"THE ABILITY OF FEDERAL LANDS TO MEET OUR ENERGY NEEDS"

OVERSIGHT HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES

OF THE

COMMITTEE ON RESOURCES
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C O N T E N T S

OVERSIGHT HEARING ON "THE ABILITY OF FEDERAL LANDS TO MEET OUR ENERGY NEEDS"

Tuesday, June 24, 2003
U.S. House of Representatives
Subcommittee on Energy and Mineral Resources
Committee on Resources
Washington, DC

The Subcommittee met, pursuant to notice, at 10:02 a.m., in room 1324, Longworth House Office Building, Hon. Dennis R. Rehberg presiding.

Present: Representatives Rehberg, Kind, Cannon, Gibbons, Souder, Pearce, Bishop, and Nunes.

STATEMENT OF THE HON. DENNIS R. REHBERG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MONTANA

Mr. REHBERG. The oversight hearing by the Subcommittee on Energy and Mineral Resources will come to order. The Subcommittee is meeting today to hear testimony on the recent estimates of oil and gas resources on Federal lands and the impediments to their development. Under Committee Rule 4(g), the Chairman and the Ranking Minority Member can make opening statements. If any members have other statements, they can be included in the hearing record under a unanimous consent.

Mrs. Cubin regrets she cannot be here today. She headed out to Wyoming this morning, so you get the junior varsity in charge today, and I welcome you and thank you for giving this opportunity to give an opening statement.

[The prepared statement of Mrs. Cubin follows:]

Statement of The Honorable Barbara Cubin, Chairman, Subcommittee on Energy and Mineral Resources

The Subcommittee meets today to consider several pressing issues surrounding the natural gas resource base on Federal lands and the impediments to those resources. Last Thursday we examined the natural gas supply situation and established that 1) a crisis is looming due to a lack of supply to meet demand and it threatens jobs and the economy; 2) future supply shortages will have to be made up by domestic natural gas supply; and 3) other fuels, such as our vast coal and geothermal resources will have to be utilized to meet future energy demand.

We have vast natural gas resources in the U.S., about 1,400 trillion cubic feet in the U.S. and another 1,000 Tcf in North America. This is enough natural gas to fuel our nation for over one hundred years. But while we have adequate gas resources,

it is becoming increasingly difficult to access those resources, especially those on Federal lands from which the majority of our future gas supplies will come. Numerous impediments exist to developing oil and gas resources on Federal lands.

In 2000, Congress passed the Energy Policy and Conservation Act, or EPCA, which called for an inventory of oil and gas resources on Federal lands and the impediments to leasing those lands for energy development. The assessment is to be updated periodically to reflect changes in the resource base and to the leasing impediments.

The results of the first round of that assessment, which surveyed five major producing basins in the Rockies, was released last winter. It inventoried approximately 138 trillion cubic feet (Tcf) of natural gas resources and reserves on Federal lands in the Rocky Mountains. It stated that about 60 percent of natural gas resources in the five producing basins were found to be under standard lease terms. Another 40 percent are either off-limits to drilling or under such strict terms as not to be economically feasible.

Several environmental groups responded to the release of the EPCA study by stating that it showed that the Rocky Mountains are largely open to oil and gas development. What the EPCA study really shows is that an alarming percentage of the resources in the region are in fact off-limits. Once a lease is obtained, it does not follow that development is under way. EPCA does not currently address post leasing restrictions such as the long and arduous process for receiving drilling permits or rights-of-way. However, language was included in H.R. 6, the energy bill that passed Congress earlier this year, that would expand the EPCA study to include an analysis of post leasing impediments and their impact on energy production.

Some environmental groups have objected to the methodology used in the EPCA study, which studies technically recoverable resources. These groups, in an effort to curb production of the natural gas resource, have argued that such assessments should include economic factors and should inventory economically recoverable resources only.

With grants from the Hewlett Foundation, RAND, a research and development think tank, released an assessment of the economically recoverable resources, rather than technically recoverable resources, in the Greater Green River Basin. That assessment exposed some of the flaws associated with making an assessment based on economics. For instance, the RAND assessment classified Wyoming's Jonah Field as "uneconomic," despite the fact that hundreds of millions of cubic feet of economically viable natural gas are produced there each day. Had the RAND assessment been done ten years ago, it would have shown the vast gas reserves in the Coal Bed Methane play in Wyoming's Powder River Basin not to be economically recoverable. In the future, the same could likely be said for the Methane Hydrate resources in the Outer Continental Shelf and below the frozen tundra of Alaska.

The bottom line is that we cannot pre-determine what reserves will be economically recoverable in the future. That is a factor that changes over time, from company to company, from process to process, relying heavily on technological developments. The purpose of the EPCA resource assessment is to give policy makers a look at the potential resources on public lands and the impediments to their production.

The economics of resource development is determined by companies and financiers. It is frightening to think that during a time of high natural gas prices, hydrocarbon bearing lands could be theoretically withheld based on economic determinations made by technocrats in Washington. That's just down right bad policy, and does not serve the American people.

I look forward to the testimony, and welcome all of our witnesses today. I'd especially like to welcome Dru Bower, who is currently serving as the Vice President of the Petroleum Association of Wyoming. She is a fine woman and a dear friend.

Mr. REHBERG. The Subcommittee today meets to consider several pressing issues surrounding the natural gas resource base on Federal lands and the impediments to those resources. Last Thursday, we examined our natural gas supply situation and established that a gas supply crisis is looming, threatening jobs in the economy. Future supply shortages will have to be made up by increasing domestic natural gas supply and other fuels such as our vast coal and geothermal resources will have to be utilized to meet future energy demand.

The U.S. has vast natural gas resources—over 1.4 trillion cubic feet in the U.S. and another trillion cubic feet in North America. That is enough natural gas to fuel our nation for over 100 years. But while we have adequate gas resources, it is becoming increasingly difficult to access those resources, especially on Federal lands, from which the majority of our future gas supplies will come. Numerous impediments exist to developing oil and gas resources on Federal lands.

In the year 2000, Congress passed the Energy Policy and Conservation Act, which called for an inventory of oil and gas resources on Federal lands and the impediments to leasing those lands for energy development. The assessment is to be updated periodically to reflect changes in the resource base and the leasing impediments. Last winter, the Department of Interior released the results of the first round of that assessment, which surveyed five major producing basins in the Rockies.

The study inventoried approximately 138 trillion cubic feet of natural gas resources and reserves on Federal lands in the Rocky Mountains. It stated that about 60 percent of natural gas resources in the five producing basins were found to be under standard lease terms, another 40 percent are either off limits to drilling or under such strict terms so as not to be economically feasible.

Several groups responded to the release of the study by stating that it showed that the Rocky Mountains are largely open to oil and gas development, but what the study really shows is that an alarming percentage of the resources in that region are, in fact, off limits. Once a lease is obtained, it does not mean that development is underway. The Act does not currently address post-leasing restrictions, such as the long and arduous process for receiving drilling permits or right-of-ways.

However, the House included language in H.R. 6, the energy bill that passed Congress in April, that would expand the study to include an analysis of post-leasing impediments and their impact on energy production. Some environmental groups have objected to the methodology used in the study, which studies technically recoverable resources. These groups, in an effort to curb production of the natural gas resource, have argued that such assessment should include economic factors and should inventory economically recoverable resources only.

With grants from the Hewlett Foundation, RAND, a research and development think tank, released an assessment of the economically recoverable resources rather than technically recoverable resources in the greater Green River Basin. That assessment exposed some of the flaws associated with making an assessment based on economics. For instance, the RAND assessment classified Wyoming's Jonah Field as uneconomic, despite the fact that hundreds of millions of cubic feet of economically viable natural gas are produced there each day.

Had the RAND assessment been done 10 years ago, it would have shown the vast gas resources in the cold bed methane plate in the Powder River Basin not to be economically recoverable. In the future, the same could be likely said for the methane hydrate resources on the outer continental shelf and below the frozen tundra of Alaska.

The bottom line is that we cannot predetermine what reserves will be economically recoverable in the future. That is a factor that changes over time from company-to-company, from process-to-process, relying heavily on technological developments. The purpose of the Energy Policy and Conservation Act Resource Assessment is to give policymakers a look at the potential resources on public lands and the impediments to their production.

The economics of resource development is determined by companies and financiers. It is frightening to think that during a time of high natural gas prices, hydrocarbon-bearing lands could be theoretically withheld based on economic determinations made by technocrats in Washington. That is bad public policy and does not serve the American public well. We are experiencing an energy crisis and must look at other ways to develop enough energy to meet the demands of today. I look forward to the testimony and welcome all of our witnesses today.

The Chair will now recognize Mr. Kind, the Ranking Minority Member.

STATEMENT OF THE HON. RON KIND, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WISCONSIN

Mr. KIND. Thank you, Mr. Chairman, and I want to thank Ms. Watson for her presence and her testimony here today, as well as the other witnesses. I do have a written statement I would like to submit for the record at this time.

Mr. REHBERG. Without objection.

Mr. KIND. This, I believe, now is the tenth hearing that we are having on natural gas supply in the country and also the natural gas issue, which is fine. In fact, we have had about 20 hearings on just the energy policy over the last couple of years, which is fine. I mean, these are very important issues that need to be delved into, but we have heard a lot of the similar type of testimony. We have covered a lot of the ground over the course of the last couple of years with the various hearings that we have had. And we know that there are tough market conditions right now, but we also know that there are market corrections taking place because of supply and demand and price volatility, and that has always been the case, the free-market system.

We know that we have infrastructure issues that need to be addressed, permitting issues that need to be addressed, access issues, and we are going to get into that a little bit in today's hearing in regards to public lands. We have NIMBY issues that need to be addressed. It would be interesting if this Committee were to have a hearing on the West Coast of Florida, for instance, and call the Governor down there to testify in regards to their view of some of the drilling that has been proposed off the coast of Florida and some of the other sensitive regions around the country, and these are important issues.

But in order for us, I believe, to develop a sustainable long-term energy plan, we need to take a comprehensive approach. Yes, natural gas is going to be an important piece of that. It is a preferable piece of that, given it is one of the cleaner-burning fossil fuels that are available, and we have access to still more resources within our own country, but it can't be the sole answer. I mean, there is going

to have to be a mosaic of different options available for the country in order for us to develop greater energy independence and to wean ourselves off from the dependence on foreign sources, alternative and renewable energy supplies, biofuels and the fuel of the future, fuel cell development.

I think we need to be much more aggressive in regards to our energy policy, in regards to the incentives and the investments that need to take place there, but natural gas is the subject of the hearing today. We are going to be looking forward to the testimony, but I just wish that we would have more well-rounded, balanced approach to this discussion, and this isn't a partisan issue.

I mean, we have heard a lot of conversations from private landowners out West, from outdoor sports organizations, hunters and fishermen alike who want to see us take a balanced approach in regards to access issues involving the public lands. They don't want to see the scale tipped too heavily on one side. These are important issues. We will look forward to the testimony today, but it is a little disingenuous when the Chair last week claims that there is not a lot of interest on our side on this topic.

We have been engaged in debate. We have tried to engage in a meaningful dialog on it. People do come from time to time in and out of these hearings when they take place. In fact, we had five or six members last week that were here at least for part of the testimony that took place, and yet the Chair somehow found fit to level some criticism that more members weren't here during the entire course of the hearing.

But we will look forward to Ms. Watson's testimony today, as well as the other witnesses, and hopefully try to come up with some further answers or maybe some new ideas on how we can approach this issue. But unless or until this Committee, this Congress in the country starts developing the political leadership to do what we really need to do to become energy independent, which is going to be good not only for our economic growth potential, but in regards to foreign policy implications.

We are going to be having more and more hearings with not a whole lot being accomplished because of a single-set ideological mind-set that we can somehow just drill our way out of the situation we find ourselves in. Conservation and energy efficiency has to be a part of the equation as well.

It was a little ironic that at the time the Vice President was criticizing those who were advocating more energy efficient and conservation approaches, given the high energy prices just a couple of years ago, the State of California was approving it with a 15-percent decline, in 1 month alone, on energy consumption because of the energy price spike that they were experiencing, and now we were discovering that there was market manipulation giving rise to a lot of what took place in California. But it showed the flexibility and the responsiveness of the American people and what truly can be accomplished if we develop this comprehensive energy framework and don't become too fixated and too focused on just one aspect of it.

So thank you, Ms. Watson, for your presence here today. Thank you, Mr. Chairman. We look forward to the testimony.

[The prepared statement of Mr. Kind follows:]

Statement of The Honorable Ron Kind, Ranking Democrat, Subcommittee on Energy and Mineral Resources

Today we meet for the tenth time to discuss natural gas issues. In fact, we have had about 20 hearings on just the energy policy over the last couple of years, which is fine. These are very important issues that deserve scrutiny, nevertheless, most of the testimony has been similar.

The Subcommittee has covered a lot of ground throughout the course of these oversight hearings. We know that there are tough market conditions right now, but that market corrections are happening because of supply and demand and price volatility, which has always been the case with the free-market system.

We know that there are infrastructure and permitting issues that need to be addressed, and we will touch on those issues during today's hearing in regards to public lands. There are also NIMBY issues that need to be addressed. It would be interesting if this Committee were to have a hearing on the West Coast of Florida, for instance, and call the governor down to testify on his view of some of the drilling that has been proposed off the coast of Florida and other sensitive regions around the country. After all, these are important issues.

However, in order for us to develop a sustainable long-term energy plan, we need to take a comprehensive approach. Granted, natural gas is going to be an important factor in such a plan. It is a preferable piece of the approach, given it is one of the cleanest-burning fossil fuels that are available, and we have access to even more resources within our own country, but it cannot be the sole answer. There must be a mosaic of different options available for the country in order for us to develop a greater energy independence and wean ourselves from our dependence on foreign sources. Alternative and renewable energy supplies, biofuels and the fuel of the future, fuel cell development, must all play a role.

We need to be much more aggressive in regards to our energy policy and the incentives and investments that need to take place, but natural gas is the subject of the hearing today. We are looking forward to the testimony, but I just wish that we could have a more well-rounded, balanced approach to this discussion because this is not a partisan issue.

We have been witness to conversations from private landowners out West, outdoor sports organizations, and hunters and fishermen alike who want to see us take a balanced approach in regards to access issues involving public lands. They do not want the scale tipped too heavily on one side. We look forward to the testimony today because these are important issues, however, to be clear, it was disingenuous when the Chair last week claimed that there is not a lot of democratic interest on this topic.

