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Testimony  
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Hearing on The Future of Federal Coal: Status, Availability  
and Impact of Technological Advances in Using Coal to Create  
Alternative Energy Resources

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Thank you, Mr. Chairman, Distinguished Members and guests. I'm Fred Palmer, Chair of the Technical Work Group for the National Coal Council. It is a pleasure to be here today to share the National Coal Council's perspective. We believe the United States can use clean coal and clean coal technologies to provide a more secure and affordable energy future for the American people. Coal represents the key to U.S. energy security...abundant energy...lower consumer prices...and more jobs.

As you know, last year the Secretary of Energy asked the National Coal Council to study the potential of coal BTU Conversion technologies to meet future U.S. energy needs.

The report process was comprehensive, featuring input from 54 members over nine months.

Out of that effort grew an eight-point plan that represents a dramatic step forward in America's search for energy independence. The Report was presented to the Secretary in March 2006. **The Report, "Coal: America's Energy Future," can be found on [www.nationalcoalcouncil.org](http://www.nationalcoalcouncil.org).**

The Report sets forth an ambitious plan to add 1.3 billion tons per year of U.S. coal production by 2025 to meet the Nation's growing energy needs while improving the environment through deployment of cutting edge clean coal technology. This increased production, which is more than double today's levels, will be deployed to produce coal-to-liquids, coal-to-natural-gas, coal for increased electricity generation, coal-to-hydrogen, coal for ethanol production, and enhanced oil and gas recovery utilizing CO2 emissions from coal combustion.

The needed investment identified by the Report will be large, but the payback will be even larger. Over \$500 billion in capital expenditures will be required over the 20-year period. This, in turn, will require cooperation by the federal government in the form of a capital friendly legislative framework to unleash the genius of American industry in the creation of an energy manufacturing industry. According to the Report, the payback to the country will exceed \$3 trillion in cumulative GDP gains and the creation of an additional 1.4 million new jobs per year.

When the Report was issued, eyebrows were raised over the scope of the Council's vision. Some in the environmental community were critical over the Council's call to establish a new energy manufacturing industry in the United States, notwithstanding the Council's in-depth discussion and examination of available clean coal technologies and notwithstanding the energy supply crisis confronting our country.

For too long, the United States has been losing manufacturing jobs overseas. At the same time, our increased reliance on foreign oil and now liquefied natural gas has given tremendous leverage to countries that are overtly hostile to us and to our way of life. The National Coal Council firmly believes that we can address both problems by

reindustrializing the U.S. economy while at the same time securing our own destiny by utilizing our own energy resources.

Events in the last four months, and some within the last month, underscore the timeliness of the Report and the clarity of the Council's vision. Here are a few items that have been in the headlines on an almost daily basis:

- IRAN -- Oil prices increased by \$2 the day Iran tested its new weapons in the Strait of Hormuz. Reports in the western media indicated some Iranian officials threatened to close the Strait to tanker traffic.
- NORWAY -- projected a 5% decline in oil production in 2006
- RUSSIA -- Pravda reported the growth rate of Russian oil production would fall below 2% in 2006, versus 10% in 2004. In April, the IEA confirmed Russian exports would be lower than previously expected.
- NIGERIA -- In April, civil unrest kept over 450,000 barrels per day offline.
- BRITAIN -- is now importing 10% of its natural gas; by 2010 it will import 40% and by 2020 90%
- MEXICO -- Canterell field accounts for 60% of oil production. Output will decline by 28% by 2008.
- VENEZUELA -- seized control of 32 private oil fields on January 1, 2006, and in March threatened to divert supplies away from U.S.
- FRANCE -- In discussing IEA projection of 121 million barrels of oil per day in 2030, the Head of Exploration at TOTAL stated: "Numbers like 120...will never be met, never."
- AUSTRALIA -- crude oil production projected to be 30% lower in 2006 than in 2000; Australia may soon be importing half of its oil.
- UNITED STATES -- LNG imports in the first quarter were down more than 30%. Europe and Asia are bidding cargos away from U.S.—in some cases, loaded tankers have departed the Gulf of Mexico to go to Europe.

