuels. The existing fuel sectors are unlikely to support dual or multiple energy sector technologies. Accordingly, a policy shift with changes of organizational structure by DOE would be helpful

One frequently sees the phrase "The United States must maintain its leadership in the science and technology of energy supply and use". On the other hand many leading US companies in power generation have already been sold to foreign companies, e.g. Combustion Engineering --> ABB (Swiss Sweden); Babcock & Wilcox Nuclear --> Framatome (France); Allison Motors --> Rolls Royce (Great Britain); Westinghouse --> Siemens (Germany) etc... Japan and Germany have long been leaders in the commercialization of fuel efficient vehicles. Japan, starting with USA developed nuclear technology, is showing leadership in pursuit of advanced nuclear reactors. Scandinavian countries, close to the Arctic Circle, have shown far more leadership in advancing the use of biomass for energy than the USA even though we have many regions with more favorable rainfall and sunlight. The EU is also showing more leadership in R&D on fuel blending in gasifiers and liquifiers. These historic trends suggest that the USA might already have lost its former leadership in power generation technology and its associated environmental technology. This is probably due to the fact that European countries and Japan have long placed high end-use values on energy which provide strong market incentives for the energy efficient products that are mostly absent in the USA. This serious problem should be addressed by policy changes. With trade debts approaching a half trillion dollars per year, in part due to energy imports, the USA should begin to find policies that recognize the intrinsic value of energy before our country's debt approaches our net worth.

Most national policies have been consistent with the phrase "the USA works best by the free market". However, with the OPEC cartel clearly in control of the price of some 55% of our liquid energy and deregulation policies not working in California some sensible policy changes are needed. This, of course is mainly the political domain but quantitative technical persons should be encouraged to developed options that are sensible and feasible.

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Interdisciplinary Center for Aeronomy and Other Atmospheric Sciences (ICAAS) and the Clean Combustion Technology Laboratory (CCTL). A.E.S. Green, director

ICAAS was established in 1970 as an interdisciplinary community of scholars seeking advanced solutions for anthropogenic emission problems. Early ICAAS studies contributed to the recognition of the stratospheric ozone depletion problem, the climate change problem and the development of pollution prevention as applied to thermal processes. In "Coal Burning Issues" [U.Fl. Press, 1980] ICAAS concluded that many energy-environmental problems could be mitigated by co-combustion of domestic fuels. This strategy led to the book "An Alternative to Oil, Burning Coal with Gas" [U.FL. Press, 1981]and the formation of the Clean Combustion Technology Laboratory (CCTL). CCTL's goals were to reduce pollutants from industrial and utility boilers and increase our national reliance on domestic fuels, such as coal, natural gas biomass and municipal solid waste. In 1988 the CCTL received a National Energy Innovation Award and a Florida Governor's Energy Award for co-firing R&D carried out at an industrial scale at the steam plant of Tacachale, a nearby state institution.

Since 1990 most CCTL studies have been on gasifying or liquifying domestic solid fuels by indirectly heated conversion systems (IHCS) to prepare them for use in energy efficient gas turbine systems or fuel cells. As a result of papers presented and panel sessions organized for International Gas Turbine Institute (IGTI) conferences the CCTL has developed a unique position among academic institutions in the USA in its pursuit of fuel blending in thermal gasifiers/liquifiers. With energy costs so low in the USA the CCTL is also investigating additional services that IHCS, capable of handling many types of energy containing inputs, can perform (see conceptual diagram below). Thus the CCTL is seeking IHCSs that are omnivorous as to their inputs but yields clean gaseous or liquid fuels as well as useful chemicals and chars as outputs. In recent papers we describe the potential application of such IHCSs: for converting biomass with coal and other domestic fuels into liquid or gaseous fuels suitable for gas turbines or fuel cells, for the disposal of plants used for phytoremediation, for solid waste disposal on long space missions and for using or sequestering CO_2. Currently funded CCTL studies are:

Cogasification of Solid Waste	A. Green PI	Mick A. Naulin Foundation
Arsenic Phytoremedator Disposal	Lena Ma, PI	National Science Foundation
Systematics of Pyrolysis	A. Green PI	Green Liquids and Gas Technologies

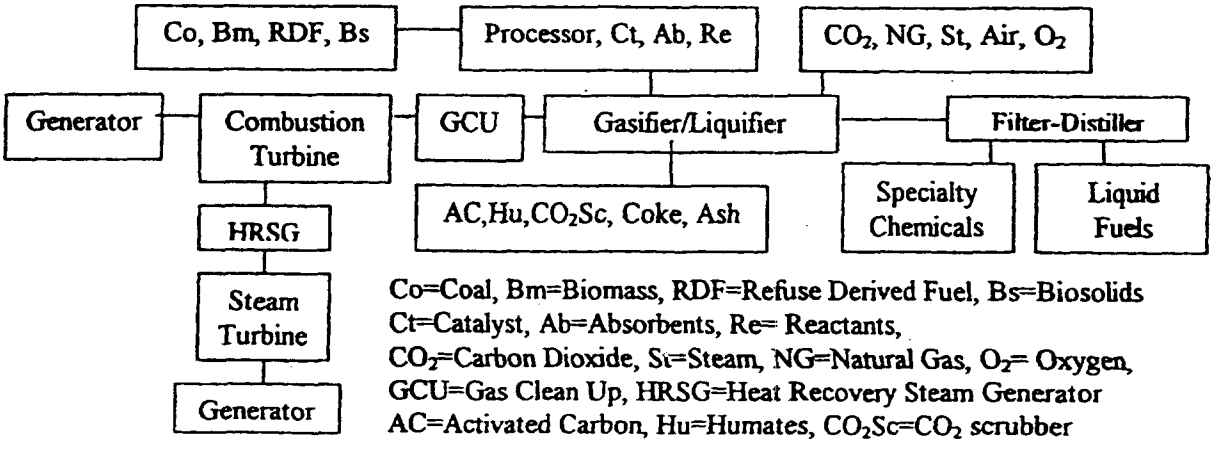

Figure 1. Omnivorous Feedstock Converter

Science & Health

Veteran Who Found Japanese Fleet Now Fights For Alternative Fuels

2b

By Randolph Fillmore
Special To The Stars and Stripes

"Don't trust anyone under 70! That's my motto," says Alex Green, Ph.D. "And even then, don't trust them unless they were willing to lay down their life for their country!"

In 1945, Green was willing to lay down his life to find the Japanese fleet. Today he is willing to stake his professional life on his work aimed at reducing the nation's dependency on foreign oil by developing alternative, renewable fuels.

During the war, Green developed slide rules for flight engineers to gauge their fuel consumption. More than 50 years later, he is still concerned with fuel usage.

'A Tragedy'

"It's a tragedy that the U.S. is not leading the world in developing alternative fuels," said Green, who works surrounded by furnaces and test equipment in a crowded corner of his research lab on the campus of the University of Florida. "The Finns and the Swedes are way ahead of us. We need to make greater use of renewable energy sources and do it cooperatively. The country as a whole has been negligent in paying attention to this issue."

Green received a masters degree in physics from the California Institute of Technology just before Pearl Harbor. Putting his knowledge of physics to work for the nation in WWII, he served as an operations analyst in the China-Burma-India and Pacific theaters where he developed slide rule computers for ship identification, flight engineering, force estimation, bomb plotting and other technical combat needs.

"I performed two operations analyses while serving with the 20th Bomber Command in the CBI unit," said Green. "I analyzed combat losses during the first 25 missions and assessed the performance of the remote gunnery system. I also devised a device that, when used with the gunsight, could compute the length of ships. The device proved its worth when we discovered the Japanese fleet in March 1945."

Medal Of Freedom

Green was on the B-29 photo reconnaissance flight, piloted by Capt. Alvin Coe, that Gen. Curtis LeMay called "one of the longest and most hazardous reconnaissance flights of the war." Green used his slide rule to identify the remaining Japanese fleet at anchor before the invasion of Okinawa. He received the Medal of Freedom for his role in that memorable flight.

According to Adm. Chester Nimitz, the ships' discovery helped the U.S. Navy destroy or damage half the Japanese warships in Hiroshima Bay and Kure Anchorage.

One of Green's slide rule computers was aboard the *Enola Gay*, the B-29 that dropped the atom bomb.

After the war, Green received a doctorate in physics from the University of Cincinnati. He has been a graduate research professor at the University of Florida since 1963 and in mechanical and nuclear engineering for the past 15 years.

Biggest Concern

Green said his biggest concern over the past two decades has been that the U.S. is not leading the way in developing alternatives to imported oil. An ardent supporter of using "biomass" to stretch nonrenewable fuels such as coal, Green's crowded lab reeks pleasantly of pine bark smoke as he seeks the most combustible wood gas.

"Biomass is plant matter. It can be sugar cane, wood, vegetation, byproducts of the paper and pulp industry or just waste paper," said Green. "Whether growing wild or cultivated, biomass is a storehouse of solar energy. It is a renewable resource. Biomass is simply stored energy. Unlike fossil fuels, biomass is carbon dioxide-neutral. Burning biomass does not contribute to the greenhouse effect. Using it could reduce our oil consumption and lower carbon dioxide emissions considerably."

Green's is one of the few voices in the U.S. calling for blending biomass with coal to generate electricity. His voice, however, often is drowned out by those of lobbyists for fuel industries.

'Deaf Ears'

"What amazes me is that the Finns and the Swedes, not known for their lush vegetation up near the Arctic Circle, are so far ahead on this," said Green, who will present his research at a conference in Stockholm early next year. "The logic of using biomass is clear and obvious. But it falls on deaf ears."

Green experiments with gasifying biomass grown by foresters and agronomists at Florida. In his lab he "cooks" biomass at high temperatures and analyzes the resulting gas. The higher the temperature, he said, the better fuel. He implied that searching for the best combination of biomass to blend with domestic fuels is not unlike searching for the Japanese fleet: You have to look.

"Biomass is widely available. It has been used by humankind for hundreds of thousands of years to generate heat and light. We're wasting valuable biomass by putting it in landfills when it could be used for fuel," said Green. "Biomass was the dominant energy source until fossil fuels took over in the industrial world. Blending two or more types of fuel in a single combustor or gasifier can be more efficient than using a single fuel and can reduce emissions."

Green easily draws a parallel to his wartime service as an operations analyst and his research into biomass as an alternative fuel.

"Simplicity: Biomass is a form of stored solar energy, and we're wasting it rather than using it as a renewable fuel."

Capt. Alvin Coe (Top row, far right) and crew at Flying Tiger base in Xian, China where they made an emergency landing after finding the Japanese fleet in Kure Anchorage and Hiroshima Bay on March 12, 1945. Alex Green is second to left of Coe.

Alex Green in his University of Florida lab with the slide rule he developed that was carried aboard the *Enola Gay*.

"Biomass is widely available. It has been used by humankind for hundreds of thousands of years to generate heat and light. We're wasting valuable biomass by putting it in landfills when it could be used for fuel"—Alex Green

The opening quote is from a letter to a CBI vet indicating that during WW II national interests prevailed over special interests in policies on energy, the lifeblood of our country. Indeed in a war that we had no choice but to fight, and win the domestic fuel sectors cooperated. National interests also had greater weight in R&D funding decisions.

The headline by Stars and Stripes gives me too much credit. Eleven other men shared the hazards of this mission that found 77 warships in Hiroshima Bay and Kure Anchorage. On March 18th the pilots of Hornet and the Wasp carriers hit these ships and sank almost half of them. Since Americans did not take to kamikaze assignments the statement "lay down" in the second and third sentence should have been replaced by "risk" or "stake."

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Panel Session on "Coal-Biomass Blending in Gasifiers/Liquifiers". April 30, 2001

The Final Program is being produced for ASME IGTI-Turbo Expo and should reach you soon. Our panel session for the technical congress organized by the Coal Biomass and Alternatives Fuel (CBAF) Committee is listed for Wednesday afternoon June 6. I have requested that the title be changed to the above. Professor Rafael Kandiyoti, one of the world's leading authorities on thermo-chemical conversion has kindly agreed to chair the session in addition to serving as a panelist. Dr. Donald Erbach of ARS-USDA has kindly agreed to serve as the first panelist, to give a USDA perspective on this topic. He replaces Michael Valenti Senior Editor of Mechanical Engineering who could not make it. The persons on the platform and the scheduled panelists will be:

Chairman ; Professor Rafael Kandiyoti, , Department of Chemical Engineering and Chemical Technology, Imperial College University of London.,Prince Consort Road,London SW7 2BY; r.kandiyoti@ic.ac.uk; 0171-594-5604 (fax)

Session Organizer and Co-Chairman Alex Green. Graduate Research Professor, College of Engineering, University of Florida Gainesville FL., 32611-2050, Tel 352-392-2001, Fx 352-392 2003, email aesgreen@ufl.edu .

TE01CBAF06-01 Dr. Donald Erbach, National Program Leader Engineering/Energy, Agricultural Research Service, US Department of Agriculture, 5601 Sunnyside Avenue, Rm4-2234, Beltsville Maryland20705-5139, Tel 301-504-4610, Fax **301-504-6191, email dce@ars.usda.gov**

TE01CBAF06-02 Professor Rafael Kandiyoti, (see above)

TE01CBAF06-03 Robert Beck Executive Director National Coal Council
1730 M street NW, suite 907, Washington DC 20036; 202-223-1191(tel.);202-223-9031(fax)
R.Beck82851@aol.com

TE01CBAF06-04 Dr. Evan Hughes, Manager Biomass Programs EPRI
650-855-2179 (tel.); 650-855-2002 (fax); ehughes@epri.com

TE01CBAF06-05 Dr. Fatma Karaca/ Prof. Esen Bolat, Department of Chemical Engineering,. Yildiz Technical University Esenier-Istanbul, Turkey.T 90 212 449 1722;F 90 212 449 1895; karaca@yildiz.edu.tr

TE01CBAF06-06 Prof. Alex Green, (see above)

The website URL for the registrations, hotels and other Turbo Expo information is: www.asme.org/igti/events/te2001/register.html

Cc Paul Pillsbury, CBAF Point Contact, Siemens Westinghouse Power Corporation, Emerging Technology, 4400Alafaya Trail MC-381, Orlando FL32826-2399 USA, Tel 407-736-2817, Fx 407-736-5014 email paul.pillsbury@swpc.siemens.com.

Prof. Dillip Ballal E-mail ballal@udri.udayton.edu

Bill Koch Congtemp@asme.org

Please acknowledge receipt of this e-mail. If you have any questions please don't hesitate to ask.. Alex

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ON THE NATIONAL NEED FOR A SOLID FUELS COUNCIL.

1) Our nation is heavily dependent on imported oil whereas we have abundant domestic sources of energy in the solid forms: coal, biomass and municipal solid waste.
2) There are commonalties in the combustion properties and characteristics of solid fuels that make it possible to use similar clean combustion technologies to harness their energies.
3) There are many efficiency and environmental benefits obtainable by cofiring domestic solid fuels together or domestic solid fuels with domestic natural gas.
4) Aeroderivative gas turbines in combined cycle systems are now the highest efficiency electricity generation systems and the dominant additions to the national electrical network. Most new installations use natural gas, however, gas produced from solid fuels, coal, biomass and MSW could also provide the fuel input to gas turbines. Thus Integrated Gasifier Combined Cycle (IGCC) systems with biomass or MSW as the fuel can proceed along the same lines as Coal Gasifier Combined Cycle systems, one of the most promising Clean Coal Technologies.
5) Gas from coal, biomass and MSW gasification could also provide gas for Carbonate Fuel Cell another promising high efficiency method of producing electricity.
6) European-and Asian industrial countries are recognizing the commonalties of solid fuels technologies. While the USA has led the world in environmental regulations and environmental control technologies it is losing its leadership to Japan and Germany who factor their national interests more closely into national policy and are aggressively pursuing environmental policy and products using overall systems approaches.
7) The American Petroleum Institute advises the Secretary of Energy on the use and supply of liquid and gaseous fuels on behalf of the Petroleum and Natural Gas industries. A Solid Fuels Council could better advise the Department of Energy by considering the totality of domestically available solid fuels.
8) Our country can substantially reduce its dependence on imported oil if domestic fuel competition were replaced by some domestic fuel cooperation and greater use of domestic fuels became a part of a national job creation policy.
9) The Secretary of Energy would be subject to fewer manifestations of special interests and exaggerated technical claims if the solid fuels communities worked together in formulating advice as to our national energy interest, particularly on making best use of what we have. Our national interests would thus best be served if the Secretary of Energy had direct access to a Solid Fuels Council (SFC).
10) The National Coal Council is the closest advisory body to a Solid Fuels Council and broadening its scope would be a practical and rapid way to establish a SFC.

My perspective in compiling the above comes from comes from 8 years of service on the National Coal Council , service as chairman of the Executive Committee of the Fuels and Combustion Technology (FACT) Division of the American Society of Mechanical Engineers (ASME),from working separately with the gas, biomass, coal and waste industries and in large part from service as an operations analyst with the 20th Air Force in WWII when strategic systems approaches and commitment to the national interests were uppermost. More detailed information is given in the attachments submitted on May 18th to Joseph W.Craft III , Chairman and James F. McAvoy, Executive Director, of the National Coal Council.

Alex E. S. Green
Graduate Research Professor

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April 23, 1999

The Honorable Bruce Babbitt
Secretary. Department of Interior
Washington, DC

Dear Secretary Babbitt:

You might remember the first question following your talk in Gainesville on Tuesday, April 20 at the Forestry Association meeting. In essence I asked "Have you considered the pros and cons of an alternative form of controlled burning (CB) that might be called controlled burning industrially (CBI)" ? Specifically CBI would involve gathering up the understory biomass and chipping it for use as a renewable supplementary fuel in a nearby fossil fuel burning plant or plant for biomass conversion to gaseous or liquid fuels or chemicals. The organic carbon is replaced from a nearby source of treated municipal sludge.

SOME CBI PROS
(1) a greater reduction in the risk of catastrophic fires and threats to nearby urban areas
(2) avoidance of smoke generation from CBs that can reach health threatening levels
(3) reduction of the fire threat to wildlife
(4) reduction of net greenhouse gas emissions, since biomass is a greenhouse neutral fuel
(5) reduction of carbon monoxide emissions that indirectly damage the stratospheric ozone layer
(6) promotion of the development of biomass to energy technologies.
(7) reduction of our almost 60% dependence on imported liquid fuels
(8) helping USA' s agricultural community work towards energy farming
(9) improving the accessibility of our forest lands to supplement our crowded public parks
(10) reducing the costs of maintaining a large wildfire control infrastructure
(11) reducing the disposal costs of municipal sludge
(12) providing challenges for USA' s remaining "hands-on, can-do" engineers

SOME CBI CONS
(1) costs of versatile small scale biomass chipping, gathering and transportation systems
(2) costs of adapting fossil fuel plants to accommodate small fractions of biomass.
(3) loss of fire based seed releases (however, desirable seeds could be artificially assisted)
(4) reduced disinfection by fire (could be overcome by increased sunlight or sludge disinfectants)

There are probably other pros and cons that should be weighed after considering that natures way, the wild fire, did not allow for current human populations. On balance, I believe that CBI using advanced co-utilization technologies warrants serious consideration. I will be in Washington on May 18 and 19 to attend a meeting of the National Coal Council, an advisory council of the Secretary of Energy. If you wish, I could, while there, brief you or your concerned staff further on CBI.

Very sincerely yours,

Alex E. S. Green
Graduate Research Professor

FEATURE FOCUS

Syngas Europa United Europe explores technology to get more power and less pollution from its coal. By A. J. Minchener

EUROPE WILL NEED new power generation plants within 20 years. More than 80 percent of the energy that is consumed in the European Union countries comes from fossil fuels. Coal accounts for over 40 percent of the power, and that comes almost entirely from conventional pulverized-fuel-fired boilers linked to a conventional steam cycle. Such systems have modest efficiencies and contribute to a large extent to the global emissions of nitrogen oxides, sulphur oxide, carbon dioxide, and particulate matter.

The European Commission is supporting a wide range of clean coal technology research and development initiatives, including those known as APAS (Activité de Promotion, d'Accompagnement et de Suivi) and Joule (after the 19th-century British physicist James Joule).

APAS, a two-year multiple-partner program, was set up to evaluate gasification processes using biomass, sewage sludge, and other wastes as co-feedstocks with coal. For example, Rheinbraun AG of Germany and the British Coal Corp. of the United Kingdom have examined the use of sewage sludge in combination with different types of coal. Rheinbraun AG studied the use of sewage sludge and loaded coke as co-feedstocks with dried brown coal in the high-temperature Winkler gasification process. Various tests were conducted in a demonstration plant that operates on 30 metric tons per hour of dried brown coal. The plant works continuously on an industrial scale and has full final gas treatment and waste water pretreatment stages.

During 11 individual test campaigns, a total of 504 metric tons of sewage sludge and 32 metric tons of loaded coke were co-gasified at feeding rates varying between 0.3 and 5 metric tons per hour. These tests took about 70 hours and were accompanied by a detailed analysis program to monitor such aspects as operability, conversion efficiency, syngas contaminants, solid residue characteristics, and emissions.

Emissions were well below the limits. For both sewage sludge and loaded coke, conversion efficiency and syngas yield were adequate. An increase in the benzene and naphthalene concentrations in the crude gas was noted. Thus, a commercial application would require additional gas treatment

An application was approved to operate the demonstration plant with a co-gasification rate of up to 15 metric tons per hour of waste materials. Wastes selected included dewatered sewage sludges, loaded rotary hearth furnace cokes, and processed packaging plastics. A number of plant modifications were made to accommodate these feedstocks. Recent trials have included the gasification of 800 metric tons of plastic wastes.

COMMERCIAL VIABILITY

Rheinbraun concluded that co-gasification of sewage sludge or loaded coke with dried brown coal offered significant potential for disposing of these wastes without impairing plant efficiency and emissions. The commercial viability was demonstrated by an assessment study that included major aspects such as feed rate, total investment, and methanol price in order to establish the criteria for the use of sewage sludge in the high-temperature Winkler gasification process.

In a complementary study at its Coal Research Establishment, British Coal Corp. examined the use of sewage sludge as a partial feedstock with hard coal.

Preliminary testing with coal and pelletized sludge on an atmospheric fluidized bed gasifier rig was followed by more extensive trials on a pressurized unit. This unit had a thermal input of 2 MW and comprised a spouted bed gasifier, cyclone, hot gas filtration unit, and fuel gas combustor.

Test programs involved adding sewage sludge up to 25 percent (dry weight basis), increasing the peak bed tem-

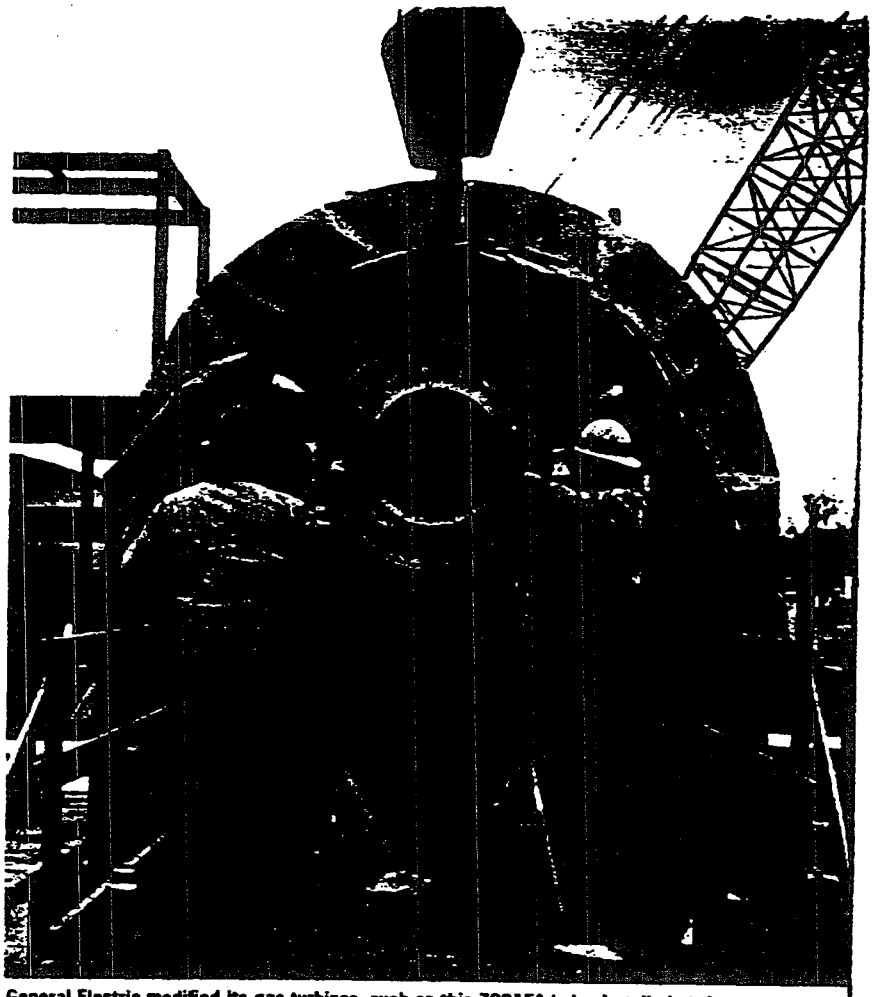
A. J. Minchener is head of the Environment and Industry Group at CRE Group Ltd. in Cheltenham, England. He served either as coordinator or on the steering committee for research projects described here.

ALCHEMISTS IN MEDIEVAL Europe sought the philosopher's stone that they believed would enable them to transform lead into gold. Today, their descendants in Italy and Germany are converting the carbon in oil-refining tar, plastic wastes, and steel-furnace gas into a synthesis gas that provides electricity, process steam, and valuable chemical feedstock.

The modern version of the fabled philosopher's stone is gasification, a process typically used to convert high sulfur coals into a synthesis gas, or syngas, that can be burned cleanly. Basically, the coal is prepared and fed into a reactor, or gasifier, where it is partly oxidized with steam under pressure. By simultaneously reducing the presence of oxygen in the gasifier, the carbon in the coal is converted into a gas that is 85 percent carbon monoxide and hydrogen, with smaller portions of carbon dioxide and methane.

Sulfur is removed from the gasified coal and is sold in its elemental form, or as sulfuric acid. Inorganic materials such as ash and metals drop out as slag, which is typically used for construction materials.

When coal is gasified to generate electricity, it is typically consumed in an integrated gasification combined cycle, or IGCC, configuration, to improve the energy efficiency of gasification plants, which are inherently more expensive than conventional coal-fired power plants. In the combined cycle, gas is burned in turbines to produce electricity, and exhaust is recovered to produce steam in a boiler that powers another turbine to generate additional electricity. The plant may provide process or heating steam as well.



General Electric modified its gas turbines, such as this 7001FA being installed at the Wabash River project based in West Terre Haute, Ind., for IGCC service.

While mechanical engineers work to make IGCC plants more economical, they tout the environmental advantages of burning syngas, a cleaner-burning fuel than coal. The same ecological benefits underpin the Italian and German plants, which convert waste materials containing carbon into gas turbine fuel.

All of these plants rely on heavy-duty gas turbines that the General Electric Co. in Schenectady, N.Y., has been modifying for IGCC service since 1984, when the first IGCC plant, the Cool Water Demonstration Project in the Mojave Desert in California, came online.

"We've accumulated 320,000 hours of syngas-fueled power generation worldwide since Cool Water," said Douglas Todd, a chemical engineer and manager of process power plants at GE. "We joined Cool Water to demonstrate how the advantages of combined cycle costs could be applied to fuels other than natural gas. We believe that 30 percent of the world's power plants to be built in the next 10 years will be designed to consume coal or oil. IGCC can make them cleaner and lower the costs of the electricity they produce."

Other economics are spurring the development of waste-fueled IGCC plants. "When we built Cool Water, the IGCC technology generated electricity at a cost of $2,000 per kilowatt. Since then, we have got the cost of IGCC-generated electricity down to less than $1,000 per kilowatt. Using waste fuels helps to reduce the cost of electricity even further," explained Todd.

This is particularly true for the wastes generated by oil refining, such as petroleum coke. "Most of GE's orders for IGCC turbines are for petroleum coke plants, most recently, under construction in France, Spain, and the United States," Todd said. "For example, the Delaware Star refinery in Delaware City, Del., was recently converted to gasify solid-waste petroleum coke to power four GE 6FA gas turbines."

General Electric's experience is underscored by the first World Gasification Survey conducted by SFA Pacific Inc. of Mountain View, Calif., in 1999. This survey was supported by the U.S. Department of Energy and member companies of the Gasification Technologies Council in Arlington, Va. The survey identified 160 commercial gasification plants operating, being built, or planned in 28 countries around the world.

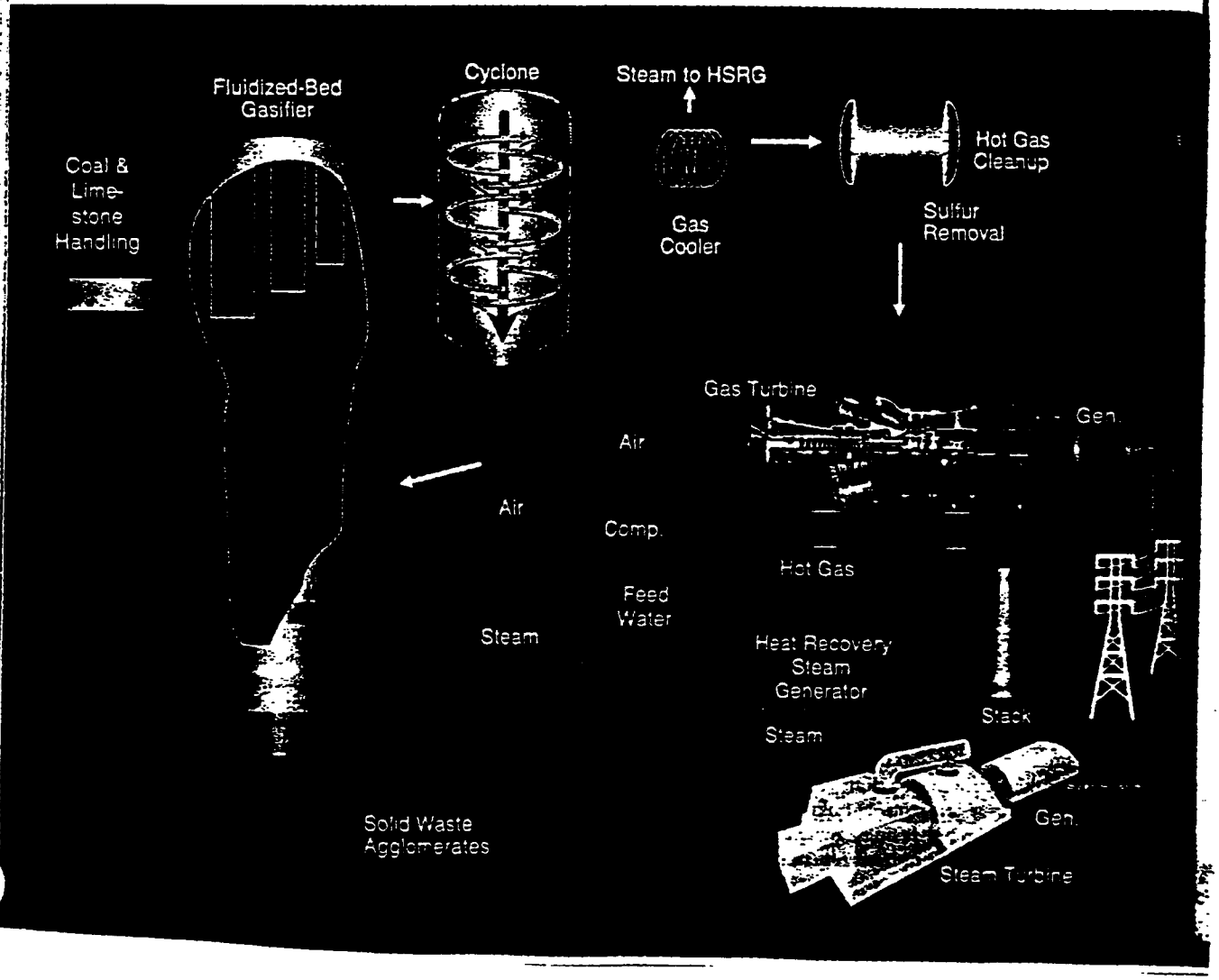
The integrated gasification combined cycle process was originally designed to convert high sulfur coal into more environmentally benign synthetic gas.