The Subcommittee Democrats have been engaged in debate. We have tried to engage in a meaningful dialogue on this subject. Members walk in and out of these hearings when they take place. In fact, we had five or six Members last week that were here for at least part of the testimony that took place, yet the Chair somehow found fit to level criticism that more members were not here during the entire course of the hearing.

Regardless, we look forward to Ms. Watson's testimony today, as well as the other witnesses, and we will try to come up with some further answers, or maybe some new ideas, on how we can approach this issue. But unless, or until, this Committee and this Congress begins developing the political leadership necessary for achieving energy independence, which will be good not only for our economic growth potential but also in regards to foreign policy implications, expect to see these issues persist.

We will hold more hearings with little accomplishment due to a single-set ideological mind-set that believes we can somehow drill our way out of our current situation. Conservation and energy efficiency has to be a part of the equation as well. The Vice President criticized advocates of energy efficient and conservation-oriented programs, in spite of high energy prices just a couple of years ago. Even so, the State of California, entrenched in a massive energy crisis, approved efficiency measures that, in one month alone, resulted in a 15-percent decline in energy consumption. The residents of California reflected the potential of the American people to respond to adversity and what can be accomplished if we develop a comprehensive energy framework to avoid becoming too fixated and too focused on just one aspect of it.

So thank you, Ms. Watson, for your presence here today. Thank you, Madame Chairman. We look forward to the testimony.

Mr. REHBERG. Thank you, Mr. Kind.

Ms. Watson, I know you understand the drill by now. You have been here many times. Thanks for being in Montana last week and your good work.

The timing light is in front of you. We have asked you to give a 5-minute statement, and if you would please stand, raise your right hand and repeat after me.

[Witness sworn.]

Mr. REHBERG. Thank you. You may proceed.

STATEMENT OF REBECCA WATSON, ASSISTANT SECRETARY FOR LAND AND MINERALS MANAGEMENT, U.S. DEPARTMENT OF THE INTERIOR

Ms. WATSON. Representative Rehberg and members of the Subcommittee, I am pleased to come before you today to discuss the findings of the Energy, Policy and Conservation Act, EPCA, and what the Bureau of Land Management is doing to integrate the inventory's findings into how oil and natural gas are developed and natural resources are protected on Federal lands.

As you noted in your opening remarks, our Nation faces great challenges in meeting its energy needs. Energy is the cornerstone of our American economy. The fact is that we consume more than we produce. We know that it is particularly acute for oil. Right now we are importing 55 percent of our oil. That is expected to grow to 68 percent by 2025.

Recently, we have had the issue of natural gas supply come to our attention with the testimony of Chairman Greenspan. Natural gas demand has grown. Typically, we have been able to meet our demand, eighty-six percent of our demand from our own domestic resources, and importing the rest from Canada. That has now changed. The demand for clean-burning natural gas to fuel electricity is growing. Ninety percent of the new power plants will be run on natural gas. We expect that demand will grow by more than 50 percent, but supply will only grow by 14 percent.

One solution that Chairman Greenspan talked about is again turning to the solution of imports, and this time it won't be imports from Canada because Canada is facing the same challenges we are. We will be moving into a situation where we have the same political and security challenges as we face in oil with our natural gas.

This Administration believes that we need to protect the quality of life in our country by increasing our ability to produce more of our energy domestically and to close the gap between the amount of energy we use and the amount we produce.

I have a poster up here that demonstrates the problem that we face. The dark green line on the bottom shows the supply curve, and you see it drastically declining for natural gas. The light green demonstrates what we think we can produce reasonably with the current development we have right now in natural gas. The lighter color of yellow and the top line shows the gap, the demand skyrocketing up, and that yellow gap growing year-by-year that needs to be filled with Alaska gas, imported LNG, and unconventional gas.

Chairman Greenspan highlighted the importance of natural gas to our economy. He testified on that issue because he sees it impacting our economic recovery and our economy. Just last week,

there was an article in the Wall Street Journal, "Natural Gas Cooks the Chemical Sector"; New York Times, "Short Supply of Natural Gas Raises Economic Worries." This is a problem that should be a concern of all members.

But this energy challenge is not new, and in order to provide for our energy needs, President Bush's national energy policy did establish a comprehensive long-term energy strategy. As Representative Kind suggested was needed, the President's plan recognizes conservation, more efficient use of energy, diversification of our energy supply, and increased production of all domestic energy resources, renewable and nonrenewable.

This Congress directed us to perform the EPCA inventory, to inventory our domestic oil and gas resources on Federal lands and to identify any kind of constraints to their development. The national energy policy supported the direction of Congress and directed that this study be expedited.

The next poster shows the study areas, and we selected, with the assistance of Congress, what five basins we would begin our study with. And these five basins contained the largest supply of oil and natural gas on shore. As you can see, it is the Paradox/San Juan Basins in Colorado, Utah and New Mexico; the Unita/Piceance Basins in Colorado; basins in Wyoming and the Montanan Thrust Belt.

My time is rapidly running out, and I will just say that what we are doing to integrate this is we have set up two committees to integrate the EPCA information into both planning and the issuance of applications for permit to drill. We expect these two committees that we have set up internally within BLM to come with specific guidance to BLM very shortly. Again, that would be how we integrate this information into our planning process and applications for permit to drill.

What the study found is that there is redundancy in lease stipulations, and there is inconsistency, and those are the two problems we are going to try and focus on to have the restrictions on leasing, protect the resource values that need to be protected, but not to overprotect them or be redundant and inconsistent.

We found that as you looked at how restrictions were applied, artificial jurisdictional boundaries would change the restriction from one place to another. In other words, you had the same elk herd. It was treated one way in Wyoming, the elk herd was treated a different way in Colorado, and it was not based on any resource protection need, but simply a change in jurisdictional boundaries, and we want to remove some of that confusion and treat the resource in a holistic way.

So thank you, and I will take questions.

[The prepared statement of Ms. Watson follows:]

Statement of Rebecca Watson, Assistant Secretary for Land and Minerals Management, U.S. Department of the Interior

Madam Chairman and members of the Subcommittee, I am pleased to appear before you this morning to discuss the findings of the Energy Policy and Conservation Act (EPCA) Inventory and what the Bureau of Land Management (BLM) is doing to integrate the inventory's findings into how oil and natural gas are developed and natural resources are protected on Federal lands.

As you know, our Nation faces a great challenge in meeting its energy needs. Energy is the cornerstone of the American economy. We consume much more than we

produce; this is especially true for oil. This imbalance causes us to rely increasingly on foreign oil. According to the Department of Energy's Energy Information Administration (EIA), we are currently importing about 55% of our oil from foreign sources—a percentage that is expected to increase to 68% by 2025. Relying on these foreign sources of oil make us dependent on unstable parts of the globe, creates uncertainty and anxiety at home, and threatens our quality of life.

Historically, we have been able to satisfy most of our natural gas demand through the production of our domestic resources, and nearly all of our imports come from Canada. We currently supply 86% of our own demand. However, that is beginning to change as demand for clean-burning natural gas to produce electricity continues to accelerate, mature basins decline, and access to new basins fails to keep pace with demand.

According to the EIA, over the next 20 years, U.S. natural gas consumption is projected to grow by more than 50 percent, while production, if it grows at the rate of the last 10 years, will grow by only 14 percent. The EIA also projects an increasing need for natural gas imports from Canada at a time when Canada's gas exports are declining. Increased imports of liquefied natural gas (LNG) are an important component of natural gas supply and, as Federal Reserve Chairman Alan Greenspan recently pointed out, are likely to become an even more important source of supply in the future.

We need to protect our economic and national security by increasing our ability to produce more of our energy domestically, and close the gap between the amount of energy we use and the amount of energy we produce.

On May 21, 2003, Chairman Alan Greenspan testified before the Joint Economic Committee of Congress and stated, "I'm quite surprised at how little attention the natural gas problem has been getting, because it is a very serious problem." He also said, "If on the one hand we have encouraged, as we have, very significant growth in domestic demand for natural gas—but are very readily constrained by our ability to increase supply—then something has got to give, and what is giving, of course, is price." More recently, on June 10, 2003, Chairman Greenspan spoke before the House Committee on Energy and Commerce about the natural gas crisis. Again, Chairman Greenspan warned Congress that short supplies and rising costs of natural gas could eventually contribute to "erosion" in the economy.

The energy challenge we find ourselves in is not new. In order to provide for our Nation's growing energy needs, President Bush's National Energy Policy established a comprehensive, long-term energy strategy. The President's plan recognizes that conservation and more efficient use of energy, diversification of our energy supply, and increased production of all of our domestic energy resources—renewable and nonrenewable—are critical to our energy future.

The National Energy Policy recognized the Congressionally-mandated EPCA inventory of domestic oil and gas resources on Federal lands as an important part of that strategy. The inventory identifies the oil and natural gas resources in five energy-rich basins of the western United States and analyzes the impediments to accessing those resources. The National Energy Policy directed that the EPCA inventory be expedited and that constraints to Federal oil and gas leasing be reassessed and modified "where opportunities exist (consistent with the law, good environmental practice, and balanced use of other resources)." The National Energy Policy further directed that any reassessment of constraints be conducted "with full public consultation, especially with people in the region."

On April 18, 2002, BLM Director Kathleen Clarke testified before this Subcommittee about the status of the EPCA inventory and the methodology to be used in developing the report. The Departments of the Interior, Energy, and Agriculture released the EPCA inventory in January 2003. With the inventory now completed, the BLM is taking several steps to ensure the report's integration into the land use planning process, applications for permits to drill, and other use authorizations.

EPCA Overview & Key Findings

As directed by Congress in the Energy Policy and Conservation Act of 2000 (Public Law 106–469), the Secretary of the Interior, in consultation with the Secretary of Agriculture and the Secretary of Energy, initiated a national inventory of oil and natural gas resources beneath Federal lands and the constraints that may limit the development of those resources. The report, entitled "Scientific Inventory of Onshore Federal Lands Oil and Gas Resource and Reserves and the Extent and Nature of Restrictions and Impediments to Their Development," evaluated five areas in the West that contain the bulk of the natural gas and much of the oil resources under Federal management in the onshore United States.

The basins are: the Paradox/San Juan Basins in Colorado, Utah and New Mexico; the Uinta/Piceance Basins in Colorado and Utah; the Greater Green River Basin in

Wyoming, Colorado and Utah; the Powder River Basin in Montana and Wyoming; and the Montana Thrust Belt. These five basins encompass nearly 104 million acres, 59 million acres of which are managed by the Federal Government. The EPCA directed us to look at all onshore Federal lands and, thus, the inventory includes lands managed by the BLM, the National Park Service, the Bureau of Reclamation, the U.S. Fish and Wildlife Service, the USDA Forest Service, and the Department of Defense. It also includes split estate lands—those privately owned lands where the Federal Government owns the subsurface minerals. The EPCA inventory does not include American Indian lands.

These five basins contain the largest reservoirs of natural gas after the Outer Continental shelf—almost 140 trillion cubic feet of natural gas on Federal lands. According to the Natural Gas Supply Association, some 56 million U.S. homes use natural gas. The amount of natural gas on public lands in these 5 basins could satisfy the needs of these 56 million homes for nearly 30 years. These same lands, however, are also important for a variety of multiple uses, including wildlife habitat, grazing, recreation, historical and cultural resources, and renewable and nonrenewable energy and mineral development. The EPCA study sought to address both dimensions of public land oil and gas development—the resource values and the constraints posed by other values.

In the inventory, the USGS analyzed undiscovered technically recoverable resources. Technically recoverable resources are those resources that are currently producible using existing technology. The estimates do not address whether it is currently economically profitable to recover these resources. The USGS resource numbers were then added to EIA's proved oil and natural gas reserves for the United States. Proved reserves calculations include consideration of current economics. The EIA annually collects proved-reserve information from operators. Thus, the EPCA inventory is more comprehensive than simply using technically recoverable resources. The USGS estimates that it will take approximately 2 years to determine economically recoverable resources for these 5 basins.

The EPCA inventory further breaks these data down by the five Basins identified above. The inventory next provides a basin-by-basin comprehensive summary of the constraints to oil and natural gas development resulting from various existing lease stipulations. The BLM and the U.S. Forest Service supplied lease stipulation data, which was then overlaid on the resource numbers using Geographic Information System (GIS) technology. Some 1000 lease stipulations were classified into 10 broad categories. It is important to note, however, that the EPCA inventory only addresses the leasing stage and whether lands containing oil and natural gas resources are open or closed to leasing, and the degree of constraint on development resulting from lease stipulations on open lands. The EPCA inventory did not address other potential constraints to development that may result from the permit process and other post-lease conditions of approval. These potential constraints are the subject of the work of the White House Task Force on Energy Project Streamlining, as created pursuant to Executive Order 13212, and the work of the National Petroleum Council, among others.

The key findings of the EPCA inventory are as follows:

- In these 5 basins, an estimated 57 percent of the oil and 63 percent of the natural gas are available under standard leasing stipulations, and only 15 percent of oil and 12 percent of natural gas are totally unavailable. The remaining oil and natural gas are available with increasing restrictions on development. Generally, land that is completely closed to development contains comparatively little oil and natural gas potential.
- Within these five basins, the total estimated Federal reserves and undiscovered technically recoverable oil totals 3.9 billion barrels (Bbbl), and the total estimated undiscovered technically recoverable natural gas totals 138.5 trillion cubic feet (Tcf). Of this amount, 2.2 Bbbl of oil and 86.6 Tcf of natural gas are available for leasing with standard stipulations. Additionally, 1.1 Bbbl of oil and 36 Tcf of natural gas are available for leasing with restrictions on oil and natural gas operations beyond standard stipulations. The EPCA inventory also identified 0.6 Bbbl of oil and 15.9 Tcf of natural gas that is not currently available for leasing due to pending land use planning or various prohibitions established by laws, Executive Orders, or status as set by a land management agency.

While I have discussed our findings related to the issue of access to oil and gas resources beneath Federal lands, from a management perspective, there is an additional significant finding.

- Numerous examples were found in which lease stipulations were being applied inconsistently. These inconsistencies included differences in protective

stipulations that resulted from jurisdictional boundaries—state line, agency boundaries, BLM Field Office areas—rather than a resource protection need.