The situation we now confront in the world does not mean we should withdraw from the world economy and look only to "Fortress America." It does mean that we need a more robust development of all of America's energy resources to strengthen our ability to both compete in the global economy and to cope with the overt military threats to American interests abroad and natural resources that the world's economy depends upon. In this context, coal moves front and center because it alone can provide the fuel we need in the volumes required of the quality required at an economical price, all with

environmental excellence to secure America's future and, therefore, the future of the world community.

The Department of Defense (DoD) has recognized the danger of our growing dependence on foreign oil. The DoD is aggressively pursuing a strategy to catalyze commercial production of fuels from alternative energy resources by 2010. Their goal is to eliminate dependence on foreign sources and mega-refineries for strategic fuel supplies. Another goal is to develop a Battlefield Use Fuel of the Future (BUFF) by evaluating, demonstrating and certifying turbine fuels from alternative energy resources for use in tactical vehicles, aircraft and ships.

DoD needs about 300,000 barrels a day, with jet fuel a major component. Coal-to-liquids (CTL) can play a crucial role in this area. Fuel produced through the Fischer-Tropsch process yields more energy per pound than traditional fuels, has virtually no sulfur and is less subject to freezing. Further, CTL products even have a significant advantage over bio-fuels such as ethanol because they provide more Btus per unit.

Your hearings on the role coal, especially federal coal, can play in providing alternative fuels for transportation, industry and residential use are important to our nation. About 60 percent of the area underlain with coal-bearing rocks in the coterminous United States is under federal surface. Federal lands account for over 40 percent of all coal production. Thus, federal coal is already making an important contribution to our energy needs and has the potential to do much more.

## **NCC FINDINGS INDICATE COAL CAN PROVIDE IMPORTANT LIQUID FUELS**

The findings from the NCC Report demonstrate that coal can help alleviate liquid fuel problems along three distinct lines:

- 1. Coal can be liquefied.** Our analysis indicates that we can increase product supply by 2.6 million barrels per day by using 475 million tons of coal per year. This additional clean fuel would be fungible with petroleum products. Coal-to-liquids (CTL) is a proven technology. The Department of Energy has stated:

“The current coal-to-liquids technology is well defined in terms of cost and performance. It can be used domestically in the United States to limit our exposure to oil price increases...”

In his Senate testimony on April 24, Clarence Miller, from the DOE's Office of Fossil Energy, gave a thorough evaluation of how we can utilize CTL technologies to our country's advantage. Coal-to-liquids plants can be built near coal fields if the infrastructure for liquid fuel distribution is available or the coal can be shipped to plants built near fuel markets.

- 2. Coal can be the heat source for ethanol.** The United States is committed to using ethanol to displace a significant amount of foreign oil. With the nation under Congressional mandate to increase ethanol production from the current 4.4 billion gallons per year to 7.5 billion, it is difficult to imagine how this 70 percent increase

can be accomplished without the expanded use of coal. While natural gas has been the typical heat source in ethanol production, prices have increased 150 percent in just the last four years. Coal is much less expensive and has far less price volatility. In 2005, for example, the cost of producing electricity from natural gas was \$8.33 per million Btu. The cost for coal was only \$1.54 per million Btu. No wonder the ethanol industry is already embracing coal for new plants in states such as Iowa, Nebraska, Missouri, North Dakota and Illinois.

We found that coal use could increase by 40 million tons per year to support ethanol production of one million barrels per day.

3. **Coal can provide for expanded domestic Enhanced Oil Recovery (EOR) and coalbed methane recovery (ECBM) using captured CO<sub>2</sub>.** The U.K. and Europe have shown that Kyoto-type carbon caps don't work and punish society and economies in the process. Technology is the proper path to address climate concerns, and technologies can enable carbon capture and storage. Transferring carbon dioxide back into the ground can allow additional oil and coalbed methane production. We believe that enhanced oil recovery could lead to an added 2-3 million barrels per day of oil production from existing oil producing basins.

In essence, then, the NCC Report found that clean coal can increase our liquid fuel supply by over 6 million barrels per day --- 25 percent of EIA projected demand in 2020. These processes would require 515 million tons of coal per year – well within our production capacity.