FEATURE FOCUS

TRASH AND BURN

Synthetic gases derived from industrial and municipal wastes fuel cogeneration plants in Europe.

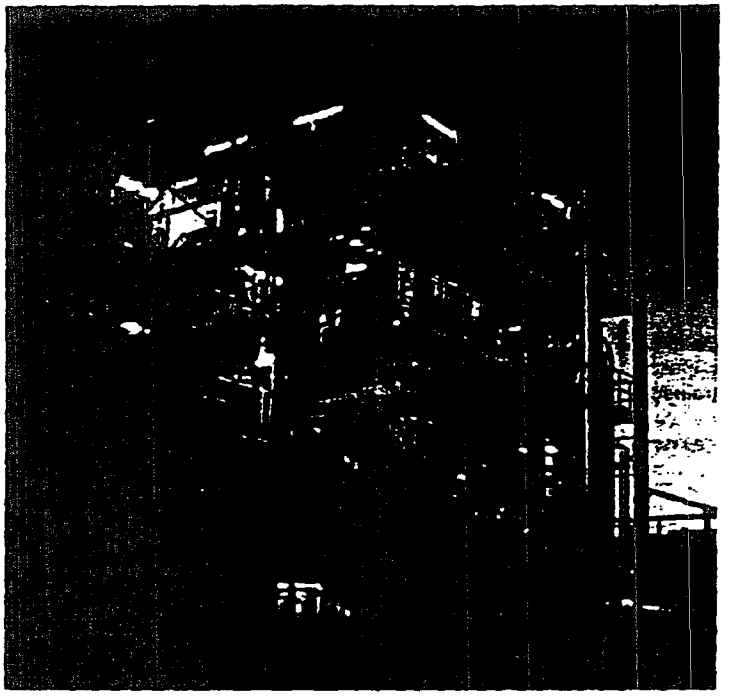
By Michael Valenti, Senior Editor



perature from 980 to 1,000 and 1,020°C, and reducing limestone addition from a Ca:S of 2:1 to 1.5:1 and 1:1.

The feeding and handling properties of the dried pelletized sewage sludge selected for study compared favorably to those of crushed coal. Co-firing sewage sludge with coal for extended periods of time, and with sewage sludge additions of up to 25 percent (dry basis), did not adversely affect the gasifier operability or process performance, provided that the input ratio of carbon in the fuel to oxygen in the fluidizing air remained constant. The fuel gas calorific value was typically 4.2 megajoules per cubic meter (wet, net, purge-free basis) and fuel conversion efficiency 78 percent (dry ash-free, mass basis). The sulfur retention efficiency attained during co-gasification, with limestone addition, was high, typically 92 percent. This efficiency was attributable partly to the sulfur retention properties of sewage sludge.

Sustained operation without the agglomeration of ash was attained for all test conditions, including operation at a bed temperature of 1,015°C, co-firing with 10 percent sewage sludge. There was no evidence of an increase in the elutriation of fines or the formation of tars as the co-firing ratio of sewage sludge and coal was increased.



To support its technical work, British Coal Corp. carried out a variety of techno-economic studies. This gasifier was used to examine the use of sewage sludge as a partial feedstock with hard coal.

Compared to coal, sewage sludge has higher levels of the more volatile heavy metals, and there were concerns that they could harm downstream components. However, most of the trace elements were partitioned into the solid stream at the hot gas filtration stage.

British Coal Studies

To support the technical work, British Coal carried out various techno-economic studies. Two biomass feedstocks—sewage sludge and straw—and two process technologies—oxygen-blown integrated gasification combined cycle (IGCC) and an air-blown gasification combined cycle (ABGC)—were selected. A wet feed IGCC process was used for sewage sludge and a dry feed process for straw. Plant sizes of 350 to 500 MW of electricity were dictated by the size of the large gas turbines used in most commercial power plants. Biomass feed rates within a range of 0–25 percent of the coal feed were modeled, based on an analysis of the likely availabilities of straw and sewage sludge within a reasonable radius of a plant.

Plant performances were predicted by CRE Group Ltd. (formerly part of British Coal) using the Arachne process flowsheet computer modeling package (an in-house package available for contract consultancy applications). Adding 25 percent straw to an IGCC plant was predicted to reduce the low heat value efficiency by 1.4 percentage points if lock hoppers were used. But it should be possible to virtually eliminate this penalty if an advanced feeding system could be developed. Even using lock hoppers, there should be no efficiency penalty from feeding straw in the ABGC, provided the gasifier bed temperature does not have to be reduced substantially for the low melting characteristics of straw ash.

Feeding 25 percent sewage sludge to an ABGC plant would increase the low heat value efficiency by 1.5 percentage points, but reduce the high heat value efficiency by 1.9 percentage points. If cold gas cleaning was required for removal of ammonia and heavy metals, the LHV efficiency would increase by 0.7 percent instead. Adding 25 percent sewage sludge to an IGCC plant would have very little effect on the LHV efficiency.

Joule Initiatives

The Joule 3 co-gasification initiative was designed to aid European industry to address the technical issues for fluidized bed co-gasification applications.

Part of the Joule project, a program to develop and design coal-biomass systems components, was undertaken by VTT Energy and Carbona of Finland, Schumacher of Germany, British Coal, Technical University of Delft in the Netherlands, and Nuovo Pignone of Italy. The work investigated the effect of mixed feedstock properties on co-gasification processes, and resulted in improved hot gas filtration operations, increased overall carbon conversion, and reduced emissions. It was also confirmed that, with modifications, it was possible to fire turbines on the gas generated.

A separate part of the program, coal-biomass environmental studies, undertaken by CRE Group and Imperial College of the United Kingdom, and TPS Termiska Processer AB and Kungl Tekniska Hogskolan of Sweden, concentrated on the use of laboratory-scale experimental techniques to study the influences of several fuels on

gasification behavior. The studies found that when coal and biomass or wastes were co-gasified, the overall level of tars generated was lower than for coal alone; the concentration of hydrocarbons in the range of C_1 to C_7 was increased, and product gas yields increased and char levels decreased, with co-gasification chars being significantly more reactive. In addition, the heightened char reactivity resulted in increased conversion of NO and NH_3 to N_2.

Technical and economic studies by the Energy Research Centre of Ulster found that in nearly all cases, the gasifiers could operate on a range of coals and generate gas of sufficient calorific value to be combusted in a gas turbine.

The strategic studies concluded that in markets where natural gas is available, new coal plants will be unable to compete directly until the gas price doubles. For coal-fired plants, unless credit is given for lower levels of emissions, pulverized fuel and pressurized fluidized bed combustion technologies will remain the least expensive options.

The Joule 2 project for the enhancement of the efficiency of coal-fired power generation systems was undertaken by Siemens and the University of Essen in Germany, and Babcock and Wilcox Española in Spain. It used the oxygen-blown Puertollano IGCC power plant in Spain, with good-quality coal feedstock as the base case. The project considered ways in which plant performance could be improved, with particular emphasis on efficiency and environmental impact.

Replacing the conventional wet gas cleaning stage with a dry, high-temperature system increased the plant efficiency of the base case by 0.8 percentage point to 49 percent. Increasing the clean gas temperature before the gas turbine combustion chamber from 350°C to 510°C enhanced the net efficiency by another 0.9 percentage point.

Further studies examined the effect of increasing the inlet temperature of the gas turbine. The gas turbine was modeled as a unit using the Aspen Plus power plant process flowsheet modeling package, suitably tailored, available commercially from AspenTech of Cambridge, Mass. It was assumed that the inlet temperature was 1,190°C, the compressor ratio was 17.0, air compressor polytropic efficiency was 91.5 percent, and the turbine isentropic efficiency was 89.5 percent.

The influence of increasing the inlet temperature from 1,150° to 1,400°C was investigated over a range of compressor pressure ratios. The studies indicated that raising the inlet temperature to 1,400°C would lead to IGCC net efficiencies (LHV) of 53.2 percent.

Studies confirmed that IGCC systems fired on a variety of fuels can realize increased efficiency, reduced emissions, and lower cost of electricity using proven technology within existing designs. Further developments in the fields of hot gas cleaning, gas turbine technology, and materials would have further positive effects.

In the Joule 3 project on advanced cycle technologies, the University of Essen and four partners have investigated measures to reduce costs, enhance efficiency, and provide a basis for an advanced design. The studies also included co-gasification of coal and biomass in an entrained-flow gasifier suitable for IGCCs.

The study concluded that, based on proven materials, components, and processes, in the near term, coal-fired IGCC technology is competitive with a modern pulverized coal steam power plant. It is expected that with the gas turbine inlet temperature operating at elevated temperature, IGCC net plant efficiency (LHV) would be approximately 51.5 percent, compared to a modern pulverized coal plant's 45 percent. There are a number of other IGCC developments in hand that could ultimately increase efficiency to levels approximately 58 percent or more.

The study also investigated the use of coal/biomass combinations for IGCC applications. Findings confirmed that as much as 10 percent biomass in an oxygen-blown entrained flow gasifier was technically feasible. Net electrical efficiencies were lower as a consequence of the higher internal energy consumption required for biomass pre-treatment and process compressors. However, by using an optimized and integrated process, and by pressurization of the pyrolysis/gasification pre-treatment stage, the overall decrease could be limited to 0.5 percentage point LHV. ■

This article is adapted from a technical paper 98-GT-163, presented at the 1998 International Gas Turbine & Aeroengine Congress & Exhibition in Stockholm, Sweden.

A Gain in Spain

THE BENCHMARK IN EUROPE for IGCC is the 300 MWe combined-cycle power plant at Puertollano in Spain. The process uses an oxygen-blown Prenflo entrained-phase coal gasifier, followed by extensive coal gas cleaning stages and low NO_x combustion in the gas turbine. Once fully operational, it is expected that the process will have a net efficiency of 45 percent.

A three-year demonstration phase began in 1997 with the first production of gas from coal occurring in December of the same year. Following this, an extensive assessment was carried out and a series of plant modifications made. Gas turbine operation on coal gas was achieved in March 1998. However, initial runs showed the need for a number of other modifications. These were carried out and trouble-free steady operation was achieved in October 1998. By the end of the year, some 58 gasification runs had been done, amounting to a total of 280 hours of operation. Ten gas turbine runs using syngas had been completed.

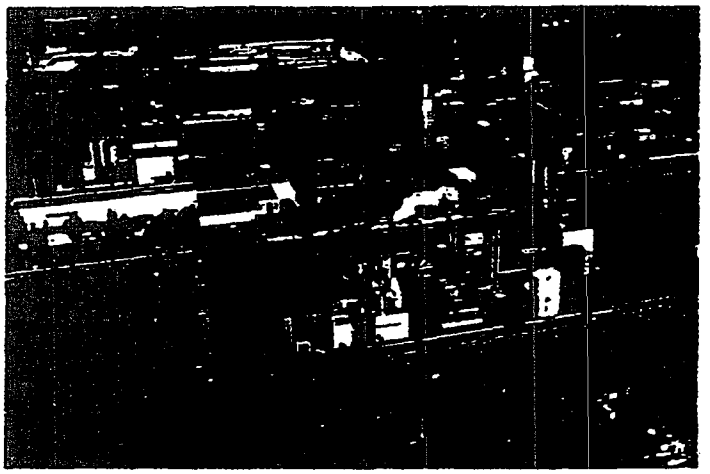
With increased fuel diversification in Europe, gas-fired power stations are currently the preferred option for new capacity. Nevertheless, coal will continue to have a role to play in power generation in the future. The technology of choice will not be the conventional pulverized fuel plant; rather, it will be either an advanced PF plant, with higher efficiency steam conditions and ultra-effective gas cleaning, or one of the new, advanced, clean coal technologies that will offer integral pollutant control plus optimized gas turbine and steam cycle systems.

The survey showed that in the 1990s, gasification capacity fueled by petroleum-based materials, including residual oil, petroleum coke, and tars, was approximately 60 percent of coal-fueled capacity. However, the survey found that refining industry economics, stricter environmental regulations, and electricity deregulation that enable oil refineries to generate power and compete in open energy markets would increase the use of petroleum material gasification. The study forecast that after the current year, petroleum-based gasification capacity would grow almost twice as fast as coal-based gasification capacity.

Turning Tar Into Sardinian Power

The survey's findings are supported in the world's largest IGCC power plant, recently constructed by a consortium including Snamprogetti S.p.A. of Milan and GE Power Systems of Schenectady on the Italian island of Sardinia. The IGCC plant is located at the Saras Oil Refinery in Sarroch, the second largest European refinery. The plant has been running on syngas since August, and produces 551 megawatts of electricity, 285 metric tons of process steam for the refinery, as well as 20 million standard cubic feet a day of hydrogen feedstock. The Sardinian facility is owned by Sarlux S.r.l., a joint venture formed by Saras Raffienerie S.p.A. of Milan and Enron Corp. of Houston.

The Sarlux IGCC plant gasifies the tar-like residue produced by vacuum visbreaking at the Sarroch refinery.



The Schwarze Pumpe plant in Spreewitz, Germany, gasifies a variety of wastes, ranging from scrap plastic to junked railroad ties, to produce electricity, steam, and chemical feedstock.

Vacuum visbreaking is a form of thermal cracking of petroleum that dates back to the 1930s. Visbreaking involves subjecting heavy crude oil to pressure and heat to physically break its large molecules into smaller ones to produce lighter fuels, such as gasoline and diesel fuel.

Originally, the visbreaking tar at Sarlux was incinerated in boilers to make electricity for ENEL, the national Italian power company. By 1990, environmental regulations prohibited the practice. IGCC was already an ecologically viable alternative, so GE and its Italian partners worked to get the laws revised to allow refining companies to sell power, and assisted legislation that would set a competitive price for electricity generated by waste-derived fuels.

The visbreaking tar is a thick liquid that is pumped to the gasifier unit, which is licensed from Texaco Inc. in White Plains, N.Y., and was originally used in the Cool Water program.

Oxygen is added to the gasifier to partly oxidize the tar under pressure. This causes the carbon and the oil in the tar to change to carbon monoxide rather than carbon dioxide, and the hydrogen present to become gaseous hydrogen, rather than water. The plant then separates the elementally pure hydrogen that Sarlux uses to upgrade all its finished fuel products, such as gasoline. The remaining syngas is sent to the turbines to make power.

There are three GE 109E, single-shaft combined cycle systems built by GE and its subsidiary Nuovo Pignone of Florence. Each GE STAG (steam and gas) system consists of a GE MS9001E gas turbine, a GE 109E condensing steam turbine, a double-end generator, and a heat recovery steam generator.

The turbines are started up by distillate oil, are injected with steam to control nitrogen oxide formation, then are switched over to syngas. Distillate oil also serves as the backup fuel for the Sarlux turbines.

"We designed the turbines to handle syngas with 40 percent moisture, and a heating value one-sixth that of natural gas. The combustor design has to handle six times the amount of syngas compared to natural gas. This means the fuel delivery system must deliver the higher volume and be explosion-proof, due to the hydrogen fuel," said Todd, who added that these proprietary modifications grew out of GE's Cool Water experience.

Each Sarlux turbine produces up to 186 MW of electricity while meeting Italian emission levels of 30 parts per million for nitrogen oxides and sulfur oxides. GE adds the 40 percent moisture to the fuel to reduce NO_X formation. Noise levels must be less than 85 decibels at the equipment.

The Sarlux IGCC plant will generate about four billion kilowatt-hours of electricity annually that will be sold to ENEL. This energy will be distributed throughout Sardinia's electrical grid. Sarlux will also generate fresh water.

We Gasify Anything

In Spreewitz, Germany, north of Dresden, Sekundarrohstoff-Verwertungszentrum Schwarze Pumpe GmbH operates an IGCC facility that converts an eclectic mix of 450,000 metric tons of solid waste, and 50,000 metric tons of liquid wastes, into electricity, steam, and methanol feedstock. SVZ was founded in 1995 as an independent subsidiary of Berlinwasser *Holdings* to operate the Spree-

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GASIFY ANYTHING

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which was originally designed to gasify brown
1960s. The company has spent more than $250
far in an ongoing effort to modernize the plant
wider variety of solid and liquid wastes.
l materials treated at Spreewitz include plastic
bod from junked railroad ties and telephone
age sludge, old tires, and household garbage.
terials are ground up, pelletized, mixed with
ent into four solid-bed gasifiers made by a va-
anufacturers. The reactors process up to 15
s of waste hourly.
hd oxygen are injected into
rs, which are internally pres-
25 bar, and heated to 800 to
depending on the type of
he syngas that is generated is
into a vessel where water
aw gas before it is sent to the
cycle power plant or the
plant. Solid residues, basically
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uenching zone of the reactor
slag. A rotating grate at the
the quench removes the slag.
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il-water emulsions, are sent
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Pumpe facility. The Brenstoff
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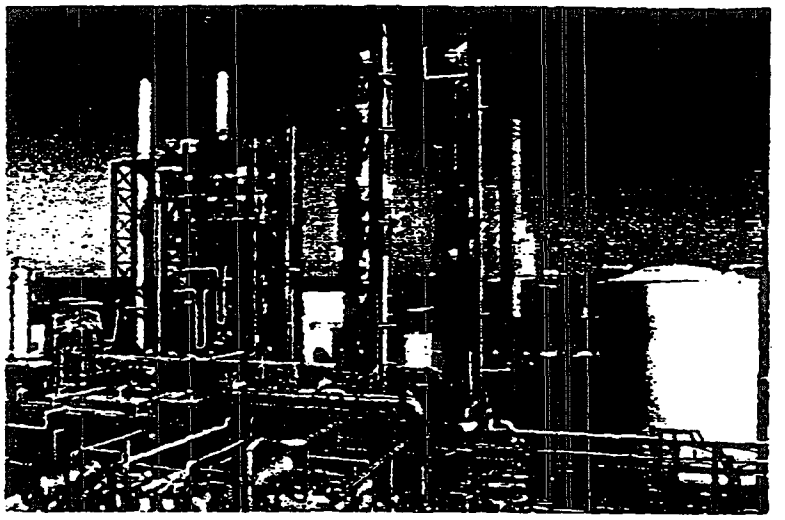
d the Endrainet gasifier.
ives the liquid wastes over a natural gas-fired
tem in each Endrainet reactor that raises the
e within the reactor to the 1,600 to 1,800°C
se high temperatures produce syngas and de-
rganic pollutants present. The hot syngas is
ed in a water quencher and drawn off for use.
g also prevents undesired chemical reactions
eavy metals into vitrified slag form.
combined-cycle plant is built around an
gas turbine provided by Thomassen under li-
GE. These turbines were adapted to burn syn-
ones being used at the Sarlux plant.
gas turbine produces 44.5 MW of electricity
to the local grid. The MS6001B exhaust is
y a heat recovery steam generator to produce
s sent to a turbine purchased from ABB Tur-
uremberg. The unit produces an additional 30
ectricity and 240 metric tons per hour of
m for the waste treatment plant. The gas tur-
urns purge gas from the methanol plant, and
te oil as its backup and startup fuel.
ugust 2000, the SVZ turbine had accumulated
24,000 hours of operation burning syngas.
Pumpe produces about 100,000 tons of liq-
ol annually. SVZ adds water to the syngas to
carbon-to-hydrogen ratio of 2 to 1. Then, the
acted by a catalytic process to produce crude
hat SVZ refines until it is pure enough to be
sold. Among the applications for the methanol produced at Schwarze Pumpe are gasoline additives, methylating agents in paint, ethanoic acid in wood preservatives and disinfectants, refrigerants for cooling systems, and solvents for resins and waxes.

In late September, SVZ completed construction of another gasification line at the Schwarze Pumpe plant, based on a British Gas-Lurgi gasifier. The BGL gasifier uses oxygen as a gasifying agent, improving the quality of its methanol compared to the air-blown gasifiers used originally at Schwarze Pumpe.



Each year, the methanol plant at Schwarze Pumpe produces about 100,000 tons of the liquid chemical, which it sells to processors of gasoline, paint, refrigerants, and wood preservatives.

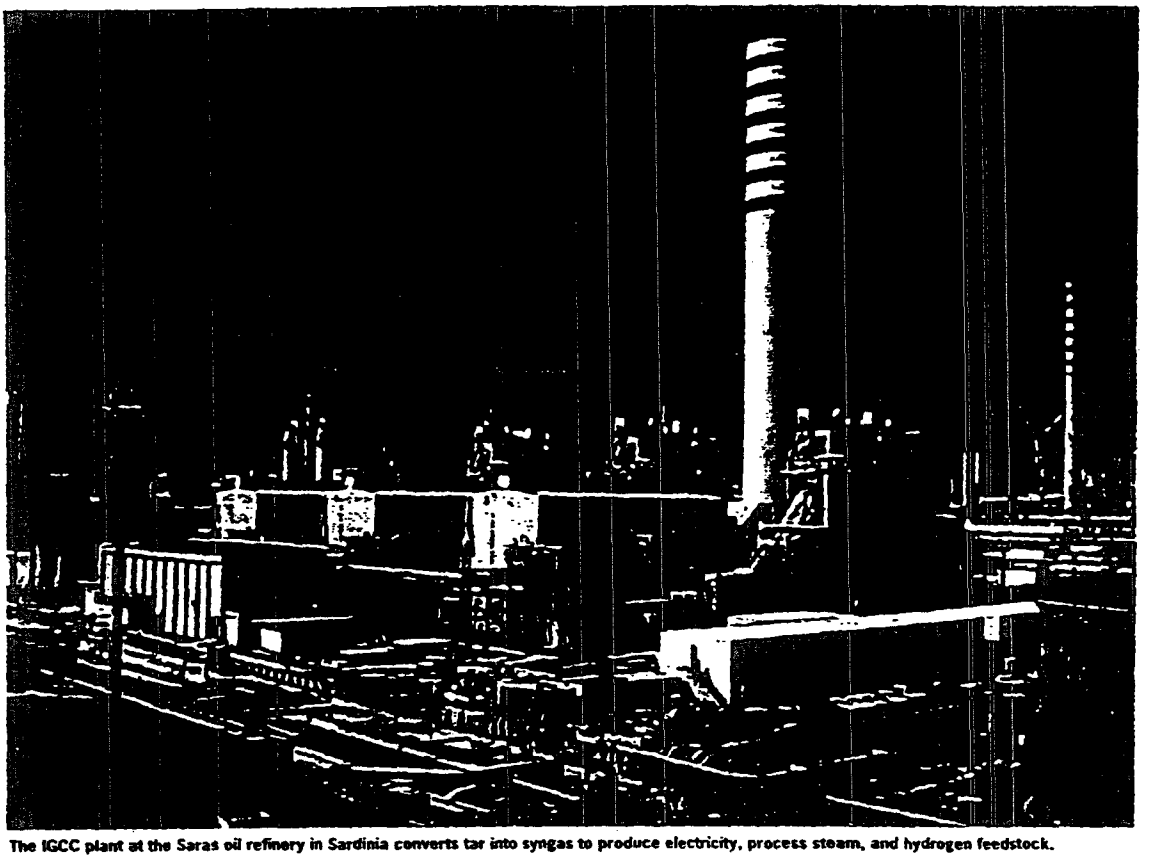
SVZ will send 30 tons of mixed solid waste and coal per hour into the double airlock of the BGL gasifier. Steam and oxygen are injected into the gasifier, heating the mixture to 1,600°C while pressurizing it to 25 bar. Syngas is drawn off, while molten solid residues are shock-cooled by quench to form a vitrified, granular slag for later disposal.

Berlinwasser Holdings recently agreed to sell SVZ to Global Energy Inc. of Cincinnati. The Ohio company sponsors the development of gasification technology, and has more than 4,000 MW of projects in development, under construction, or in operation in Europe and the Americas.

FURNACE GAS FUELS TARANTO

Steel mills can be reconfigured as sources of waste-fueled syngas because they already produce hydrocarbon gases from their furnaces and coke ovens that can be burned as turbine fuel after some solid and liquid contaminants are removed. This is being done at the Ilva Sistemi Energia cogeneration project, which uses process gases generated at the Ilva steelworks in Taranto, Italy, to fuel turbines and produce 520 MW of electricity for ENEL, and 150 metric tons per hour of process steam.

The Taranto plant is the buckle on Italy's steel belt, producing nine million tons of steel plates and pipes. The plant previously relied on two conventional coal-fired steam plants to meet its steam and electrical requirements, but



The IGCC plant at the Saras oil refinery in Sardinia converts tar into syngas to produce electricity, process steam, and hydrogen feedstock.

their combined electrical efficiency was less than 37 percent. Among the changes Ilva management instituted to raise the Taranto plant's efficiency was building a power station, called the CET3, to recover furnace gases to fuel three combined cycle units to produce steam and electricity.

The CET3 power plant at Ilva/Taranto was built by a joint venture, including Ansaldo, based in Genoa, and GE-Nuovo Pignone, headquartered in Florence. The power plant is fed with blast furnace gas, oxygen steel-furnace gas (also known as converter gas), and coke oven gas. All three hydrocarbon gases are chemically similar to syngas, but the blast furnace and converter gas streams are laden with dust, and the coke oven stream is laden with liquid hydrocarbons, which require the gas streams to be treated.

The two furnace gas streams are directed through two electrostatic precipitators that remove the dust particles. The coke-oven gas is sent through three electrostatic precipitators that will remove tar particles. The gas streams are then mixed and sent through a final electrostatic precipitator before being used as fuel.

Each combined cycle unit is built around an MS9001E gas turbine manufactured by Nuovo Pignone, with each turbine capable of generating 140 MW. These turbines were modified to burn low calorific value gases, such as furnace recovery gases supplemented by natural gas, by using the GE's syngas combustion system.

The 9Es at Taranto are single-shaft machines that burn the syngas to simultaneously drive a generator and a fuel gas centrifugal compressor to pressurize the recovery gases. Each turbine is linked to a horizontal waste heat boiler that produces steam at two pressure levels, 95 and 25 bar. The boiler reheats the low-pressure steam before routing it back into a steam turbine that operates a second electrical generator that has an output of 68 MW. The high-pressure stream is used as process steam.

Both the gas turbines and waste heat boilers at CET3 can burn natural gas, recovery gas, or a mixture of both to provide fuel flexibility. The net electrical efficiency of CET3, including the power absorbed by the gas compressor and the steam cogenerated, ranges from 41.5 to 42 percent.

An additional benefit of IGCC power plants is their ability to stay online due to their fuel flexibility. GE has developed co-firing capability that allows the power plant to produce full electrical load on the backup fuel, providing electric power availability up to 95 percent. According to Todd, this has helped make IGCC more acceptable in its early developmental stages.

Todd noted that waste-fueled IGCC plants are being built in countries other than Italy and Germany. Asian petrochemical plants are also bullish on waste-fueled IGCC. GE is working with Exxon in Singapore to gasify the residues from steam cracking operations at a major olefins plant in the island nation. In addition to providing power and steam, gasification will produce all the hydrogen feedstock the plant needs for olefin processing when it begins operating later this year. ■

Carter, Douglas

rom: Anderson, Margot
ent: Monday, April 30, 2001 4:56 PM
To: Charles Smith (E-mail); 'kjersten_S._Drager@ovp.eop.gov'
Cc: Kelliher, Joseph; Carter, Douglas; DeHoratiis, Guido
Subject: chapter 5 + other NEP issues

Charlie and Kjersten,

Here are our answers on chapter 5. I told Charlie earlier that we will not have the chapter 5 fact check complete until Tuesday (along with fact check on chapter 7).

I will now compile our responses to chapter 7 and send to you by the end of the day.

Charlie - did you get an answer on the remaining graphic to chapter 1?

Kjersten and Charlie - we will also begin fact checking the remaining chapters you sent me (3 6, and 8). Won't like to be able to complete until Wednesday. Please let me know the status of the edits we sent you Friday on the international chapter.

Margot

Chapter Five Assignments.doc

From: Stier, Jeffrey K - KN-DC
Sent: Monday, May 06, 2002 11:17 AM
To: Ball, Crystal A - KN-DC
Subject: FW: Updated Papers
Importance: High

-----Original Message-----
From: Dinan, Linda - D-7
Sent: Thursday, March 08, 2001 2:06 PM
To: Hickok, Steven G - D-7; Stier, Jeffrey K - KN-DC
Cc: McElhaney, Judy - D-7
Subject: Updated Papers
Importance: High

Here are the amended papers, incorporating both Hickok and Stier edits.

<<Policy Options_Infrastructure.doc>> <<Policy Options_FedI_Hydro.doc>> <<Policy Options_Conservation.doc>> <<Policy Options_Renewables.doc>>

<<Policy Options_DistGen.doc>> <<Policy Options_RTO.doc>>

05/15/01 16:04 FAX

TED STRICKLAND
6TH DISTRICT, OHIO

COMMITTEE ON ENERGY AND COMMERCE

SUBCOMMITTEE ON HEALTH

SUBCOMMITTEE ON ENERGY AND AIR QUALITY

SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

Congress of the United States

House of Representatives

Washington, DC 20515–3506

HOUSE RURAL HEALTH CARE COALITION

OLDER AMERICANS CAUCUS

HOUSE EDUCATION CAUCUS

CONGRESSIONAL STEEL CAUCUS

CONGRESSIONAL MINING CAUCUS

CONGRESSIONAL CORRECTIONAL OFFICERS CAUCUS
FOUNDER AND CO-CHAIR

May 15, 2001

The Honorable Richard Cheney
Vice President of the United States
The Old Executive Office Building
Washington, DC 20501

Dear Mr. Vice President:

I am disturbed by early reports that the Energy Task Force recommendations fail to recognize the need to include a path forward for assuring that this country is capable of providing a reliable and economic source of nuclear fuel for commercial nuclear reactors. As you know, nuclear power is the second largest supplier of electricity generation in the country. Unfortunately, it is not unreasonable to expect that the U.S. could have an OPEC-like dependency on foreign sources of nuclear fuel supplies in the near future. To prevent such a situation, the U.S. needs to deploy cost competitive uranium enrichment technology or we will rely on foreign supplies to meet nearly one quarter of our electricity needs.