We found that requirements on oil and gas operators to protect a resource could be significantly different between adjoining political jurisdictions and agency management units. A seemingly arbitrary invisible line could separate two entirely different management practices for the same resource in the same setting. The reasons for such differences in management practices were usually unclear.

Because BLM is the DOI bureau primarily responsible for implementing changes as a result of the EPCA study, I'll now turn my attention to what BLM is doing in response to the report. One of BLM's first tasks is a review of such conflicting management practices for similar resources in similar settings. Sound science has to be the critical factor in the design of operating restrictions. Operators should have a single prescription for a specific resource in a specific setting throughout that setting regardless of how many state or management unit boundaries that setting crosses. Prescriptions should not change at invisible boundaries. We must define appropriate practices for settings which may extend across numerous political jurisdictions or agency management unit boundaries. Where appropriate, we must incorporate those prescriptions in all of the management plans for which the resource and setting occur.

As a result of the EPCA inventory, BLM is asking field managers to look beyond the boundaries of their units to ensure that the restrictions they impose on oil and gas operators for a specific resource are similar, if not identical, to those imposed in neighboring units with the same setting.

As noted earlier, our restrictions must be based on the best available science. We must recognize the value of adaptive management. That is, the ability to modify or adjust restrictions to ensure adequate resource protection. We must determine whether or not our prescriptions are effective without being overly restrictive. We must respond to new scientific information and use it to make appropriate changes to our prescriptions. This is the real promise of the EPCA inventory. Consistency based on sound science will benefit both our resources and our domestic oil and gas producers.

It is important to note that any reassessment of these restrictions on oil and gas activities will occur in the public-land use planning or legislative processes, both of which are fully open to public participation and debate over the appropriate balance between resource protection and resource development.

Integrating EPCA into Land Use Planning / Resource Use & Authorization

In accordance with the President's National Energy Policy, it is the goal of the BLM to provide optimal access to the resources from the public lands consistent with sound land stewardship principles and full public involvement. The information developed in the EPCA inventory will play an important role in advancing this strategy.

On April 3, 2003, BLM Director Kathleen Clarke issued guidance to BLM State Directors regarding integration of the EPCA inventory results into land use planning and energy use authorizations. Four EPCA integration principles were transmitted to the field offices. They are:

1. Environmental protection and energy production are both desirable and necessary objectives of sound land management practices and are not to be considered mutually exclusive priorities;
2. The BLM must ensure the appropriate amount of accessibility to the energy resources necessary for the nation's security while recognizing that special and unique non-energy resources can be preserved;
3. Sound planning will weigh relative resources values consistent with The Federal Land Policy and Management Act;
4. All resource impacts, including those associated with energy development and transmission, will be mitigated to prevent unnecessary or undue degradation.

The BLM established two national teams led by State Directors to develop strategies to integrate the EPCA inventory into the land use planning and use-authorizations processes. The Land Use Planning Team is responsible for developing guidance which will guide the BLM in integrating EPCA into land use plans (especially those designated as time-sensitive). In the long term, the team will be responsible for looking at ways to improve the planning process and allow for flexibility in making decisions which take into account current land conditions and scientific knowledge. Additionally, the process developed by the team will insure bureau-wide consistency in the application of stipulations. The other team, the Resource Use Authorization Team, is responsible for developing guidance that will (1) direct how the EPCA results can provide flexibility and consistency in the use of stipulation waivers and exceptions to facilitate oil and gas development, where appropriate, and (2) use of

the EPCA results to improve communications with operators on the timing requirements for Applications for Permit to Drill (APD) submissions as related to seasonal restrictions and where the EPCA results can be used to facilitate our APD streamlining efforts. The teams are proposing to incorporate adaptive management principles using the most current science and information available. Stipulations would be more outcome-based instead of prescriptive. This means that the desired results would be stated and various approaches could be utilized to accomplish resource protection.

Finally, to ensure the successful and timely implementation of these efforts and to stress the importance of using the EPCA inventory as a key component of the President's National Energy Policy, the BLM organized a national telecast for all BLM field managers on May 14, 2003. The telecast provided a forum to discuss the importance of this effort and to explain how the BLM will fully integrate the information in the EPCA inventory into the way the agency does business.

Additional EPCA Inventories

In consultation with the other Federal agencies that prepared the first phase of EPCA, the BLM is considering the next phase of EPCA inventories. Areas for study could include the Eastern Great Basin in Nevada; the Bighorn Basin in Wyoming; the Wind River Basin in Wyoming; and the Wyoming Thrust Belt.

Conclusion

Completion of the first EPCA inventory is an important step toward implementing the President's National Energy Policy and improving the way BLM does business. We look forward to working with the Subcommittee as BLM continues to integrate the data from this and future EPCA inventories into its management plans. Thank you for the opportunity to testify before you today. I welcome any questions the Subcommittee may have.

Mr. REHBERG. Thank you, Ms. Watson.

I guess I would like to dwell a little bit on the difference between economically feasible and technically feasible and have your opinion of the importance of the distinction between the two and do you believe an assessment, from this point forward, should dwell more heavily on technical feasibility or is there a place for economic feasibility?

Ms. WATSON. Well, I think that it is not an either/or situation. First, in the EPCA study, we were directed, again, in consultation with the committee, to look at technically recoverable resources. We modified that by adding into USGS's technically recoverable resources the EIA's proved resources. So that is an element of economic recoverability that we laid over our USGS resource numbers. So it gives us a little bit more refined analysis.

Secondly, the problem with using economic reserves was highlighted in your opening statement. Those are a snapshot in time. EPCA was designed to be a planning tool, and for planning you need to look out quite a long ways. And so we felt the technically recoverable resources was what we were asked to do and that they were the more appropriate technique.

At the same time, USGS is performing an economically recoverable analysis, as they do always, and that should be ready in about 2 years.

Mr. REHBERG. Do you feel enough has been done to consider the post-leasing problems that exist, the delays or the inability to get the projects going once they have been leased?

Ms. WATSON. Well, I thank you for that question. It is important to realize that the EPCA study focused only on pre-leasing conditions, conditions at the lease, and it analyzed some 1,000 different stipulations that exist and categorized them into 10 categories and

rated how open it was to leasing. It did not address at all what happens at the post-leasing stage.

And it is very important to realize that there is a lot, of course, that happens at that stage. You have to continue to do NEPA analysis. While you may have done a plan NEPA analysis, you have to do a site-specific NEPA analysis. You have to do cultural resource surveys, national historic preservation compliance, Endangered Species Act compliance, consultation with tribes over cultural resources, Clean Water Act permits. So there are innumerable processes that take place afterwards. This study did not analyze those.

There are two studies that I know of that are addressing that: One is the President's Task Force on Energy Streamlining, and more immediate will be the results of the National Petroleum Council's Study on Post-Lease Constraints and Natural Gas Supply that should be issued in September.

Thank you.

Mr. Kind?

Mr. KIND. Thank you, Mr. Chairman. Thank you, Ms. Watson for your presence and your testimony here today.

Mr. Chairman, I would ask unanimous consent at this time to have another member of the Resources Committee statement, Representative Ed Markey's, submitted into the record at this time.

Thank you.

[The prepared statement of Mr. Markey follows:]

Statement of The Honorable Edward J. Markey, a Representative in Congress from the State of Massachusetts

Today the Subcommittee is examining the proposition that Federal lands have the ability to meet America's energy needs.

We are going to hear a lot of numbers during the hearing. Let me put the two crucial numbers before the Committee: 75 and 3. The former is the percentage of global oil reserves that OPEC countries hold; the latter is the percentage of global oil reserves that America controls. No matter how much we produce from our Federal lands, we will not be able to make up this gap.

But we can cause a lot of damage trying.

We have set aside Federal lands to protect our nation's resources. Most are governed by the doctrine of multiple-use and despite industries' claims, oil and gas development gets more than its fair share of use. According to the Department of Interior's own study, 85% of the technically recoverable oil and gas on Federal lands in the Rocky Mountain region are available for development. Granted sometimes these lands require environmental lease stipulations, but these are mostly during the exploration stage and are seasonal in nature in order to protect wildlife during critical times of the year. Furthermore, even these basic stipulations are routinely waived if a company finds them too onerous, removing what little protection wildlife might otherwise enjoy.

There are some Federal lands that are too precious to disturb, but much of our Federal lands has and will continue to be used for a variety of activities, including oil and gas production. We have had a number of hearings in which industry has been able to pose the question: "Why do we have put up with seasonal restrictions for wildlife?" This Committee should also be asking the corollary question: "What are the impacts to wildlife as a consequence of the BLM's frequent waiver of stipulations designed for their protection?"

Mr. KIND. Ms. Watson, two areas to delve into.

You testified earlier we need to somehow close the gap between the energy use, the energy consumption we now have and the production that is available in getting that to market. I am just curious as to whether or not there is an important role for increased

energy efficiency and conservation practices from individuals to businesses alike for them to play a role in our energy policy as well and where you see that fitting in.

Ms. WATSON. Yes. As I said, the President's energy policy looks at both domestic production and also conservation and energy efficiency. If you look at the NEPA, it demonstrated that industry has responded very dramatically with energy-efficient techniques. Where we fall down is individually and our need to address conservation in our own homes, in our small businesses, in our driving habits, et cetera, and conservation does play a role.

But I think what we need to be concerned about, as policymakers, is that in the next 5 years, we have a very critical natural gas supply shortage. Natural gas is key to many of our fundamental industries. In Representative Markey's State of Massachusetts, the chemical industry is a direct employer and is a multibillion dollar industry. And as these articles that I raised pointed out, that industry is fleeing our shores, and this is something that needs to be addressed in 5 years. And natural gas has to play a role because the plan is to use natural gas to supply power.

Mr. KIND. I would agree with you. In fact, there was a lot of outreach just a few years ago encouraging conversion to natural gas, usually, because it is a cleaner burning fuel. And a lot of individuals, through their homes and otherwise, made that conversion. Businesses did as well, and now we face these supply and demand issues, the price fluctuations, the urgency that you are describing here today, but there has also been a public campaign to do a better job of educating the general public about increased efficiency and conservation.

Is enough being done in that area or do we need to ramp up efforts, as far as public education, in regards to conservation practices, and things that can empower individuals to have a little bit more control over this?

Ms. WATSON. I think that education on the energy issue is critical. I received a study in my office this fall that is entitled "Energy IQ," and it basically shows Americans flunk knowledge of energy, where it comes from, what we use it for, the role of conservation and efficiency, and just how important it is to economy. And it is fundamental, and there is a great deal of information that should, and could, be imparted on all issues, whether it is conservation, natural gas, renewables. There is a need to educate the American public, and again I see that as a role for policymakers, people in industry, in our schools. It is something we haven't done and we need to do.

Mr. KIND. Do you have any ideas? Has your idea been focusing on this, what type of public outreach campaign might work?

Ms. WATSON. We have been talking about it. I try to do that personally when I speak to groups. I have been focusing on this issue for the last 18 months. I have been working with Assistant Secretary Mike Smith at the Department of Energy, who is the assistant secretary over fossil fuels. This is a particular area of expertise and love of his. He did it effectively in Oklahoma, and I have been trying to work with him on ideas he has that are principally focused on schools.

Mr. KIND. Well, we would certainly like to work with you further on that. If you have any ideas that you want to share with us, this Committee, what we might be able to do, as far as policymakers to extend the outreach and the information available to the general public, I think it is crucial, especially there will be a more receptive audience if these price issues continue in the future. It seems the public is very responsive to the price fluctuations, and will be looking for some answers.

Yes, we have the supply issue that we are dealing with primarily in this hearing, but also the demand, and the consumer issue, too, that I think needs to be focused upon.

Let me just ask you quickly in regards to the permitting process. There are a lot of the public lands currently available for development for exploration. I think somewhere as much as 85 percent of the Rocky Mountain basin area is currently available for development for exploration. I think somewhere as much as 85 percent of the Rocky Mountain Basin area is currently available for exploration, but we have taken testimony in the past, heard from various industry officials that the permitting process could be streamlined or made more efficient. Is this just a matter of resources and additional personnel that is needed in this area or are there other things that we need to be looking at?

Ms. WATSON. I think, in part, it is always a question of resources, how many people you have to attack a problem. But I think more fundamentally is we have so many multiple layers of both State and Federal, and in some cases now tribal laws, that address many of the same resource questions and how do you coordinate the permitting process.

I remember being involved in a project where we prepared a huge chart with velcro tags about how we would do the historic preservation consultation, the ESA, the Clean Water permit, various other State requirements in the right sequence, so we would end up at the right time with all of our permits in order when the EIS was finished. It is not easy, and I think that is an area that the Bureau of Land Management has focused on. Just in April, they have issued five instruction memorandum on how to better coordinate some of these permitting processes. But I think more can and should be done.

Mr. KIND. Great. Thank you.

Thank you, Mr. Chairman.

Mr. REHBERG. Mr. Gibbons?

Mr. GIBBONS. Thank you very much, Mr. Chairman. And, Secretary Watson, welcome to the Committee. We are happy to have you here testifying in front of us.

During the energy crisis in California about 18 months ago, there was of course a move to look for alternative energy capability; in other words, production of electrical energy in California by building natural gas-fired electrical plants.

In the State of Nevada, California came over to Nevada looking for sites to locate these gas-fired electrical plants in Nevada because they could not or would not permit them in California. Obviously, it was impermissible to pollute the air of California, so they came to Nevada looking for that.

The real problem was not the fact they could not find a site to locate it. The problem was they did not have the capacity in the gas pipeline to deliver the gas needed to fire the gas-fired power plants for California. One of the issues, of course, is how are we going to address the issue of distribution and the logistics of moving gas around the country once it is discovered? Because if the demand is growing, capacity in our pipeline system needs to grow commensurately to supply those areas. What are your suggestions with that?

Ms. WATSON. Well, this is actually under the purview of FERC, these larger pipelines, but it is also a function of individual companies confidence in the natural gas market for them to construct the gathering pipelines. And our role as Bureau of Land Management is granting rights of way for those pipelines, and that is something we work on again to be more efficient. The White House has a task force on infrastructure, building that necessary infrastructure, and it is really a problem that faces not just natural gas, but also renewable energy.

How do you distribute the power to where it is needed? Much of it is produced in areas that are low population, yet it is the population centers on the East and West Coast that need the energy. So you have highlighted a good problem, and I think FERC feels that it is working toward getting the necessary pipeline infrastructure there, but we need a response from the natural gas industry to build the pipes to connect up with those pipes.