The NCC Report also found that coal could be:

- (a) **gasified** to produce up to 4 Tcf of natural gas equivalents, thereby meeting 15 percent of our future requirements and virtually eliminating the need to rely on expensive imported liquefied natural gas (LNG).
- (b) used to fuel over **100 Gigawatts (GW)** of additional coal-based electricity generation. Indeed, based on data from the National Energy Technology Laboratory (NETL), over 90 GW of new coal-based generation are currently being planned.
- (c) used to produce **hydrogen**. FutureGen is the world's largest global private/public initiative. Coal can satisfy at least 10 percent of our transportation needs at Freedom Car efficiencies.

Specific recommendations to implement the findings are extensively discussed in the NCC Report. A key objective of these recommendations is to assure that private capital can be attracted to make the necessary investments in our energy future.

Further, in addition to increasing domestic energy supply, the steps proposed in the NCC Report would have social and economic benefits for all Americans. An independent analysis conducted at Penn State University found that increasing annual coal production by 1.3 billion tons for BTU Conversion would mean:

- energy prices would be reduced by one-third from the business-as-usual case
- the annual GDP would be more than \$600 billion higher in 2025
- the net present value of the benefit is \$3 trillion, increasing to \$4 trillion with enhanced oil recovery, and
- employment would be increased by 1.4 million per year by 2025.

By 2025, new capital expenditures of only \$515 billion (present value of \$350 billion) would be required – a tremendous investment in America’s future.

Of course...what is the value of added national security and freedom from the yoke of energy dependence? These economic gains are greatly enhanced by the strengthening of U.S. energy security.

I would now like to take a few minutes to delineate why we should proceed immediately to pursue the BTU Conversion technologies discussed in the NCC Report:

1. **Energy demand is increasing.** The EIA has projected that by 2030 our energy consumption will grow from 100 quadrillion Btu to 127 quads—an increase more than the annual energy consumption of France and Germany **combined**.

And these increases in demand are occurring around the world. China’s energy needs, for instance, are stunning. Their population of 1.3 billion will reach over 1.5 billion by 2020. China plans to increase annual coal production from 1.7 billion tons to 3.2 billion by 2020. Electricity generating capacity will double to 1,000 GW. By 2010, China could have 50 coal gasification plants, and they have announced a \$20 billion commitment to build coal-to-liquids facilities. China regards BTU Conversion as a strategic imperative.

India is close behind. Their population of 1.1 billion will reach 1.3 billion by 2025... and some day India will be the most populated nation. India’s rate of growth in oil demand is one of the highest in the world. Yet India has paltry oil reserves of less than 6 barrels per person, compared with over 70 in the United States.

It took the United States a century to move through booms in industrialization... urbanization... transportation... and information. China and India are experiencing these sea changes at the same time.

2. **Dependence on imports is growing.** The EIA projects that by 2030 we will be importing 62 percent of our oil and 21 percent of our natural gas.

This imported energy will come at a staggering cost – at today’s prices the cost of imported energy would reach \$2.5 trillion over the next decade -- \$25,000 for every household in the United States.

3. **The problem is getting worse.** Domestic oil production declined 11 percent just between 2001 and 2005. EIA projections indicate demand for petroleum will

increase by almost 7 million barrels per day by 2030. Yet domestic crude production will drop by 18 percent, requiring ever more imports and consigning the next generation to even greater dependence on unstable and hostile nations. And oil is not our only problem along these lines. As we look to the future, we should note that 42 percent of the world's natural gas is in Iran and Russia.