There have been adverse consequences to the nation's energy security as a result of the privatization of the United States Enrichment Corporation (USEC) in July 1998. USEC is the only domestic supplier of uranium enrichment services in the U.S. When it was privatized, USEC operated two gaseous diffusion plants located in Piketon, Ohio and Paducah, Kentucky. However, last June, USEC made the decision to cease operations at the Piketon Gaseous Diffusion Plant (GDP) ignoring the advice of the Departments of Energy and Treasury. The targeted date for turning the key to the "off position" is June 1, 2001.

A Department of Energy report issued on January 19, 2001 describes the need for the U.S. "to be able to reliably meet the continuing demand for approximately 11 million separative work units (SWU) per year." However, the Paducah plant can only produce approximately 4.5 million SWU per year in an economic manner. The balance of requirements comes from 5.5 million SWU derived from blended down weapons grade uranium imported from Russia under the U.S.-Russia HEU Agreement and some European supplies. It is evident that the operation of a single enrichment plant in the country, coupled with a history of five interruptions in the delivery of enriched uranium under the Highly Enriched Uranium Purchase Agreement with Russia, raises questions about the vulnerability of the U.S. to a disruption in the supply of enriched uranium.

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The need for a secure, domestic uranium enrichment supply is underscored by the fact that nuclear power is enjoying improved operating economics and increased average efficiency of reactors. Demand is likely to remain stable or grow, as approximately 40% of the domestic nuclear reactors are currently seeking license renewals. During a hearing on nuclear power before the Energy and Air Quality Subcommittee on March 27, 2001, there was discussion about building the next generation nuclear reactors in the not-so-distant future. These next generation reactors will require 8-10% U-235 enrichment, compared with the 4-5% levels required for the current generation of boiling water reactors. It is troubling that USEC is closing the Piketon facility which is the only U.S. enrichment plant that is licensed to enrich uranium to 10% assay, when there is a trend toward higher assay fuel.

During the March 27, 2001 Energy and Air Quality Subcommittee hearing, testimony was offered which stated:

> "USEC utilized only about 29% of its nameplate GDP capacity in 2000, and over the next year will supply a majority of its customers needs from Russian and U.S. HEU blending." (Testimony of John R. Longenecker, former USEC official).

Mr. Longenecker further states:

> "USEC is finding it more profitable to operate as a trader of blended HEU rather than as a primary producer. This approach appears to lead inevitably to USEC exiting the market as a primary producer. As a result, constructing replacement enrichment capacity in the U.S. should be the key focus for the decade ahead."

In addition, during a June 8, 2000 hearing before the Commerce Subcommittee on Energy and Power, testimony was submitted stating that the front end of the nuclear fuel cycle is endangered:

"Since 1998, expenditures for uranium exploration and mine development have declined by 59%; three uranium processing facilities have closed during 1999 (two in Texas and one in Louisiana); employment in U.S. uranium exploration, mining, milling and process has decreased by almost 30%. Last year, production at ConverDyn, the sole remaining uranium converter in the U.S. was cut back by 25% and employment was reduced by over 12%." (Testimony of Mr. James Graham, President and CEO of ConverDyn).

If this nation's energy policy is going to place a greater emphasis on nuclear power, it must do so in a comprehensive fashion. An energy policy that ignores the reliability of the front end of the domestic nuclear fuel industry falls short of assuring needed energy security in this country. I urge you to carefully consider the needs of the entire nuclear fuel cycle as you prepare

to issue your recommendations for a national energy strategy. I know you will agree that Americans would find it unwise and unacceptable to depend on foreign sources for the second largest supplier of U.S. electricity generation, nuclear power.

Thank you for your attention to this important matter.

Sincerely,

Ted Strickland

Ted Strickland
Member of Congress

cc: The Honorable Spencer Abraham
The Honorable Bob Taft
The Honorable Mike DeWine
The Honorable George Voinovich
The Honorable W. J. "Billy" Tauzin
The Honorable John Dingell
The Honorable Joe Barton
The Honorable Rick Boucher

013558

AIA Kansas City

2001-013558 6/4 P 12:50

May 17, 2001

Spencer Abraham, Secretary
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear Secretary Abraham,

We write today on behalf of the members of the American Institute of Architects Kansas City Chapter, its Committee on the Environment, and the Committees on the Environment from the Boston, San Francisco, and New York chapters of the AIA. We are alarmed by remarks made on April 30 by Vice President Dick Cheney regarding the Bush Administration's energy policy.

The vice president's statement indicates a profound misunderstanding of the potentials of the new high-performance architecture and the technologies available to us today. In fact, the energy policy sketched out by the Vice President sets the stage for the American economy to be left behind. Energy conservation and economic efficiency are essential to U.S. competitiveness within the world marketplace. Aggressive development of emerging technologies is a critical part of a forward-thinking strategy. This implies a creative redesign of our built environment and our use of energy

As architects, we are increasingly aware of the need to more responsibly design and construct the built environment. We *can* and *should* do more with less---we are already finding many ways to use fewer materials and less energy while improving quality and efficiency.

At the policy level, we need a more balanced approach. Efforts toward conservation and efficiency should be a higher priority. We know that even conservation measures that are possible *today* can make a big difference. Apparently even the administration itself believes that energy conservation has immediate benefits. Three days after the Vice President's comments, President Bush recommended that steps be taken at all federal facilities, especially those in California, to save energy this summer.

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28165

Buildings account for nearly 40 percent of U.S. energy consumption. This can be dramatically lowered while improving comfort and quality. As architects and business people, we want to contribute to a built environment that fits the needs of our clients and their communities without compromising the natural environment. We want to work with elected officials at all levels to ensure that this goal is a reachable one.

Sincerely,

Rick McDermott, AIA, president
AIA Kansas City

representing members of AIA Kansas City

Robert E. Gould, FAIA, chair
AIA Kansas City Committee on the Environment

representing members of the AIA Kansas City Committee on the Environment, the Boston Society of Architects Committee on the Environment, the AIA San Francisco Committee on the Environment, and the AIA New York Chapter Committee on the Environment, and the AIA Seattle Committee on the Environment

cc:
Paul Goldberger, *The New Yorker*
Herbert Muschamp, *The New York Times*
Julie Iovine, *The New York Times*
Verlyn Klinkenborg, *The New York Times*
Editors, *Time*
Editors, *Newsweek*
Editors, *Business Week*
Editors, *Fortune*
Bob Ivy, *Architectural Record*
Reed Kroloff, *Architecture*
Rick Hood/Arthur Brisbane, *The Kansas City Star*
Editors, *The Boston Globe*
Blair Kamin, *Chicago Tribune*
Nancy Levinson, *Harvard Design Magazine*
Christine Saum, Mayor's Institute on City Design
Susan Szenasy, *Metropolis*
Kristina Kessler, *Urban Land*
Jay Walljasper, *Utne Reader*
Gordon Wright, *Building Design & Construction*
Alex Wilson, *Environmental Building News*
Kristen Douglass, *Environmental Design & Construction*
Katie Sosnowchik, *Green@Work*
AIA National COTE
John D. Anderson, AIA National President
Stephanie Stubbs, AIA Architect
Phil Simon, American Institute of Architects

2001-012834 May 23 A 10:29

IndianaChamber
The Voice of Indiana Business.

Christopher P. LaMothe
President

May 18, 2001

The Honorable Spencer Abraham
Secretary of Energy
United States Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Dear Secretary Abraham:

The Indiana Chamber of Commerce, and our 4,500 members, is deeply concerned with the energy future of Indiana and the United States. The crisis in California has raised the electric power supply and demand profile in every state, including Indiana.

96% of Indiana's electricity comes from coal. As a manufacturing state, Indiana is energy intensive and the future of electric power is extremely critical for our state. The last base load power plant in Indiana was built almost twenty years ago. We have gone from an electric reserve of over 35% in 1985 to nearly single digits today with no base load power plants in the planning stages. Our State Utility Forecast Group (SUFG) projects that by 2010, Indiana will need an additional 2250 Megawatts (MW) of power and by 2016, an additional 5400 MW. That is over 1/3 of our current generating capacity and a new base load power plant requires over ten years to construct.

Recognizing Indiana's grave energy outlook, we believe that the Administration's energy agenda will be particularly vital to our energy future. With this in mind, we are extending to you an invitation to come to Indiana anytime between June and August to review the national energy policy and discuss the regional and state perspectives. We commit to you all our resources to make your visit a successful one and will also coordinate the attendance and participation of surrounding states.

If you should have any questions or would like to discuss this further, please do not hesitate to contact Vince Griffin, director of environmental and energy policy, at 800-824-6881 or David Holt, director of congressional affairs, at 800-824-6883.

Sincerely,

Christopher P. LaMothe
President & CEO

cc: Indiana Congressional Delegation

115 West Washington Street, Suite 850S P.O. Box 44926 Indianapolis, Indiana 46244-0926 voice: 317-264-3110 fax: 317-264-6855 web: www.indianachamber.com

28167

2001-012719 May 22 A 10:31

Memo Request

Date May 18, 2001

To The Honorable Spencer Abraham
Secretary of Energy

From Dale Steffes
Houston Energy Chamber of Commerce
Tel 713 467 4732

Subject Request for meeting

This is a request for a brief meeting with you to share some of our efforts on energy. I am a 28 year veteran energy analyst with a publicly documented track record.

I would like to discuss how we might be of service implementing the recommendations of Chapter Eight of the National Energy Policy.

We have proposed a World Energy Ministers Assocation. This organization would assist with many of that chapter's recommendations. We would like the United States to be one of the founding country members.

I look forward to hearing from your office.

Dale Steffes

Enclosures: Houston Energy Chamber of Commerce
World Energy Ministers Association

CC: Juanita and Robin, Fax 202 586 8794

28168

TIM HUTCHINSON
ARKANSAS

COMMITTEES
AGRICULTURE, NUTRITION, AND FORESTRY
ARMED SERVICES
HEALTH, EDUCATION, LABOR, AND PENSIONS
VETERANS' AFFAIRS

4884374

United States Senate

WASHINGTON, DC 20510

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http://hutchinson.senate.gov
E-mail: senator.hutchinson@hutchinson.senate.gov

May 18, 2001

The Honorable George W. Bush
The White House
1600 Pennsylvania Avenue, Northwest
Washington, D.C. 20500

Dear Mr. President:

I am writing to you to express my strong support of your proposed National Energy Policy and to share with you a few thoughts on alleviating the economic strain caused by energy shortages in the western states.

While there is no doubt that a long-term solution is needed to provide for our nation's growing energy needs, and that increased and diversified production is the logical solution, I feel that it is important that we consider a few short-term measures to alleviate the astronomical prices being faced by consumers throughout our country. Such compassionate measures could diminish much of the negative rhetoric that has been circulating since the plan was made public. Partial relief from these high prices may also garner the grass-roots public support necessary for congressional approval of many of the long-term provisions of the plan.

Recently, I spoke with a constituent in Arkansas who proposed a one-year tax deduction for electricity costs in the western states. Under this proposal, yearly electricity costs in excess of the average total electricity costs for the past two years could be deducted from an individual's income taxes. While mindful of the potential cost of this proposal, I think the concept has merit for specifically targeted areas where electricity costs have reached staggering levels that may force the poor and elderly citizens to make difficult financial decisions that may have health risks associated with them.

Please be assured of my continued commitment to working with the Administration and my colleagues in the Senate to win passage of much needed legislation to promote a responsible national energy policy. I thank you for you time and consideration, and I look forward to hearing from you in the near future.

With kind regards,

Sincerely,

T. Hutchinson

Tim Hutchinson
United States Senator

TH:mz

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2001-013524 June 1 PM 4:36

ROGER F. WICKER
1ST DISTRICT, MISSISSIPPI

APPROPRIATIONS COMMITTEE

LABOR-H H S -EDUCATION SUBCOMMITTEE

FOREIGN OPERATIONS, EXPORT FINANCING AND RELATED PROGRAMS SUBCOMMITTEE

ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE

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Congress of the United States
House of Representatives
Washington, DC 20515

May 20, 2001

The Honorable Spencer Abraham
Secretary, United States Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear Secretary Abraham,

As the Administration continues the discussion on new source review regulations, I hope that the Tennessee Valley Authority will be invited to participate. I appreciate your consideration of my request.

A suggestion in The National Energy Policy stated:

> The NEPD Group recommends that the President direct the Administrator of the Environmental Protection Agency, in consultation with the Secretary of Energy and other relevant agencies, to review New Source Review regulations, including administrative interpretation and implementation, and report to the President within 90 days on the impact of the regulations on investment in new utility and refinery generation capacity energy efficiency, and environmental protection.

The Tennessee Valley Authority, the nation's largest public power company, can play both a relevant and significant role in any discussion on new source review regulations. Therefore, I am requesting that they be invited to participate in this conversation.

I appreciate your devoted work as a member of the National Energy Policy Development Group and look forward to your response to my request.

Sincerely,

Roger Wicker
Member of Congress

28170

United States Senate

WASHINGTON, DC 20510

May 21, 2001

The President
The White House
Washington, D.C.

Dear Mr. President:

We have received copies of your proposal to deal with America's long term energy needs. Many of the proposals contained in the plan would affect laws within the jurisdiction of the Environment and Public Works Committee. Any relevant legislation to implement those proposals would therefore require Committee consideration prior to full Senate action. Before any possible Committee action on such legislation, we would appreciate receiving further information regarding the plan and its effects.

First, we request that you provide further details regarding any of the plan's recommendations that fall under the Committee's jurisdiction. In particular, please provide details, including criteria for agency consideration, regarding your recommendations:

A. To pursue multipollutant legislation to regulate power plant emissions.

B. To expand the Energy Star program. In particular, please describe the funding recommendations necessary to support this expansion.

C. To promote combined heat and power through flexibility in environmental permitting. In particular, what changes in permitting requirements are envisioned?

D. To take actions to remove constraints on the interstate transmission grid.

E. To direct the EPA to study opportunities to alter the reformulated gas program under the Clean Air Act.

F. To direct the EPA and the Department of Energy to streamline the permitting process for oil refineries.

G. To direct the EPA and the Department of Energy to adopt comprehensive regulations regarding refineries and consider the cumulative impacts and benefits of such regulations. In particular, please state the legal authorities for the regulations.

H. To direct the Attorney General to review existing enforcement actions under the New Source Review provisions to ensure they are consistent with the Clean Air Act and its regulations. In particular, please clarify how these actions may be inconsistent in view of the extensive case law on the subject, including *Wisconsin Electric Power Co. v. Reilly*, 893 F.2d 901 (7th Cir. 1990) and *Alabama Power Co. v. Costle*, 636 F.2d 323 (D.C. Cir. 1979).

I. To direct the Secretary of Interior to examine land status and lease stipulation impediments to federal oil and gas leasing, and to modify those impediments where they exist. In particular, please describe in detail contemplated modifications that relate to fish, wildlife, plants and their habitat regardless of whether changes would require legislative authorization.

J. To direct the Secretary of Interior to re-examine the federal legal and policy regime to determine whether changes to that regime would be required to site energy facilities in the coastal zone and on the Outer Continental Shelf.

In addition, for the purposes of Senate consideration of the relevant legislative elements of that plan, we would appreciate technical and analytical assistance from the Energy Information Administration, the Environmental Protection Agency, the Council of Economic Advisers, the Bureau of Economic Analysis, the Departments of State, Defense, Justice, Treasury, Interior and Transportation, and other Federal agencies with expertise. We ask that you direct the aforementioned agencies to provide us with answers to the following questions, and that they should assume in responding that the proposed plan is enacted by the end of this session of Congress:

1. What impact will the plan have on crude oil, natural gas, gasoline, diesel, and electricity prices paid by wholesale and retail consumers in the next 2 years?

2. What impact will the plan have on crude oil, natural gas, gasoline, diesel, and electricity prices paid by wholesale and retail consumers in the next 5 years?

3. How many barrels of crude oil, that would have otherwise been consumed under a business as usual scenario (i.e. the Department of Energy's Annual Energy Outlook), will be displaced annually by 2006 due to the plan?

4. How many tons of criteria (including PM-2.5) and hazardous air pollutants and greenhouse gases will be emitted in each of the years 2002-2006 due to enactment of the plan versus the amount of each pollutant or substance that would have been emitted if the plan were not enacted?

5. What impact would the plan have on jobs and different sectors of the economy, including small businesses?

6. How would the plan impact general environmental quality, including air quality, and ground and surface water resources, including ocean waters?

7. How will the plan bring us closer to compliance with our Senate-ratified treaty commitment of reducing greenhouse gas emissions to 1990 levels? When will that target be reached?

8. Please identify how, if at all, enactment would affect or implement relevant international treaty commitments, particularly those affecting relations with Canada and Mexico, including air and water quality.

9. What will be the increase in electricity generated from renewable resources by 2006 due to the plan? Please estimate the projected electricity generation capacity for each fuel in that year, and increases in distributed generation.

10. What amount of additional spent nuclear fuel will have been generated by 2015 and by 2025, as a result of the plan's nuclear power recommendations, beyond the 70,000 metric ton storage capacity of the proposed Yucca Mountain repository?

11. What changes, if any, in rules, regulations or Federal law regarding the acquisition of private property interests, including any plan to delegate Federal eminent domain powers to quasi-public or other non-governmental entities, are necessary to implement the plan?

12. Please quantify the improvements in efficiency of electricity and motor fuel consumption and production that the plan will stimulate for each of the next five years.

13. How many additional acres of Federal land, not currently in use or eligible for use for resource extraction (oil, natural gas, etc.), would have been brought into energy resource production by 2006? What specific Federal lands are likely to be affected? How many acres of Federal lands that currently receive statutory or regulatory protection from energy exploration will be opened to resource development and/or extraction?

14. What impact will the plan have on the ability to protect and recover threatened and endangered species, including aquatic species such as salmon?

15. How will the plan promote oil and gas drilling on public lands without harming fragile ecosystems such as wetlands, tundra, deserts, and coasts?

16. How many new refineries and electricity generating power plants (greater than 100 MW) would be built by 2006? What will the primary source of fuel be for those power plants?

17. How will the Department of Justice and the Federal Trade Commission and other agencies protect consumers against price gouging?

18. What statutes would have to be amended in order to implement the plan? In addition, please specifically note each case where plan implementation would require any form of expedited or modified Clean Water Act, Clean Air Act, Endangered Species Act, National Environmental Policy Act, or other Federal regulatory approvals or authorizations. What regulatory mechanisms will be used for these expedited processes?

Thank you for your consideration of our request. We look forward to a lively debate on the important matter of national energy policy. The facts and estimates provided in your response will ensure that Congress' deliberations will be well-informed. It would be helpful if the agencies' responses included details on any additional assumptions made in answering these questions. To expedite Committee and Senate consideration of these matters, we would appreciate a response no later than June 7, 2001. Please contact us if you have comments or questions about our request.

Sincerely,

Hillary Rodham Clinton

Harry Reid

Barbara Boxer

Jon Corzine

Joseph Lieberman

Ron Wyden

Bob Graham

Max Baucus

Tom Carper

Boston University

Center for Energy and
Environmental Studies
675 Commonwealth Avenue
Boston, Massachusetts 02215

Cutler J. Cleveland
Professor and Director

voice: 617.353.3083
fax: 617.353.5986
email cutler@bu.edu
web: www.bu.edu/cees

Secretary of Housing and Urban Affairs Mel Martinez
Department of Housing and Urban Development
451 7th St., SW
Washington, DC 20410

May 21, 2001

Dear Secretary of Housing and Urban Affairs Mel Martinez,

Enclosed is an open letter to the American public about the nation's energy future. The letter is from Scientists for a Sustainable Energy Future, a group of natural and social scientists who study the connections among energy, the environment, and society, and who are concerned with the direction of the nation's energy policy. The letter has more than 270 signatories, including members of the National Academy of Sciences and many of the nation's foremost experts on these subjects.

I urge you to read this letter and to consider its positions carefully as we move forward in the debate about the nation's energy policy.

Thank-you for your consideration.

Sincerely,

Cutler Cleveland

Cutler J. Cleveland

28175

Scientists for a Sustainable Energy Future*

An Open Letter to the American People

May 18, 2001

Dear Fellow Citizens,

We are natural and social scientists who study the connections among energy, the environment, and society. We write to you out of grave concern with the turn the nation's energy policy has taken. Decisions taken today about the supply and use of energy have far reaching implications for our economic prosperity and for the health of our environment. Since the first "energy crisis" almost thirty years ago, a large body of research in the nation's universities, national laboratories, think tanks, and private sector has produced large advances in our understanding of energy issues. We would like to share some of this information with you because the current direction of the nation's energy policy is inconsistent with much of this work.

Conventional forms of energy have grabbed the policy spotlight in recent months, but this emphasis is misplaced, and, ultimately, counterproductive. We produce slightly less than half of the oil we consume; by 2020 we will produce just 35 percent. Can a policy to encourage domestic oil extraction reduce dependence on imported oil and maintain the price of gasoline and home heating oil at reasonable levels? The simple answer is no, because the domestic oil resource base is depleted to the extent that large investments in drilling cannot generate a commensurate increase in oil supply. Extraction and proven reserves of oil have dropped considerably since their peaks in 1970 despite a massive drilling campaign in the late 1970s and early 1980s. Because domestic oil sources are more costly than overseas alternatives, incentives to encourage exploration and development will hurt the economy in the same way they did 20 years ago when the oil price shocks produced record rates of drilling. A large diversion of capital investment and profits to the oil industry ensued, but oil extraction continued to decline, as it has to this day. There is every reason to believe that the same scenario will play out if political decisions are made to promote domestic extraction.

Opening the Arctic National Wildlife Refuge to oil exploration will not improve our energy security, nor will it have any impact on the price of gasoline. The economically recoverable amount of oil in the Refuge is just 152 days of supply for the nation. More importantly, if we started drilling in the Refuge today, the Department of Energy projects that by 2020 it could supply 1.4 million barrels per day. By then world oil production will be in the range of 100 million barrels per day. The Refuge would amount to about 1 percent of global oil supply, and thus have a trivial influence on the ability of oil exporters to influence prices.

Nuclear power faces formidable obstacles. Experience of the last several decades has shown that electricity from nuclear power plants is an expensive form of power when all public and private

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* http://www.bu.edu/cees/openletter.html. Contact: Cutler J. Cleveland, Professor and Director, Center for Energy and Environmental Studies, Boston University, 675 Commonwealth Avenue, Boston, MA, 02215. 617.353.3083. cutler@bu.edu.

and renewable technologies. We also must lead the effort to help less fortunate nations find and fund the path of development that improves their quality of life with minimal de-stabilization of the Earth's climate.

There has been a lot of talk in Washington about the need for renewables and conservation, but action seriously lags behind the rhetoric. The budget submitted to Congress last month calls for a large cut in funding for these technologies while proposing greater incentives for conventional fuels. This would speed us in the direction opposite from one that would improve our energy security, reduce pollution, help stabilize the Earth's climate, and maximize our economic flexibility. We urge you to join us in the campaign for a sensible and sustainable energy future.

James B. Cummings	Florida Solar Energy Center
Gretchen C. Daily	Stanford University
Herman E. Daly	University of Maryland
Roger Dargaville	Ecoystem Dynamics and the Atmosphere
Brynhildur Davidsdottir	Boston University
Graham A. Davis	Colorado School of Mines
*Margaret B. Davis	University of Minnesota
Thomas Detwyler	University of Wisconsin-Stevens Point
Raymond De Young	University of Michigan
Neelkanth G. Dhere	University of Central Florida
John G. Douglass	Washington State University
Myrna Dubroff	Florida Solar Energy Center
Murray Duffin	
*Paul R. Ehrlich	Stanford University
Salāh El Serāfy	Energy and Environmental Consultant
Randy Ellingson	Solar Energy Research Scientist
Jacque (Jody) Emel	Clark University
Richard W. England	University of New Hampshire, Durham
Donald J. Epp	Pennsyvania State University
Howard Epstein	University of Virginia
Paul Epstein	Harvard Medical School
Ronald C. Faas	Washington State University
Timothy J. Fahey	Cornell University
Brian Farhi	Florida Solar Energy Center
Suzanne Ferreire	The National Renewable Energy Laboratory
Kurt Finsterbusch	University of Maryland
Jon Foley	University of Wisconsin-Madison
Louise Fortmann	University of California, Berkeley
Rosanne W. Fortner	The Ohio State University
David R. Foster	Harvard University
Laurie Fowler	University of Georgia
Douglas I. Foy	The Conservation Law Foundation
Mark Friedl	Boston University
Andrew J. Friedland	Dartmouth College
Dennis Galvan	University of Florida
Jacqueline Geoghegan	Clark University
Brian Gibson	University of Toronto
James W. Gillett	Cornell University
Helen W. Gjessing	University of the Virgin Islands
Thomas N. Gladwin	University of Michigan
Peter H. Gleick	Pacific Institute for Studies in Development, Environment, and Security
Joseph Graziano	Columbia University
Charles H. Greene	Cornell University
Gary D. Grossman	University of Georgia
Hugh Gusterson	Massachusetts Institute of Technology
Brent M. Haddad	University of California, Santa Cruz
Charles Hall	SUNY-Environmental Science and Forestry
Winnie Hallwachs	University of Pennsylvania
Philip C. Hanawalt	Stanford University
Bruce Hannon	University of Illinois
Jonathan M. Harris	Tufts University
John Harte	University of Berkeley, California
Steven B. Hawthorne	University of North Dakota

Allison Macfarlane	Massachusetts Institute of Technology
Jean MacGregor	The Evergreen State College
Janet Mann	Georgetown University
Jack Manno	SUNY Environmental Science and Forestry
Barbara L. Martin	
Leo Marx	Massachusetts Institute of Technology
Gil Masters	Stanford University
Nancy Irwin Maxwell	Boston University School of Public Health
Dennis McCarthy	University of Tennessee, Knoxville
Brent H. McCown	University of Wisconsin-Madison
Gary McCracken	University of Tennessee
J. Marc McGinnes	University of California, Santa Barbara
Jon McGowan	University of Massachusetts, Amherst
Janet McIlvaine	Florida Solar Energy Center
Margaret McKean	Duke University
Diane K. McLaughlin	The Pennsylvania State University
J.R. McNeill	Georgetown University
David Menicucci	Sandia National Laboratory
Kathleen A. Miller	National Center for Atmospheric Research
James K. Mitchell	Rutgers University
Scott C. Mohr	Boston University
Bill Moore	Journalist
Alan Mountjoy-Venning	The Washington State University
Patricia Muir	Oregon State University
Blake C. Myers	University of California
Adil Najam	Boston University
Lisa Naughton	University of Wisconsin
Richard B. Norgaard	University of California, Berkeley
Susan O'Hara	
Dara O'Rourke	Massachusetts Institute of Technology
Ray Oglesby	Cornell University
David Orr	Oberlin College
Leonard Ortolano	Staford University
Richard S. Ostfeld	
Brandon Owens	
David Ozonoff	Boston University School of Public Health
Danny S. Parker	Florida Solar Energy Center
Mike Pasqualetti	Arizona State University
Anthony Patt	Boston University
Bernard C. Patten	University of Georgia
Rob Penney	Washington State University
John H. Perkins	The Evergreen State College
Thomas Perreault	Syracuse University
Noel Perrin	Dartmouth College
Jeanne E. Peters	
John E. Petersen	Oberlin College
Anna Peterson	University of Florida
Michelle D. Peterson	University of the Virgin Islands
Robert Gilmore Pontius, Jr.	Clark University
Theodore M. Porter	UCLA
Rich Prill	Washington State University
Stephen A. Prosterman	University of the Virgin Islands
H. Ronald Pulliam	University of Georgia

Kenneth J. Warn	Union of Concerned Scientists
Robert P. Weller	Boston University
*Gilbert White	University of Colorado
Arthur M. Winer	University of California, Los Angeles
*Julian Wolpert	Princeton University
Jane Woodward	University of Stanford
Chang-Yu Wu	University of Florida
Elvin K. Wyly	Rutgers University
Jensen Zhang	Syracuse University

Quinn Gillespie
& Associates LLC

May 21, 2001

Mr. Kyle McSlarrow
Chief of Staff
United States Department of Energy
Washington, DC

Kyle,

I would like to request a meeting for our client Enron and you for this Wednesday, May 23, 2001. The purpose of the meeting is to discuss the President's National Energy Policy report and potential legislative activities in Congress.

In addition to myself, Rick Shapiro, Senior Vice President of Government Affairs, Houston and Linda Robertson, Vice President of Government Affairs, Washington, will be attending the meeting.

I will follow up with your assistant later today to see if a meeting is possible for Wednesday. In the interim, please feel free to contact me on 202-457-1110 if you should have any questions.

Thank you in advance for your consideration of this request.

Sincerely,

David R. Lugar

1133 Connecticut Avenue NW • Fifth Floor • Washington, DC 20036 • (202) 457-1110 • (202) 457-1130 fax
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National Republican Senatorial Committee

SENATOR BILL FRIST, M.D.
CHAIRMAN

MITCH BAINWOL
EXECUTIVE DIRECTOR

2001-012909 May 24 A 7:49

May 22, 2001

The Honorable Spencer Abraham
U.S. Department of Energy
1000 Independence Ave, SW
Washington, DC 20585

Dear Spence:

On July 24-25, 2001, the Senatorial Trust will convene in Washington, D.C., for its national summer meeting. As you know, this exclusive group is comprised of business and community leaders throughout the country that play an integral role in supporting our Party.

I hope you will accept my invitation to participate in a panel discussion on America's energy policy on Wednesday, July 25, 2001. The specific details are as follows:

Wednesday, July 25, 2001
The Reserve Officers Association
1 Constitution Avenue, NE, 5th Floor
8:30 a.m. to 9:30 a.m.

Your participation would significantly contribute to the meeting's success. Our members would be enlightened to hear from you, and I hope you will consider joining us.

Please have a member of your staff contact Fraley Marshall in Special Events at the NRSC at 202-478-4432 to confirm your participation.

Sincerely yours,

Bill

Senator Bill Frist, M.D.
Chairman, NRSC

RONALD REAGAN REPUBLICAN CENTER
425 SECOND STREET, N.E. • WASHINGTON, D.C. 20002 • (202) 675-6000

NATIONAL
COMMUNITY
ACTION FOUNDATION

David A. Bradley
Executive Director

May 22, 2001

The Honorable Spencer Abraham
Secretary
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585
Attn: Mr. Kyle McSlarrow

Dear Mr. Secretary:

We applaud the President's initiative in proposing an active national energy policy. We are very pleased at the National Energy Policy Development Group's affirmation of the importance of significant expansion of Low-Income Weatherization. This sends a strong signal to low-income families and communities regarding the importance the President attaches to their needs, their concerns, and long-term solutions to their problems.

However, as you may be aware, that initiative is already in real trouble on Capitol Hill. Our organization works on behalf of the local Community Action Agencies who deliver most of the Weatherization services and a large share of LIHEAP assistance. We are encountering bi-partisan resistance to any real shift in past Department of Energy funding priorities.

We would like the work closely with your team to keep the momentum up as we approach the first test for your proposal in the early June meetings of the Appropriations subcommittees. I would appreciate the opportunity to strategize with whomever you have put in charge of making those proposals happen as soon as possible.