Mr. GIBBONS. Let me ask how long it takes today to permit a drilling operation for natural gas. What is the length of time a company comes in, makes an application to do a drilling permit to the point of time that that permit is issued by the Bureau of Land Management?

Ms. WATSON. It is a complicated issue, but the simple answer is it could be as little as 30 days or it could be longer than a year. I think if you look at the Powder River Basin, you see that before any wells could be permitted, they had to go through a 2-year plan NEPA process. That NEPA process is completed, and immediately five lawsuits were filed.

Then, you have your individual NEPA compliance and permitting for these individual wells. So it could be any amount of time, but at least the quickest would be 30 days.

Mr. GIBBONS. Yes, but it is not likely that you would get one in the say, say, Rocky Mountain region, where there is a natural gas supply, issued within 30 days, is it?

Ms. WATSON. I think in some places in Wyoming, especially at the Buffalo Field Office that they are sort of the center of some of these APD processing streamlining techniques, and they have been able, with additional resources and streamlining techniques, to increase the speed. We do have a backlog of permits, but we have reduced that, and so you can't get around the fact that post-leasing there are permitting hurdles, time delay, money to wind your way through that process, and it can add a lot of time, which adds uncertainty to investment.

Mr. GIBBONS. Let me ask one final question before my time is up. In looking at the fact that Alan Greenspan has indicated, among others, including the industry, that there will be a natural gas

shortage sometime this winter, what is the likelihood that if everything went swimmingly, everything was on time, that you could actually bring on-line, with the current regulatory system that we have, the needed gas supplies to solve the gas crisis that is pending or predicted for the end of the year? What is the likelihood of that?

Ms. WATSON. I think the likelihood, under the current regulatory structure, is very challenging. To up demand in the time that it is needed by the winter with the current structure that we have, I think that would be difficult.

Mr. GIBBONS. Thank you.

Mr. REHBERG. Mr. Pearce?

Mr. PEARCE. Thank you, Mr. Chairman.

I appreciate that we are engaged in one of the discussions that is most difficult to balance; that is, the need to preserve our environment and the lack of desire to see people suffering from the inability to pay the heating bills, that we need a reasonable price. Even our entire economy, as Ms. Watson has suggested, is based on affordable energy, and so constantly that balance between our environmental needs and the needs of people have to be balanced.

As we deal with BLM in our State, we find that one of the great impediments is that no matter what the rules say, that the lowest level of bureaucrat can intercede and stop an entire process, sometimes without legal standing, sometimes without regulatory standing, and I just wonder what the management does in those circumstances where projects are held up, where the desires of the upper-level management are just ignored. What does the BLM do?

Ms. WATSON. Well, I think that is something I am concerned about. I can tell you that in the Washington office, Kathleen Clark, at the BLM, and I, and other policymakers have been working very hard to come up with these instruction memorandums, to address some of these permitting problems, also to address conflicts with surface estate and mineral estate.

And we intend that the lowest level of the bureaucrat, as you describe it, would implement those, and one of the things Kathleen and I were just talking about on Monday was that we want to have a conference, and we want to personally involve all of our field staff in that and make it very clear that these instruction memorandums are to be followed, that they are not optional, as was reported recently in some of the trade press. That is a concern of ours. We take a lot of time and thoughtfulness to come up with policies that we think will address problems on either side of the issue, and we intend that they be implemented.

Mr. PEARCE. I think that in the case of the instruction memorandum, there is concern what happens to them after you issue them. What are you finding does happen to those instruction memorandum? Because the feeling among people who have to deal with it on the other side of the issue is that they are very arbitrary and that they can be ignored. So what do you find, as a management person, is occurring with an instruction memorandum?

Ms. WATSON. Well, that issue was highlighted for me this week in the Public Lands newsletter. I read it there, and I immediately talked to Kathleen Clark about that issue. Again, I intend to make it clear to BLM that these instruction memorandum are not optional, that they are directives from the Director, and that they are

to be implemented. There seems to be some confusion that they are optional, and that is not how we view instruction memorandums. They are guidance that is binding on BLM employees, and I was troubled when I read that, and I plan to address it.

Mr. PEARCE. Do you foresee any particular management action? And the reason I ask this is because the greatest complaint I have from constituents in the West, we have a lot of constituents, about 60 percent of our land is publicly owned, and we have a lot of constituents who always interact with Government officials, Fish and Wildlife, Forest, BLM, and it is the arrogance, it is their ability to walk away from any rule, any common sense that really offends people and is causing the inflammatory things that happened last year in Klamath Falls.

Even the Government employees who fabricated the entire story about the lynx, wherever that deal came, Fish and Wildlife, my question to their highest level of supervision was, "Exactly what did you do to those people? Did you give them a cut in pay? Did you bump them down a personnel category? Did you transfer them? What exactly did you do to these people that fabricated a hoax that was really intended to cause great difficulties?"

And my question I guess to you, as my time wraps up, is what management things can we look back a year from now and say that the BLM did take some actions so that the arrogance of the lowest-level employee who wanted to just ignore orders, who wanted to just implement their own desires, what management action a year from now can I say, "Well, I heard that in Committee, and then it came about"; what do you foresee?

Ms. WATSON. Well, I can just tell you, again, I had this conversation with Kathleen yesterday at lunch. We made a decision together that we are going to hold a conference involving the lowest level of field managers to discuss this very issue and indicate that these directives will be followed, and then I will look to Kathleen to enforce the fact that they be followed, and how she does that will be something that we will discuss, but I take it very seriously.

Mr. PEARCE. Thank you, Mr. Chairman.

Mr. REHBERG. Mr. Nunes?

Mr. NUNES. Thank you, Mr. Chairman.

Last year, the BLM issued an instruction memorandum on the statement of adverse energy impact, and due to some confusion in the field, BLM indicated it would put together additional guidance as to how to prepare such a statement, and the Committee was wondering what is the status of this guidance.

Ms. WATSON. I think, unfortunately, it is still underway. I think the same personnel that would be addressing that have been addressing this EPCA study, completing the some 43 tasks under the national energy plan and then developing these five APD instruction memorandums, and the instruction memorandum on surface owners. We are also looking at instruction memorandum on bonding, some of the issues out there, and we have not followed up as rapidly as we would have wished on the statement of adverse energy impacts.

But I see that as a topic that I would like to include in this conference that I mentioned to Representative Pearce, where we bring

together the oil and gas field staff, and we will see if we can address the confusion in the meantime.

Mr. NUNES. So at what point do you think we could assume there would be some type of resolution to this issue? Can you give me a date?

Ms. WATSON. I think what staff has advised in the first part of the next fiscal year, so late fall.

Mr. NUNES. Late fall?

Ms. WATSON. That is what I have been told. I don't have any personal knowledge of it, but—

Mr. NUNES. Thank you.

I have no further questions, Mr. Chairman.

Mr. REHBERG. Thank you.

A couple of follow-up questions if I might. The APO is supposed to, by statute, take 30 days. Currently, I believe, if my numbers are correct, were about over 3 months beyond that time for the permitting process. I guess my question is what specifically are you doing administratively that will, in fact, shorten that timeframe.

Ms. WATSON. Well, we came out with instruction memorandum and revisions to existing guidance that provide for batch processing. Rather than looking at it well-by-well, we will look at a pot of wells and analyze the cultural resource issues, the NEPA issues, and the Endangered Species Act issues as a group. That will add a lot of efficiency to it and will also give us a better ecosystemwide view.

Rather than a snapshot of one well, look at it in an ecologically significant manner. So that we think we get some efficiencies, and we get a better job by doing that, and we have added better guidance for conditions of approval for permit applications, and we have revised the on-shore oil and gas order. It was quite dated, the language was dated, some of the provisions needed to be made more clear, and again all of those things should help.

We are looking to Centers of Excellence, and one of the Centers of Excellence is the Buffalo field office in Wyoming. They have processed a number of permits. They have had to deal with the high volume, and they have come up with some good efficiencies, and that formed the basis, from the field level up, on how we can do things better. I think the White House and others are looking at further steps yet on improving processing.

Mr. REHBERG. Based upon all of that, then, can you give us a best estimate a year from now, agencywide, what will the timeframe be? Will it be 30 days? Can we get an assurance that the APO process will take, from start to finish, a 30-day limit?

Ms. WATSON. I am a lawyer. I would never give such an assurance. No.

Mr. REHBERG. You are also under oath.

Ms. WATSON. I am under oath, that is right, and I don't think I could give you that assurance. I think there are too many unknowables. I think that that is a goal we strive for, but as I said, the permitting process is incredibly complex, and there is, as you know, opposition, and there is many opportunities for people that are opposed to oil and gas development to express that opposition through appeals and through litigation. All of that can add time, and delay, and so I don't think we can provide that certainty.

But are we aware of the problem of delay? Are we taking steps to address it? Yes, we are.

Mr. REHBERG. If there was one thing that you could wave your wand and get a bill passed through Congress that would make that process simpler, what would you suggest we do or do you have the tools in place already, and it is just a matter of administratively working your way through the glitches and making it more efficient?

Ms. WATSON. I think there is a lot we can do administratively. I think it is a very difficult challenge because natural gas is part of our quality of life, but likewise environmental values are part of our quality of life. Those environmental values are expressed through enumerable statutes. Many times they add layers of complexity and confusion.

The best thing I think industry would probably tell you is if there would be some way to have a better-coordinated process to make those permitting decisions more efficient. Much of the same information is required in some of the other permit requests. You could reduce duplication that way, but it is a result of many value decisions that have been made over the years, and then how you coordinate them and get them addressed in a meaningful timeframe is the difficulty.

Mr. REHBERG. Can you give me an indication, and this is my final question, of when the coalbed methane memorandum will be finalized and published?

Ms. WATSON. I believe that that will be done late this summer. We are actually addressing it this week. It is being, again, developed from the field from the bottom up, and then it will be reviewed in the Department and we anticipate by late summer.

Mr. REHBERG. Mr. Souder?

STATEMENT OF THE HON. MARK E. SOUDER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF INDIANA

Mr. SOUDER. Thank you, Mr. Chairman.

I wanted to just make a brief comment to take this back as you meet with your lower-level employees that you were talking about and, in general, in BLM and for the record. I am not a Westerner. I represent an area in Indiana. We use the natural gas, and I am being informed by our companies that we are going to have another huge increase this winter. people who can ill afford those increases at a time of economic slumps, and it is extremely irritating to listen and hear about the roadblocks in developing natural gas, when people were told that this was the direction to go.

It was the suggestion that companies and individuals should move toward this because it is a better form of energy, and then to have some of the people who tried to argue that it was a better form of energy hold up that development in the United States is extremely irritating to those of us in the Upper Midwest and the Great Lakes Region.

We also constantly hear about American jobs moving overseas. What kind of pressure is this going to put on the industrial belt of the United States if they see production costs which are, in my area, were second or third in foundries, were fifth in steel? We

make all sorts of automobiles, trucks, SUVs, parts for all kinds of industrial America, of which energy is one of the most expensive costs in that, that when they hold up the ability for us to get reasonably priced natural gas, and oil, and other forms of energy, whether it be in the coastal zones, whether it be in the mountain zones or other places, what they are doing is either increasing the energy costs and the product costs of every American through these delays and blocks or they are pushing those jobs overseas.

And many of the same people who we constantly hear say, "Well, everybody can't work at McDonald's." Well, this is one way to make sure that everybody either is going to work at McDonald's or nowhere if you push American industry overseas because we don't have the ability to meet our energy capacities here in the United States because of our cost of delivery systems.

And it is not just the actual getting it off the ground. It becomes a pipeline in the refineries and everything else, as well, and we have to get a handle on this. And the anger level this coming winter from the industrial belt, from the homeowners and the manufacturers, is they potentially have to simultaneously lose their jobs and be laid off, and not be able to make their home heating payments.

And if this is going to continue a number of years, I think the political consequences of this are out down a couple of years, and I hope people understand the anger level that is going to hit by the inability to have planned ahead. And I say that as a nonproducer State. I have a totally different agenda than most of them here, but we have the same common interests.

With that, I yield back.

[The prepared statement of Mr. Souder follows:]

Statement of The Honorable Mark E. Souder, a Representative in Congress from the State of Indiana

Madam Chairman: I want to express my appreciation for your calling this timely series of oversight hearings on natural gas. One aspect of the natural gas problem we are facing is an emerging one: getting needed gas pipeline infrastructure into the ground and then delivering gas to expanding markets. It has come to my attention that Coastal Zone Management Act (CZMA) consistency challenges to interstate gas pipeline projects already determined by the Federal Energy Regulatory Commission (FERC) as required "by the public interest" are now impeding the certainty and timeliness necessary to get needed gas pipelines into the ground, and operating.

As you well know, since the late 1980s, certain coastal States have increasingly used "CZMA consistency determinations" to thwart energy projects involving leasing, exploration and production in the Federal Outer Continental Shelf (OCS). These environmentally-evaluated energy projects would provide consumers needed oil and gas resources owned, not by those objecting coastal states, but by all Americans. Yet many exploration projects have been cancelled, due to costly delays and uncertainty while the appeal record in controversial cases remained open at the National Oceanic and Atmospheric Administration (NOAA) for years.

Now, the CZMA "consistency" process has entered a new, disturbing phase. Coastal States are attempting to block two interstate natural gas pipeline projects that would cross the coastal zone, even though FERC approved those projects after multi-year, comprehensive examinations. Under the Natural Gas Act and NEPA (National Environmental Policy Act), Congress long ago directed FERC to decide licensing of interstate gas pipelines, only after preparing full environmental impact statements (EISs). FERC's congressional mandate is to consider fully coastal impacts, and public, state and relevant Federal agencies' participation and consultation under current Federal law. FERC must also evaluate in detail the need for the projects, alternative routes, and explain its analysis as part of its written decision. Congress mandated FERC's preemptive jurisdiction to authorize gas pipelines over 60 years ago, and the Supreme Court has upheld FERC's authority many times.

I must note that FERC has had a very good track record in the courts defeating challengers contending that its decisions to approve pipeline routes were somehow not well supported, unnecessary or environmentally defective. But now, significant new gas infrastructure that FERC has determined is critically needed to heat homes and generate clean-fired electricity is on hold at NOAA due to these CZMA "consistency appeals."