4. **Coal is the only domestic fuel with the flexibility and reserve** base to balance this increasingly lopsided energy equation. U.S. oil and natural gas production peaked in the 1970s, but we have enough coal to last well over 100 years even at elevated levels of consumption. America has 27 percent of global coal reserves, and coal is found in more than half of the states. Some people call the U.S. the Saudi Arabia of coal... but that doesn't really do us justice. America has more coal than **any** nation has **any** single energy resource. Just the State of Illinois has more coal resources than all the oil in Saudi Arabia, Iran, Iraq and Kuwait combined.
5. **Coal is the epitome of a secure energy source.** We **know** where the coal is. We **know** it's within our shores. We **know** that other countries won't nationalize it...halt its shipments to pursue nuclear ambitions... shut off its supplies due to price disputes...kidnap its workers...or use it as leverage to compromise our national security.
6. **Coal is increasingly clean.** Environmental progress in mining and coal combustion over the past 20 years has been spectacular. Coal power plants, for example, produce three times as much electricity than in 1970, but emissions have declined by one-third and are heading lower as clean coal technologies propel continuous improvement.

## **NCC RECOMMENDATIONS**

The National Coal Council found that the mining industry and transportation infrastructure can be expanded to accommodate growth in coal production from 1.1 billion tons per year today to 2.4 billion tons per year in 2025. As I have documented here today, this new coal supply can be converted to Btus across the energy spectrum.

Our emerging energy needs are massive. And our response must be proportionate in magnitude to meet those needs.

The National Coal Council's recommendations are tantamount to the creation of an entirely new energy manufacturing industry in the United States. The initial expenditures to jumpstart this new energy manufacturing industry will require a significant investment of capital. The risk associated with such an undertaking will be perceived as substantial given the historic volatility of oil prices and, more recently, the price of natural gas. The most significant contribution government can make to this endeavor is to lower the risk profile of investment. The National Coal Council recommends that capital funding policies be implemented to encourage the private

sector to step forward on a massive scale. The specific fiscal, tax, financial, and regulatory recommendations presented here are all designed to encourage private sector commitments to seize this opportunity and secure America's energy future.

Many of the approaches recommended build on existing law and recent federal enactments, including the American Jobs Creation Act of 2004 (AJCA2004); the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU 2005); the Energy Policy Act of 2005 (EPA2005); and the President's Advanced Energy Initiative.

In order to remove potential barriers to expanded coal production and use, the DOE, acting in coordination with other federal agencies and states, should:

**Accelerate research, development and demonstration of advanced technology by:**

- urging Congress to appropriate full funding for all clean coal programs authorized, including FutureGen and the Clean Coal Power Initiative (CCPI), with the goal of developing at least 100 GW of clean coal power plants by 2025. Congress has recognized that a full portfolio of energy technologies is needed, including both coal gasification and combustion-based generation. The Department should take steps to assure U.S. energy policy achieves these goals.

**Improve the ability of the industry to attract private capital for new facilities by:**

- providing for 100 percent expensing in the year of outlay for any coal-to-liquids (CTL) plant begun by 2020
- providing for 100 percent expensing in the year of outlay for coal-to-gas (CTG) plants operated to displace NG usage in existing combined cycle units, space heating and industrial application
- providing for a federal loan facility of \$100 billion with the ability to provide loan guarantees for the initial commercial scale CTL and CTG plants (see EPA2005, Title XVII)

**Provide market certainty for products by:**

- guaranteeing federal government purchases of coal-to-liquids products by either the Strategic Petroleum Reserve or the Department of Defense. These purchases should be based on long-term contracts with floor prices.
- extending the coal-to-liquids excise tax exemption to 2020 (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, SAFETEA-LU 2005 extension)
- extending the temporary expensing for equipment used in refining to 100 percent of any required additions to existing refineries needed to handle coal-to-liquids products (see EPA2005, § 1323)

- involving the Environmental Protection Agency (EPA) in the research on fuel performance characteristics to assure the broadest applicability in commercial use
- involving the Department of Defense in testing fuels to optimize plant and process design for the Air Force (jet fuel), Army (arctic diesel), and Navy (marine diesel) requirements

**Assure coal incentives for all alternative technologies by:**

- providing for 100 percent expensing in the year of outlay for converting ethanol plants currently using natural gas to coal combined heat and power if the new plant is in service by 2010

**Minimize operating costs for new alternative fuel plants by:**

- providing royalty (federal and state) relief for coal used to produce either liquids or gas

**Reduce permitting delays and regulatory uncertainty by:**

- expediting permitting with a joint federal and state process, including Advanced Clean Coal power plants
- using, where appropriate, federal sites, including Base Realignment And Closure (BRAC) sites
- exempting initial coal-to-liquids and coal-to-gas plants from New Source Review (NSR) and National Ambient Air Quality Standards (NAAQS) offset requirements
- where it has not been done, implementing the recommendations proposed by the National Coal Council in the 2004 report, "Opportunities to Expedite the Construction of New Coal-Based Power Plants."