We have some other ideas on longer range initiatives that could provide significant help to moderate-income, as well as low-income, consumers by next winter - ideas involving policy rather than spending. We would also welcome a chance to establish an ongoing dialogue in search of common solutions to our shared concerns regarding low-income families.

Sincerely,

David Bradley

810 First Street, N.E. Suite 530
Washington, DC 20002

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INTERNET www.ncaf.org

28183

The Secretary of Energy
Washington, DC 20585

May 17, 2001

Mr. Boris V. Yatskevich
Minister of Natural Resources
of the Russian Federation
Moscow, Russia

Dear Minister Yatskevich:

I am pleased to share with you the *National Energy Policy* Report of the National Energy Policy Development Group, chaired by Vice President Cheney, with recommendations to President Bush. Under President Bush's leadership, this comprehensive review of United States energy policy will serve as the point of departure for United States engagement on energy policy at home and abroad. We believe it represents a realistic assessment of the current state of U.S. energy policy and a framework for sustainable growth and development.

In the report, we recognize that U.S. national energy security depends on sufficient energy supplies at prices that support U.S. and global economic growth. Government energy policies that emphasize primary reliance on market forces have led to major energy security gains over the past two decades. Improvements in exploration and production technology, as well as the trend toward opening new areas around the globe for exploration and development, have yielded tangible and important dividends.

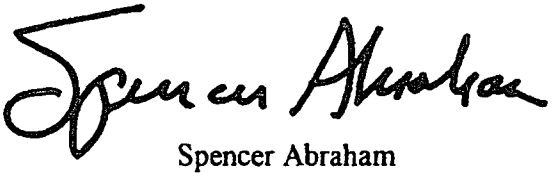
We recognize that as a leading producer and consumer nation, the United States cannot look at energy security in isolation from the rest of the world. In a global energy marketplace, U.S. national energy and economic security is directly linked to the adequate provision of energy supplies not only to our shores, but also to those of our trading partners. We place a high priority on strengthening our alliances and deepening our dialogue with major energy producers around the world and would like to work with you to ensure greater diversity in world energy production.

The United States supports a practical, market-based approach that encourages the adoption of more efficient technologies including natural gas, clean coal, nuclear, and renewable-energy technologies. Encouraging greater diversity of energy production, and as appropriate, transport facilities, within and among geographic regions is a worthwhile goal with obvious benefits to all market participants.

Let me close by reaffirming the commitment of the Bush Administration to the environment. The U.S. is a world leader in the development of clean energy technologies, and we are confident that we can encourage energy resource development while continuing to protect and enhance our environment.

I look forward to working with you to implement this Report as I believe it will benefit the citizens of all our nations.

Sincerely,



Spencer Abraham

Enclosure

HARRY REID
NEVADA

488493

United States Senate

WASHINGTON, DC 20510-2803

May 23, 2001

President George W. Bush
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear Mr. President:

We are writing in regard to the recently released report by the National Energy Policy Development Group, "National Energy Policy". As you know, this report encourages an increase in the use of nuclear power. Despite tremendous effort, however, our nation still has not developed a sound science and policy program to deal with the existing waste. Although the report recommends using the "best science to provide a deep geologic repository for nuclear waste," no nation, including the United States, has found a suitable geologic repository to safely isolate the waste.

As you know, we are deeply concerned about this issue, because the only site being considered for a proposed repository is at Yucca Mountain, Nevada. This site would be located approximately 90 miles from Las Vegas, the largest city in Nevada and one of the fastest growing cities in the United States. In addition to being home to more than 1.3 million Nevadans, Las Vegas and its neighboring communities draw more than 30 million visitors each year. Nevada communities rely on the water resources below Yucca Mountain for drinking water, livestock production, and other agriculture activities. Radiation contamination of this groundwater or the surrounding environment would create an unacceptable human health risk and would threaten the tourism and recreation-based economy, which provides jobs and important tax revenue to Nevada and its communities.

We are concerned that the report's recommendation for more nuclear power production will lead to additional pressure to move forward on Yucca Mountain, despite the known scientific and public policy shortcomings. Because of these concerns, we cannot support:

(1) the relicensing of existing nuclear power plants or the licensing of new nuclear power plants; or
(2) the reauthorization of the Price-Anderson Act, a controversial Department of Energy and nuclear power industry liability program.

The continued prosperity of our nation depends upon an evolution in the way our nation produces and uses energy. We cannot support, however, any initiatives that increase the possibility that Yucca Mountain will become the repository for the nation's nuclear waste. We

E-Mail: senator_reid@reid.senate.gov
Web: http://reid.senate.gov

are willing to work with you to address these problems and make this energy report a document that all Americans can support.

We appreciate your consideration of our concerns and look forward to hearing from you.

Sincerely,

HARRY REID
U.S. Senator

JOHN ENSIGN
U.S. Senator

SHELLEY BERKLEY
Member of Congress

JIM GIBBONS
Member of Congress

The Real Estate Roundtable

May 23, 2001

President George W. Bush
The White House
1600 Pennsylvania Avenue, NW
Washington, DC 20500

Re: National Energy Policy

Dear Mr. President:

I am writing on behalf of The Real Estate Roundtable to express our industry's gratitude and support for your ongoing efforts to establish and implement a forward-thinking national energy policy. The strength of the commercial and residential real estate sector of the economy — representing more than 25% our nation's GDP — and our ability to accommodate the needs of America's families and businesses depends on a reliable, cost effective and environmentally sustainable supply of energy.

The Real Estate Roundtable is the organization where the leaders of the nation's top public and privately held real estate ownership, development, lending and management firms work together with leaders of major national real estate trade associations to jointly address key national policy issues relating to real estate and the overall economy. Collectively, Roundtable members hold portfolios containing over 2.5 billion square feet of developed property valued at more than $250 billion. Participating trade associations represent more than 1 million people involved in virtually every aspect of the real estate business.

In our view you, Vice President Cheney and the National Energy Policy Development Group have correctly built your policy prescriptions on a practical and realistic diagnosis of the current energy challenges that face the country. At the same time, you rightly ask the country to aspire to yet greater achievements in developing the technology and expertise necessary to advance the state of the art in the exploration, development, production and the efficient use of energy.

We applaud the Report's inclusion of a discussion regarding ways that improved energy efficiency in buildings can help advance the nation's energy goals. We agree with the Report's conclusion that "there are significant opportunities to improve the energy efficiency of buildings and homes through technologies and better practices." While the Report correctly points out real and perceived barriers to energy efficiency improvements in buildings, you should be aware that private sector leadership from within our industry, and an ongoing partnership with DOE and EPA, are pointing the way to practices and investments that can help overcome these obstacles.

An important public-private collaboration highlighted in the Report is the highly successful energy star family of programs housed at the EPA and the Department of Energy. Our industry helped launch the Energy Star Building Label program and today over three-quarters of the largest office real estate investment trusts participate in the Energy Star Building Program. EPA has estimated that if all commercial buildings took the straight forward voluntary measures recommended by that program, the nation would save $130 billion in energy costs in just 15 years while also reducing air pollutants and emissions associated with the production of the energy.

We look forward to working with you, Secretary Abraham and Administrator Whitman to build on this existing partnership and recommit our industry to an ambitious industry-wide energy efficiency campaign. We also look forward to helping recommend and advance highly targeted and cost-effective incentives (through tax and other policy changes) to encourage a new generation of high-performance commercial and residential buildings. Finally, we believe there are opportunities to work with DOE, EPA, The Federal Energy Regulatory Commission and Congress to remove barriers to the increased use of on-site generation technologies.

In short, we believe your Report points the country in the right direction and that, in concert with the substantial expertise already established at DOE and EPA, our industry stands ready to help in this effort.

Sincerely,

Jeffrey D. DeBoer
President and Chief Operating Officer

JDD/lk

cc: The Hon. Richard B. Cheney
The Hon. Christine Todd Whitman
The Hon. Spencer Abraham

American Petroleum Institute

1220 L Street, Northwest
Washington, D.C. 20005-4070
202-682-8100

Red Cavaney
President & CEO

May 23, 2001

The Honorable
Spencer Abraham
Secretary
U. S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Dear Mr. Secretary:

As you prepare to report to Congress on the status of crude oil and gasoline inventories and the effects of fuel price volatility, I want to share with you information we recently provided to all Members of Congress regarding the steps the U.S. oil and natural gas industry's 1.4 million employees continue to take to provide American consumers with reliable, affordable fuels. Despite their efforts, a number of factors continue to cause fluctuations in the price of gasoline and other fuels made from crude oil and natural gas. These factors include, but are not limited to, unscheduled refinery or transportation problems, seasonal gasoline specification changes, global crude oil price fluctuations, and unforeseen changes in gasoline demand.

Over the past year, refiners have worked at record levels to produce all fuels. As of May 18:

- Year-to-date total inputs into the nation's 152 refineries have increased 2.9 percent from the same period last year;
- Refineries nationwide have run at 91.6 percent of capacity year-to-date, over 2 percentage points higher than during the same period last year;
- In the most recent week, capacity utilization measured 95.2 percent, over 3 percentage points higher than at this time last year and the highest level so far in 2001;
- Crude oil inventories are more than 21 million barrels above year-ago levels at 326 million barrels;
- Year-to-date production of distillate fuels (heating oil and diesel fuel) has risen 4.4 percent from the same period last year; and
- Year-to-date production of residual fuel (used in electricity generation) has risen 24.1 percent from the same period last year.

During the week of May 18, production of gasoline reached a time-of-year record for the sixth week in a row as refiners continued to maximize production in advance of the summer driving season. Inventories of gasoline rose 1.2 million barrels for the week and remained about one percent above last year's level. The transition from winter grade to summer grade RFG, requiring the near emptying of storage tanks to handle the more stringent specifications of the summer blend, has affected inventories in the past. In the most recent week, nationwide RFG inventories were 8 percent below this time last year. Low inventories, coupled with a year-to-date demand increase of 2.4 percent (through April) and an output decline of almost 1 percent have contributed to the recent gasoline price volatility.

The "balkanization" of the fuel market brought about through regulatory compliance greatly reduces refining and supply flexibility. Reduced flexibility means that relatively minor disruptions and downtime for maintenance can have a much more disruptive impact on the market. Given this reduced flexibility, we still remain vulnerable to price spikes.

Our industry will continue to do its utmost to serve its customers and satisfy the expected continued high demand for gasoline this summer in all regions of the country. We are also urging consumers to find ways to use gasoline more wisely and efficiently. Through our website (www.api.org) and other means, we have suggested different ways to achieve this. We strongly believe that conservation is a 'today' response. We all can do our part by using energy wisely. This provides us time for the longer-term solutions to kick in. Our industry is a leader in voluntarily developing 21st century technologies that save energy in producing the fuels needed to grow the American economy. We're doing our part. For instance, for every dollar of gross domestic product, we use nearly 53 percent less petroleum and natural gas than we did in the early 1970s.

Nonetheless, we recognize that until a national energy strategy is implemented that addresses the long term adequacy of supply and our energy infrastructure, we will continue to operate with such thin capacity margins that periodic episodes of volatility in prices are likely to continue. As part of our efforts to help consumers better understand the current energy situation, we have recently inaugurated a 2001 Summer Driving Season site on our Internet site. You may be interested to learn that it provides several links to your department's website.

DOE is also working to improve communications. It has worked closely with the National Association of State Energy Officials to improve information dissemination and coordination of activities in periods such as the Heating Oil situation in 2000.

We also stand ready to work with you and the Administration on international matters that directly affected our energy security. We are pleased that President has directed you and the Secretaries of State and Commerce to continue supporting American energy firms competing in markets abroad and sectoral trade initiatives to expand investment and trade in energy-related goods and services. We would encourage the Department of Energy to be directly involved in the President's directive to the Secretaries of State, Treasury and Commerce to conduct a comprehensive review of sanctions and their effect on our energy security. We believe that U.S. unilateral economic sanctions work to the detriments of our energy security and trade. Finding a suitable mechanism for encouraging global supply growth and U.S. participation in that growth without sacrificing foreign policy goals is perhaps the greatest challenge faced by the U.S. in developing its new national energy policy.

We stand ready to help contribute to a national energy plan that recognizes our nation's continued growing demand for all forms of energy, while ensuring the quality of the environment. If you have any questions, please contact me. Thank you.

Sincerely,

Red Cavaney

013078

Ideal Electric Holding Company

Michael M. Vucelic
President and Chief Executive Officer

330 East First Street
Mansfield, Ohio 44902
(419) 522-3611

May 23, 2001

The Honorable Spencer Abraham
Secretary of U.S. Department of Energy
1000 Independence Avenue SW
Washington, D.C. 20585

Dear Mr. Secretary:

Your excellent article in the Wall Street Journal on Friday, January 18, 2001, brought to my attention your main concern with the reduction of our dependance on the foreign supply of oil and gas. It should also include the security of the remaining domestic manufacturers of electric generators, motors and other equipment required by the new National Energy Plan proposed by Vice-President Dick Cheney and announced last week in Minneapolis, MN by President George W. Bush.

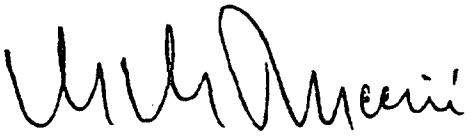
Decline in demand for the past decade has greatly reduced our domestic capability to manufacture products that would support this National Energy Plan. The recent increased demand is presently supplied mostly by the foreign electric generator and motor companies. Domestically, beside giant GE, there are only a limited number of surviving manufacturers of those products, including our two small independent operations. From United Technology Carrier Corporation in 1986, we have acquired in a management buyout Ideal Electric Company founded 1903 in Mansfield, Ohio and two years ago we acquired Electric Machinery Company, Inc. founded in 1891 in Minneapolis, Minnesota from Dresser Rand of Haliburton Company. We have 500 employees with USWA Local 8530 in Ohio and IUE Local 1140 in Minnesota representing the hourly employees. Our electric generators up to 120 MW are used with the diesel engines, gas, as well as steam turbines in the co-generation and hydroelectric projects. Our electric motors up to 150,000 HP are used for gas pipeline and petrochemical compressors and other industrial applications. Enclosed are some products brochures illustrating applications of our products. We export more than one third of our electric generators and motors and have received in 1994 Ohio Governors "E" award for excellence in export.

At present, both of our operations are in a difficult financial situation with our commercial lenders due to the aggressive penetration in our domestic market of the large foreign companies. Some government limited financial guaranties would greatly improve the survival of our two strategically important domestic independent electric generator and motor manufacturing operations. The U.S. Department of Energy should seriously consider to urgently establish, under the new National Energy Plan, a limited financial guarantee program, similar to the U.S. Department of Agriculture Business and Industry rural communities or the Small Business Administration programs.

One of our two operations, Electric Machinery Company Inc., would immediately benefit from having a U.S. Department of Energy limited guarantee of the $13.0 million line of credit with the National City Bank in Cleveland, Ohio. Ideal Electric Company's $12.0 million line of credit with the Huntington National Bank in Columbus, Ohio has been recently refinanced with Bank One in Cincinnati, Ohio with the personal guaranties of owners/managers.

I would appreciate an opportunity to meet with you or your appropriate associates to discuss possibilities for such U.S. Department of Energy limited financial guarantee program.

Sincerely,



lah

Enclosures

cc: Mr. Dick Cheney, The Vice-President of the United States
Mr. George Voinovich, United States Senator - Ohio
Mr. Michael DeWine, United States Senator - Ohio
Mr. Paul David Wellstone, United States Senator - Minnesota
Mr. Mark Dayton, United States Senator - Minnesota
Mr. Michael G. Oxley, United States Representative - Ohio
Mr. Martin O. Sabo, United States Representative - Minnesota
Mr. Leo Gerard, President, USWA, AFL-CIO-CLC
Mr. Edward L. Fire, President, IUE - CWQ

014088

AMERICAN PORTLAND CEMENT ALLIANCE
1225 EYE STREET, N.W. • SUITE 300 • WASHINGTON, D.C. 20005
TELEPHONE (202) 408-9494 • FACSIMILE (202) 408-0877

2001-014088 6/11 P 12:23

May 24, 2001

The Honorable Spencer Abraham
Secretary, Department of Energy
1000 Independence Avenue SW
Washington, DC 20202

Dear Secretary Abraham:

Please find enclosed a copy of energy principles endorsed by an ad-hoc group of energy consumers, as distinct from energy producers, consisting of: American Chemistry Council, American Forest and Paper Association, American Iron and Steel Institute, American Portland Cement Alliance, Electricity Consumers Research Council, Gypsum Association, and Process Gas Consumers Group.

They were shared with the White House earlier this month. If you have any questions or would like to discuss them further, I am certain that representatives of the respective groups would be happy to meet with you at your convenience.

Sincerely,

Richard C. Creighton
President

Attachments: Energy Consumer Issues
Letter to Kirk Blalock

28194

ENERGY CONSUMERS ISSUES
May 3, 2001

- Encourage the use of diverse types of fuel: oil, gas, coal, nuclear, renewable and alternative energy (such as: solar, wind, geothermal, tires, waste, and hydropower).

- Promote the development of robust electricity and natural gas markets to mitigate market power abuse by directing DOJ, FTC, SEC, and FERC to modify, identify, and remedy anti-competitive behavior.

- Expedite and broaden access to federal lands for exploration and production of gas, oil, coal and geothermal energy.

- Streamline the regulatory process at FERC, BLM, DOI, EPA, and DOC to encourage expeditious natural gas pipeline certification and construction commensurate with health and environmental protection.

- Maintain ability of end users to connect directly to interstate natural gas pipelines on a non-discriminatory basis.

- Maintain Public Utility Regulatory Policies Act (PURPA) provisions that address the purchase and sale of power between utilities and qualified facilities.

- Empower FERC with the ability to require all transmission facilities within a region to participate in a Regional Transmission Organization (RTO) to prevent undue discrimination, remedy market power, or as a generic condition to mergers or grants of market pricing authority. Such RTOs should be independent organizations that are of appropriate scope and configuration to mitigate dominance by individual participants.

- Minimize or eliminate environmental permitting hurdles including the New Source Review program for all affected facilities.

- For interstate electricity transmission facilities, empower FERC with authority over siting and direct FERC to establish a streamlined permitting process. Additionally, allow unrestricted sales to the grid.

- Encourage increased energy efficiency and technology through competitive market forces and appropriate incentives.

These principles are endorsed by the following organizations: American Chemistry Council, American Forest and Paper Association, American Iron and Steel Institute, American Portland Cement Alliance, Electricity Consumers Resource Council (ELCON), Gypsum Association, and Process Gas Consumers Group.

NATIONAL FOUNDATION FOR WOMEN LEGISLATORS, INC.

2001-013026 May 24 p 6:19

May 24, 2001

Hon. Spencer Abraham
U.S. Secretary of Energy
U.S. Department of Energy
Washington, D.C.

Dear Secretary Abraham:

Sam and I so enjoyed seeing you again last week. We very much value our friendship with you, and we are so proud of the extraordinary role you are now playing in securing and shaping America's scientific, national security and economic future. If you need anything from either of us at any time, please do not hesitate for a moment to call. We stand ready to help you any way we can.

Spence, we have known since April 6 that you will not be able to join us at the White House and address the dozens of women state lawmakers and more than 100 Native American governors, presidents, chairpersons and other top elected leaders participating in NFWL's Networking Day this year. And we were just informed that you won't be able to join us at the National Press Club for our June 1 luncheon.

We are working with your Intergovernmental team to set up a briefing on the Administration's energy plan for legislators and tribal leaders on May 31 at DOE. We would still love to have you join us any time from May 31 to Sunday June 3. We can reconstruct our agenda around yours on very short notice. Spence, I think it is so important that top officials of the new Administration interface with and get their message heard by as many women state legislators and tribal leaders as possible at this key juncture.

Also, if your staff could distribute to your staff, your White House Liaison John McCutcheon and his Special Assistant Josh Hutchison, and as many DOE officials as you consider wise the attached invitation to our reception on Friday evening, June 1, we will do all we can to make them feel welcome and help them meet key leaders there.

WOMEN LEGISLATORS THE POWER TO MAKE A DIFFERENCE
910 16TH STREET, NW, SUITE 100 ○ WASHINGTON, DC 20006 ○ 202-337-3565 ○ FAX 202-337-3566

NATIONAL FOUNDATION FOR WOMEN LEGISLATORS, INC.

Among those present during our conference are Jicarilla Apache Chairwoman Claudia Muniz. As you no doubt know, the Jicarillas own one of the world's largest supplies of natural gas. This is the caliber of leader interested in hearing DOE's message and sharing theirs.

Spence, please know that Sam and I think of you every day, and we both wish you the very best of good fortune in your new leadership role. We look forward to helping you this way and every other way we can in the months and years ahead.

Sincerely,

Robin Read
President & CEO

NATIONAL FOUNDATION FOR WOMEN LEGISLATORS, INC.

National Foundation for Women Legislators
National Congress of American Indians
Women's Business Network and
Campaigns & Elections Magazine

Invite you to attend

The Women and Tribal Leaders' Reception

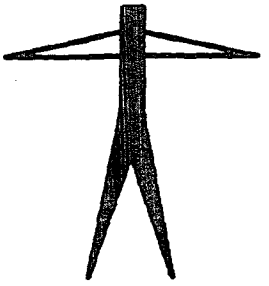
An Extraordinary Networking Opportunity among . . .

Bush Administration officials and staff
Congressional staff
Women state lawmakers
Elected Native American leaders
Campaign experts and political consultants

6:00 to 8:00 p.m.
Friday, June 1, 2001
The Ballroom
Washington Marriott
1221 22nd Street N.W.

872-1500 (hotel)
337-3565 (NFWL offices)

If you are definitely attending, call us at NFWL and let us know.
Last-minute RSVPs are welcome.



Western
Interconnection
Coordination
Forum

615 Arapeen Drive, Suite 210 • Salt Lake City, Utah 84108 • www.wicf.org

May 25, 2001

The Honorable Spencer Abraham
Secretary of Energy
Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

Dear Mr. Secretary:

We have written to you previously about the importance of legislation to create a mandatory system of electric reliability rules. We commend the National Energy Policy Development Group for recognizing the need for enforceable reliability standards. As the National Energy Policy observes, there is broad agreement that reliability standards should be enforced by a self-regulating organization subject to Federal Energy Regulatory Commission (FERC) oversight.

We are particularly encouraged that the National Energy Policy Development Group has acknowledged the importance of legislative action on reliability, through its recommendation that you, working with FERC, develop legislation providing for the enforcement of reliability rules by an industry self-regulating organization overseen by FERC. As you know, these are the fundamental principles embodied in the consensus reliability legislative proposal developed under the auspices of the North American Electric Reliability Council (NERC).

As you move forward to implement this portion of the National Energy Policy, we urge you to adopt the NERC consensus language as your model. In so doing, the Administration can take advantage of the lengthy process of negotiation and compromise that produced this legislative proposal, which has achieved bipartisan support, and is included in the comprehensive energy legislation introduced in the Senate by Senator Murkowski (S. 388) and Senator Bingaman (S. 597). This language also has been introduced in the House with bipartisan support as a stand-alone measure (H.R. 312).

Of particular importance to those of us in the West, the NERC consensus language provides appropriate delegation and deference to interconnection-wide

reliability entities (proposed new Federal Power Act section 218(h)). This language recognizes that unique regional needs must be addressed, and offers an agreed-upon means to enable continued cooperation and coordination on reliability matters within the Western Interconnection. We also feel strongly that the provisions confirming the role of regional advisory bodies (proposed new Federal Power Act section 218 (n)) provide a necessary mechanism to enable the states within a region to offer their informed advice on matters such as governance, reliability standards and associated fees.

Timely Congressional action on reliability legislation is an urgent priority. The NERC consensus reliability language offers to the Administration a workable solution that is ready for prompt consideration and enactment by Congress. As a result of the inclusive process through which it was developed, the NERC consensus language addresses the myriad of needs that must be considered in the context of reliability legislation. Efforts to significantly modify or abbreviate this language risk disrupting the current broad support for the NERC reliability language and could substantially delay action on reliability legislation. We strongly urge you to utilize this proposal as the basis for going forward in response to the recommendations contained in the National Energy Policy.

We look forward to working with you in the important effort to enact needed reliability legislation at the earliest possible time.

Sincerely,

Ron Nunnally

Ronald D. Nunnally
Chair, WICF

013519

Florida House of Representatives

Jerry Paul
Deputy Majority Whip
Representative, District 71

4456 Tamiami Trail, Suite B-14
Port Charlotte, FL 33980-2136
(941) 764-1100
(800) 729-1101

May 25, 2001

319 The Capitol
402 South Monroe Street
Tallahassee, FL 32399-1300
(850) 488-0060

The Honorable Spencer Abraham
Secretary
U.S. Department of Energy
1000 Independence Ave., S.W.
Washington, DC 20585

Dear Mr. Secretary:

Enclosed is an article appearing in the *Charlotte Sun Herald* in Port Charlotte, Florida relating to our energy policy.

As a member of our Southern State's Energy Board, I was pleased to provide input to Vice President Cheney's Energy Task Force. As a former power plant engineer, nuclear engineer, and State Legislator I cannot overstate the extent to which I am pleased with the responsible, accurate and comprehensive recommendations of the Task Force Report.

I would welcome an opportunity to assist you in any way on issues relating to our nation's energy policy.

Please call on me any time.

Respectfully,

Jerry Paul
District 71

Enclosure

JP:jh

Paul: Nuclear needed

Says he'll use education to provide oversight

Charlotte Sun 5-23-01

By GREG MARTIN
Staff Writer

President George Bush's administration contends that nuclear power should be included among the solutions to address the nation's "energy crisis" — and Florida should be no exception, according to state Rep. Jerry Paul, R-Port Charlotte.

However, Florida Power and Light officials said in a recent annual report that Florida doesn't face an energy crisis. FPL plans to increase its generating capacity by 33 percent over the next 10 years, "using environmentally friendly natural-gas technology," according to the report.

PAUL

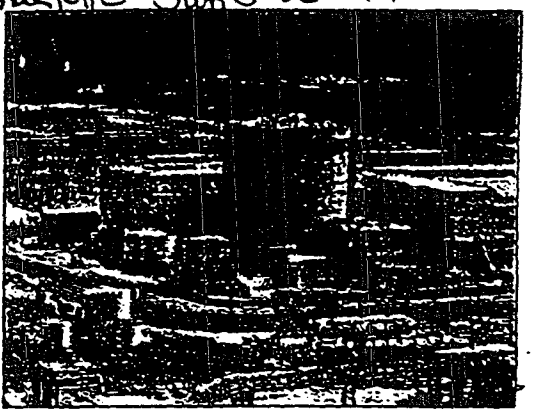
Rep. Paul, however, cited the fact that nuclear power has proven to be "the safest and cheapest" source of electrical power, compared to coal, gas and oil-fired plants.

"We've got to make sure Florida does not get trapped in a California scenario," Paul said. "If we don't have the capacity then our electric rates will go up.

"Really, the touchstone in all of this, the primary goal, has got to be to keep the cost of electrical power as low as possible."

Paul, a member of the state's House Committee on Utilities and Telecommunications, was appointed this year by House Speaker Tom Feeney to the Southern States Energy Board. Florida Sen. Tom Lee,

Please see PAUL, page 8



The Crystal River nuclear power plant is one of three nuclear power generating stations in Florida.

Photo provided

★ PAUL

From page 1

R-Brandon, is the state's other representative on the board.

Paul was reached in Miami Tuesday where he was attending a two-day meeting of the SSE board to discuss the hurdles to nuclear power projects in the Southeastern United States.

Paul said he hopes to use his educational background to oversee the expansion of nuclear power in Florida. The Port Charlotte attorney earned degrees in marine engineering at the Merchant Marine Academy in Maine in 1988, and in nuclear engineering at the University of Florida in 1991.

"We're talking about the states' role in overseeing our nuclear industry," Paul said.

One of the biggest issues for the state is the storage of spent fuel rods, Paul said.

In Florida, those hazardous materials have been indefinitely stored in pools on the sites of FPL's three nuclear power generating stations.

Those stations include: two reactors at Turkey Point near Homestead, two reactors at St. Lucie and one reactor at Crystal River.

Board members from other states also discussed their concerns, including how to dispose of radioactive wastes from nuclear weapons facilities, Paul said. Florida currently has no such facilities.

Paul argues that nuclear materials are naturally found in the ground and could be stored there. One factor that has held the industry back has been the federal government's reluctance to establish a national nuclear waste storage facility, Paul said.

Former President Jimmy Carter closed two facilities that reprocessed spent fuel rods so they could be fissioned a second time, Paul said.

"He forced every state to basically store its own waste," Paul said. "That cost us all a lot."

Some 20 years ago, Congress vowed to establish a nuclear storage facility by the year 2000 at Yucca Mountain, Utah. However, that facility is currently 10 years behind schedule, according to Paul.

Paul said Florida currently produces about 40,000 megawatts of power, with 20 percent derived from nuclear power.

The state has a "deficit of about 13,000 megawatts" due to growth projections and increased use of computer technology, he said.

To avoid a crisis like California's, Florida needs to diversify its power sources, Paul said. California not only depended heavily on natural gas, but it also was blocked by "extremist groups" from building new power plants for the past 10 years, Paul said.

However, Paul emphasized that Florida needs to first promote energy conservation and alternative sources such as wind, solar and "biomass" fuels.

After nuclear power, the next cheapest is coal. But coal pollutes the air with sulfur dioxide, Paul noted. Natural gas is cleaner, but Florida would require pipelines to get the gas, he added.

"There is no free lunch," he said. "It is costing us a lot. And there is an environmental toll."

However, FPL, in an annual report filed with the Public Service Commission in April, projected a 20-percent generating reserve margin for this summer, assuring its customers that there would be a sufficient supply of electricity.

Also, FPL's report outlines its 10-year plan to increase capacity by 33 percent using natural gas.

A pipeline has also been recently permitted to run from Texas through the Gulf of Mexico to Port Manatee. The pipeline will then cross the state to Fort Pierce with a spur to the south.

"Unlike California, Florida customers enjoy an adequate supply of electricity," said FPL President Paul Evanson. "Our expansion program reflects our commitment to maintain sufficient reserves while remaining one of the cleanest utilities in the country."

You can e-mail Greg Martin at gmartin@sun-herald.com

28202

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FEDERAL MINISTRY OF POWER AND STEEL

FOURTH FLOOR, NEW FEDERAL SECRETARIAT COMPLEX, ANNEX III,
SHEHU SHAGARI WAY, ABUJA.

OFFICE OF THE HONOURABLE MINISTER

P. M. B. 278,
Abuja.
☎ 09-5237064

REF. NO FMP&S/4242/S.1/T/147

30th May, 2001

Honourable Spencer Abraham,
The Secretary of Energy,
Department of Energy
Washington D.C.
U. S. A.

RE: NATIONAL ENERGY POLICY REPORT OF THE NATIONAL ENERGY POLICY DEVELOPMENT GROUP

This is to acknowledge, with thanks, the receipt of the U.S.A National Energy Policy sent through the Embassy of the United States of America in Nigeria.