Numerous congressional directives in the CZMA, which, of course, is within the jurisdiction of the Resources Committee, mandate decisionmaking efficiency, coordination and consultation among Federal and state agencies with an interest in a project affecting the coastal zone. However, the CZMA unequivocally states: "Nothing in this chapter shall be construed...as superseding, modifying, or repealing existing laws applicable to the various Federal agencies" (6 USC Sec. 1456(e)(2)).

In enacting the CZMA, Congress imposed an important limitation on States in conferring participation and consultation regarding Federal activities affecting States' coastal zones. In encouraging "'timely and effective notification of, and opportunities for public and local government participation in, coastal management decision making" (16 USC Sec. 1452 (2)(H)), Congress did not give a coastal State the power to block proposed Federal permit activities in interstate commerce that could affect a State's coastal zone.

Congress limited a coastal State's challenge of a proposed Federally-permitted activity to be consistent, to the greatest extent practicable, with the "the enforceable policies of the state's approved program" (6 USC Sec.1456(c)(3)). Yet, in CZMA consistency challenges, States have requested that NOAA conduct more scientific studies, hold additional public meetings, and consider alternative pipeline routes once again. That is hardly the "coordination and simplification of procedures in order to ensure expedited governmental decision making for the management of coastal resources" that Congress declared must be a CZMA imperative (16 USC Sec. 1452 (2)(G)).

The glaring fact is that when NOAA considers a state CZMA challenge, FERC has already conducted exhaustive multi-year hearings, public town hall meetings, and comprehensive scientific, engineering, and environmental reviews, all with the participation of the affected coastal States, and all Federal and state agencies with responsibilities for particular aspects of the proposed pipelines. FERC's detailed examination must range from wetlands and endangered species, to coastal zone impacts, Environmental Protection Agency (EPA) Clean Air permits, and Corps of Engineers Clean Water Act permits.

The type of delay caused by NOAA's view of its appeal mandate can cause needed energy projects to be cancelled, as litigation costs and large amounts of capital allocated to these projects remain idle, or are directed elsewhere due to lengthy uncertainty. And all of this delay and redundancy provides no additional environmental benefits, since all had already been fully considered at FERC, the lead Federal agency that prepared and defended the environmental impact statement as part of its evaluation.

If opponents of an energy projects believe the environmental data does not support the project, they have the right to challenge the reasons for the decision in court. But opponents cannot insist that a CZMA consistency record remain open, killing needed energy projects through lengthy time delays.

Mr. REHBERG. Ms. Watson, thank you for your testimony, and I will, at this time, call up Panel No. 2.

Ms. WATSON. Thank you.

Mr. REHBERG. Good morning. Welcome. By way of introduction, Panel No. 2, Jeffrey Eppink, Vice President, Advanced Resources International, Inc.; Art Johnson, Chairman and CEO, Hydrate Energy International; Debra Knopman, Associate Director, RAND Science and Technology, RAND; and Dru Bower, Vice President, Petroleum Association of Wyoming.

Now, that you are all comfortably seated, would you please stand. Raise your right hand.

[Witnesses sworn.]

Mr. REHBERG. Thank you. Please be seated.

Again, I will remind the folks that we have a 5-minute rule here on your testimony. The lights indicate the time available. I believe

it is yellow when it is like wrap it up and red when you are a done deal, and if you would please respect that as closely as you possibly can.

We will begin with Mr. Eppink.

STATEMENT OF JEFFREY EPPINK, VICE PRESIDENT, ADVANCED RESOURCES INTERNATIONAL, INC.

Mr. EPPINK. Good morning, Chairman Rehberg and members of the Subcommittee. My name is Jeffrey Eppink. I am a vice president with Advanced Resources, International, an energy consulting firm based in Arlington, Virginia.

At Advanced Resources, we have conducted a number of Federal lands assessments in recent years. Under the guidance of a Federal steering committee, Advanced Resources conducted the EPCA inventory, and consequently we have a solid familiarity with its strengths and weaknesses.

Published in yesterday's Oil and Gas Journal is an article concerning the inventory that I, along with BLM, DOE and four service colleagues wrote. I would like to submit a copy of that article for the record.

[The Oil and Gas Journal article follows:]

Oil & Gas Journal Article Submitted May 2003

By:

Jeffrey Eppink
Vice President
Advanced Resources International, Inc.

William Hochheiser
Manager, Oil and Gas Environmental Research
Office of Fossil Energy
U.S. Department of Energy

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Federal Lands Access in the Rockies: Is the Glass 40% Empty or 60% Full?

As the nation's energy needs grow, basins in the West have been identified as a significant future supply source to help meet these needs, especially for natural gas. Of the 23 tcf of natural gas that the U.S. uses annually, about 4 tcf are imported. The Energy Information Administration (EIA) in its Energy Outlook 2003 projects that the demand for natural gas will raise to about 35 tcf by 2025. Basins in the Rocky Mountains represent the second largest natural gas resource in the United States after the outer continental shelf and can help meet this demand. While the resource base in the West is substantial, it is dominated by unconventional natural gas, primarily tight sands and coalbed methane.

At the same time, the Rocky Mountain region is one where multiple-use interests and environmental concerns often intersect. Multiple uses of the Federal lands, including grazing, forestry, recreation, wildlife habitat, open space, wilderness, rights-of-way, often conflict with exploration and production. The restrictions and leasing stipulations that govern access to Federal lands in the region are a patchwork of requirements that can act to increase costs and delay activity. Access restrictions range from areas unavailable for leasing, to areas where leasing can occur although the land surface cannot not be occupied, to limitations on drilling activities due to a variety of environmental considerations.

NPC Assessment

In their landmark 1999 study[1] the National Petroleum Council (NPC) provided a first-time assessment of natural gas resource impacts associated with Federal land use designations and related environmental stipulations in the Rocky Mountain region[2].

The NPC assessment was based on a limited sample of Federal lands in the region. In that study, five specific areas were studied in detail and those results were extrapolated to all Federal lands in the Rocky Mountains. The NPC assessment characterized access to natural gas resources as "off-limits", "high cost" or "standard lease terms" (Fig. 1). About 60 percent of natural gas resources were shown to be under standard lease terms. The NPC study recommended that the issue of land access be studied in more detail.

Mandate for EPCA

Recognizing the access situation, Congress directed that a scientific inventory of the Nation's Federal onshore lands be conducted to assess the impact of environmental considerations on the potential for recovery of oil and gas resources. In November 2000, Congress passed (and President Clinton signed) the Energy Policy and Conservation Act Amendments of 2000 (EPCA). Congress required that the analysis identify any restriction or impediment that might inhibit development of resources. Its purpose was to add clarity to the debate and assist energy policymakers and Federal land managers in making decisions concerning oil and gas resource development.

Subsequently, President Bush's National Energy Policy recognized the then-ongoing EPCA inventory and endorsed environmentally responsible oil and gas development based on sound science. Following the September 11th attacks, on October 11, 2001, Congress provided its sense of priority for EPCA by stating:

> ...In light of recent attacks on the United States that have underscored the potential for disruptions to America's energy supply, the managers believe this project should be considered a top priority...

EPCA requires that all onshore Federal lands be inventoried with provision for periodic updating. Shirley Neff, former staff economist with the Senate Energy and Natural Resources Committee who worked on the legislation, recently commented:

> The intention for EPCA was for the agencies to upgrade their overall systems for tracking oil and gas leasing, permitting and development. The intent was not to have the agencies conduct a one-time study of the situation. The idea was to have a systematic way to review on an ongoing basis not only leasing, but actual development.

EPCA Inventory

The recently released 2003 EPCA inventory[3] partially fulfills the Congressional mandate. The inventory is a comprehensive review of Federal oil and gas resources and constraints on their development in high-priority basins of the Rockies (Fig. 2). These basins were selected for study for three reasons: (1) they contain most of the onshore natural gas and much of the oil under Federal ownership within the 48 contiguous states, (2) the rapidly growing population in the West and (3) public lands in this region face increased demands for their use as sites for recreation, livestock grazing, forestry, open space, wildlife habitat, mining, and oil and gas production.

The 2003 EPCA inventory was accomplished through a cooperative effort of Federal agencies, including the Bureau of Land Management (BLM), U.S. Geologic Survey (USGS), the Forest Service (FS), and the Department of Energy (EIA and the Office of Fossil Energy). Advanced Resources International of Arlington, VA, and Premier Data Services of Denver, CO, conducted the inventory.

The 2003 EPCA inventory examined 138 tcf of natural gas resources[4] including reserves[5] on Federal lands in the Rocky Mountain basins. In addition to analyzing Federal lands, the inventory also examined extensive split estate lands in which private surface lands are underlain by Federal subsurface mineral rights. About 59 million acres of Federal lands (including split estate), present among the almost 104 million acres in these study areas, were analyzed. Federal lands and mineral split

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[1] "Natural Gas, Meeting the Challenges of the Nation's Growing Natural Gas Demand", National Petroleum Council, December 1999.

[2] Ibid, Vol. III, Appendix J.

[3] See http://www.doi.gov/epca for the full 2003 EPCA inventory report.

[4] EPCA mandated the use of USGS resource estimates. USGS estimates of technically recoverable resources were used in the inventory.

[5] Consideration of reserves was mandated by the EPCA legislation. Proved reserves estimates were provided by the Energy Information Administration.

estate comprise over 60 percent of the natural gas resources in the EPCA study areas.

Stipulations are conditions issued for a lease, usually for reasons of environmental protection, and are subject to change from time-to-time [6]. For this reason, the 2003 EPCA Inventory represents a "snapshot" in time for conditions present at the time the inventory was conducted. The inventory entailed the geospatial modeling of oil and gas resource data in a compatible GIS format with land use designations [7] and leasing stipulations. There are approximately 1,000 discrete lease stipulations being applied by the land managing agencies (primarily the BLM and FS) in over 70 field offices in the basins studied.

To focus the EPCA analysis on constraints on oil and gas development, a hierarchy of ten categories of access was developed to cover the complete range associated with oil and gas leasing in the studied basins (Fig. 3). The hierarchy was formulated based on the accessibility of the lands for leasing and drilling. For areas in which drilling is permitted, it was formulated to assess the impacts relative to the costs and delays to operators for conducting drilling.

In addition, the analysis included consideration of exceptions to stipulations, principally seasonal restrictions, and the use of technologies such as directional drilling. Figure 4 shows the results of the EPCA inventory.

Response to the Analyses—NPC and EPCA

If we focus on natural gas, the dominant resource type in the Rockies, the 1999 NPC report and the 2003 EPCA inventory appear similar in overall results. When the EPCA results are recast according to nomenclature used by the NPC, where NPC "off limits" areas are correlated with EPCA categories 1 to 5 and "high cost" correspond to EPCA categories 6 through 9, (Fig. 5), both studies show that about 40 percent of the natural gas resources in the Rockies are either off limits or high cost.

Interestingly, the response to the two studies is a contrast. The 1999 NPC Report results have been generally characterized in terms of restrictiveness—40 percent of natural gas resources is either off limits or restricted. Conversely, the 2003 EPCA inventory has been characterized in terms of the complement—accessibility to the drill bit, where 60 percent is accessible. Ironically some environmental groups such as The Wilderness Society have indicated a preference for the EPCA results.

The Devil Is In The Details

Nominally, at least, 1999 NPC and 2003 EPCA do appear to be opposite sides of the same coin. The reality is more complex and Table 1 helps to sort out some of the differences.

- Resources. The studies covered similar areas (although there are some Rocky Mountain basins that EPCA has yet to address). Likewise, the resource bases are comparable, but there are some important differences—the EPCA inventory categorized about 26 tcf of proved reserves as accessible, placing them in the standard lease terms category. Further, the 2003 EPCA inventory did not account for reserves growth, although there are plans to do so in the future.
- Stipulation Exceptions. Generally, exception rates to stipulations were higher in the 2003 EPCA inventory leading to an increased access depiction. In the EPCA inventory, input on this issue came from over 70 BLM and FS offices.
- Inventoried Roadless Areas (IRAs). In the EPCA inventory, IRAs were not considered off limits because of an injunction blocking the roadless rule by a Federal judge in Idaho. However, with an April 14, 2003 mandated refusal to review the recent 9th U.S. Circuit Court of Appeals panel decision ordering that the injunction be lifted, the roadless rule is in effect. In keeping with the intent that the EPCA inventory capture the practical aspects of access, roadless areas effectively should be considered off limits; the 2003 inventory does not reflect this.
- Split estate. With inclusion of split estate, the EPCA inventory makes for a more accurate depiction, especially in the Powder River Basin where almost 70 percent of the resources are estimated to be in split estate.
- Methodology. Because the EPCA inventory completely mapped the surface restrictions in the five areas study, it more accurately portrays access to resources under Federal land than does the NPC study.

Recognizing these differences between the two studies, especially regarding resource type, estimations of exceptions and consideration of roadless areas, it is

[6] In fact some of the BLM and FS offices are in the process of revising their management plans, but those revisions and stipulations were not yet available for the EPCA studies.

[7] Land use designations include wilderness areas, wilderness study areas, etc.

safe to say that, had the 2003 EPCA inventory been analyzed using 1999 NPC study parameters, it would show more restricted access.

Important Additional Issues

Neither the 1999 NPC study nor the 2003 EPCA inventory quantitatively treat a number of additional issues that impact access to resources. These additional factors can be significant for oil and gas exploration and development on Federal lands. They are not easily quantified statistically or geographically and include:

- Protection for threatened and endangered species and surveys to determine whether a lease contains habitat for such species;
- Archaeological reviews required by the National Historic Preservation Act, and related issues involving cultural resources including consultation with Native American tribes;
- Air quality impacts, especially visibility considerations, and resulting restrictions on activities that may affect air quality;
- Water quality impacts, especially discharge permits for CBM
- Visual impacts of oil and gas operations;
- Noise from oil and gas operations;
- Conflicts between oil and gas and other mineral operations, such as coal and potash;
- Suburban encroachment on oil and gas fields and county government restrictions;
- "Sense of Place," i.e., an emotional or spiritual attachment to certain locations which has been used as justification for designating certain areas as off limits to drilling;

Typically, these requirements manifest themselves as conditions of approval attached to drilling permits following analysis under the National Environmental Policy Act (NEPA). Conditions of approval can delay or modify a planned oil and gas development activity at the permit stage and in some cases preclude it altogether.