**Assure that enhanced oil recovery in new basins using CO<sub>2</sub> extracted from coal plants is an attractive investment by:**

- increasing Section 43 investment tax credit to 50 percent
- creating an explicit exemption from the Alternative Minimum Tax (AMT) for new production from Enhanced Oil Recovery using CO<sub>2</sub>
- providing federal and state royalty and severance tax relief for oil produced until capital payout (see EPLAct2005 § 354)

**Provide incentives for upgrading the transportation infrastructure by:**

- providing federal tax incentives to support taxpayers who invest in railroad infrastructure capacity
- urging Congress to appropriate funds for the upgrade of the inland waterway system, including barge access

**Ensure that all existing, identified U.S. economically recoverable reserves remain a part of the resource base by:**

- seeking balance between precautionary protectionist policies and energy security
- supporting active enforcement of existing laws, including The Clean Water Act, the Endangered Species Act, the Surface Mining Control and Reclamation Act, and the Wilderness Act
- actively involving the DOE in addressing energy security in any policymaking that would “sterilize” significant coal reserves
- opposing overlapping and additional regulation that needlessly reduces access to the United States’ most abundant energy resource—coal. Recent examples would be the last-minute inclusion of the Kaiparowits Plateau in the Grand Staircase-Escalante National Monument designation and the Forest Service’s recently extended Roadless Forest Protection to July 16, 2007.

**Continuing to support the provisions of the Mine Safety and Health Act by:**

- ensuring a progressive approach to the important issue of enhancing mine safety and working to provide enhanced funding for mine safety research by the National Institute for Occupational Safety and Health (NIOSH)

**Conduct a thorough and updated survey of U.S. coal reserves.**

- The National Coal Council has conducted an in-depth analysis of coal mining and transportation infrastructure, but the resources of the federal government are required for a thorough analysis of our nation’s vast reserves of coal.

**SUMMARY**

This is an aggressive plan, and its benefit to Americans is enormous. Even as this town shows friction on a number of issues, there is growing bipartisan interest in turning U.S. coal into other energy forms, especially liquid fuels.

Here’s what Pennsylvania’s Democratic Governor Ed Rendell said several months ago:

*“Clean coal is a sound policy that unites public and private interests. Instead of becoming more dependent on the Middle East for our fuels, we can increase our dependency on Middle America, and that makes sense to me. I call for an American Energy Harvest.”*

And here’s what U.S. Energy Secretary Bodman said just several weeks ago:

*“While our traditional clean coal programs are focused on producing electricity and, in the case of FutureGen, hydrogen, I believe that our abundant coal reserves could do even more to meet our nation’s energy needs. One of the most exciting areas, I believe, is the technology for turning coal into diesel and jet fuel.”*

I noted earlier that China and India are called developing nations. America, too, is a growing nation.

Last year we added almost 3 million people to the population, built over 1 million new homes, started over 3 million new small businesses and flew over 800 trillion air passenger miles. And America continued its above-trend economic growth.

Coal is the only domestic energy resource that can meet the scale of such a massive increase in energy required to serve this growth -- and the proper policies will insure we meet the needs of a dynamic nation.

Clean coal can do all this – more jobs, higher incomes, new businesses, lower energy costs, a reduced trade deficit, enhanced national security and a major step toward less dependence on foreign suppliers. For the last decade, we have been shipping millions of manufacturing jobs overseas. We now spend over \$250 billion per year on energy purchases from foreign suppliers. As liquefaction facilities, gasification units and ethanol plants are built across the nation, we can take control of our own energy destiny and follow a new clarion call to the future: “Coal – Made in America.”

That is why, while some people have called coal a bridge to the future... we say: **Coal is the future.** ----Thank you.