2. I have read the document and noted with pleasure the steps your country intends to take to ensure an economic, reliable and adequate power supply to its citizens. I am pleased to read your Chapter Seven which deals with America's Energy Infrastructure, particularly the restructuring of the electricity industry. Nigeria is presently restructuring the power sector, and we hope to set up the Nigerian Electricity Regulatory Commission (NERC) by the end of this year and I believe we have a lot to learn from your country's experiences in this area.

3.. I thank you once again for the documents, and look forward to meeting you as we strengthen our relationship through the Nigeria/USA Energy Consultative Group.

Dr. Olusegun Agagu
Honourable Minister of Power & Steel

28203

American
Superconductor

REVOLUTIONIZING THE WAY THE WORLD USES ELECTRICITY™

Gregory J. Yurek
Chairman of the Board
President and CEO

May 31, 2001

Hon. Spencer Abraham, Secretary
United States Department of Energy
1000 Independence Avenue, S.W.
Washington, DC 20585

Dear Secretary Abraham:

I was very pleased to have the opportunity to meet you at the Competitive Enterprise Institute's dinner on May 24 and to hear your remarks focusing on the need to upgrade the nation's power grid. I would like to congratulate you and the other members of Vice President Cheney's Task Force upon the issuance of the Report of the National Energy Policy Development Group. This document clearly illuminates the energy challenges our nation faces. There can be no serious disagreement with the report's three basic conclusions: we must increase our nation's available energy supplies and generation capacity; we must find ways to use energy more efficiently; and, as you emphasized in your CEI remarks, we must significantly strengthen the nation's delivery infrastructure.

As the CEO of American Superconductor Corporation, the world's leading company in developing and commercializing high temperature superconductor (HTS) wires, I was pleased to find prominent reference to the role that superconductor technologies can play in meeting our nation's power capacity and reliability challenges. The report calls for superconductivity to receive priority attention as a research topic in the context of a call for a new, more fully integrated national grid. Let me emphasize that superconductor-based technology can advance the goal of creating a new national grid, not just in the distant future, but in the very near term. I would like to highlight four specific comments and recommendations related to the Administration's recent report. These are as follows:

NEPDG Report: The Task Force appropriately emphasized the need to fortify our electric power delivery infrastructure.

- American Superconductor Comment: The Department's transmission reliability study should explore dynamic stability issues fully, and identify the near-term potential to use advanced, active power technologies such as SMES (superconducting magnetic energy storage) to improve wide-area grid stability. Active power technologies based on superconductivity are commercially proven. Deployed on a grid in a distributed pattern, so-called distributed SMES systems (D-SMES) can have an immediate, large and beneficial impact on the operation of the nation's grid this Summer by effectively increasing the transmission capacity of the existing network, with no siting or environmental permitting process required.

Two Technology Drive Westborough MA 01581-1727 ph 508.836.4200 fx 508.870.1871 gyurek@amsuper.com

NEPDG Report: The Task Force articulated the concept and highlighted the economic and competitive value of an integrated "national grid," and directed the Department to complete a study of this concept by December 2001.

- American Superconductor Comment: The Department should advance this concept by immediately undertaking a study of the benefits and costs of a national system of direct current (DC) superconducting links overlaying the existing, conventional alternating current (AC) grid. HTS wire will soon be available in commercial quantities and an initial segment of this network can be constructed in a short period to validate the concept. This project also would spur private investment in expanding the superconducting grid in the same way the Government's role in ARPANET initiated take-off of the Internet by private capital. This initial project would also drive further development of the nation's superconducting industrial infrastructure and yield collateral benefits to our military, particularly in deployment of superconducting electric propulsion systems on Navy vessels.

NEPDG Report: The Task Force emphasized the importance of improving our nation's energy efficiency.

- American Superconductor Comment: The Department should propose tax or other incentives for the adoption of high-efficiency superconducting generators and motors that can significantly improve the efficiency of electric power production and consumption. Since large, industrial motors account for about 30% of U.S. electricity demand, a 2% gain in efficiency can yield major savings in national electricity use. The adoption of such incentives can help to ensure that these promising technologies are brought to full commercialization in the near term, within two to three years.

NEPDG Report: The Task Force emphasized the need for mandatory reliability standards, and also highlighted the growing importance of power quality to meet the needs of the digital age.

- American Superconductor Comment: The Department should work with the Congress to develop legislation in this session that will enforce specific "level of service" and reliability standards which in turn will provide a needed incentive for grid operators and users to employ advanced reliability technologies. Furthermore, the Department should analyze the benefits of developing and implementing power quality standards to provide added incentive for utilities, equipment manufacturers and end users to find cost-effective solutions for this important problem.

As I mentioned at our brief meeting on May 24, I would like to request the opportunity to meet with you and members of your staff to explore these recommendations in greater detail. I will contact your office within the next week to arrange such a meeting.

With this report, the Bush Administration has established reliance on market forces as the cornerstone of its energy policy. Yet there are many concrete reforms government must

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implement to promote the vision of a more fully competitive, technologically advanced electric power industry. Responsibility for implementing reforms and establishing incentives lies at various levels of government: with the Bush Administration, the Congress, the Federal Energy Regulatory Commission, state utility commissions and other bodies. I look forward to presenting our recommendations and discussing these issues with you in greater detail.

Let me conclude by congratulating you again for the excellent work of the Task Force, and by repeating my invitation to you to participate in the dedication of the Detroit Edison HTS cable demonstration project that will take place later this year. Finally, as the Department moves forward and pursues the important tasks set forth in the President's report, I hope you and your staff will feel free to call on our company at any time for supplemental advice and perspective related to the subjects covered in this letter.

With all best wishes,

Gregory J. Yurek
President and CEO

Two Technology Drive Westborough MA 01581-1727 ph 508.836.4200 fx 508.870.1871 gyurek@amsuper.com

HUMAN RIGHTS WATCH

1630 Connecticut Ave., N.W., #500
Washington, DC 20009
Telephone: (202) 612-4321
Facsimile: (202) 612-4333
E-mail:hrwdc@hrw.org
Website:http://www.hrw.org

May 30, 2001

The Honorable Richard Cheney
Vice President of the United States
The White House
Washington, DC 20501

Dear Mr. Vice President:

Human Rights Watch is seriously concerned about the implications the Administration's recently released energy strategy may have for the protection of human rights in energy producing nations.

Appropriately, the report of the National Energy Policy Development Group analyzes the impact of energy development on the environment. Remarkably, the report's 170 pages and 105 recommendations do not once acknowledge the impact energy development may have on human rights. On the contrary, the report suggests making energy security an even greater priority in U.S. relations with some of the worst violators of human rights around the world, while proposing no strategy to keep necessary oil investment from perpetuating dictatorships or fueling conflicts, as it has in countries such as Angola, Nigeria, Sudan and Iraq.

The omission of human rights considerations from a global U.S. energy strategy might have been understandable a few decades ago. Today, given the repression and violence that has so long been evident in so many energy-producing nations – in some cases aggravated by oil and gas discoveries -- the omission is troubling. We hope the President will take steps to correct it. The world needs to hear that when it comes to advancing human rights, the United States will not give oil and gas producing countries a pass.

Let me summarize our specific areas of concern, as well as our recommendations.

Misuse of Oil Revenues

The misuse of energy revenues by abusive governments is a problem that plagues this industry globally. Undemocratic and abusive governments have little incentive to use the wealth that energy development generates to become more democratic, transparent, or accountable. Rather, the wealth created by energy reserves yields an enormous incentive to consolidate power and drain public funds for personal gain.

For this reason, we commend the energy strategy for recognizing the need for "more transparent, accountable, and responsible use of oil resources" in Africa. We are troubled, however, that this statement in the report applies only to

Africa, and only in the context of enhancing "the security and stability of investment." This approach suggests that corruption is not an issue in other parts of the world, and ignores the detrimental impact it also can have on human rights and democratic development – something for which there is ample evidence in the State Department's own annual Human Rights Report.

The autocracy of Azerbaijan, for example, which is positively featured in the energy report, is among the five most corrupt nations in the world, according to Transparency International. The Azerbaijani leadership has maintained its grip on power – and control over energy revenues – by stifling dissent and rigging elections. Kazakhstan, also highlighted in the report, is another prime example of the connections between energy development, corruption and political repression. On June 12, 2000, the United States Department of Justice wrote to Swiss Authorities requesting information regarding the "alleged use of U.S. banks to funnel funds belonging to certain oil companies through Swiss bank accounts and shell companies in Switzerland and the British Virgin Islands for ultimate transfer to present and former high-ranking officials of Kazakhstan." At the of time these alleged transactions, President Nursultan Nazarbayev was consolidating his authoritarian control over Kazakhstan's political and economic life, undermining freedom of speech, assembly, and association, and granting himself lifetime powers and immunity from prosecution.

The question is not whether energy companies should do business in these countries, but whether their engagement yields repression or progress for ordinary citizens. At the least, basic standards of transparency and respect for human rights should be an important condition for any financing for energy development that the U.S. government approves or supports through the U.S. Export-Import Bank, the Overseas Private Investment Corporation, the World Bank or regional development banks. The energy strategy should also insist that the U.S. Foreign Corrupt Practices Act be rigorously enforced. It should support audits of opaque oil-rich states by the International Monetary Fund. It should urge governments to make their revenues, budgets and expenditures publicly known. And it should endorse the use of human rights impact assessments for future energy projects.

Corporate Responsibility

It is regrettable that so many of the world's energy reserves are found in repressive societies. That is all the more reason to insist that corporations adhere to the highest human rights standards when doing business in such societies. Yet the energy strategy does not acknowledge this. Indeed, it even neglects to mention existing U.S. initiatives to promote corporate responsibility in the energy sector, including the Voluntary Principles on Security and Human Rights, which the governments of the U.S. and U.K. developed last year along with several multinational energy and mining companies and non-governmental organizations.

Does the Administration remain committed to these principles? Will it promote their observance by U.S. companies in areas of new energy development, such as Equatorial Guinea and the Caspian region? Will it make Export-Import Bank and OPIC financing contingent on adherence to such standards, so public funds do not subsidize complicity in human rights abuses? Will it insist that public security forces guarding company employees and energy infrastructure respect human rights while providing protection? Will it encourage other nations to insist on

similar standards for their energy companies, so that responsible U.S. firms are not undercut by laggards elsewhere? If the answer to these questions is yes, the Administration should make that clear. Otherwise, it risks sending a signal that corporate complicity in human rights violations is an acceptable consequence of accelerated energy production.

Sanctions

Human Rights Watch does not believe that economic sanctions are always the appropriate response to human rights violations around the world, and we do not object to a review that evaluates the likely effectiveness of current U.S. sanctions in achieving their goals. We would, however, object to an approach that requires the United States to weigh profit against principle each time it decides whether to sanction egregious violators of human rights.

When the Administration proposes giving greater weight to energy security in a comprehensive review of all U.S. sanctions, does that mean it will give less weight to human rights in deciding policy toward countries such as Sudan, where energy revenues help an abusive regime to remain in power, or Burma, where forced labor is used on a massive scale to build the infrastructure for foreign investment? The energy report is not explicit on this point, but it offers no reassurance. Absent clarification, we fear that is the conclusion others - including these regimes themselves - may draw. As currently drafted, a strategy designed to reduce U.S. dependence on foreign oil instead risks increasing U.S. deference to foreign despots.

Such an approach would be wrong, particularly with respect to energy producing nations, because energy revenues (unlike broader trade revenues) typically accrue directly to governments -- and because some nations have committed serious human rights violations to protect energy infrastructure or to suppress criticism of energy companies. Ironically, it would not even take the long-term interests of energy investors fully into account. For oil and gas extraction and transportation projects usually entail large initial capital expenditures, requiring companies to make a multi-year commitment to realize returns on their investment. Over the long term, human rights violations often make societies less stable, exposing energy companies to controversy, their employees to violence, and their shareholders to risk.

We hope that the initial recommendations of the strategy and the administration's final policies will be revised to accommodate these concerns. Consumption in the U.S. should not be satisfied at the expense of suffering abroad. Issues of good governance, corporate responsibility, and human rights should be a cornerstone of any global energy strategy.

Sincerely,

/s/

Kenneth Roth
Executive Director

TUFTS UNIVERSITY

Office of the President

May 30, 2001

President George W. Bush
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear President Bush:

One of the most salient issues on our campuses today is forging responsible citizenship in an increasingly global community. It is clear to us as college and university presidents that meeting American economic interests within this context demands a comprehensive and long-term view of energy policy.

Having the highest per capita energy consumption of any major nation of the world is an indicator of waste, not productivity. Simply extracting more fossil fuels from the earth and burning them in power plants and automobiles not only continues our inefficient use of resources, but it jeopardizes our national, economic and environmental security. Unstable regions of the world provide more than half of our oil and our national security is put at risk when we must defend these supplies. Our economy is threatened by spiking fuel prices and our deteriorating balance of payments. Our health, local air quality and the global climate system are seriously compromised by an excessive over-reliance on fossil fuels.

Outside of the United States, significant changes in energy patterns have been initiated with positive outcomes for public health, the environment and the economy. Britain has converted from its reliance on coal to the use of cleaner natural gas. The world leader in the fastest growing source of electricity, wind technology (formerly dominated by the U.S.), is now Denmark, producing 13% of its electricity this way. Germany and Spain now equal or exceed U.S. wind production. Energy efficient appliances and vehicles have decreased the per capita demand for fossil fuels in Europe and Japan to nearly half of our own.

America created the super efficient gas turbines now dominating the electricity market, but has fallen behind other nations in fuel cell technology for autos and buildings, hybrid-electric vehicle design, solar energy and efficient appliances. Instead of defending nineteenth century industries using 1950s coal and oil based technologies, we have an

Medford, Massachusetts 02155
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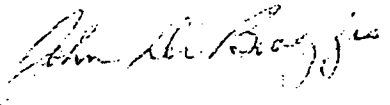
opportunity to lead the world into the twenty-first century with new technologies developed in the United States. This requires that we shift away from, not toward, traditional uses of coal and oil.

Energy and environment are valued at our educational institutions as frameworks for a wealth of learning opportunities. These are not simply academic subjects. We are also motivated by a desire to reduce energy costs, increase energy reliability for our campuses, hospitals and research laboratories, and to minimize impacts on the environment. When we use business models such as life cycle costing, our decision-making strongly favors energy conservation, increased efficiency, distributed generation and a growing use of renewable energy.

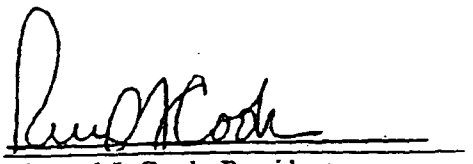
Both large and small U.S. companies share with our colleges and universities a recognition of the strategic value of embracing new thinking about energy. Innovations from our university laboratories and those of leading corporations are increasingly focused on processes and products that reduce energy use and minimize impacts to the environment. Change is certainly possible with a clear vision and commitment to the future. But government leadership is needed to promote renewable and other innovative energy supply technologies, to develop policies for using fossil fuels more efficiently and responsibly and to employ conservation measures now, so that we can leave a sustainable legacy to future generations.

As leaders of academic institutions, we are constantly challenged to conserve the old and valuable while at the same time nurturing the innovative. We believe that the time is right for a transformation to a truly innovative energy policy. Among our faculty, students and staff, we have the intellectual resources, the enthusiasm and the experience to help craft an approach to energy and environment issues that is based on excellent science and technology and on sound economic and policy principles. We stand ready to commit our intellectual resources to assist government under your leadership in developing solutions to some of the most critical challenges our students and our nation will face this century.

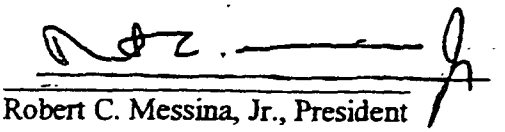
Sincerely,



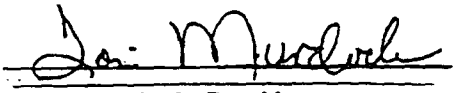
John DiBiaggio
President
Tufts University



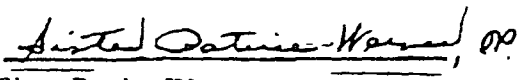
Richard J. Cook, President,
Allegheny College, Meadville, PA



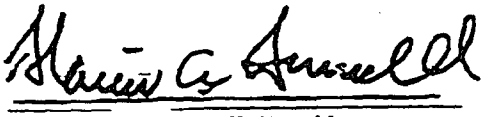
Robert C. Messina, Jr., President
Burlington County College
Pemberton, NJ



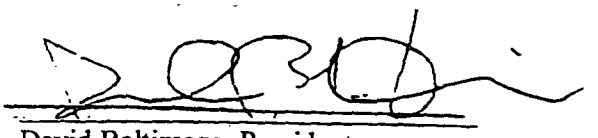
Toni Murdock, President,
Antioch University Seattle, Seattle, WA



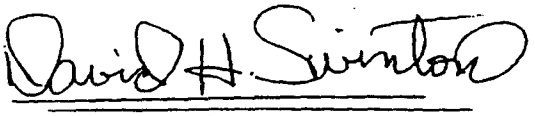
Sister Patrice Werner, OP, President
Caldwell College, Caldwell, NJ



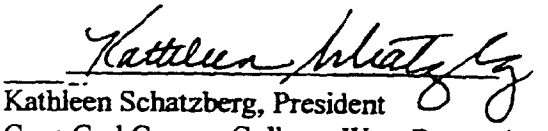
Blaine A. Brownell, President
Ball State University, Muncie, IN



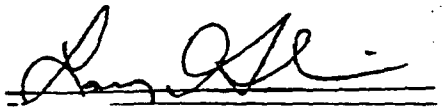
David Baltimore, President
California Institute of Technology, Pasedena, CA



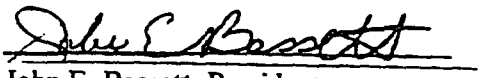
David H. Swinton, President
Benedict College, Columbia, SC



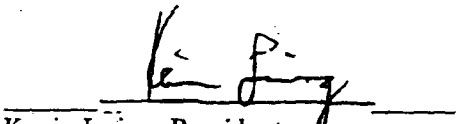
Kathleen Schatzberg, President
Cape Cod Comm. College, West Barnstable, MA



Larry D. Shinn, President
Berea College, Berea, KY

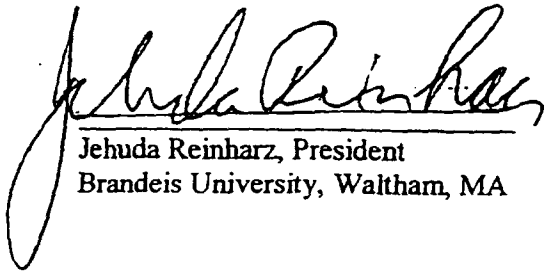


John E. Bassett, President
Clark University, Worcester, MA

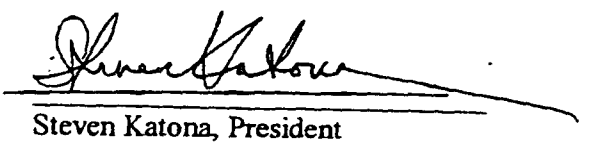


Kevin Luing, President
Berkeley College, West Patterson, NJ

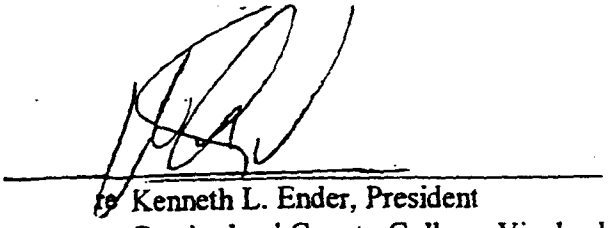
William D. Adams, President
Colby College, Waterville, ME



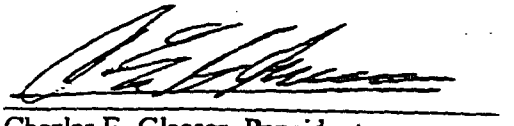
Jehuda Reinharz, President
Brandeis University, Waltham, MA



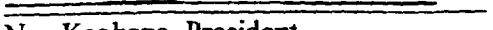
Steven Katona, President
College of the Atlantic, Bar Harbor, ME



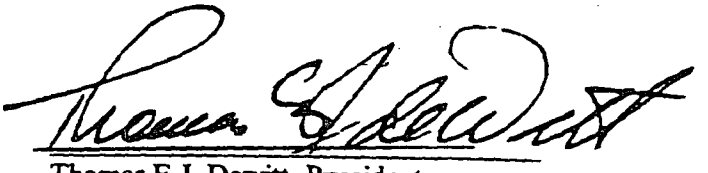
Kenneth L. Ender, President
Cumberland County College, Vineland, NJ



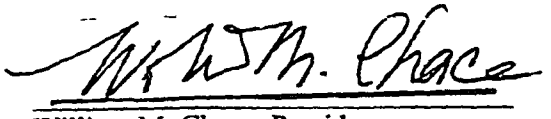
Charles E. Glasser, President
John F. Kennedy University, Orinda, CA



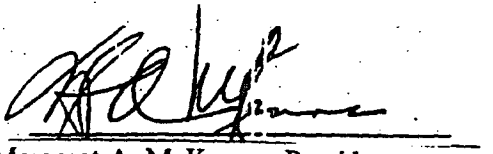
Nan Keohane, President
Duke University, Durham, NC



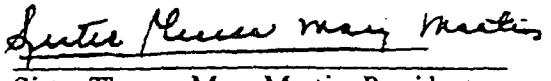
Thomas E.J. Dewitt, President
Lasell College, Newton, MA



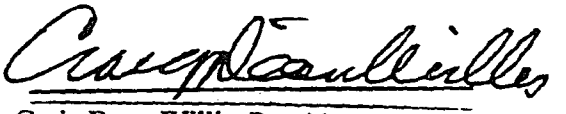
William M. Chace, President
Emory University, Atlanta, GA



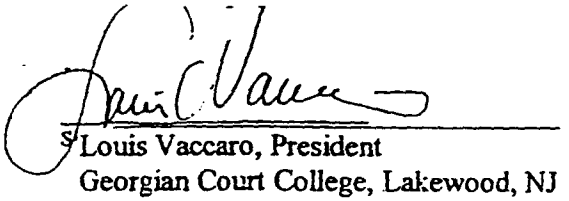
Margaret A. McKenna, President
Lesley University, Cambridge, MA



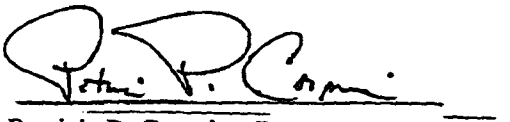
Sister Theresa Mary Martin, President
Felician College, Lodi, NJ



Craig Dean Willis, President
Lock Haven Univ. of PA
Lock Haven, PA

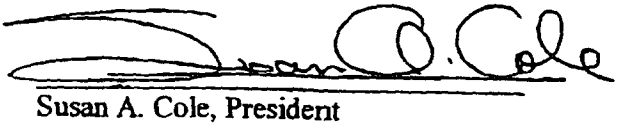


Louis Vaccaro, President
Georgian Court College, Lakewood, NJ



Patricia P. Cormier, President
Longwood College, Farmville, VA

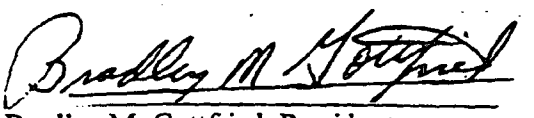
Gregory S. Prince, President
Hamphsire College, Amherst, MA



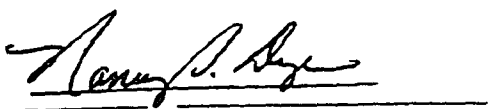
Susan A. Cole, President
Montclair State University
Upper Montclair, NJ

28213

Daniel M. Asquino, President
Mount Wachusett Comm. Coll.
Gardner, MA

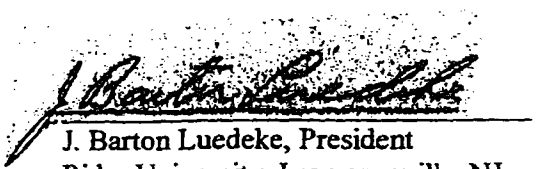


Bradley M. Gottfried, President
Sussex County Comm. College, Newton, NJ



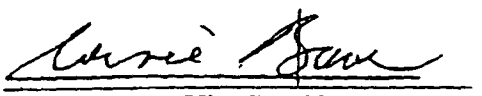
Nancy S. Dye, President,
Oberlin College, Oberlin, OH

R. Barbara Gitenstein, President
The College of New Jersey, Ewing, NJ

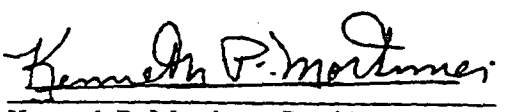


J. Barton Luedeke, President
Rider University, Lawrenceville, NJ

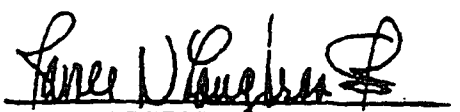
Rose Tseng, Chancellor
University of Hawai'I at Hilo, Hilo, HI



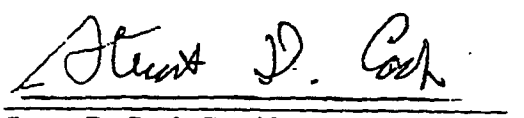
Connie Bauer, Vice President
Saint Mary-of –the Woods College
Saint Mary-of the Wood, IN



Kenneth P. Mortimer, President
Univ. of Hawaii, Honolulu, HI

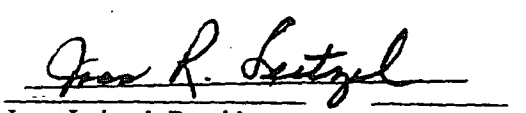


James N. Loughran, , President
Saint Peter's College, Jersey City, NJ

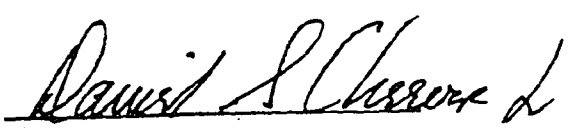


Stuart D. Cook, President
Univ. of Medicine and Dentistry of NJ, Newark, NJ

Ross S. Whaley, President Emeritus
SUNY-ESF, Syracuse, NY



Joan Leitzel, President
Univ. of New Hampshire, Durham, NH

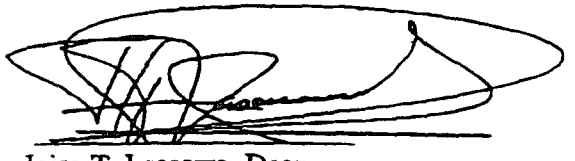


Daniel S. Cheever, Jr., President
Simmons College, Boston, MA

Vincent De Sanctis, President
Warren County Comm. College
Washington, NJ

Doug Orr, President
Warren Wilson College, Asheville, NC

Diana Chapman Walsh, President,
Wellesley College, Wellesley, MA



Jairo T. Lascarro, Dean
School of Engineering
Turabo University, Gurabo, Puerto Rico

28215

OFFICE OF THE VICE PRESIDENT
WASHINGTON

June 1, 2001

The Honorable Ted Strickland
United States House of Representatives
Washington, DC 20515

Dear Representative Strickland:

Thank you for your letter to the Vice President of May 15, 2001, regarding the report by the National Energy Policy Development Group (NEPDG). I have taken the liberty of forwarding your letter to the NEPDG and the Department of Energy for review. We look forward to working with you and your colleagues on responsible energy policies in the weeks and months ahead.

Again, thank you for your letter. If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Nancy P. Dorn
Assistant to the Vice President for Legislative Affairs

OFFICE OF THE VICE PRESIDENT
WASHINGTON

June 4, 2001

Secretary Spencer Abraham
United States Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear Secretary Abraham:

Enclosed you will find a copy of a letter from Representative Ted Strickland regarding the National Energy Policy Development Group's Report.

Thank you for your consideration.

Sincerely,

Nancy P. Dorn
Assistant to the Vice President for
Legislative Affairs

TUFTS UNIVERSITY
Tufts Institute of the Environment

June 4, 2001

Department of Energy
Secretary Spencer Abraham
1000 Independence Avenue, SW
Washington, DC 20585

Dear Secretary Abraham,

In an unusual collective action, the presidents of 41 colleges and universities have sent a letter on national energy policy to President George W. Bush. Citing the need for "a comprehensive and long-term view of energy," the presidents call for making energy conservation a higher priority, while underscoring their concern for this country's "excessive over-reliance on fossil fuels" and its reluctance to embrace and develop energy-saving technology.

The full text of the letter, list of signatories and press release are enclosed. We encourage you to consider carefully the message from the college and university presidents. If you wish additional information, please feel free to call us at the Tufts Institute for the Environment 617.627.3645.

Sincerely,

William R. Moomaw

William R. Moomaw, Ph.D., Director

Ann B. Rappaport

Ann B. Rappaport, Ph.D., Steering Committee

Sarah Hammond Creighton

Sarah Hammond Creighton, Project Manager

Medford, Massachusetts 02155
(617) 627-3645

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TUFTS UNIVERSITY
Tufts Institute of the Environment

Contact:
Ann Rappaport
Tufts Climate Initiative
508-653-7044
arappapo@gis.net

Sarah Hammond Creighton
Tufts Institute of the Environment
617-627-5517
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http://www.tufts.edu/tie/tci/

Education Leaders Write President Bush on Energy Policy
University Presidents Ask Administration to Reconsider Fossil-Fuel Strategy

Medford/Somerville, MA - The presidents of 42 colleges and universities today weighed in on the national energy debate by writing to President Bush, urging the president to re-think his administration's energy initiatives.

Citing the need for "a comprehensive and long-term view of energy," the presidents called for making energy conservation a higher priority, while underscoring their concern for this country's "excessive over-reliance on fossil fuels" and its reluctance to embrace and develop energy-saving technology.

The letter comes one week after the Bush Administration unveiled its energy plan, featuring a new focus on energy production and a review or modification of federal restrictions that stand in the way of oil and gas leasing across public lands.

John DiBiaggio, president of Tufts University and an environmental leader among educators, initiated the letter. It has been signed by presidents of colleges and universities across the country, including: David Baltimore, president of the California Institute of Technology; Diana Chapman Walsh, president of Wellesley College; Nan Keohane, president of Duke University; Nancy S. Dye, president of Oberlin; William Chace, president of Emory University; William D. Adams, president of Colby College; and Joan Leitzel, president of the University of New Hampshire.

They cited the United States' excessive consumption of energy. "Having the highest per- capita energy consumption of any major nation of the world is an indicator of waste, not productivity," they stated in the letter. "Simply extracting more fossil fuels from the earth and burning them in power plants and automobiles not only continues our inefficient use of resources, but it jeopardizes our national, economic and environmental security."

In their correspondence, the presidents indicated that national security is put at risk because the U.S. is so dependent on unstable regions of the world that provide more than half of its oil. "Our economy is threatened by spiking fuel prices and our deteriorating balance of payments. Our health, local air quality and the global climate system are seriously compromised by an excessive over-reliance on fossil fuels," they wrote.