Because these requirements are not easily quantifiable, they were not included in the EPCA inventory, and further work would be needed to incorporate them. Their inclusion would provide a more accurate depiction of the difficulties for developing those resources.

The BLM and FS, aware of the strengths and limitations of the EPCA inventory, are beginning a process of integrating the results to help prioritize and guide their planning processes. The EPCA results allow the Federal land management agencies to focus their efforts on those land use issues that most affect oil and gas resources, and that these efforts are supported by good data and sound science. Expansion of the inventory to include additional Federal lands and resources is planned.

With the recognized, decreasing quality of prospects generally in the U.S., the proper question may not be whether the glass is full or empty, but what is the quality of the production that can developed and at what level of difficulty. The EPCA inventory has contributed a measure of clarity to the access issue, but more work remains to be done.

Acknowledgments

The authors thank the Departments of Interior, Agriculture and Energy for supporting the EPCA study and the DOE for supporting this review and comparison with the NPC study.

Figure 1. Summary of NPC Federal Lands Access

Rocky Mountains	Reference Case
Off Limits	9%
High Cost	32%
Standard Lease Terms	59%

Figure 2. Priority Basins Studied in the EPCA Inventory

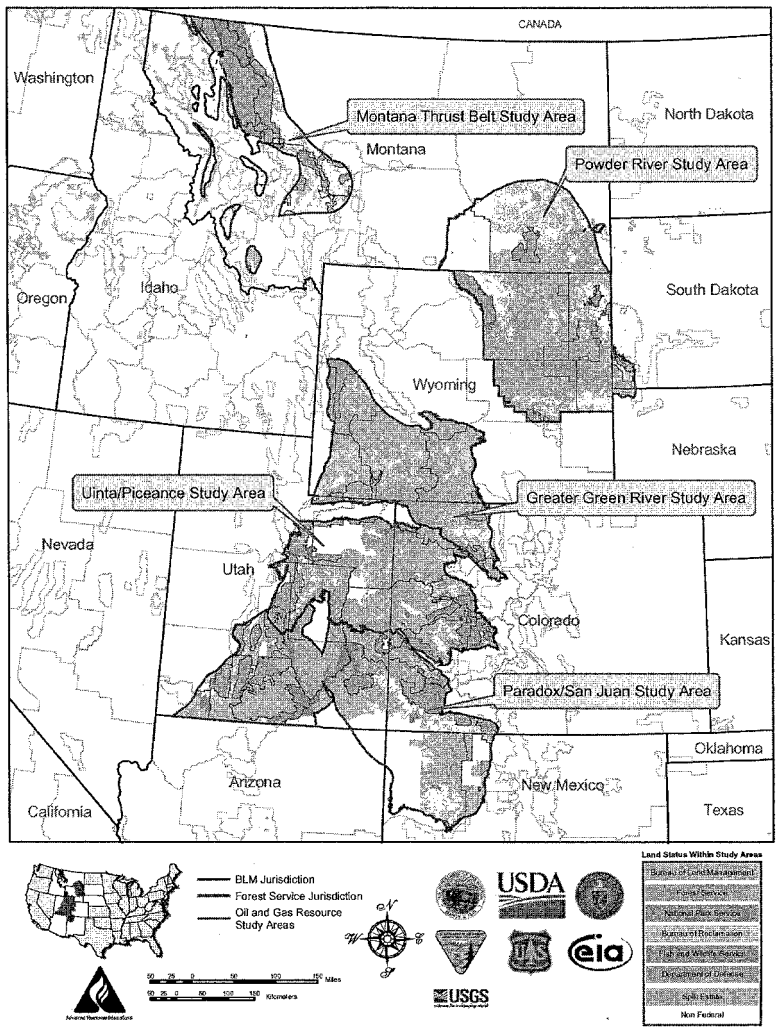

Figure 3. EPCA Categorization Hierarchy

Figure 4. Results Summary of All EPCA Inventory Areas--Oil and Natural Gas Resources Affected by Access Category

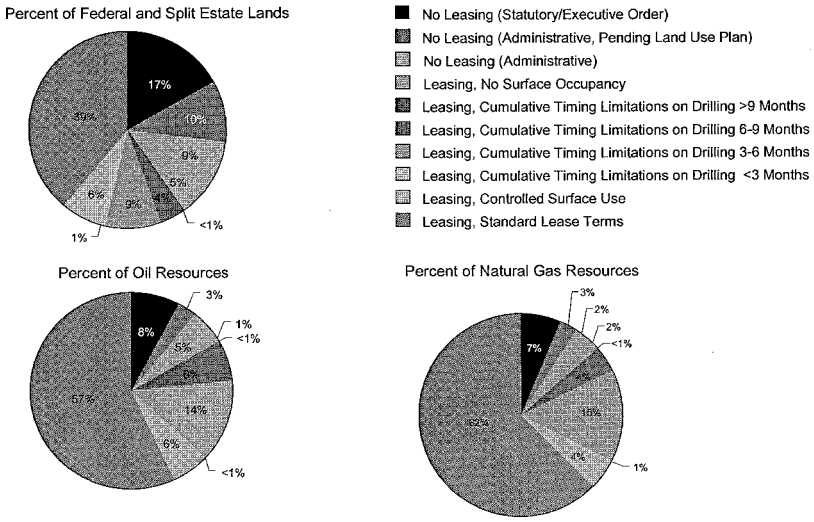

Figure 5. Comparison of NPC and EPCA Results for Natural Gas Resources

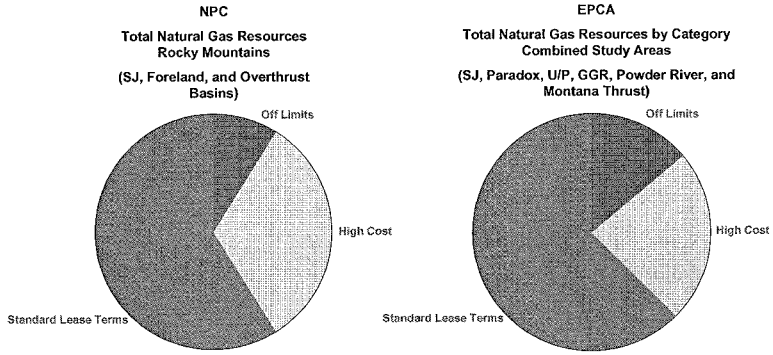

Table 1. Comparison and Contrast, NPC and EPCA

Parameter	Characterization	1999 NPC	2003 EPCA	Impact On Access
Resource Base	Differences in source and type	NPC: Reserves growth + Undiscovered technically recoverable	EIA & USGS: Proved reserves + Undiscovered technically recoverable	Treatment of proved reserves as SLTs in EPCA boosts that category
	Nominal, Tcf	341	226	Inclusion of URAs in EPCA would relatively decrease SLT category
	Normalization to EPCA resource base -- PR + UTRR, Tcf	335	226	
Exceptions to Stipulations	How often waivers or exemptions permitted over E&P life cycle	Lower values	Higher values	Higher exception rates lead to a less restrictive depiction
Roadless	High state of flux	Off limits	On limits	Roadless as Off Limits results in a more restrictive depiction
Split estate	Surface access subject to federal regulation	Not included	Included	Driven by Powder River Basin, results in more accurate depiction
Methodology	Evolutionary	Extrapolation from five calibration areas	Comprehensive (~1000 stipulations)	Results in more precise depiction

PR = proved reserves
UTRR = undiscovered technically recoverable resources
SLTs = standard lease terms
RG = reserves growth

Mr. EPPINK. The EPCA inventory to date has concentrated on Rocky Mountain basins. Basins in the Rocky Mountains represent the second-largest natural gas resource in the U.S. after the outer continental shelf, and can help meet growing natural gas demand.

The EPCA inventory addresses the issue of access. However, access is a bit of a misnomer for the Federal lands and the Rocky Mountains. While access is an obvious term for off-shore areas under moratoria, the situation is more complex than the Rocky's. For generating natural gas supply from the Rocky's, the issue decidedly does not revolve around access to such areas as national parks and wilderness areas. Rather, it concerns the degree of difficulty for generating supply from lands that can be leased and from areas that are administratively off-limits.

The 2003 EPCA inventory is groundbreaking in that it is the most comprehensive examination of Federal land access issues that has been performed to date. Its purpose is to add clarity to the access debate and assist energy policymakers and Federal land managers in making decisions concerning oil and gas resource development.

As the inventory results have been presented previously, I would like to spend the remainder of my time providing some context for those results. There has been criticism from some quarters that the EPCA inventory uses only technically recoverable resources and, further, that it should exclusively use economically recoverable resources. This can be misleading for a number of reasons.

The 2003 EPCA inventory, in fact, was mandated to include proved reserves, where they are placed in the category with highest access. Proved reserves are the quintessential economic resources, having already been discovered and developed. Production comes from proved reserves.

For undiscovered resources, however, it is inappropriate to use for land use planning solely those resources that are economically recoverable. One reason is that there is widespread disagreement regarding the appropriate prices on which to base the economics, but the compelling reason is more fundamental. Use of economically recoverable resources can overlook the geology, specifically the fact that the rocks exist in the ground, and contain hydrocarbons that may be recoverable with technology in the future.

An example here is appropriate. If an EPCA-style inventory, focusing solely on economical recoverable resources had been conducted in 1990, it would have generally dismissed coalbed gas resources as unviable. In only 13 years, production of gas from coalbeds has grown to over 1.5 tcf per year and is growing still.

I am confident that there are other similar resource types which will be significant contributors to production in 2020, but which cannot be considered economic today. Additionally, the 2003 EPCA inventory is a snapshot in time, and it should be considered as part of a dynamic process. A prime example is that of the so-called roadless rule for certain for-service lands. Due to the status of court decisions at the time, roadless areas were not considered off-limits in the inventory. However, the most recent court action leaves the roadless rule in effect. Were the inventory to be conducted today, it would have considered roadless areas as off-limits.

Finally, the 2003 EPCA inventory does not quantitatively treat a number of additional issues, primarily post-leasing in nature, that impact access to resources. These factors can delay, significantly increase costs for or altogether preclude drilling.

In closing, with the recognized decreasing quality of prospects generally in the U.S., the question remains, What is the quality of future natural gas production that can be developed and at what level of difficulty?

The 2003 EPCA inventory has contributed a measure of clarity to the access issue, but more work remains to be done. The ability of our Federal lands to help meet our energy needs is there. This ability needs to be streamlined and expedited.

I appreciate the opportunity to testify here before you and would be glad to answer any questions you might have.

[The prepared statement of Mr. Eppink follows:]

Statement of Jeffrey Eppink, Vice President, Advanced Resources International, Inc.

Good afternoon, Chairwoman Cubin and members of the Subcommittee. My name is Jeffrey Eppink. I am a vice president with Advanced Resources International, an energy consulting firm based in Arlington, Virginia.

At Advanced Resources, we have conducted a number of Federal lands assessments in recent years. We participated in the National Petroleum Council's 1999 study on natural gas, the study of Federal lands in the Greater Green River Basin (performed for the Department of Energy), and most recently the Energy and Policy Conservation Act (EPCA) inventory (more properly entitled "Scientific Inventory of Onshore Federal Lands Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to Their Development"), which is the subject of today's hearing.

Because Advanced Resources was highly involved in the EPCA inventory, having collected the requisite data and performed the analysis under the guidance of the DOI, DOA and DOE, we have a solid familiarity with its strengths and weakness. Recently I have written an article, along with BLM, DOE and DOA colleagues, concerning the inventory, published in yesterday's Oil and Gas Journal. I would like to submit a (pre-print) copy of that article for the record.

The EPCA inventory to date has concentrated on Rocky Mountain basins. It evaluates those basins that contain most of the natural gas and much of the oil resources under Federal ownership onshore in the United States. Basins in the Rocky Mountains represent the second largest natural gas resource in the U.S. after the outer continental shelf and can help meet growing natural gas demand.

The EPCA inventory addresses the issue of "access". However, access is a bit of a misnomer for the Federal lands in the Rocky Mountains. While access is an obvious term for offshore areas under moratoria, the situation is more complex in the Rockies. For generating natural gas supply from the Rockies, the issue decidedly does not revolve around access to such areas as National Parks and Wilderness areas, rather it concerns the degree of difficulty for generating supply from lands that can be leased and areas that are administratively off-limits.

The 2003 EPCA inventory is groundbreaking in that it is the most comprehensive examination of Federal land access issues that has been performed to date. It examined nearly 1000 discrete leasing stipulations and provides a meaningful categorization of Federal lands and resources. Its purpose is to add clarity to the access debate and assist energy policymakers and Federal land managers in making decisions concerning oil and gas resource development.

Unconventional natural gas (primarily tight sands and coalbeds) is the dominant resource type in the Rockies. The 2003 EPCA inventory examined 138 tcf of natural gas resources including proved reserves on 59 million acres of Federal lands (including split estate) in the Rocky Mountains. As the inventory results have been presented already, I would like to spend the remainder of my time providing some context for those results.

There has been criticism from some quarters that the EPCA inventory only uses technically recoverable resources and, further, that it should exclusively use economically recoverable resources. This can be misleading for a number of reasons.

The 2003 EPCA inventory, in fact, was mandated to include proved reserves, where they are categorized under "standard lease terms," the category with highest access. Proved reserves are the quintessential economic resources, having already been discovered and developed. Production comes from proved reserves.

For undiscovered resources, however, it is inappropriate to use (for land use planning) solely those that are economically recoverable. One reason is that there is widespread disagreement regarding appropriate prices on which to base the economics. But the compelling reason is more fundamental. Use of economically recoverable resources can overlook the geology, specifically the fact that rocks exist in the ground and contain hydrocarbons that may be recoverable with future technology.

An example here is appropriate. If an EPCA-type inventory, focusing solely economically recoverable resources, had been conducted in 1990, it would have generally dismissed coalbed gas resources as unviable. In only 13 years, production of gas from coalbeds has grown to over 1.5 tcf per year and is growing. I am confident that there are other, similar resource types, which will be significant contributors to production in 2020 but which cannot be considered economic today.

The 2003 EPCA inventory is a snapshot in time and should be considered part of a dynamic process. A prime example is that of the so-called "roadless rule" for certain Forest Service lands. Due to the status of court decisions at that time,

roadless areas were not considered off limits in the inventory. However, the most recent court action leaves the roadless rule in effect. Were the inventory to be conducted today, it would have considered roadless areas as off limits.