Other nations are assuming leadership roles in advancing energy patterns having benefits for public health, the environment and the economy. "Britain has converted from its reliance on coal to the use of cleaner natural gas. The world leader in the fastest growing source of electricity, wind technology--formerly

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dominated by the U.S.--is now Denmark, producing 13 percent of its electricity this way. Germany and Spain now equal or exceed U.S. wind production. Energy efficient appliances and vehicles have decreased the per-capita demand for fossil fuels in Europe and Japan to nearly half of our own," the presidents' letter stated.

While praising the U.S. for its development of the super-efficient gas turbines now dominating the electricity market, the presidents charged that the United States "has fallen behind other nations" in fuel-cell technology for autos and buildings, hybrid-electric vehicle design, solar energy and efficient appliances.

"Instead of defending 19th century industries using 1950s coal and oil-based technologies, we have an opportunity to lead the world into the twenty-first century with new technologies developed in the United States. This requires that we shift away from, not toward, traditional uses of coal and oil," they urged.

Many of the signers of the letter to President Bush have initiated programs aimed at energy conservation and protecting the environment at their own institutions. Three years ago, Tufts University launched the Tufts Climate Initiative involving a series of steps designed to meet or beat the emission standards set by the landmark Kyoto Protocol on global warming. For instance, one dormitory now features energy upgrades and showers heated by solar power; another dorm features solar energy panels that generate electricity. All of these measures reduce energy costs to the university.

Oberlin College has a new environmental studies center that incorporates energy efficiency, solar electricity, low-impact materials and waste-water recycling. Meanwhile, Wellesley College, Clark University and others have a co-generation facility that captures waste heat.

The university and college presidents concluded their letter to President Bush by calling for a transformation to a truly innovative energy policy.

"We stand ready to commit our intellectual resources to assist government under your leadership in developing solutions to some of the most critical challenges our students and our nation will face this century," they said.

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- The NCSL policy also calls for "coal gasification to be seriously considered as an alternative to the use of coal in a conventional manner".
- The NCSL policy states that "no federal policy having implications for land development or management should be adopted without accommodating the laws and policies of affected states".

Nuclear Energy

NCSL **conditionally supports** the NEPD Group's recommendation that nuclear energy be a component of a national energy policy assuming that various concerns can be resolved.

- NCSL's National Energy Policy states, "Assuming concerns regarding plant safety, and the transportation, storage and disposal of nuclear waste can be resolved, nuclear power may be an option of a national energy plan. A federal government program for the long-term treatment and disposal of high-level radioactive waste, funded by the generators of the waste, should be pursued with the highest priority given to eliminating generation and transportation of waste and to the safety and technical suitability of storage or disposal sites. Such a program should be developed in full consultation with all of the affected states. The nuclear power plant licensing process for future plant construction must be improved to ensure both public input and timely decisions, and federally standardized nuclear power plant designs should be established.
- However, NCSL's National Energy Policy calls for the establishment of a federal government program for the long-term treatment and disposal of high-level radioactive waste, funded by the generators of the waste. Priority should be given to eliminating generation and transportation waste and to the safety and technical suitability of storage or disposal sites. Such a program should be developed in full consultation with all of the affected states.
- In addition, NCSL's National Energy Policy **supports** the recommendation that nuclear decommissioning funds should not be taxed. The NCSL Policy urges "the tax code be updated to ensure that existing decommissioning funds are treated in the manner intended by the tax laws and to reflect new business conditions".

Renewable Energy

NCSL **conditionally supports** the FY 2002 budget amendment for the USDOE's Energy Supply account that would provide $39.2 million in increased support for research and development of renewable energy resources. However, the overall decreases in the USDOE proposed budget are unacceptable given the pressing need to resolve national energy concerns.

- NCSL's National Energy Policy urges "the federal government to institute a long-range, stable Renewable Energy Development Program which identifies and supports development of renewable energy sources from research and development through demonstration projects and commercialization in a cooperative effort among industry, higher education, and national laboratories."
- In addition, NCSL's policy also encourages "federal development of alternative technologies that improve renewable energy efficiencies, cut costs, and assist in

integrating renewable energy into existing energy systems. The U.S. should strive to excel in the use, manufacturing and marketing of renewable energy resources and technologies".

NCSL also **supports** the NEPD Group's recommendation that the President direct the Administrator of the USEPA to develop a new renewable energy partnership program to help companies more easily buy renewable energy , as well as receive recognition for the environmental benefits of their purchase, and help consumers by promoting consumer choice programs that increase their knowledge about the environmental benefits of purchasing renewable energy.

NCSL **supports** the NEPD Group's recommendation that the President direct the Secretaries of Commerce, State and Energy explore collaborative international basic research and development in energy alternative and energy efficient technologies and explore innovative programs to support the global adoption of these technologies.

- In particular NCSL policy recognizes a need for "a translation and distribution system for international technical and marketing papers on renewable energy."

In addition, NCSL **supports** the NEPD Group's recommendation that the President direct the Secretary of the Treasury to work with Congress on legislation to extend and expand tax credits for electricity produced using wind or biomass.

- NCSL **commends** the President for extending the present 1.7 cents per kilowatt hour tax credit for electricity produced from wind and biomass; expands eligible biomass sources to include forest-related sources, agricultural sources, and certain urban sources; and allows a credit for electricity produced from biomass co-fired with coal.

NCSL **supports** the NEPD Group's recommendation that the President direct the Secretary of Treasury to work with Congress on legislation to provide a new 15 percent tax credit for residential solar energy property, up to a maximum credit of $2,000.

- NCSL also urges the administration to support and continue the previous administration's "Million Solar Roofs" initiative that to date has exceeded expectations of ultimately installing one million solar roofs in the U.S.

NCSL **supports** the NEPD Group's recommendation that the President direct the Secretaries of the Interior and Energy to work with Congress on legislation to increase funding for research into alternative and renewable energy resources, including wind, solar, geothermal, and biomass. However, NCSL believes general funds should be appropriated for this purpose.

NCSL **supports** the NEPD Group's recommendation that research and development efforts be focused on integrating current programs regarding hydrogen, fuel cells, and distributed energy.

- NCSL urges the federal government to propose increased funding for these types of technologies that hold promise for our nation's future energy needs.

Energy Infrastructure & Electric Transmission Infrastructure

NCSL **supports** the NEPD Group's recommendation that the President direct the Secretary of Energy to work with the Federal Energy Regulatory Commission (FERC) to improve the reliability of the interstate transmission system and to develop legislation providing for enforcement by a self-regulated organization subject to FERC oversight. NCSL believes any federal efforts to relieve transmission constraint problems at the interstate level will ultimately help states and regions as they address their individual *intrastate* transmission constraint concerns.

- However, NCSL strongly **opposes** any expansion of FERC authority to include *intrastate transmission* jurisdiction.
- It also **opposes** the exercise of federal eminent domain in addressing transmission constraint problems, especially in areas that are clearly intrastate in nature. Such action on the part of FERC would be a direct preemption of state authority.

NCSL **strongly opposes** the NEPD Group's recommendation that the President direct the Secretary of Energy, in consultation with appropriate federal agencies and state and local government officials, to develop legislation to grant authority to obtain rights-of-way for electricity transmission lines, with the goal of creating a reliable national transmission grid. Although NCSL understands the need to improve and increase the electricity transmission infrastructure to reduce constraints and improve reliability of the system, states have jurisdictional authority over retail, intrastate transmission lines. There are sound reasons for this authority being placed at the state level, namely to afford citizens the ability to participate in the determination of the numbers and locations of transmission lines. NCSL understands that the infrastructure needs to be bolstered, but it believes states are already addressing that challenge individually and regionally. The federal government should allow states to continue to work together to solve their energy concerns.

- Any expansion of federal authority that would remove intrastate retail transmission jurisdiction from states would be a direct preemption of state authority and would be vigorously opposed by NCSL.

Natural Gas Pipeline Infrastructure

The NEPD Group's recommendation argues that because similar authority already exists for natural gas pipelines in recognition of their role in interstate commerce, that the federal government should be authorized to obtain the same authority over the electric transmission grid. NCSL disagrees with this argument. FERC has had eminent domain authority to site the construction of natural gas pipelines for decades, yet presently, there is a pressing need to increase and improve the natural gas pipeline infrastructure. If FERC has not met the needs of the natural gas pipeline system with eminent domain authority, NCSL questions why the federal government is proposing to provide the FERC with the same authority over the electric transmission grid?

NCSL **supports** the NEPD Group's recommendation that the President support legislation to improve the safety of natural gas pipelines, protect the environment, strengthen emergency preparedness and inspections and bolster enforcement.

- NCSL **supports** federal efforts to improve the safety of the natural gas pipeline system, however, states should have the right to set more stringent requirements on pipelines and the federal government should support a more prominent role for states in regulating pipeline safety in partnership with the federal government.

Northeast Heating Oil Reserve

NCSL **supports** the President's budget proposal to provide $8 million to maintain the two-million-barrel Northeast Heating Oil Reserve. NCSL's National Energy Policy urges the federal government to examine the feasibility of and where feasible promote state-wide or regional minimum storage level requirements for heating oil for states dependent on this fuel.

We thank you for this opportunity to share with you our support and concerns regarding various elements of the administration's National Energy Policy recommendations. As we stated, our comments directly reflect the principles of NCSL's National Energy policy and its Energy Regionalism policy. We remain available to work with you and your administration on energy concerns. As indicated above, we are the only state and local organization of elected officials with a comprehensive national energy policy which enables us to work with you immediately. NCSL is committed to bipartisan cooperation in finding the best public policy solutions for our nation. We hope our views are useful and we look forward to continuing this dialogue in the future. Please do not hesitate to contact Eileen Doherty of our Washington, D.C. office at (202) 624-8687 or eileen.doherty@ncsl.org if you have questions or concerns.

Sincerely,

Jim Costa
California State Senate
President, NCSL

Steve Saland
New York State Senate
President-elect, NCSL

Clifton Below
New Hampshire State Senate
Chair, NCSL Energy and Transportation Committee

Cc: Vice President Dick Cheney
Secretary Spencer Abraham
Mr. Ruben Barrales

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AFI ENERGY AND TRANSPORTATION COMMITTEE

NATIONAL ENERGY

(Joint Policy with AFI Environment Committee)

The National Conference of State Legislatures urges the federal government to develop, implement and maintain an expansive, integrated, environmentally-sensitive and cost-effective national energy policy.

The primary goals of a national energy policy should be to develop a comprehensive energy conservation strategy, provide for the most efficient use of energy, to promote reliable sources of domestic energy supplies and to develop and promote the use of alternative, renewable energy sources. A national energy policy should ensure adequate supplies of affordably priced energy. A national energy policy should ensure the use of energy in an efficient and environmentally-sound manner so that the needs of our citizens, economy and national security interests are met. Energy independence must be a goal of the United States. A balanced mix of energy sources is essential to the security and the future economic growth of the United States. It is also imperative that a national energy policy account for the effect of the use of each fuel source on the environment.

Principles

Those principles which NCSL believes ought to guide the development and implementation of a national energy policy include:

- Promotion of the most efficient and economical use of all energy resources.
- Promotion of energy conservation and efficiency and the development and use of alternative and renewable energy supplies.
- Promotion and provision of incentives for the development and optimal use of all energy resources and new facility infrastructure.
- Assurance that various domestic energy sources are continually developed, maintained and stored to prevent supply emergencies and to preserve the nation's energy independence.
- Consideration and assessment of environmental costs and benefits for all energy resources, fuels and technologies in rendering legislative, regulatory and market decisions regarding energy production and use.
- Provision of an affordable energy supply for all citizens.
- Examine the feasibility of and where feasible promote state-wide or regional minimum storage level requirements for heating oil for states dependent on this fuel.
- Specification and balancing of clear lines of local, state and federal regulatory authority.
- Development of both short - and long-term strategies to provide adequate energy supplies, efficient utilization of those supplies and optimum cost effectiveness.
- Promotion of the education of school-age children regarding energy resources, consumption and production and regarding environmental protection, safety and risks in energy production.
- Assurance of expanded energy research and development and broadening of the citizenry's access to energy-related information.
- Assurance of participation of state and local officials in the development and implementation of a national energy plan and strategy.
- Avoidance of mandates, particularly unfunded mandates, upon state and local governments in developing a national energy policy.
- Avoidance of pre-emptive federal laws.

Implementation

NCSL believes development of a national energy strategy should have at least these six components:

(1) an assessment and forecast of our nation's energy future and its impacts;

(2) an evaluation and ranking of short and long-term energy options available to the nation;

(3) an evaluation of possible energy futures which provide greater benefits to our citizens;

(4) development of recommendations for energy options and energy futures that the nation should pursue, with the establishment of national targets or goals;

(5) evaluation and recommendation of implementation mechanisms including, but not limited to, incentives, technical assistance, educational programs, regulatory standards or guidelines to achieve the targets or goals; and

(6) coordination of federal and state components, responsibilities, and authority.

NCSL believes that a national energy policy should consider energy sources based on the following criteria first: lowest cost, cost benefit analysis, revenue loss, cost to consumers, reliability and environmental or other impacts. Energy policy alternatives that would improve our energy security without imposing significant new costs, while balancing the need for environmental protection, should be implemented. NCSL strongly supports a coordinated effort between state and federal government in producing a national energy policy. In the development of a national energy policy, the federal government should consult closely with state legislatures, devise mechanisms to bring state legislatures into the energy decision-making process as full participants on a continuing basis, and ensure the inclusion of representatives of the legislative branch of state government in all state-federal working groups dealing with energy policy .

Conservation and Energy Efficiency

Increased energy efficiency can decrease U.S. reliance on imported oil, reduce the environmental impacts of fossil fuels, reduce the long-term operating costs of

U.S. industries thus improving their competitiveness, slow the depletion of our finite fossil fuels and extend the time we have to make the transition to new and innovative energy technologies.

NCSL supports a national energy policy that promotes energy efficiency in a variety of ways including both setting and strengthening policies as technologies improve while recognizing the significance of economic costs on various segments of the population including rural areas:

- Corporate Average Fuel Economy Standards for automobiles and light duty trucks, including sport utility vehicles and minivans;
- energy efficiency provisions in model building codes (including lighting efficiency standards and weatherization);
- "Whole-building" and life cycle costing approaches to construction and retrofitting that integrate energy efficiency technologies and practices;
- home appliance and heating and cooling unit efficiency standards;
- waste recycling and reduction standards for industrial manufacturing;
- standards for conservation in electrical production and supply including cogeneration;
- use of alternative energy; and
- a national transportation policy that emphasizes various modes of transportation, including passenger rail and transit, and promotes energy efficiency.

Government Support for Energy Efficient Products and Industries

NCSL supports incentives for consumers to purchase energy efficient products. The federal government should continue to establish incentives for energy efficient fleet procurement industries and manufacturers of energy efficient products. The federal government should continue to encourage the use of innovative financing technologies to increase energy efficiency in buildings such as performance contracting and long-term leasing and purchase agreements for energy efficient products.

Government's Participatory Role

Federal and state governments' leadership role in the purchase and use of new energy efficient technologies and products should be expanded, and all government-owned buildings should make use of economical energy conservation programs, demonstrating state of the art efficiencies whenever possible.

Renewable Energy

Renewable energy sources include, but are not limited to, geothermal, hydropower, biomass, wind, photovoltaics and solar. NCSL believes that recognizing this spectrum of resources, the federal government should institute a long-range, stable Renewable Energy Development Program which identifies and supports development of renewable energy sources from research and development through demonstration projects and commercialization in a cooperative effort among industry, higher education, and national laboratories.

Federal restructuring legislation should not preempt state authority to provide incentives for the purchase of renewable energy.

Energy Emergency Preparedness

The federal government should support and enhance energy emergency preparedness in order to reduce the potential impact of petroleum supply disruptions. Initial efforts should focus on strategies to reduce the nation's dependence on foreign oil to avoid future emergencies. Such programs must give consideration to existing state laws and programs, and state and local officials should be included in the federal planning process.

The national energy emergency preparedness program shall include the following principles: voluntary conservation is preferred to mandatory measures wherever possible; any mandatory response should be phased in, beginning with the least stringent measures, with gasoline rationing reserved for only the most

severe shortage; and to minimize undue hardships on states and regions heavily dependent on motor vehicle transportation, rationing allotments and allocation plans should be based on state and regional needs and strategies rather than on national averages. Priority shall be given to home heating needs including home heating oil and propane, provided homes are adequately insulated.

To ensure that the country has sufficient, affordable supplies of energy, NCSL believes changes need to be made at the national level to encourage the more efficient use of energy to reduce U.S. reliance on foreign oil. Federal investments in energy efficiency research and technology have and will continue to ensure that less energy is consumed without a loss in comfort or productivity. Also, federal investments in new energy technologies such as fuel cells and hybrid generators can create technology and manufacturing jobs. Both energy efficiency and research in developing alternative energy technologies should figure significantly in a national energy policy.

Crude Oil

The federal government should promote the environmentally-sound production of domestic energy resources in coordination with the conservation and efficient use of energy resources, and the management of energy imports.

The federal government should promote and encourage domestic production of crude oil in an environmentally sound manner to supply United States consumers with a secure source of petroleum, and provide a stabilizing influence to the world price of crude oil. Since domestic production is declining rapidly, the efficient use and conservation of these resources must be encouraged. Also, the extraction and transportation of crude oil must be done only with full safeguards for the protection of the environment. In this regard, the federal government should consider incentives for domestic exploration, maintenance of stripper wells, but excluding other extractions, and technological research for methods of

enhanced oil and gas recovery that are environmentally safe and in accordance with state policy.

The federal government should ensure that energy resources are utilized in a manner that recovers the most energy value possible while assuring full protection of the environment. Similarly, it should be the strategy of the United States to alleviate oil dependency by funding research and development to perfect alternative fuels, particularly for transportation. The federal government should also increase research and development in the area of new energy generating technologies like fuel cells and hybrid engines. Enhanced oil and gas recovery from known reserves should be promoted in an environmentally sound manner.

The federal government should manage United States imports by diversifying import suppliers, pursuing a Pan American Energy Alliance with Western Hemisphere producing nations, and expanding a dialogue with suppliers worldwide.

Coal

Coal is America's leading fossil fuel in reserve. Coal holds the promise of long-term energy security for this nation. Resources of coal can be properly utilized only if we develop technologies to burn coal more cleanly, and efficiently. Because coal consumption produces carbon dioxide, mercury and other emissions, energy conservation and energy efficiency must be emphasized.

It should be the goal of the United States to provide continued support for the Clean Coal Technology Program, in partnership with the private sector. Research and technology development in clean coal usage should include work in pre-combustion, combustion, post-combustion, and coal conversion areas with desulfurization efforts a top priority. The United States should jointly address transboundary environmental problems with Canada and Mexico. NCSL supports

the acid rain program of the Clean Air Act of 1990 that phases -in reductions in emissions from coal burning power plants.

Since gas generated from coal can be distributed through existing pipeline systems, and since the delivery of coal in a conventional form will require extensive capital investment in plant conversion and rail transportation, coal gasification should be seriously considered as an alternative to the use of coal in a conventional manner.

Mined lands should be reclaimed concurrently and restored to an environmentally appropriate condition. The effects on local infrastructure needs and the costs of prime farmland protection and land reclamation should be considered in the development of a national coal program. Financing of activities under the abandoned mine reclamation fund should be accelerated, and a federal commitment to reclamation should be strengthened. No federal policy having implications for land development or management should be adopted without accommodating the laws and policies of affected states.

Natural Gas

Efficient natural gas turbines can be utilized in many areas with fewer environmental concerns. Natural gas can be developed with very low worker mortality compared to other energy activities.

The United States should encourage domestic production of natural gas in an environmentally sound manner.

Currently, the Office of Pipeline Safety (OPS) regulates the inspections of gas pipelines in the U.S. NCSL believes safety is not being maintained sufficiently given recent explosions in two states. The federal government should adopt legislation that authorizes states to assume a more prominent role in the regulation of pipeline safety. In this way, states in partnership with the federal

government, will enhance the safety of pipelines and the protection of residents by decreasing the risk of pipeline accidents.

Nuclear

Assuming concerns regarding plant safety, and the transportation, storage and disposal of nuclear waste can be resolved, nuclear power may be an option of a national energy plan.

A federal government program for the long-term treatment and disposal of high-level radioactive waste, funded by the generators of the waste, should be pursued with the highest priority given to eliminating generation and transportation of waste and to the safety and technical suitability of storage or disposal sites. Such a program should be developed in full consultation with all of the affected states. The nuclear power plant licensing process for future plant construction must be improved to ensure both public input and timely decisions, and federally standardized nuclear power plant designs should be established.

It is essential that the Nuclear Regulatory Commission provide strong, centralized, and
consistent administration to improve management of the agency, expedite policy formulation, and help bring about needed reforms in licensing and regulation, consistent with the NRC's primary responsibility of ensuring public health and safety. Meaningful and effective state participation is necessary in public safety planning and transportation of commercial nuclear waste.

States must continue to have the right to monitor operating conditions at nuclear power plants, waste storage and disposal facilities, and to exercise regulatory authority where consistent with federal law.

Federal funding should be provided for research in the areas of waste management technologies, nuclear fusion, and plant retrofit and life extension.

Tax Treatment of Decommissioning Funds

State electric industry restructuring initiatives and the emergence of competition in generation supply have two potentially adverse major impacts on decommissioning funds – loss of tax deductibility and taxation of the funds transferred in nuclear plant sale transactions. The tax code should be updated to ensure that existing funds are treated in the manner intended by the tax laws and to reflect new business conditions.

Electricity

The federal government should promote energy efficiency and conservation to lower the demand for electricity. The development of sources of electric energy that are sufficient to meet national needs, secure from external threat, reliable in availability and delivery, safe relative to people and the environment, and efficient for use in homes, businesses, industries, and as an alternative vehicular fuel, should be pursued after aggressive efficiency and conservation programs are implemented.

The electricity sector today is marked by tremendous regional diversity, especially with regard to capacity. Fuel usage also varies widely. Implementation of federal legislation that fails to recognize this diversity inevitably penalizes one region or another. NCSL policy on electric industry restructuring is addressed in separate NCSL policies.

Regulatory Authority

State regulatory bodies are close to consumers, utilities, industries, and concerned for state environmental and economic well being. State regulatory bodies are in the best position to evaluate consumer needs, questions relative to fuel choice, economic development implications, and system reliability.

NCSL strongly supports and urges the continuation of the state legislative oversight for the approval and siting of all major energy conversion facilities, subject to minimum federal standards established only after the fullest consultation with state governments, both executive and legislative branch. State authority over the siting of energy facilities should not be preempted by federal electric restructuring law or any other law.

Research and Development

The cornerstone of a national energy policy should include a broad research and development component. The federal government has already committed substantial research funds for clean coal, nuclear research, basic science and related efforts. These research and development efforts ought to be continued. These efforts, however, should be supplemented with increased incentives and federal funding for research and development projects emphasizing emerging technologies, including, but not limited to, renewable resources, energy conservation, efficient use of energy, alternative fuels, oil and gas recovery, superconductivity, and fuel cell technology. This enhanced long-term research and development capacity should also be designed to encourage private sector participation with federal and state representatives.

Renewable Energy R&D Market Support

Part of the renewable energy resource development program, and critical to its success, is federal development of alternative technologies that improve renewable energy efficiencies, cut costs, and assist in integrating renewable energy into existing energy systems. Also needed is a translation and distribution system for international technical and marketing papers on renewable energy. The U.S. should strive excel in the use, manufacturing and marketing of renewable energy resources and technologies.

Education and Information

It is essential that the nation, including its elementary and secondary school-age children, be made fully aware of energy use and costs, production processes,

alternative energy resources and the impact energy usage has on our environment. NCSL recommends that public and private sector education efforts be initiated, expanded and appropriately funded. These efforts should emphasize that significant economic and environmental benefits can be achieved through increased efficiency and conservation. Also, the federal government should promote both energy conservation education and fund research into conservation technologies. Federal funding of energy conservation programs, including grants to states, should be enhanced.

The federal government and the states should encourage education in schools about the importance of energy efficiency and conservation.

NCSL believes an essential step in formulating a balanced energy policy is to develop the necessary data and employ analytical methods and models to assess the efficiency, productivity costs and risks of the various energy choices available to the nation. NCSL recommends the development of this analytic base by the Department of Energy, with assistance from the Departments of Defense, Treasury and State, and the Office of Management and Budget, in conjunction with the states.

Transportation

National transportation strategies must include public policy initiatives directed at broadening the efficient use of our energy resources. NCSL believes these policy initiatives should include, but not necessarily be limited to, incentives and adequate funding for mass transit, high speed rail, magnetic levitation and other emerging transportation technologies; fuel economy standards; and other market incentives for improving the energy efficiency of automobiles and light trucks; and federal, state, and local procurement policies favoring efficient vehicles. Public-private partnerships should be encouraged.

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ENERGY REGIONALISM

The United States has enjoyed low energy and gasoline prices. However, over the past year-and-a-half, increases in gasoline prices, home heating oil, natural gas prices and electricity prices, especially in the West, have all contributed to the uncertainty and instability of the country's economy. This instability has led to increased federal efforts to impose preemptive remedies on the states in an attempt to address the nation's energy and economic concerns.

Given the energy concerns for the nation and those shared by many individual states, NCSL believes that state legislatures should work together, regionally or otherwise, to solve their individual and collective energy supply concerns. Therefore, NCSL believes that:

- States should have the option and authority of being represented in Regional Transmission Organizations (RTOs) on a voluntary basis. State participation in an RTO should not supersede nor alter state jurisdiction, unless agreed to by the state;
- State-created regional mechanisms like interstate compacts and regional reliability boards designed to address transmission reliability and other regional energy issues should be facilitated by Congress;
- States should collaborate to resolve problems related to the interconnectedness of the energy grid and the environmental impact of generating electricity;
- Energy facility siting should remain under state jurisdiction devoid of federal mandates and preemption;

- Electric facility siting authority should remain under state authority. The federal government should not exercise its power of eminent domain in its pursuit of constructing energy facilities or related purposes;
- U.S. Department of Energy and the U.S. Environmental Protection Agency should work in partnership with states:

  1) in developing and implementing state and federal energy policy planning processes; and

  2) in deploying new energy efficiency and other demand-side options, as well as deploying new and conventional supply-side technologies;
- Given the national implications of state energy concerns, the federal government should provide sufficient funding to states as they develop energy policies on an individual or regional basis; and
- The federal government should exercise its authority, especially when requested by states, to assist them as they attempt to solve their energy problems.

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ELECTRIC INDUSTRY RESTRUCTURING

A number of states already allow retail consumers to choose among competing electricity providers. Every other state is considering some type of reform to its electric industry, and Congress is also considering action to overhaul existing laws governing the structure of the electric industry. While there are a few aspects of restructuring that would best be served by a national or regional focus, NCSL believes that the majority of issues associated with restructuring should be within the purview of the states.

Any action taken by Congress to restructure the electric industry should enable states to restructure without imposing a mandate on states to do so and without establishing a date certain for competition.

- NCSL considers federal preemption of state regulation of the electric industry to be wholly inappropriate and unacceptable and opposes federal standards to govern state electric utility regulation or retail ratemaking by state commissions. State jurisdiction should not be eroded.
- Any action taken by Congress to restructure the electric industry should grandfather any state actions to establish retail competition, without setting temporary limits on grandfathering actions.
- State and local authority, which facilitates regional or statewide aggregation, must not be precluded.
- State and local governments must maintain their authority governing rights-of-ways, franchises, zoning and revenues.

Federal Restructuring Process:

- Appropriate state officials should be fully consulted regarding the development of federal policy regulating the electric industry.
- Federal electric industry restructuring should be in a manner consistent with state electric industry regulation.
- The roles of state regulators and FERC regarding transmission of electricity require careful collaboration of all affected entities so that policies are not at cross-purposes. Federal authority over wholesale pricing and new access must harmonize with state authority over retail pricing, planning and siting.

The Public Utility Holding Company Act (PUHCA):

- State authority must not be eroded nor should any state authority be transferred to FERC if PUCHA is unconditionally repealed, conditionally repealed or if the SEC authority under PUCHA is expanded.

The Public Utility Regulatory Policy Act (PURPA):

- NCSL urges that changes in or to PURPA guarantee that it is within the individual state public utility commission's purview to determine the specific methodology employed for calculating "avoided cost." Considering the state-specific conditions of power generation capability, the determination of competitive prices for purchased power from PURPA-qualified qualified facilities (QF's) must remain a state right and responsibility. The purchase price for QF power must be based on the utility's service needs as determined in ratemaking proceedings before the state or local regulatory authority. New QF purchase requirements under PURPA should terminate where customers have retail choice of generation suppliers.
- Existing state law and state regulatory authority should not be negatively affected by PURPA repeal.

Public Benefits/Environment:

- States should maintain the authority to require public benefits programs on a nondiscriminatory basis, including those that support reliable and universal service, energy efficiency, renewable technologies, research and development, and low-income assistance. Existing federally sponsored public benefits programs should be maintained in a restructured market.
- Electric industry restructuring should be consistent with any federal environmental laws, including the Clean Air Act.
- In regards to fuel usage, the electricity sector is characterized by tremendous diversity, regionally, and state-to-state. Factors relating to fuel usage include energy efficiency, economic competitiveness, environmental impacts and technological adaptability. Implementation of Federal legislation that fails to recognize market mechanisms inevitably penalizes one region or state or another. Mandate programs, which have led to energy market distortions in the past, are counter to the concept of restructuring, which encourages the efficiencies of market competition. States are in the best position to evaluate market force considerations. Congressional legislation should not limit, through the use of mandates or otherwise, state flexibility in addressing market mechanisms in electric restructuring plans.
- NCSL believes that non-traditional energy production should be encouraged. The federal government must maintain and increase its commitment to cost effective energy conservation and efficiency while maintaining adequate and reliable energy. Power providers, equipment and appliance manufacturers, and consumers should be given legislative and regulatory incentives to promote these goals.

Consumer Protection and Education:

- The safety, reliability, quality, and sustainability of services should be maintained or improved.

- All consumers should have access to adequate, safe, reliable, and efficient energy services at fair and reasonable prices, as a result of competition.
- States should retain the authority, with the assistance of the federal government as needed, to protect consumers from anticompetitive behavior, undue discrimination, poor service, market power abuses, and unfair service practices.
- States should maintain the authority to establish or require comprehensive consumer education and outreach programs to minimize public confusion and provide information so consumers are able to make informed choices and participate effectively in a restructured market.

Stranded Costs:

- States should continue to have clear authority to determine costs that are stranded or made unrecoverable by retail competition and to provide for the recovery of those costs, if at all, as the state deems necessary or appropriate.

Public Power/Rural Power:

- The U.S. Department of the Treasury should promptly take administrative action to permanently preserve the tax-exempt status of existing debt associated with the transmission systems of public power utilities that choose to participate in Independent System Operators.
- Any federal legislation should maintain or improve the ability of rural consumers of electricity to obtain adequate, affordable and reliable service.
- States should maintain authority in regards to the treatment of rural electric cooperatives and public power districts in a competitive environment.

Taxes:

- No provision in any federal electric industry restructuring should result in the loss of state and local tax revenue.

Power Marketing Administrations:

- The National Conference of State Legislatures supports cost-based pricing and other current federal power marketing policies that have governed the sale of electric power from federal hydro projects for decades. NCSL believes the federal hydropower program has served the nation and American consumers well and urges Congress and the Administration to preserve those policies in the interest of millions of urban and rural consumers who rely on that power.

NATIONAL CONFERENCE of STATE LEGISLATURES

The Forum for America's Ideas

AFI ENERGY AND TRANSPORTATION COMMITTEE

ENVIRONMENTAL IMPACT OF ELECTRIC INDUSTRY RESTRUCTURING

(Joint Policy with AFI Environment Committee)

The National Conference of State Legislatures (NCSL) believes that deregulation of electricity production should not result in an increase in air pollution. NCSL supports provisions of the Clean Air Act (CAA) that require achievement of scientifically-based air quality standards and prohibit significant deterioration. Congress also enacted provisions to limit pollution sources in one state from causing an adverse impact on air quality in neighboring states. Any legislation authorizing electric utility deregulation should respect these CAA provisions and Congress should also:

Work on a cooperative basis with state and local officials on electric industry restructuring to ensure the concerns of all interested parties are addressed; Continue to monitor emissions from electricity producers before and after completion of electric industry restructuring to determine whether emissions cause or contribute to ambient air quality exceedances beyond state and federal permitted levels; Encourage electricity producers to invest in clean emission reduction technologies to reduce air pollution; Assure that federal agencies respect and support states' efforts to address interstate air quality issues through interstate cooperation such as visibility transport commissions or the Ozone Transport Assessment Group; Assure that, in addition to addressing emissions from the electric utility industry and to the maximum extent feasible, states and EPA address emissions from federal sources affecting interstate transport of

pollutants; Preserve the existing role of states as the primary policy makers for environmental and electric industry regulation; and
Assure that state authority to develop and implement restructuring plans is not preempted.

On a proactive basis, the federal government should work with the states to prevent any increase in interstate and international transportation of air pollution that may result from increased electricity generation. However, in the event that there is such an increase in the transportation of air pollution, then the federal government should work with the states to:
Ensure that the source of such increased air pollutants takes measures to reverse any increase in emissions; and
Use existing Clean Air Act authorities to protect states and air quality control regions adversely affected by interstate and international transboundary migration of air pollution.

Miroslav GRÉGR
Deputy Prime Minister and Minister of Industry and Trade
of the Czech Republic

Prague, 1. June, 2001
No: 25964/01/1120/1000

Dear Mr. Secretary,

I was pleased to receive the report on the "National Energy Policy" developed by the "National Energy Policy Development Group" chaired by Vice President Cheney. Allow me to thank you for it. I will study it very attentively.

I am of the opinion that the whole advanced world feels one common theme in the energy field – safety of energy supplies for prices that would promote local as well as global economic growth. We discuss this theme with our partners in the European Union countries within a discussion on the European Energy Policy called "Green Paper – Towards a European Strategy for the Security of Energy Supply". It is evident that you identify the main energy problem in the same way in your National Energy Policy. I am very pleased that you support a diversification of the energy resources, including the nuclear energy. I would like to point out especially to this energy resource as I see a possibility of a development of more efficient technologies based on nuclear energy as very prospective, namely also in view of the environmental protection.

June 4, 2001

The Honorable Spencer Abraham
Secretary
U.S. Department of Energy
1000 Independence Avenue, NW
Washington, DC 20051

Dear Secretary Abraham:

As national association representatives for the State Energy Program (SEP), the Weatherization Assistance Program (WAP), and the Low Income Home Energy Assistance Program (LIHEAP), we believe that the National Energy Policy Report is a good starting point in addressing the nation's energy needs. At the same time, we strongly oppose the recommendation that ***"the President support legislation to allow funds dedicated for the Weatherization and State Energy Programs to be transferred to LIHEAP if the Department of Energy deems it appropriate."*** If this recommendation to transfer funds is pursued by the Administration, the passage of this legislation could devastate the very state programs designed to provide energy efficiency and affordability services for low-income families, small business, industry, schools, hospitals, and the energy consumer regardless of income.

The SEP plays an essential role in implementing energy programs at the state and local level for all sectors of the economy. The WAP delivers energy efficiency services to low income households to help reduce their energy bills in the future. Both programs work in close cooperation with LIHEAP in helping to target assistance to those families most in need.

The movement of funds from SEP and WAP would severely limit the states' abilities to implement sound energy policies and deliver these much needed energy programs. We agree with the NEPD Group that key components for energy affordability in low-income households are lower prices and adequate funding. We do not believe that cutting key elements of the state/federal energy efficiency partnership, like SEP and WAP, will enhance affordability and address local energy needs.

We applaud the NEPD Group's effort to support both WAP and LIHEAP through guaranteed funding, although we believe that the levels of funding referenced in the Report fall short of the needs faced by low-income families throughout the nation. We want to work with the Administration and Congress on developing a responsible energy policy, including many of the key elements affecting states and low income Americans.

The national associations representing the states on energy matters look forward to working with you and your staff during the coming years to develop and implement a comprehensive energy strategy. Please feel free to call upon us if we can provide you with any assistance as we move forward in our efforts to address the energy needs of all Americans.

Sincerely,

Mark Wolfe
Executive Director
National Energy Assistance Directors' Association

Frank Bishop
Executive Director
National Association of State Energy Officials

Timothy R. Warfield
Executive Director
National Association for Community Services Programs

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NATIONAL CONFERENCE of STATE LEGISLATURES

The Forum for America's Ideas

Jim Costa
State Senator
California
President, NCSL

Diane Bolender
Director, Legislative Service Bureau
Iowa
Staff Chair, NCSL

William T. Pound
Executive Director

June 6, 2001

The Honorable George W. Bush
President of the United States
The White House
1600 Pennsylvania Avenue, NW
Washington, D.C. 20500

Dear President Bush:

On behalf of the National Conference of State Legislatures, (NCSL) we would like to take this opportunity to comment on your National Energy Policy proposal. Our comments are derived from our own comprehensive policy revised and readopted last year without opposition. A broad group of state legislators who are leaders in their state energy, transportation and environment committees developed **NCSL's National Energy Policy**. Because our effort involved state legislators from across the country and from both political parties, we believe our policy is a truly balanced call for increased domestic production, as well as support for significant increases in energy efficiency, conservation, renewable energy and increased fuel efficiency.

In addition to our updated National Energy Policy, NCSL recently adopted an **Energy Regionalism Policy** that supports a federal partnership with states working together regionally or otherwise to solve our energy problems. NCSL also has current policies on Alternative Fuels and Alternatively Fueled Vehicles, Electric Industry Restructuring and its Environmental Impacts and other related policies. Copies of the named policies are enclosed.

As you will see, we support the majority of the recommendations contained in the Report of the National Energy Policy Development Group. However, we believe it is unfortunate that NCSL has not been identified to participate in the same fashion as the National Governors' Association in energy discussions with the administration. We hope that you will reconsider this recommendation especially in light of the fact that NCSL is the only state and local organization of elected officials with a comprehensive national energy policy that allows us to comment on this proposal in depth. As you know, state legislatures play an important and often primary role in developing and adopting a myriad of energy, environmental and economic policies. We are hopeful that these initial comments will commence a collaborative effort between your administration, Congress, and NCSL in addressing national energy policy needs.

Our position on a variety of the recommendations contained in the National Energy Policy Development (NEPD) Group's report are as follows:

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28248

Energy Education

NCSL **supports** the NEPD Group's recommendation that the President direct the Secretary of Energy to explore options such as legislation to create public education awareness programs about energy that would be long-term in nature and funded and managed by the respective energy industries. While NCSL supports private sector education efforts proposed in these programs, we also believe that publicly funded programs should be emphasized as well to ensure a balanced presentation of all energy options and their impact on the environment.

- We urge you to consider the creation of a state block grant program this year to promote energy education.

LIHEAP

NCSL strongly **supports** the NEPD Group's recommendation that the President take steps to mitigate impacts of high energy costs on low-income consumers by strengthening the Low Income Home Energy Assistance Program (LIHEAP) by making $1.7 billion available annually. Given the breadth of energy sector price increases, a less stable economy and increasing unemployment rate, it is essential to provide additional assistance to citizens struggling to afford their rising energy bills.

- NCSL also urges the administration to request supplemental funding for FY 2001 for LIHEAP.
- NCSL **supports** a higher FY 2002 appropriation for LIHEAP, perhaps as high as $3.4 billion as proposed in S.352 and H.R. 683, to address needs caused by price hikes.
- NCSL **supports** the NEPD Group's suggestion to increase LIHEAP funding, but we believe general funds should be used as needed and increased LIHEAP funding should not be at the expense of energy efficiency or renewable energy R&D programs.

Weatherization

NCSL strongly **supports** the NEPD Group's recommendation that the President increase funding for the Weatherization Assistance Program by $1.2 billion over ten years. Over the past five to ten years, utility companies have reduced the provision of these services which has greatly increased the need for additional federal and state assistance. NCSL believes this funding increase will help ease the burden of high energy costs for many Americans. Increased funding for this program should not be at the expense of R&D programs for energy efficiency or renewable energy.

NCSL **opposes** the NEPD Group's recommendation that the President support legislation to allow funds dedicated for the Weatherization and State Energy Programs be transferred to LIHEAP if the U.S. Department of Energy (USDOE) deems it appropriate. NCSL believes that considering the rising energy costs across all sectors, it is vitally important for the President and Congress to fully fund all energy efficiency and energy relief programs. If LIHEAP requires additional funding, the President and Congress should work together to increase its funding levels, not shortchange other energy assistance programs by siphoning funds from them to be transferred to LIHEAP. Also, NCSL

believes the states should determine the most appropriate disbursement levels of funds for the programs listed above.

Federal Efforts to Work with States on Energy Concerns

NCSL **conditionally supports** the NEPD Group's recommendation that the President recognize unique regional energy concerns by working with state organizations to address these problems. NCSL strongly supports a coordinated effort between state and federal government in producing a national energy policy.

- However, NCSL is extremely concerned that the recommendation identifies only the National Governors' Association and regional governor associations (p.2-12) as potential partners in the state/federal energy dialogue with the administration. We believe that by excluding NCSL and other state and local groups, the President and the nation will risk losing valuable input and collaboration from state legislatures and localities on issues vitally important to them and their constituencies. NCSL and its members are eager to work with the President and Congress on energy concerns facing this country and we offer our full cooperation in developing legislation and other initiatives.

Multi-Pollutant Legislation

NCSL **supports** the NEPD Group's recommendation that the President direct the U.S. Environmental Protection Agency (USEPA) to propose multi-pollutant legislation. The legislation would establish a flexible, market-based program to significantly reduce and cap emission of sulfur dioxide, nitrogen oxides and mercury from electric power generators. In addition, it is stated that the cap program would involve appropriate measures to address local concerns.

- NCSL agrees that the USEPA should consult with localities, however, states also should be included in that consultation.
- State laws governing power plant emissions should not be preempted or impacted by the proposed legislation.
- States should be authorized to implement stricter emission laws if they prefer.
- The President needs to indicate the level of the caps, when the program would take effect and how long the program would be in effect to provide a clear signal to the energy industry as well as environmental regulators.

Inter-agency Task Force on Permitting Energy-Related Facilities

NCSL **supports** the NEPD Group's recommendation that the President issue an Executive Order to rationalize permitting for energy production in an environmentally sound manner by establishing an inter-agency task force. This task force would ensure that federal agencies set up appropriate mechanisms to coordinate federal, state, tribal and local permitting activity in particular regions where increased activity is expected.

- NCSL applauds the President's commitment to work with states on permitting issues. However, no federal permitting law should preempt or impact state laws governing energy facility permitting.
- NCSL offers to assist the task force in its efforts and looks forward to participation in this process.

Energy Efficiency and the Energy Star Program

NCSL strongly supports aggressive federal promotion of energy conservation and efficiency. NCSL policy states that the "federal government must maintain and increase its commitment to cost effective energy conservation and efficiency while maintaining adequate and reliable supplies."

NCSL strongly **supports** the NEPD Group's recommendation that the President direct the Secretary of Energy to promote greater energy efficiency through:

1. Expanding the Energy Star program beyond office buildings to include schools, retail buildings, health care facilities, and homes;
2. Extending the Energy Star labeling program to additional products, appliances, and service; and
3. Strengthening the USDOE public education programs relating to energy efficiency.

- As with any expansion, extension or strengthening of a program, however, there is an increased need for funding. NCSL urges the President to propose additional federal funds for the Energy Star program to meet the growing need for greater energy efficiency in this country.

NCSL also strongly **supports** the NEPD Group's recommendation that the President direct the Secretary of Energy to improve the energy efficiency of appliances through:

1. Supporting the appliance standards program for covered products, setting higher standards where technologically feasible and economically justified; and
2. Expanding the scope of the appliance standards program, setting standards for additional appliances where technologically feasible and economically justified.

- NCSL would like to understand what the definition of "economically justified" is in relation to improved energy efficiency. If too narrow a definition is chosen, the long-term benefits of energy efficiency could be sacrificed to a relatively insignificant increase in short-term expense.
- NCSL urges the administration to further expand the incentives for the purchase of Energy Star products by offering increased tax credits and rebates to individuals, private and public consumers.
- Also, NCSL **supports** the NEPD Group's recommendations to increase appliance energy efficiency standards.
- For consistency's sake however, we urge the withdrawal of the administration's issuance of a less stringent standard for air conditioner energy efficiency levels. This retreat from requiring greater energy efficiency in an appliance that is used extensively, especially in some of the areas hardest hit by electricity increases recently, seems counterproductive to trying to relieve the energy constraint and supply problems across the country.

Combined Heat and Power Projects

NCSL **supports** the NEPD Group's recommendation that the President direct the Secretary of Treasury to work with Congress to encourage increased energy efficiency

through combined heat and power projects (CHP) by shortening the depreciation life for CHP projects or providing investment tax credits.

- NCSL's own National Energy Policy urges the federal government to support "research and development projects emphasizing emerging technologies". We believe CHP, which greatly increases the efficiency of energy consumed by a facility, represents a technology with tremendous potential for energy conservation. However, the investment tax credits must be substantial enough to spur investment in the technology.

Corporate Average Fuel Economy (CAFE) standards

NCSL **conditionally supports** the NEPD Group's recommendation that the President direct the Secretary of Transportation to review and provide recommendations on establishing CAFE standards with due consideration of the National Academy of Sciences Study to be released in July 2001.

- In accordance with its own National Energy Policy, NCSL urges the President to "strengthen and improve CAFE standards for all automobiles and light duty trucks, including sport utility vehicles and minivans, while recognizing the significance of economic costs on various segments of the population including rural areas."
- NCSL would oppose any effort to weaken or reduce CAFE standards resulting from such review of the National Academy of Sciences Study especially given rising gasoline prices and the administration's expressed goal of reducing U.S. dependence on foreign oil.

Fuel Efficient Vehicles

NCSL **supports** the NEPD Group's recommendation that the President direct the Secretary of Treasury to work with Congress on legislation to increase energy efficiency with a tax credit for fuel-efficient vehicles. With the escalation of gasoline prices across the country, a tax credit that encourages the purchase of new hybrid fuel cell vehicles and other fuel-efficient vehicles will provide additional incentives for consumers to purchase vehicles that use less gasoline and save money in the long-run.

- NCSL also recommends that similar tax credits be extended to the purchase of more fuel efficient vehicles other than hybrids.

Technological Advances in Transportation

NCSL **supports** the NEPD Group's recommendation that the President direct all agencies to use technological advances to better protect our environment including:

1. Continued federal investment in Intelligent Transportation Systems (ITS) and encouragement for private sector investment in ITS applications;
2. Administrative support for the USDOT's fuel-cell powered transit bus program as proposed in TEA-21; and
3. Administrative support for the Clean Buses program established in TEA-21.

Increasing Domestic Energy Supply

NCSL **supports** the NEPD Group's recommendation that the President direct the Secretaries of Energy and the Interior to promote enhanced oil and gas recovery from existing wells through new technology. A basic tenet of NCSL's National Energy Policy is the "promotion of reliable sources of domestic energy supplies". The policy also establishes that "energy independence must be a goal of the United States". Enhanced oil and gas recovery could be one tool used to reduce dependence on non-domestic sources.

- NCSL also **supports** the recommendation to improve oil and gas exploration technology through continued partnerships with public and private entities. We would urge that state legislatures be included in those partnerships.

Comprehensive National Electric Restructuring Legislation

NCSL believes that the majority of issues associated with electric industry restructuring should be within the purview of the states and that any federal legislation should help enable state restructuring without imposing federal mandates. Only half of the fifty states have restructured their electric industry thus far. In addition, in light of the energy problems in California directly resulting from their electric restructuring law, some states have opted to withdraw their restructuring laws or delay them for a number of years. NCSL firmly believes that in light of these developments, the federal government should not impose a "one-size-fits-all" approach to electricity delivery. However, if a national electric restructuring plan is pursued, NCSL has a number of concerns that are addressed in our policy on Electric Industry Restructuring and testimony on the subject.

- In addition, NCSL strongly **supports** the NEPD Group's recommendation that the President encourage FERC to use its existing authority to promote competition and encourage investment in transmission facilities – *provided it is at the wholesale level only.*
- States have jurisdiction over retail level transmission facilities and should not be preempted by this provision or any other federal law.

Increasing Electric Generation while Protecting the Environment

NCSL policy states that "the federal government should work with the states to prevent any increase in interstate and international transportation of air pollution that may result from increased electricity generation."

NCSL **supports** the recommendation that the President direct the USDOE to continue to develop advanced clean coal technology by:

1. Investing $2 billion over 10 years to fund research in clean coal technologies;
2. Supporting a permanent extension of the existing research and development tax credit; and
3. Directing the federal agencies to explore regulatory approaches that will encourage advancements in environmental technology.

- NCSL's National Energy Policy calls for "research and technology development in clean coal usage including pre-combustion, combustion, post-combustion, and coal conversion areas with desulfurization efforts a top priority".

A sufficient assurance of economically available energy, namely energy generated in a safe way, efficiently and friendly towards the environment, represents our common task for the benefit of the citizens of our two countries. I will be honoured to cooperate with you in this field.

Sincerely -

Mr. **Spencer Abraham**
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue SW
Washington DC 20 585

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J. R. MOBLEY, VICE PRESIDENT
V. D. FLOURNOY, ASST. VICE PRESIDENT

June 8, 2001

Honorable E. Spencer Abraham
Secretary of Energy
Department of Energy
Washington, D. C. 20585

Dear Secretary Abraham:

It was nice meeting you at the NPC Reception in Washington earlier this week. Thought your comments before the National Petroleum Council Meeting were excellent. In your remarks you mentioned that no one wants to have a refinery or transmission line in their back yard and yet that is necessary and important for developing a meaningful National Energy Policy.

That same day there was the attached article in USA Today "Energy plan intrudes on land". That article, of course, points out the difficulty of government condemning land and raises the issue of what is fair compensation. The Constitution of course requires government to compensate when they take and that can be a very difficult process many times as pointed out in the P.S.

Suggestion: If we are willing to have tax credits or grants for solar expenditures, why don't we also include in your Energy Plan some grants or tax credits for those communities that are willing to have the refineries and transmission lines that the country needs? In other words, there may be a lot of communities that would like to have such grants and they can use those funds to help their local schools and other purposes, whereas, richer communities might be more reluctant to give up their land. Rather than going the prolonged litigation route, why wouldn't it be a good idea to have an incentive program like this to accomplish your desired goal?

Yours very truly,

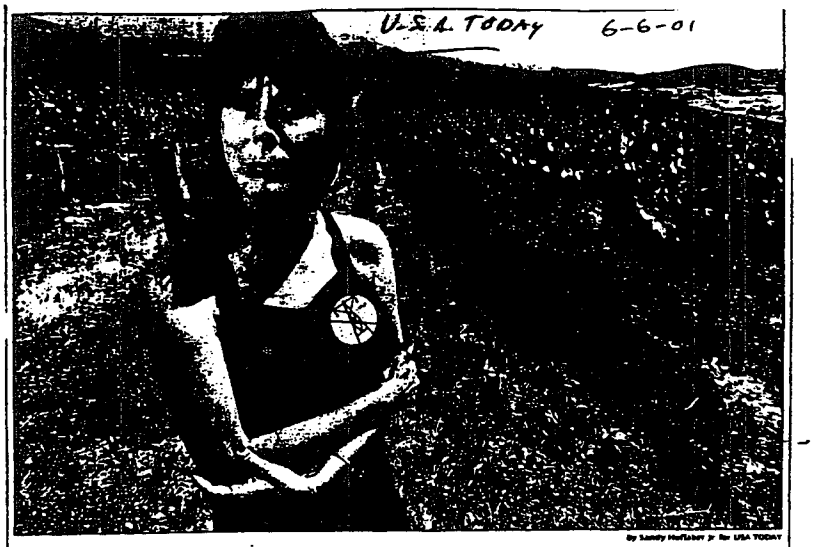
Cary M. Maguire

CMM:jp
Enclosure

P.S. Eight years ago, the City of Houston gave us a permit to drill a well. We spent $200,000+ on roadwork, building location, moving in a rig then they re-neged on the permit. So a similar "taking" issue arose. As a matter of principal, we have spent over $1 million so far over an eight-year period trying to get paid something on this "taking" issue. If the bureaucracy wants to take the land but not pay for it, it creates the type of problem the above suggestion might solve.

cc + enclosure: Vice President Cheney

U.S.A. TODAY 6-6-01



By Sandy McTaggart Jr for USA TODAY

Land vs. power: Loma Bosinger, co-chairwoman of Save Southwest Riverside County, doesn't want to see power lines constructed in this Temecula Valley vineyard. "They want to condemn our property and give us pennies on the dollar," she says.

Energy plan intrudes on land

Bush policy would allow the government to take private property for power line sites, and some say it's not for the public good

By Fred Bayles and Martin Kasindorf
USA TODAY

Tom Kreiger didn't know much about eminent domain until two years ago, when he discovered a surveyor from Wisconsin Public Service Corp. on his land in northern Wisconsin.

Kreiger was told about plans for a high-voltage electricity line, supported by 100-foot towers, that would cut through his 40 acres of forest and pass within 500 feet of his house. The line was needed, he was told, to provide a critical second link between power companies in Wisconsin and Minnesota.

Small consolation for Kreiger, who learned that his land would be taken against his will.

"That gets your attention real quick," says Kreiger, an office products salesman who now spends much of his time at hearings and organizing property owners to challenge the proposed 250-mile transmission line from Duluth, Minn., to Wausau, Wis.

"It's up to us to show the state there's major flaws in the information they're getting from the utilities," Kreiger says.

Now there's something else to worry Kreiger and others with property in the way of proposed power lines.

President Bush's energy policy would give the Federal Energy Regulatory Commission (FERC) power to take land for electric lines by using eminent domain, a legal concept that permits the taking of private land for public good, such as to build roads or schools.

FERC already has the authority to use eminent domain to take land for natural gas, gasoline and oil pipelines. The Bush proposal would expand that authority to include land for electricity power lines.

Plan faces Republican opposition

The administration says the change is needed to speed construction of backup lines for the nation's overtaxed power grid and to add pathways to send more electricity greater distances.

Legislation to expand the federal power of eminent domain to electricity lines must go through Congress, and the plan faced plenty of opposition even before the Democrats assumed control of the Senate starting today. A group of Western governors and senators, mainly Republicans, have attacked the Bush plan. They say the taking of private land should be left to states.

The incoming chairman of the Senate Energy and Natural Resources Committee, Sen. Jeff Bingaman, D-N.M., included in his energy bill a provision that would allow states to enter into regional compacts to route power lines across state borders.

Energy Department spokeswoman Jill Schroeder points to Path 15, a power line bottleneck in central California, to illustrate the need for a federal role. San Francisco-area residents have been left in the dark at times when there was surplus power in Los Angeles because the north-south power pathway can't carry enough electricity.

By Mike Ul, AP

New landscape? Electric power lines span the horizon in San Gabriel, Calif.

State utilities have talked about expanding Path 15 for years without taking action. Last week, Energy Secretary Spencer Abraham ordered a federal feasibility study for the project.

"In the 1930s, power connections were developed locally," Schroeder says. "Now we live in a bigger, global economy that moves electricity longer distances."

The thought of distant bureaucrats making such decisions is troublesome to property owners opposed to high-power electricity lines that would spoil their views, lower property values and raise concerns about electromagnetic emissions from wires. "This is too much power for the federal government ," says Barbara Wilder, a homeowner in Temecula, Calif., fighting a 31-mile, 500-kilovolt line that would go through the backyards, golf courses and ranches of Riverside County, Calif.

Power lines would "demean" area

Wilder, co-chairwoman of Save Southwest Riverside County, hopes to convince the state Public Utilities Commission that nearby San Diego doesn't need the extra power the $271 million line would provide. Short of that, she hopes to get the line moved to public land east of the route now under consideration.

"It would completely demean our valley, a place of rolling hills and vineyards," says Loma Bosinger, who co-chairs the group. "They want to condemn our property and give us pennies on the dollar."

Marc Mihaly, a San Francisco environmental lawyer representing Wilder's group, questions whether the federal government should decide where to construct electric power lines. "It isn't necessary for a state system to be basically taken over in Washington," he says.

But the utility industry says federal authority would streamline the approval and construction of some 30,000 miles of transmission lines the U.S. Energy Information Agency says is needed by 2010 to improve electric reliability. Currently, there are around 159,000 miles of high-voltage wires across the country. Some 7,500 miles of transmission lines are under consideration. Government and industry leaders say the number would be higher if utilities didn't face long battles over such proposals.

"We will need to build half again as much transmission capacity in 20 years as exists today," says David Owens, executive vice president of the Edison Electric Institute, a trade organization for utilities. "We need to expedite the process as much as we can."

Industry prefers federal process

When FERC uses its existing power of eminent domain to set pipeline routes, the agency's staff reviews proposals from pipeline companies and reports to commission members, who then hold public meetings on the plans.

If the agency approves a project, it grants the pipeline company authority to take land. Landowners have no recourse other than to dicker about the price they get for the land.

What makes the process attractive to the electric industry is its speed. FERC reviews take an average 18 months, compared with state and local reviews for an electric transmission line that can take a decade.

Federal oversight also would help eliminate complications when a proposed electric line crosses state borders.

"States often have different criteria and will hold back a decision until they see what the other state has to say" says Larry Borgard, vice president for transmission at Wisconsin Public Service, which wants to build a line across Kreiger's property. "If the federal government takes over, you only have one set of rules to play by."

That fast-track route would be welcomed by American Electric Power, the Columbus, Ohio, utility that won approval last week for a 90-mile electricity line from Oceana, W.Va., to Roanoke, Va., 11 years after it was first proposed. The fight to win approval added about $32 million to the $200 million project.

Pat Hemlepp, a spokesman for the utility, says the line was proposed in 1990 as a backup for an existing high-voltage line. He says the additional line is needed to meet electricity demands for 2004.

"It's gone from being something we thought we would need in the future to something we now need desperately," Hemlepp says.

"Anything that would expedite the process would be welcomed," he says.

Debbie Little is less enthusiastic. The Foster Falls, Va., homeowner has spent years fighting the 765-kilovolt line, which will run within a few hundred feet of her home and include 120-foot towers with blinking strobe lights.

"I know this is supposed to be for the public good, but it seems they favor business over the citizen," she says. "I'm afraid if the federal government wound up handling this, there would be even more bureaucracy, and local citizens would lose more rights."

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2001-014302 Jun 13 p 3:26

June 11, 2001

Honorable Spencer Abraham
Secretary – Department of Energy
1000 Independence Ave. SW
Washington DC 20585

Copy via Fax to: (202) 586-4403

Re: Michigan Electric and Gas Association

Dear Secretary Abraham:

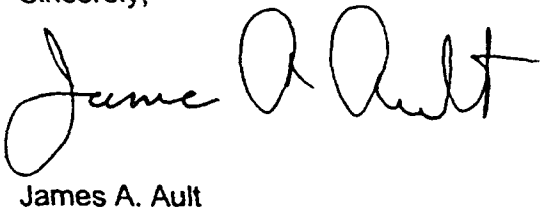
I am writing to invite you or a suitable DOE representative to speak on national energy policy at the annual Fall Conference of the Michigan Electric and Gas Association. The conference runs from Sunday, September 23 through Tuesday, September 25, with the program presentations on Monday and early Tuesday. The conference will be held at Treetops Resort in Gaylord, Michigan and MEGA would pay expenses for travel, accommodations and other items as required.

MEGA is a trade organization of privately owned public utilities providing electric and gas service in Michigan and other states. MEGA was originally organized as a trade group for the "smaller" private utilities in terms of Michigan service area and customer counts. Member companies include AEP, Alpena Power, Wisconsin Electric, Wisconsin Public Service, Xcel Energy (formerly Northern States), Upper Peninsula Power, Edison Sault Electric, UtiliCorp United (MGU), Aurora Gas, Citizens Gas and Peninsular Gas. The larger Michigan private utilities, Detroit Edison, Consumers Energy, SEMCO and Michigan Consolidated Gas, participate in MEGA committees and the annual conference. In fact, the conference also typically includes representatives of the rural electric cooperatives, municipal utilities, pipelines, transmission entities, suppliers and state regulators. You would be addressing a cross section of the utility business participants in Michigan, including high-level executives, technical people and regulatory staff. The program tends to focus on the broader regulatory and policy issues at hand. You may be aware that Michigan is in the process of implementing both electric and gas restructuring pursuant to regulatory and statutory frameworks.

The timing of our conference is set to allow a "look back" at Summer 2001 and perhaps some settlement of national directives and priorities. All of us working in the industry are extremely interested in the new policy initiatives from Washington and would welcome the opportunity to interact with you and exchange information. I recall you spent many years in the Lansing area before moving to national politics and hope that you would welcome an opportunity to return to Michigan for the conference. Please feel free to contact this office with any questions about the conference, the format and the arrangements. We have flexibility to accommodate your schedule in the planning but an early response would be greatly appreciated.

Thanks for your attention to this request and best wishes for continued success in your crucial role in national energy policy.

Sincerely,



James A. Ault
President
Michigan Electric and Gas Association
Phone: (517) 484-7730
Fax: (517) 484-5060

c: MEGA Board Members

HARVARD UNIVERSITY
JOHN F. KENNEDY SCHOOL OF GOVERNMENT
Robert and Renée Belfer Center for Science and International Affairs

Graham T. Allison
Director

79 John F. Kennedy Street
Cambridge, MA 02138
tel: 617-496-6099/6098 • fax: 617-495-1905

June 11, 2001

Dear Colleague,

Energy policy has become a hot topic with President Bush's proposal of a "long-term, comprehensive" energy policy, California's rolling blackouts, and increasing prices at the gas pump. Vice President Cheney's *National Energy Policy* report proposes ways of increasing efficiency and diversifying supply, naming energy security a "priority of U.S. trade and foreign policy." Announcing his new policy, President Bush said, "Over-dependence on any one source of energy, especially a foreign source, leaves us vulnerable to price shocks, supply interruptions, and in the worst case, blackmail."