Finally, the 2003 EPCA inventory does not quantitatively treat a number of additional issues that impact access to resources. These factors can delay, significantly increase costs for, or altogether preclude drilling. They are not easily quantified statistically or geographically and include:

- Archaeological reviews,
- Air and water quality impacts,
- Protection for threatened and endangered species,
- Noise and visual impacts of oil and gas operations, and
- "Sense of place," which is an emotional or spiritual attachment to certain locations.

With the recognized, decreasing quality of prospects generally in the U.S., the question remains: What is the quality of future natural gas production that can be developed and what is the level of difficulty. The 2003 EPCA inventory has contributed a measure of clarity to the access issue, but more work remains to be done.

The ability of our Federal lands to help meet our energy needs is there; this ability needs to be streamlined and expedited. I appreciate the opportunity to testify before you and would be glad to answer any questions you might have.

Mr. REHBERG. Thank you.

Mr. Johnson?

STATEMENT OF ART JOHNSON, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, HYDRATE ENERGY INTERNATIONAL

Mr. JOHNSON. Thank you. I am Arthur Johnson, chairman and CEO of Hydrate Energy International, Kenner, Louisiana.

Given that there is a looming supply issue, we see three options. First, would be opening additional areas to exploration, streamlining the permitting process, and also, for that matter, including a pipeline from the North Slope of Alaska, which would have some serious impact.

The second approach would be imports of natural gas using LNG. We have problems with that one and what volume of LNG could reasonably be imported. Probably more important for me, though, is, as a Nation, we have been self-sufficient in natural gas, and I am concerned about a vision where 20 years from now or 15 years from now we are importing natural gas to the same extent that we are currently importing oil.

So that third alternative, then, is to pursue unconventional resources of natural gas, deep gas, tight gas, shale gas, coalbed methane and gas hydrates, and this has already begun with coalbed methane, our model for how to proceed. CBM is now 8 percent of America's production, and that is our model for how we could see proceeding with gas hydrate.

Gas hydrate is a crystalline substance composed of water and natural gas, under conditions of low temperature and moderately high pressure. It forms a solid. The conditions where that forms are found under the permafrost in Alaska and along America's continental margins. The advantage with gas hydrate is when it is either warmed or depressurized, it reverts back to very large quantities of natural gas. A cubic foot of methane hydrate yields approximately 160 cubic feet of natural gas.

We are still at an early stage of assessing how much gas hydrate we have, but it appears that we have on the order of hundreds of thousands of tcf on Federal acreage. The question of how much of that is recoverable by any means, much less commercially, is one

of those areas being investigated. We currently have programs, and I chaired the Methane Hydrate Advisory Committee that is overseeing some of this.

We are making good progress, but rather slow. It is a program that is only funded at about $10 million a year through DOE, although the U.S. Geological Survey, Bureau of Land Management, the Navy, also have very solid, but I would say, from a funding standpoint, fairly minor programs, but have made some good progress.

We are currently involved in drilling operations in Canada. We are hoping to have some drilling coming up to the next 18 months on the North slope of Alaska, where we have identified approximately 100 tcf hydrate in place in a form that should be recoverable, given the nature of the reservoirs.

From the industry standpoint, hydrates have had a bad reputation. They have always been viewed as a very futuristic resource. And with the DOE program goals looking for production in approximately the year 2020, what we find from industry is a lot of industry folks saying, well, get back to me in 2019, and we can talk. What we are looking at doing is how can we accelerate a program like this. Are there some ways that we could determine exactly where commercial deposits are, work with industry to assess that.

Again, we see Federal research funding is the key to proving the commerciality of hydrates and accelerating the time line. We will need continuity in programs. This year DOE has only asked for $3.5 million in the budget for gas hydrates, which will have a dramatic negative impact on the program.

We have identified hydrate potential on all coasts, particularly in the Gulf of Mexico, but also on the North Slope. They appear to be abundant, and while there are many uncertainties regarding their total resource potential, that potential appears to be significant. There are a lot of technical challenges remaining, but I don't believe that these are insurmountable. I believe that we know enough to move forward with hydrate programs.

[The prepared statement of Mr. Johnson follows:]

Statement of Arthur H. Johnson, Chairman and Chief Executive Officer, Hydrate Energy International

Madam Chair and Members:

I am Arthur H. Johnson, Chairman and CEO of Hydrate Energy International. I will discuss the potential for gas hydrates as an energy resource for the United States. I have 25 years of industry experience in oil and gas exploration and have served for the past two years as chair of the Department of Energy's Methane Hydrate Advisory Committee. I am also co-chair of the Gas Hydrate Committee of the American Association of Petroleum Geologists.

The United States is entering an era of natural gas shortages during periods of peak demand. These supply shortfalls will be accompanied by significantly higher natural gas prices that, in turn, will have a serious impact on our nation's economy. In the years ahead, the shortages and price increases may become increasingly severe. Increasing the supply of natural gas from domestic sources should be a primary objective for the nation. A number of options for increasing gas supply should be considered.

First, additional areas could be opened to exploration and development, and the permitting process streamlined.

Second, imports of natural gas can be increased. Canada continues to supply a portion of America's natural gas and that volume will increase. Additional imports would require liquefied natural gas (LNG), an expensive process that is currently in use in many parts of the world. LNG imports are becoming economically feasible

at current natural gas prices and a number of new domestic LNG receiving terminals are currently being designed. LNG imports have several negative aspects. Safety is an immediate concern, both with the LNG tankers and with the terminals. Gas for LNG would be supplied from fields in areas such as the Middle East, West Africa, and the Former Soviet Union; and there are concerns about America depending on the stability of these regions for its economic well-being. Beyond these issues is the fundamental observation that America is evolving from a nation that has been self-sufficient in natural gas to one that has become dependent on foreign sources. It is quite possible that in ten or fifteen years America could be importing natural gas to the same extent that it is now importing oil.

The third alternative is to pursue unconventional sources of natural gas such as deep gas, shale gas, coaled methane, and gas hydrates. This has already begun, with coalbed methane (CBM) already supplying 8% of America's natural gas production. The role of CBM is continuing to increase, especially in Wyoming, and serves as an excellent analogy for the possible development of gas hydrates. Twenty years ago, CBM was a drilling hazard and the government was criticized for conducting research in it. That effort has definitely paid off.

The best advice is to pursue all three alternatives.

This brings us to gas hydrates. Gas hydrate is a crystalline substance composed of gas and water. It forms when water and natural gas combine under conditions of moderately high pressure and low temperature. If gas hydrate is either warmed or depressurized it will revert back to water and natural gas, a process termed "dissociation". Natural gas is concentrated in hydrate so that the dissociation of a cubic foot of hydrate will yield 0.8 cubic feet of water and approximately 160 cubic feet of natural gas. The conditions where hydrates occur are common in sediments off the coasts of the United States in water depths greater than approximately 1600 feet and at shallower depths in sediments associated with deep permafrost in the Arctic. Preliminary investigations indicate that considerable volumes of gas hydrate are present in at least some of these areas.

The total volume of gas hydrate in the United States is not known, although the results of a wide variety of investigations conducted over the past thirty years indicate that the volume is very large, on the order of hundreds of thousands of TCF. More important, however, is the amount of hydrate that can be commercially recovered. Characterization of hydrate resources that has been carried out, for example in the MacKenzie Delta of Canada, the North Slope of Alaska, offshore Japan, and elsewhere indicate that the total in less explored areas of the U.S. hydrate province is likely in the range of many thousands of TCF.

Gas hydrate investigations have been undertaken by many Federal agencies during the past 30 years. These include the U.S. Geological Survey, Naval Research Laboratory, National Science Foundation, and Department of Energy. The Methane Hydrate Research and Development Act of 2000 initiated a new program to study several aspects of gas hydrates, including seafloor stability, global climate change, and the potential of gas hydrate as a commercial resource. The resource target has been for production in the year 2020. Funding for the new program, which is managed by the DOE, has typically been on the order of $10 million per year.

The new program has enabled the United States to participate in a number of recent cooperative international investigations that have increased our understanding of gas hydrates. These include an experimental well in the Canadian Arctic last year that resulted in significant new data for use in modeling hydrate production and actually produced some gas from hydrate. A joint effort of the DOE and Anadarko Petroleum has an on-going project to drill and evaluate Arctic sediments to better understand hydrate occurrence. A joint effort of the DOE and BP Exploration Alaska is preparing a hydrate production test in approximately 18 months that should greatly improve our understanding of the commercial viability of Arctic hydrates. The U.S. Geological Survey has played a dominant role in guiding the geological and geophysical aspects of these projects. Successful results in Alaska will encourage the domestic industry to pursue hydrate opportunities in the Gulf of Mexico. It is conceivable that commercial production of gas from gas hydrate could begin, on at least a limited basis, in just a few years.

In the Gulf of Mexico, a Joint Industry Program (JIP) is engaged in characterizing gas hydrate occurrences there with matching funds provided by the DOE. The JIP is led by ChevronTexaco and includes several other U.S. and foreign oil companies, as well as the U.S. Minerals Management Service. While the stated goal of the JIP involves ensuring the safety of existing facilities, the results of the JIP program will assist in characterizing the commercial hydrate potential of the Gulf.

Other nations are also investigating gas hydrates as part of their energy security initiatives. The most significant programs are in Japan, India, and Canada. These programs are making great progress and the U.S. is benefiting from their results.

Industry interest in gas hydrates as a resource has been growing over the past year. In the past hydrates were viewed as strange and futuristic, always to be twenty years into the future. Many of the production schemes envisioned for hydrates involved exotic and expensive approaches to production that are far removed from any company's core business. Hydrate development was viewed as requiring high operating expense, while nearly every company was striving to reduce operating expense. Hydrates also had a credibility problem, with many proponents making unrealistic projections of hydrate production capabilities.

These negative perceptions are changing as research efforts begin to show the commercial viability of hydrates. The drilling results last year at the Canadian site have led to studies showing that hydrate production need not involve high operating expense. On the North Slope of Alaska, where initial U.S. production is most likely, there is a growing industry interest in natural gas. In addition, the recent changes in the domestic gas market have encouraged companies to seek additional sources. Yet, industry is not yet ready to pursue hydrates its own.

Federal research funding is the key to proving the commerciality of gas hydrates and accelerating the development timeline. Such funding must be focused on the critical questions that need to be resolved. In addition, there needs to be continuity from one budget cycle to the next so that multi-year projects can be maintained. Incentives such as royalty relief and unconventional resource tax credits will encourage industry participation.

Recent models indicate that hydrate resources can be developed by producing gas from adjacent free-gas reservoirs. The drop in pressure will cause dissociation of the hydrate which then feeds additional gas into the reservoir. The critical questions that need to be answered involve the ultimate amount of gas that can be recovered from hydrates by each well, the daily production rate of each well, and the expenses involved in drilling and producing the wells.

Gas hydrate deposits have been identified on the North Slope of Alaska and in deep water locations off the Pacific, Atlantic, and Gulf coasts of the U.S. In the near term, hydrate prospects will only be viable in areas where there is existing conventional production so that infrastructure (platforms, pipelines, etc.) may be leveraged. This will make the North Slope of Alaska and the deepwater Gulf of Mexico the primary focus of commercial hydrate development in the U.S. for the foreseeable future. In these areas, gas hydrates have the potential to add significantly to America's natural gas production.

In summary, gas hydrates appear to occur in abundance in Arctic and U.S. territorial waters. While there are many uncertainties regarding their total resource potential, that potential appears to be significant. Technical challenges remain but are not insurmountable. We know enough to move forward.

Mr. REHBERG. Thank you.

Ms. Knopman?

STATEMENT OF DEBRA KNOPMAN, ASSOCIATE DIRECTOR, RAND SCIENCE AND TECHNOLOGY, RAND

Ms. KNOPMAN. Thank you, Mr. Chairman, for the opportunity to testify before the Subcommittee. I would like to request my full written statement be included in the record.

Mr. REHBERG. Without objection.

Ms. KNOPMAN. I am associate director of RAND Science and Technology, a senior engineer at RAND and also a member of the study team for RAND's recently released final report, "Assessing Natural Gas and Oil Resources: An Example of New Approach in the Greater Green River Basin." This study was funded by the William and Flora Hewlett Foundation.

I just would like to point out the views expressed here are my own and do not necessarily reflect those of either RAND or its research sponsors. Further, I would like to state RAND has no position on whether oil and gas exploration and development should proceed on currently restricted Federally managed lands. Institutionally, RAND's interest is in the quality, relevance, and

transparency of the technical information that surrounds the public debate.

Our main point can be summarized as follows:

Existing resource assessments focus on the amount of technically recoverable resource. Our new approach builds on these assessments by including economic and environmental considerations. We believe that this additional information can help Federal and State land managers and policymakers at all levels better plan for long-term resource use.

The rapid increase in domestic natural gas demand has heightened the need for land management agencies to take a strategic view of Federal land-use planning. It is vital for land managers and, indeed, energy policymakers in and out of Government to have some understanding of how much resource is likely to come into the market under various conditions.

For example, the balance between market prices of natural gas and drilling and transportation costs, highly dependent, as others have pointed out, on geologic and topographic conditions will clearly affect the rate of development and technology as well, I should add.

If land management agencies were directed to increase production on Federal lands, they would clearly benefit from using economic and environmental information to set regional priorities. Indeed, Federal law already requires strategic planning and priorities for land use. An open question is the basis for the priorities. What should be the breadth and scope of technical information that is available and used to inform the planning process?

In our study, we demonstrated our approach for the Greater Green River Basin in Southwestern Wyoming, estimated to contain about 9 percent of the Nation's future natural gas supply.

Our analysis found that, depending on the technically recoverable resource base estimate used, approximately 35 to 45 percent of natural gas in the basin could be profitably produced at less than $3 per million Btu. Up to 65 percent could be profitably produced if the market price were $5 per million Btu.

More significantly, the fraction of technically recoverable gas that is economically recoverable at a given price varies substantially from place to place. When we looked at environmental measures associated with the lands overlying the resource, such as various ecosystem and water quality factors, we found that concentrations of economically recoverable gas exist predominantly in areas of relatively lower environmental concern. For instance, 18 percent is found in areas with predicted species richness above the median value in that basin and 11 percent is in aquatic or riparian areas. Less than 8 percent is within close proximity of human settlements.