Harvard's Caspian Studies Program conducts an ongoing study of energy policy and the development of Caspian basin energy resources, the largest untapped source of oil and gas reserves discovered since the North Sea. The Bush Administration, like its predecessor, has recognized the importance of Caspian energy and engaged in diplomatic efforts to develop export routes. The *National Energy Policy* advocates continuing and expanding these efforts, specifically recommending that the Administration "support the Baku-Tbilisi-Ceyhan oil pipeline as it demonstrates its commercial viability," "establish the commercial conditions that will allow oil companies operating in Kazakhstan the option of exporting their oil via the BTC pipeline," pursue other policies to develop gas transport systems, and create a stable business climate in the region. Recent changes in the U.S. Senate make prospects for increasing production by drilling inside the U.S. less likely, forcing greater attention on regions outside the U.S. such as the Caspian. Caspian resource development could also advance other goals of U.S. policy, promoting economic growth, independence, and stability in Central Asia and the Caucasus.

Drawing on the Program's ongoing research, my colleague Emily Van Buskirk and I prepared a case on U.S. policy on Caspian energy development and exports for a Kennedy School course I teach with Ambassador Robert Blackwill. Using the case, our sixty students examined central questions including: What is the most effective way to promote the development of Caspian energy resources? What is the proper role of government in large-scale capital projects? Where does the Caspian Basin rank in the hierarchy of U.S. national interests?

Our course attempts to introduce students to a dozen central issues on the American foreign policy agenda. Each week we enter a topic through the window of an operational assignment a student could actually have if she were working at the National

E-mail: graham_allison@harvard.edu
WWW Home Page: ksgwww.harvard.edu/bcsia

Security Council. A mini-case like the one attached requires students to write a strategic options memo for the president identifying alternatives, pros and cons, and making a recommendation. Students' responses are then the subject of one class, followed by a second class where we widen the lens to the broader topic, in this case U.S. energy policy and the Caspian.

This case provoked a lively debate. Moreover, one week after their presentations, students had the opportunity to discuss the case and current U.S. Caspian policy with Ambassador Elizabeth Jones, Senior Advisor for Caspian Basin Energy Diplomacy (recently nominated to become Assistant Secretary of State for European Affairs) while the Ambassador was visiting the Kennedy School for a day of Caspian Studies Program events. A summary of her presentation at the School, "U.S. Caspian Energy Diplomacy: What Has Changed?" is available on our web site, www.ksg.harvard.edu/bcsia/sdi. Ambassador Jones took great interest in the case, calling it both "realistic" and "difficult."

With hopes that you will find it both useful and enjoyable, we attach this case. It starts with the real world today, accelerates developments to a fork in the road, and requires students to analyze and recommend. Specifically, in this hypothetical, the oil companies have completed their detailed engineering study of the Baku-Tbilisi-Ceyhan pipeline route, and concluded that the price for construction will be $3 billion. Pledges from the companies and investors raise $2.5 billion, leaving the project $500 million short on the financing. Given U.S. government affirmations about the Baku-Tbilisi-Ceyhan pipeline as a U.S. priority, the companies seek assistance from the U.S. government. The question is: what to do?

If you know the answer, send us a note. For purposes of comparison you may be interested in the students' answers, as well as our illustrative paradigm. For Caspian related studies, let me refer you again to our web site.

Yours Sincerely,

Graham T. Allison
Chair, Caspian Studies Program
Director, Belfer Center for Science and International Affairs

HARVARD UNIVERSITY
JOHN F. KENNEDY SCHOOL OF GOVERNMENT
Caspian Studies Program

U.S. POLICY ON CASPIAN ENERGY DEVELOPMENT AND EXPORTS

Mini-Case and Illustrative Paradigm

Graham Allison and Emily Van Buskirk

May 2001

ONE HUNDRED SEVENTH CONGRESS

U.S. House of Representatives
Committee on Energy and Commerce
Washington, DC 20515–6115

June 11, 2001

The Honorable Spencer Abraham
Secretary
U.S. Department of Energy
1000 Independence Avenue, S.W.
Washington, D.C. 20585

2001-014228 Jun 12 p 3:11

Dear Secretary Abraham:

I am writing to confirm the invitation for you to testify before the Subcommittee on Energy and Air Quality on Wednesday, June 13, 2001, at 10:00 a.m. in 2123 Rayburn House Office Building. The hearing will focus on the National Energy Policy report of the National Energy Policy Development Group. This is one in a series of hearings on national energy policy.

According to the Energy Information Administration, over the next 20 years, growth in U.S. energy consumption will increasingly outpace energy production, if production continues to grow at the rate of the last 10 years. In May of this year, the Vice President submitted to the President a National Energy Policy report on the causes of, and ways to meet, our Nation's increasing demand for energy. The report identified five goals: modernize conservation, modernize energy infrastructure, increase energy supplies, accelerate environmental protection and improvement, and increase our Nation's energy security. The report recommended numerous regulatory and legislative reforms necessary to meet those goals.

Your testimony should address the Administration's recent proposal of a comprehensive National energy strategy to meet our Nation's increasing energy needs. Your testimony should focus on the Federal government's role in increasing energy supplies and reducing demand, and identify statutory or regulatory provisions which should be reformed concerning these issues. In addition, as Secretary of Energy, your testimony should identify specific actions being undertaken at the Department of Energy to implement the recommendations of the National Energy Policy report.

Following are important details concerning the preparation and presentation of your testimony.

The Form of Your Testimony. You are requested to submit a written statement which may be of any reasonable length and may contain supplemental materials; however, please be aware that the Committee cannot guarantee that supplemental material will be included in the printed hearing record. Your written statement should be typed, double spaced, and should include a one-page summary of the major points you wish to make. You will have an opportunity to present an oral summary of your testimony to the Subcommittee; to ensure sufficient time for Members to ask questions, your oral presentation should be limited to five minutes.

Pursuant to Rule 4(b)(1) of the Rules of the Energy and Commerce Committee (a copy of which is enclosed), I am requesting you to provide 75 copies of your written statement at least two working days in advance of your appearance. This will allow Members and staff the opportunity to review your testimony. On the day of the hearing, please bring an additional 75 copies of your testimony to satisfy the anticipated public interest in this hearing.

Rule 4(b)(1) of the Committee Rules also requires that, if you have the technological capability, you should also submit a copy of your testimony in electronic format, i.e., on a computer disk. The Committee will post your testimony to the Committee Website ("http://www.house.gov/ commerce/welcome.html") after the hearing. This will increase public access to your testimony and reduce the Committee's printing costs. Please be aware that submission of your testimony in electronic form does not relieve you of the obligation to submit the requested number of printed copies of your testimony. Additional guidelines for submission of testimony in electronic format are enclosed.

Please send the electronic and printed copies of your testimony required two working days before the hearing to the attention of the Legislative Clerk for the Committee on Energy and Commerce in 2125 Rayburn House Office Building, Washington, D.C. 20515.

Publication of the Hearing Record. Rule XI, clause 2(e)(1)(A) of the Rules of the House requires the Committee to keep a written record of committee hearings which is a substantially verbatim account of remarks made during the proceedings, subject only to technical, grammatical, and typographical corrections. Your testimony, the transcript of the hearing, and any other material that the Subcommittee agrees to include in the hearing record (subject to space limitations) will be printed as a record of the hearing. You will receive a copy of the printed hearing record when it becomes available, usually 30 to 60 days after the date of the hearing.

If you have any questions concerning any aspect of your testimony, please contact Jason Bentley of the Energy and Commerce Committee staff at (202) 226-2424.

Sincerely,

Joe Barton
Chairman
Subcommittee on Energy and Air Quality

Enclosures: (1) Electronic Format Guidelines
(2) Rules for the Committee on Energy and Commerce

014144

Dear Spencer Abraham,

I am a seventeen-year-old young future voter. I am also from the wonderful state of California, and I am fully aware that you realize that we are in a major power crisis. I realize that you are trying to all that can be done to help and that you must find cheaper and safer solutions to this ever growing problem, but I beg to differ. Safety and cutting down on pollution is, in my opinion, is the least of our problems for the moment. If we do not solve this problem now I am afraid that this beautiful state will be visible only in the sunlight. Some plans that you and your administration might consider could be:

-Continue plans on more drilling.

-More investments in solar, wind, and other renewable energy technologies to bring them to market faster.

-Fix, clean, and upgrade the already existing power plants, instead of building new ones to reduce the cost of construction.

-Increased production from the existing oil and gas fields, including research on the best way to transport natural gas from existing drilling sites in Alaska's Prudhoe Bay.

-Invest in coal-burning and maybe even nuclear power plants.

I realize that I may be too young to know what is going on but I know for a fact that we are in trouble and that this problem will not go away without sacrifices, so please take some of my advise seriously so that we can take care of this problem quickly.

Sincerely,

Suvar Lenguyen.

MEETING/REQUEST/INVITATION FORM

OFFICE OF SCHEDULING AND ADVANCE

DATE RECEIVED: 6/11/01

EVENT DATE: 6/13/01 EVENT DATES: _____

EVENT TYPE: meeting

EVENT LOCATION: DC

ORGANIZATION/INDIVIDUAL: CMS Energy - CEO Bill McCarmic

EVENT CONTACT: Dave Hengebier

CONTACT PHONE: 202/293-5794 FAX: _____

EVENT DESCRIPTION: Mr. Bill McCarmic wishes to meet with S-1 on Wednesday, June 13th, in DC. (He is not available between 12:15 + 2:00) Says he is a friend of S-1.

MESSAGE TAKEN BY: Robyn TIME: _____

28265

STENOGRAPHIC MINUTES
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HEARING ON THE PRESIDENT'S NATIONAL ENERGY POLICY:

CLEAN COAL TECHNOLOGY AND OIL AND GAS R&D

Tuesday, June 12, 2001

House of Representatives,

Subcommittee on Energy

Committee on Science

Washington, D.C.

Committee Hearings

of the

U.S. HOUSE OF REPRESENTATIVES

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HEARING ON THE PRESIDENT'S NATIONAL ENERGY POLICY:
CLEAN COAL TECHNOLOGY AND OIL AND GAS R&D
Tuesday, June 12, 2001
House of Representatives,
Subcommittee on Energy
Committee on Science
Washington, D.C.

The Subcommittee met, pursuant to call, at 10:05 a.m., in Room 2318 of the Rayburn House Office Building, Hon. Roscoe G. Bartlett [Chairman of the Subcommittee] presiding.

Chairman BARTLETT. Let me call our Subcommittee hearing to order. Is Ms. Abend in the room? We are anticipating a fifth witness and hoping that she was in the room. Today we will hear from two Panels of witnesses who will discuss how we may potentially use clean coal technologies and petroleum and natural gas research and development to help meet our increasing demand for energy. Fossil fuel provides over 80 percent of the energy consumed in this country today and is likely to increase in significance as our growing population and economy produce ever greater demands on these ultimately finite energy resources.

This hearing is part of a House-wide effort and, in fact, a Hill-wide effort to consider the President's National Energy Policy. Vice President Cheney chaired the NEP, National Energy Policy task force, and I believe he did a very creditable job. It is our job in Congress to dissect the report, provide a critical review of his findings, and suggest approaches to implement its provisions where appropriate. The Energy Subcommittee of the House Science Committee has jurisdiction over all nondefense energy research and development and we take this responsibility very seriously.

In previous hearings before this Subcommittee, we heard testimony about the accelerating consumption of our finite fossil energy reserves and the environmental effects stemming

from their use. We have also considered testimony about the potential for renewable energy and whether nuclear power can help fill the gap. I am convinced that we must immediately adopt conservation and energy efficiency measures to help extend the lifetime of fossil resources and reduce emissions. We must also rapidly phase in renewable forms of energy.

Yet, even with the transition to alternative energy sources, fossil fuels will continue to be an essential part of our energy mix for the next 20 or 30 years and perhaps beyond. The correlation between economic prosperity and readily available energy is well documented. We use more energy than ever before, but our way of life has become less energy intensive. Technology, innovation, efficiency, and conservation have brought us to the point where we can be more productive with the energy we use. This is certainly an excellent trend.

Unfortunately, we are also reaching a point where the easy and inexpensive fossil fuels are being consumed and we will have to transition towards more difficult-to-extract and costly fossil fuels. We Americans are also demanding cleaner air, so some sources of fossil fuels, such as coal, that are abundant and cheap, are shunned in favor of cleaner burning natural gas, which, though currently abundant, is also finite and increasingly costly.

The question before us today is, can technology derived

from R&D efforts in the government, private sector, and in our universities assist us in producing more energy more efficiently and in a way that comports with the needs of public and worker health and safety and the health of our environment?

Our first Panel will consider all aspects of clean coal power technology, including how the President's proposed 2 billion in spending on clean coal technologies may both increase efficiency and reduce emissions from utilities and find innovative new uses for coal and coal bed methane.

Our witnesses will be Robert S. Kripowicz, Acting Assistant Secretary for Fossil Energy at the U.S. Department of Energy. Mr. Kripowicz will also appear on Panel II. Bob Yamagata, Executive Director of the Coal Utilization Research Council; James E. Wells, Director of Natural Resources and Environment at the U.S. General Accounting Office; Katherine Abend, hopefully, Global Warming Associate at the U.S. Public Interest Research Group, U.S. PIRG; and John S. Mead, Director of the Coal Research Center at Southern Illinois University, Carbondale. I understand that my colleague, Mr. Costello, will be introducing his constituent, Mr. Mead, formally at the conclusion of my remarks.

The second Panel will consider how technologies derived from petroleum and gas R&D can be employed to improve exploration, extraction, refining, and processing, and

transportation of these fossil fuels. Our witnesses will include Virginia Lazenby, Chairman and CEO of Bretagne, GP, Nashville, Tennessee, on behalf of the Independent Petroleum Association of America; Paul Cuneo, Vice President and Chief Information Officer of Equiva Services, LLC, Houston, Texas, on behalf of the American Petroleum Institute; Dr. Craig W. Van Kirk, Professor of Petroleum Engineering and Head of the Department of Petroleum Engineering at the Colorado School of Mines, Golden, Colorado; and Dr. Alan Huffman, Manager of Conoco's Seismic Imaging Technology Center, Houston, Texas.

I look forward to hearing today's testimony and pursuing these subjects in greater detail. Before we get started, however, I would like to remind the members of the Subcommittee and our witnesses that this hearing is being broadcast live on the Internet, so please keep that in mind during today's proceedings. I would also like to ask for unanimous consent that all members who wish may have their opening statements entered into the record. Without objection, so ordered. I now turn to my distinguished colleague, Mr. Costello, for an introduction and his opening remarks.

[Statement of Mr. Bartlett follows:]

********** INSERT 1 **********

Mr. COSTELLO. Well, Mr. Chairman, thank you very much, and I thank you for calling this hearing today. I will submit my statement, my formal statement, for the record. I welcome all of our witnesses here today and I look forward to hearing their testimony.

In particular, I welcome a constituent and friend, John Mead, who is a part of the first Panel. Mr. Mead is the Director of the Coal Research Center at Southern Illinois University in Carbondale. In fact, I recently attended just a few weeks ago a forum on clean coal technology and the future of coal at Southern Illinois University in my Congressional district. Mr. Mead was the moderator. It was a forum called by the Governor of Illinois and Senator Dick Durbin, as well as members of the Congressional delegation, my colleagues, David Phelps and John Shimkus, also attended. John is very familiar with coal issues. He has been at the research center at Southern Illinois University for many years and is very familiar with clean coal technology.

Mr. Chairman, there is no question that clean coal technology exists today that, in fact, significantly reduces emissions of air pollutants. And there is new technology that I believe will reduce emissions to a greater extent than we ever imagined or anticipated. Over 50 percent of all electricity generation comes from coal-powered plants in the United States today. We have an abundance of coal in

southwestern Illinois and other parts of this country and I believe that we, in fact--any policy--energy policy coming out of the White House or the Congress should, in fact, include, to a large part, coal.

I applaud the Administration and Vice President Cheney, as well as President Bush, for asking the Congress to put additional money in fossil fuel research and development and in clean coal technology. We, in fact, need to continue to do research and development so that we can burn coal in the most efficient and environmentally friendly manner. And with that, Mr. Chairman, I will insert my statement in the record and look forward to hearing from our witnesses. Thank you.

[The statement follows:]

********** COMMITTEE INSERT **********

Chairman BARTLETT. Thank you very much. I note that we have been joined by two additional members of our Panel, Mr. Smith and Ms. Biggert. You may make an opening statement if you wish. Any formal statement will be included in the record. Do you have comments before we welcome our witnesses? Mr. Smith.

Mr. SMITH. Mr. Chairman, if I may, I was on the Presidential Oil Policy Committee during the Arab Oil Embargo back in the early '70s and it seems like again a revisiting of some of the concerns of our increased dependency on especially imported petroleum products. At that time, we were importing about 35 percent of our petroleum energy needs. Now, it is approaching 58 percent, I believe. And so, again, it should be a heads up and a reminder that that kind of dependency makes us more vulnerable and has a tremendous impact on both the economy and the environment. So thank you and the Ranking Member for holding this hearing. Thank you.

Chairman BARTLETT. Well, thank you very much. And I might add that there is a national security implication too and we are getting nearly 60 percent of oil from overseas. That is too little recognized, I think. Without objection, the full written testimony of all the witnesses will be entered into the record. I would ask that you summarize your testimony in 5 minutes so we will have plenty of time for questions. And let me assure you that any detail that you wish to expand on,

you will have ample opportunity to do that during the question and answer period. So without any further delay, Mr. Kripowicz, you may begin.

STATEMENT OF ROBERT S. KRIPOWICZ, ACTING ASSISTANT SECRETARY FOR FOSSIL ENERGY, U.S. DEPARTMENT OF ENERGY

Mr. KRIPOWICZ. Thank you, Mr. Chairman. Mr. Chairman, and members of the Subcommittee, I appreciate the opportunity to appear today with both panels and I want to commend the Subcommittee for holding this hearing. I believe it is important that periodically we step back from the day-to-day conduct of our programs and ask the questions, are we making progress, is that progress benefiting the American people, and are we moving in the right direction?

I believe that for the Federal Fossil Energy Program, the answer to each of those questions is an unequivocal yes. And I appreciate the initiative, Mr. Chairman, you have taken in holding this hearing to review the progress and benefits to date and to discuss the course we should be setting for the future.

In my formal statement I have used specific examples to illustrate some of the technology advances that have resulted from our partnerships with industry and academia. For each items I have cited, there are many more that could be referenced. In the interest of time, however, and to provide adequate opportunity for my fellow panelists, I will highlight only a few examples.

Let me begin with the Clean Coal Program. As you are aware, the President has made clean coal technology one of

the core elements of his National Energy Policy. Why clean coal?

As the chart on page 2 of my statement illustrates, coal supplies more than half the electricity consumed in this country and America has more than two-and-a-half centuries of recoverable coal. So at a time when a major issue confronting this Nation is the future reliability of electricity, it makes little sense to turn our back on this abundant resource, especially if we can develop technology that reduces, or perhaps one day soon eliminates, environmental concerns over its use.

The Clean Coal Technology Program that began in the mid-1980s and extended through five rounds of industry competition laid the groundwork for such technology. Thirty-eight projects ultimately were part of this program. Several are still underway. Of the 30 or so that have been completed, 22 have achieved some form of commercial success.

But more importantly, the Nation has benefited. When the Clean Coal Program began, power generations had only a limited number of choices for reducing most types of air emissions, and what was available was generally expensive and, in some cases, unreliable.

Today, largely because of the Clean Coal program and related R&D, the menu of options has been greatly expanded. Low-NOx burners, for example, were unproven when the Clean

Coal Program began. Now, because of the experience gained in several Clean Coal projects, three out of every four coal-fired power plants in the U.S. are, or will soon be, equipped with low-NOx burners.

Within the next 2 years, 30 percent will be outfitted with selective catalytic reduction for even greater NOx control. Again, the Clean Coal Technology Program helped demonstrate the technology and lower costs.

In fact, before the Clean Coal Program, options for controlling nitrogen oxides could cost as much as $3,000 per ton of NOx removed. Today, these costs have been cut in half for selective catalytic reduction. And low-NOx burners can reduce nitrogen oxide pollutants at costs of less than $200 per ton.

Flue-gas scrubbers for sulfur dioxide, once expensive and unreliable, now cost 1/3 of their 1970's costs. Not only are they reliable, but the technology is now available to convert the sulfur they take out as a pollutant into a product that can be used to make wallboard, for example.

Again, Mr. Chairman, for a country that is increasingly concerned about the costs of electricity, having technology available that can reduce environmental compliance costs from what is already our lowest cost fuel for power generation, creates an enormous economic benefit.

Perhaps, equally important, the Clean Coal Program has

provided the basis for future benefits, benefits that the President's new clean coal initiative is intended to achieve. Coal gasification-based power generation is one of those new technologies. Because of the Clean Coal Program, we now have the first pioneering gasification combined cycle power plants operating commercially in the U.S. Their environmental performance approaches that of natural gas.

Moreover, further improvements lie in the future. The use of fuel cells and advanced turbines, in combination with a coal gasifier, the ability to convert a portion of the coal gas into premium liquid fuels and chemicals, the potential to develop a coal-based energy system that lends itself to the future capture and sequestration of carbon dioxide--all of these are future pathways opened up by the clean coal gasification projects underway at Tampa, Florida and West Terre Haute, Indiana.

In fact, Mr. Chairman, as I mention briefly in my prepared statement, we see the very real possibility of future coal-fired plants that are virtually pollution-free. That for all intents and purposes, remove environmental objections from the use of our most abundant fossil energy resource.

Now, let me turn briefly to the subject of your second panel, which is petroleum and natural gas technology. Again, the long-term ability of our energy industry to find and

produce the liquid and gaseous fuels on which our economy depends, will largely be dictated by continuing advancements in technology.

The Vice President's National Energy Policy Development Group recognized this and recommended efforts to continue fostering improvements in oil and gas technology. Again, in this area, I believe our track record is good.

One of the major advancements in oil and gas technology in the last 20 years has been the polycrystalline diamond drill bit, and we are proud of the fact that one of our national labs solved the bonding problem that made such bits possible. Today, we are working with national laboratories, universities, and the industry to make the next leap forward in drill bit technology. For example, using special microwave techniques to develop a bit that will last longer and drill deeper and faster.

I have described new seismic technologies that were supported in our program, like four-dimensional seismic technology that adds time to the imaging equation, and new imaging systems that work at the bottom of an oil or gas well and whose resolution is ten times more precise than other technology.

These are technologies that offer benefits across the board for all types of companies drilling in more complex environments. But in recent years, the nature of our domestic

oil industry has changed and so has the focus of much of our research.

Today, smaller independent companies are rapidly becoming the dominant oil and gas producers in the United States. Independent producers account for 40 percent of the crude oil produced in the United States and 50 percent of the oil produced in the lower 48. They produce 2/3 of our Nation's natural gas and they account for 85 percent of all the new wells drilled in the United States.

Now, very few of these companies conduct significant research by themselves. Traditionally, most have relied on technology to trickle down from the majors, but with more and more of the larger companies moving to more lucrative prospects overseas, the flow of new technology has slowed.

Our program attempts to fill the gap, working with independent producers to determine whether promising, but high-risk approaches work, and, if they do, requiring the producer and others in the industry to undertake an aggressive technology transfer effort.

I have cited two examples in my testimony of partnership projects that have worked. One of the projects involved a complete oil field workover using new technology to locate and produce oil that had been previously abandoned. In the last 5 years, that project, near Bakersfield, California, has produced more than 1 million barrels of oil that, otherwise,

would have remained in the ground. More importantly, it stimulated 100 new privately funded wells in the surrounding area.

That was a full cost-shared field test. Often, however, we find that small grants, targeted at very specific production problems, can return major benefits. A small producer working in a field in Los Angeles wanted to try a new type of acid treatment to remove downhole deposits that were on the verge of putting many of his wells out of operation. He applied for a DOE grant to help cover the risks of this unproven technique and was selected for a cost-sharing project in a DOE competition. The treatment has exceeded expectations. Oil flow not only has been restored, but is now four times the previous rate. And the producer is now holding workshops and technical meetings to describe the new acid treatment process to other producers.

These, I believe, Mr. Chairman, are the keys to successful federal research programs. First, partner with industry to support the new ideas that otherwise would be too risk to pursue. Secondly, wherever possible, support new ideas through cost-sharing and where industry must compete with their peers for federal support. And third, ensure that there is a built-in technology transfer, where the involvement of industry and the financial commitment that industry makes provide natural conduits for successful

technologies to be used commercially once the federal project is over.

Our goal is to foster this type of research program in the Fossil Energy Program at the Energy Department. With fossil fuels supplying 85 percent of the Nation's energy, we believe that such a program is a necessary component of a more energy secure, economically strong, and environmentally healthy future. Thank you for the opportunity to testify.

[Statement of Mr. Kripowicz follows:]

********** INSERT 2A **********

362 [The information follows:]

363 ********** INSERT 2 **********

364 Chairman BARTLETT. Thank you very much. Mr. Yamagata.

STATEMENT OF BEN YAMAGATA, EXECUTIVE DIRECTOR, COAL UTILIZATION RESEARCH COUNCIL (CURC), WASHINGTON, D.C.

Mr. YAMAGATA. --public and private partnerships. I pretend to be a technologist, but that is clear evidence that that is not the case. In any case, we have submitted a written statement. In that written submittal, may I commend to you, Mr. Chairman, and to members of the Subcommittee, for your review, there is a detailed description and discussion of our organization's coal technology road map which has been an attempt by our membership to outline the technology needs for coal that at least we believe will best ensure the long-term economic and environmentally acceptable use of this very plentiful domestic and secure energy resource.

May I also commend to your viewing an electronic version of a document prepared by the National Mining Association that describes the overall benefits of coal and the value of the government and industry's Clean Coal Technology Program. Within the time allotted to me, Mr. Chairman, I would like to use this handout that I have prepared for the Committee's perusal, and to discuss with you very generally the elements of the CURC technology road map and then to suggest to you that successful pursuit of this road map or any other like technology road map will require a commitment, a commitment on the part of industry and government, a commitment that must form--be formed by adequate amounts of time and adequate

amounts of cost-shared funding.

Over the course of the last couple of years, the membership of CURC has drafted and agreed upon the key elements of a coal technology road map. This is not unlike the road maps that have been produced by the Department of Energy in their Vision 21 program.

May I turn your attention to page 3 of this handout? That page is entitled, ''Performance Targets for Coal Generation.'' Herein lies the essence of our coal technology road map that sets forth the goals and the timetables for technologies to ensure the continued long-term use of coal.

Very, very briefly, this is a chart that attempts to explain the time frames for technology development. That is, the technologies that we have today, both their costs and their performance criteria, along with the technologies in the 2010 and the 2020 time frame, which we believe industry and government are capable of achieving.

Let me just point out that one of the metrics in the 2020 time frame is that we try to, and we believe we can, develop technologies that are twice as efficient as the type of power plants we see today. Technologies that will be cost effective and embedded in the technologies themselves are the ability to sequester CO2 to the extent that that is necessary.

May I turn your attention to page 4 of the handout entitled, ''CURC Highest Priority, Coal-Fired Generation

Technology Development?'' Here we have attempted to identify the critical technology needs for coal by describing a set of five technology platforms. That is along the left-hand hash marks of the chart. These technology platforms focus upon coal technology needs that are required in the near term to address existing power plant emission regulations. In the mid term, that is to 2010. For--so that we can contemplate the expanded use of what we know we have today--that is, pulverized coal units in the form of supercritical and ultra-supercritical coal units. And in the farther out period, that is the 2020 time period, primarily to use gasification or combustion gasification systems to achieve very high, cost-effective high efficiency and high emission control technologies.

I would hasten to add that gasification currently exists with Texaco and others, as it is now applied commercially around the world. It is, however, also the building block upon which future technology ought to be developed. Importantly--importantly, we have also estimated the total funding requirements that these technology platforms will be acquired. That is, to meet the goals and the time tables laid out in the chart on page 3.

In our view, an investment of at least $10 billion will be required over the next 20 years, up to 1/2 from the private sector and the remaining from the public sector, over

the next 20 years. This public/private commitment includes time and funding for research and development and also for demonstration and deployment of new first-of-a-kind systems.

Two quick points, Mr. Chairman, if I may. First, the existing Clean Coal Program has been a great success. As Assistant Secretary Kripowicz has pointed out, 38 projects undertaken, a total of more than 5 billion committed and spent. I commend to you an attachment in my written testimony, drafted by the Southern Company, that seeks to identify the benefits of joint industry government clean coal efforts, for those so critical of past clean coal efforts, please look at the facts.

Second, and most importantly, we are delighted with President Bush's commitment to a multi-year clean coal development program. He has sought to initiate that commitment with $150 million request this year, to begin a long-term demonstration program. I would point out, however, that you cannot take funds away from the basic coal R&D program to cover the costs of the demonstration program. We need both of them. We need R&D, particularly, because it is the seed corn that will grow improvements later on.

In this same vein, the Vision 21 program, which, frankly, is more aggressive in its technology goals and even the CURC road map, needs to contemplate demonstration programs on a scale that will provide industry with confidence that the

technology actually works.

In conclusion, there are plenty of technology road maps. We have one of them. We know what needs to be done, Mr. Chairman, and, members of the Subcommittee. It is time and money that must be committed by both the private sector and the public sector. We need to set a course for coal-based R&D and then we need to stick to it. Thank you.

[Statement of Mr. Yamagata follows:]

********** INSERT 3 **********

474 Chairman BARTLETT. Thank you very much. Mr. Wells.

STATEMENT OF JAMES E. WELLS, DIRECTOR, NATURAL RESOURCES AND ENVIRONMENT, U.S. GENERAL ACCOUNTING OFFICE

Mr. WELLS. Thank you, Mr. Chairman, and, members of the Subcommittee. We, too, are pleased to be here today to discuss our past work on the Clean Coal Technology Program. In almost 20 years since it started, a lot has been said, both for and against this program. Our report last year that looked at the status of the program at the end of 1999, talked to 60-some projects had been awarded and funded out of roughly 210 proposals that had been submitted.

In reporting on the status of the program, we noted that 24 projects had been completed at that time, 16 were currently active, and 10 had been terminated or withdrawn, along with another 10 or so that had fallen out earlier in the program. No new projects have been started in the last 5 or 6 years. About $800 million of the 1.8 billion federal funds, of the share, had not been spent at that time.

The just-completed White House National Energy Policy Group is recommending that the Administration invest $2 billion in a new restructured Clean Coal Program over the next 10 years. In this context, my testimony today will focus on the findings of our last decades of audits of the Clean Coal Program and the lessons that may have been learned from those past efforts. My full statement was prepared and talks to the successes and the weaknesses that we saw in the

program.

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 review in 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 **********

589 Chairman BARTLETT. Thank you very much. Ms. Abend,
590 welcome, and you may proceed. Could you turn on your
591 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 testimony 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 **********

751 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

827 support for these very advanced technologies that can promise
828 both reduced emissions of global climate-changing gases and
829 of the current criteria pollutants, as well as increased
830 efficiency and better mining methods. Together and
831 integrated, these technologies can provide a truly advanced
832 clean source of energy for our country for the next hundred
833 years. Mr. Chairman, thank you very much.
834 [Statement of Mr. Mead follows:]
835 ********** INSERT 6 **********

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, Ms. 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 perspective 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 without 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 chalk, 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--is to reduce the pollution by 95 to 98