Our methodology does, however, have limitations. Most particularly, it is limited by the quality and spacial resolution underlying the assessments we use as our base. Those are not our assessments. They are the USGS or NPC assessments. More detailed information may be needed to make decisions at the smaller scale.

We have emphasized the use of our approach on the regional scale and subregional scale. As we were developing our method, the EPCA study of the special distribution of access restrictions in the

Rocky's, including the Greater Green River Basin, was released. While the overall goal of the two studies is the same to improve the information base for strategic decisionmaking, the studies differ in the way they ask the question about potential limits on development.

The EPCA study looked at access restrictions as the key variable indicating development potential. We looked at estimates of wellhead and transportation costs associated with gas resources in different areas as a useful indicator of development potential.

We also looked at a set of measurable environmental indicators associated with land overlying the resource, in contrast to the EPCA's study's focus on access restrictions which, as has been pointed out, are often variably designated from one BLM office or State to another.

While we see great value in our new assessment approach, we are not suggesting it be the sole tool in any decisionmaking process, nor is it meant to replace existing tools, such as detailed lease-specific analyses or environmental impact assessments.

RAND's interest in this issue, as it is in all of our work, is to improve decisionmaking through research and analysis. We are independent, nonprofit, dedicated to producing objective, nonpartisan analysis. The research upon which this testimony is based has been through Rand's quality assurance process.

This concludes my testimony. Thank you.

[The prepared statement of Ms. Knopman follows:]

Statement of Debra Knopman, Associate Director, RAND Science & Technology

Thank you, Madam Chairman, for the opportunity to testify before the Subcommittee on Energy and Mineral Resources about methods of assessing oil and gas resources.

I am Associate Director of RAND Science and Technology, a Senior Engineer at RAND, and a member of the study team for RAND's recently released final report "Assessing Natural Gas and Oil Resources: An Example of a New Approach in the Greater Green River Basin." This study was funded by the William and Flora Hewlett Foundation.

In April 2002, I appeared before this Committee with interim findings. In our testimony, I reviewed existing resource assessment methods and presented a general framework for a new approach to assessing natural gas and oil resources. Today, on behalf of my co-authors, I offer our completed research, including the results of applying this new approach to the Greater Green River Basin in southwestern Wyoming.

OVERVIEW

Natural gas and oil resource assessments have historically focused on the amount of resource in the ground that could be extracted, based on assumptions about available drilling technologies. Our new methodology builds on these traditional assessments by adding economic and environmental considerations, such as how much resource might be recoverable at what cost, and how much resource is associated with lands having different environmental values.

The primary objective of our research is to help governmental officials and other stakeholders make more informed choices related to land use planning, design of energy policies, and energy development and fuel utilization planning. For example, the additional economic and environmental information generated by our approach B overlaid on maps of the technically recoverable resource B can help public land managers distinguish energy potential among different areas and set priorities among areas based on multiple B and often competing—public objectives.

This new approach can help Federal and state land managers and policymakers at all levels plan strategically for long-term resource use. It is worth noting that current law requires that this planning take place; it just happens to take place now in the absence of this richer source of information. We are suggesting that the

existing planning process could be substantially improved by systematically introducing economic and environmental criteria consistent with the same geological framework used to represent the technically recoverable resource.

RAND'S PERSPECTIVE ON THIS RESEARCH

As in all our work, RAND's interest in this issue is to improve decision-making through research and analysis. We are an independent non-profit organization, dedicated to producing objective, non-partisan analysis. Our publications are subjected to rigorous peer review and quality assurance during which we actively seek internal and outside experts to critique our work. The research upon which this testimony is based has been through this quality assurance process.

RAND does not have a position on whether oil and gas exploration and development should proceed on currently restricted Federally managed lands. Instead, our interest is in the quality, relevance, and transparency of the technical information that surrounds the public debate on future development. We also seek to encourage an expansion of the discussion regarding prospective exploration and development beyond the particular access restrictions applied to Federal lands. We believe that improved public understanding of the range of estimated costs and impacts of development and associated infrastructure, under different technology and economic assumptions, will contribute significantly to the debate on national energy and land management policies.

We fully recognize that there are legitimate questions about the appropriate Federal role in examining the economics of exploration and development scenarios. Our proposed approach is not meant to replace industry's detailed, site-specific economic evaluations or Federal land managers' existing environmental assessment and permitting processes. Rather, it is meant to provide decisionmakers with a more comprehensive assessment of bounding ranges of resource availability at the regional and subregional scale. We believe our proposed methodology would enhance current efforts by the BLM and other Federal land managers to communicate more effectively and clearly the economics and environmental implications of their actions. We are simply making a case for more comprehensive information in the policy process.

OVERVIEW OF FINDINGS

Our chief point can be summarized as follows: There is an ongoing need for improvements in the way we think about how to value energy resources and ways we can incorporate this valuation into land use and other decisionmaking. Our study focuses on this need, specifically for natural gas and specifically for Federal land in the Rocky Mountain West.

Decisions about potential development of oil and gas resources are particularly relevant now. Natural gas demand in this country has been increasing for the last 15 years and is expected to increase substantially in the next 20 years. Most states and regions are currently in the process of planning for considerable future dependence on natural gas as their dominant electricity-generating fuel. With demand rising, much attention has focused on strategies to increase domestic production. As a result, decisionmakers and the public would benefit from a more comprehensive view of prospective costs and availability of long-term domestic supplies of natural gas and oil.

Further, as domestic production of gas increases, Federal land managers, particularly the Bureau of Land Management and the Forest Service, confront with increasing frequency complex and sensitive development decisions—decisions that can have far-reaching and long-term effects. As they approach future land use questions, an assessment approach that allows for more strategic decisionmaking is highly desirable. We thus propose a methodology that incorporates a fuller array of the issues Federal land managers must face, including costs associated with production as well as environmental considerations that may have an impact on additional costs of exploration and development.

A MORE COMPREHENSIVE ASSESSMENT ALLOWS FOR MORE STRATEGIC AND LONG–RANGE DECISIONMAKING

The rapid increase in domestic natural gas production has heightened the necessity for the country's land management agencies to take a strategic view of Federal land use decisionmaking—one that allows them to understand the differences between resources in different areas and thus to prioritize lands being evaluated for development. Under current practices by the Bureau of Land Management and the Forest Service, resource management plans required by the Federal Land Management and Planning Act may remain in place for on average about 15 years before being updated. In the meantime, many small-scale decisions related to individual applications to drill are made based on out of date planning assumptions about the

status of the energy and other resources throughout the region. Current practice leaves little room for land managers to set internal priorities on deploying their own resources to further public objectives, including increased domestic energy production. Our primary goal was to develop a consistent and technically defensible means of bringing in new information about economics and environmental measures into the strategic planning process for the purpose of improving the long-range and large-scale view of public land use decisions.

This new approach is designed to offer a larger picture than traditional gas and oil resource assessments. The function of current assessments is to provide decisionmakers with a scientifically informed estimate of the quantity and spatial extent of the resource. These assessments focus on what is commonly called the "technically recoverable resource," or the amount of the resource that is estimated to be recoverable given certain assumptions about exploration and production capabilities. Resources are evaluated in terms of geological criteria and technical feasibility of recovery, but without economic or other considerations. These estimates, therefore, are not intended to indicate how much resource will likely be developed and at what cost.

HOW THE NEW APPROACH WORKS: THE GREATER GREEN RIVER BASIN CASE STUDY

As a means of demonstrating how our new methodology works, we used it to assess natural gas resources in the Greater Green River Basin. We believe these results are instructive for developing the methodology further and providing insights that may help inform strategic energy resource planning in this basin. We chose this region because its characteristics apply to multiple areas throughout the intermountain areas of the Rocky Mountains. Due to its relative richness in hydrocarbon resources, particularly natural gas, this region has been under intense scrutiny in recent years as efforts increase to find domestic sources of gas and oil.

National resource assessments indicate that the Rockies contain approximately 15 percent of the nation's technically recoverable future natural gas supply. Further, in the Rockies, 60 percent of the technically recoverable gas underlies Federal land, compared to just two percent in the onshore areas of Texas and the Gulf Coast states. Thus, growth in production in the Rockies means that energy-related land use decisions will increasingly become the responsibility of Federal land managers. Likewise, in this region, gas occurs in diverse range of deposit types and depths, resulting in a large range of costs and demonstrating the need for—and value of—a more comprehensive assessment approach.

As a first step, we mapped the spatial distribution of the technically recoverable resource in the Greater Green River Basin. We looked at three different estimates: the 1995 U.S. Geological Survey Assessment, the "conventional technology" estimate from the National Petroleum Council (NPC), and the "enhanced technology" estimate from the NPC. For mapping purposes, we disaggregated the geological units identified by USGS as containing substantial resource (known as "plays") into smaller "subplays." This enabled us to provide a more refined estimate of costs, particularly capturing differences in drilling costs related to the depth of the deposits. Then, we generated production cost curves for proved reserves, reserve appreciation, and undiscovered resource in each subplay in order to determine the resource available at different costs. We estimated separate costs for each resource unit, resource category, resource type, and depletion increment, eventually formulating separate costs for over 1,200 distinct analysis units throughout the basin. Using continuous cost curves, we summed up the amount of gas that could be produced at costs beginning with zero and extending up to different discrete prices.

Our analysis found that, depending on the base technically recoverable resource estimate used, approximately 35 to 45 percent of natural gas in the Greater Green River Basin could be produced profitably produced at less than $3 per million British Thermal Units (MMBtu), which is similar to recent prices in Wyoming. Up to 65 percent could be profitably produced if the market price were $5 per million MMBtu.

Importantly, our analysis showed that the fraction of technically recoverable gas that is economically recoverable at a given price varies substantially from place to place; for example, concentrations in some areas drop off much more quickly than in others as the price decreases. Such a result highlights the usefulness of combining economic and spatial analyses: When looking at specific areas, the concentrations of economically recoverable resources do not necessarily correlate directly with the concentrations of technically recoverable resources. In other words, what is technically recoverable is not always economically desirable under assumed market conditions.

This spatial-economic analysis thus provides information not currently available to help Federal land managers distinguish gas resources in different areas. By using transparent economic and other quantitative criteria, the methodology enables decisionmakers to establish a credible basis for more spatially refined priorities.

The next stage in our approach overlays these findings with environmental considerations. Specifically, our next analytical step seeks to factor in the environmental attributes of the resource by distinguishing resources according to the characteristics of the land it occupies. It is important to point out that this part of the methodology does not function as, or substitute for, an environmental impact assessment. Rather, it is a first attempt at what we call an environmental characterization: a description of some relevant environmental measures and a classification of the lands and associated resources according to these measures. Eventually, an environmental impact assessment would have to occur before actual drilling activities begin, but this characterization provides an initial framework for the process, both at a larger scale and at an earlier stage in the planning process.

In this analysis, we examined seven environmental measures: 1) Terrestrial vertebrate species richness; 2) Proximity to sensitive species observed locations; 3) Surface water and riparian habitat zones; 4) Proximity to human settlements; 5) Aquifer recharge rate; 6) Depth to groundwater; 7) Surface slope. The first three measures address primarily ecosystem quality, the fourth represents issues related to human use of the area, and the final three measures examine primarily water quality. We also considered existing Federal land access restrictions. Measure values were grouped or "binned" and maps of the spatial distribution of the lands with different measure values were then generated. It is important to note that the cut-offs between different bins are statistically rather than empirically based. The relationship between environmental measures and sensitivity to environmental impact is complex and developing this relationship is beyond the scope of this approach. Our statistically derived bin values do, however, provide a relative sense of environmental concern and so do offer some useful guidance. However, because these values are not based on empirically-derived relationships between gas and oil development activities and potential environmental impacts, they say little about actual environmental risk and in that sense the environmental measures need to be developed further as the methodology becomes more comprehensive.

Our analysis indicates that, for the most part, the concentrations of economically recoverable gas exist in areas of relatively lower potential environmental concern—at least in terms of the environmental measures we considered. For instance, 18 percent of the economically recoverable natural gas is in areas with predicted species richness above the median value and 11 percent is in aquatic or riparian areas. Less than eight percent of the gas occurs within close proximity of human settlements. Of the water quality measures, only eight percent occurs in areas with slopes greater than 25 percent, and areas with high aquifer recharge rates and shallow groundwater contain, respectively, nine percent and 12 percent of the gas in the basin.

I should note that in the specific case of the Greater Green River Basin, the measures related to ground water quality may not be as important as in other areas. This would be the case as long as the state of Wyoming enforces their current requirement that no drilling waters in the basin are discharged at the surface, but rather are reinjected into the subsurface. However, for purposes of illustrating a broader range of environmental attributes, we included these ground water measures in our analysis.

As with the economic evaluation, however, environmental overlay results for certain areas within the basin differ from the basin-wide average values. Indeed, we found some areas with relatively high gas densities that do coincide with riparian habitats, high terrestrial vertebrate species richness, and shallow groundwater. Such findings may be particularly relevant in areas such as north of the LaBarge Platform, which may appear promising judging by the economic analysis alone but may present more complexity—and hence more cost—when one considers its environmental attributes.

Of course, the fact that an area has specific environmental characteristics does not necessarily mean these characteristics will be negatively affected by development. Still, our results suggest that some lands might be less attractive than other lands for development. For example, there may be more costs associated with mitigating potential impacts on lands close to surface water resources. This information would be useful to public land managers who may need to prioritize their efforts in permitting lands for exploration and production.

We have highlighted aspects of natural gas resources in the Greater Green River Basin that may not be directly evident from technically recoverable resource assessments. However, the value of this approach is expected to be even more evident

when it has been applied to all the basins in the Rocky Mountains and eventually to all basins in the country. Just as a basin-wide evaluation using a consistent methodology allows Federal land managers to compare and prioritize areas within the Greater Green River Basin, a Rockies-wide evaluation will allow these managers to make the same type of comparisons and prioritizations among areas within different basins.

Ultimately, we believe the results generated from this approach can provide decisionmakers with more robust information about natural resources that can help guide strategic resource planning, help prioritize difficult decisions that are being made about access to Federal lands, and help understand the potential consequences of decisions.

As with any type of spatial analysis, the appropriate level of interpretation depends critically on the resolution of the underlying data. This is particularly evident in our study which is fundamentally limited by the quality and spatial resolution of the underlying geologic framework establishing the estimates of technically recoverable resource. The USGS and NPC estimates are not sufficiently resolved spatially to identify small, but possibly productive deposits. The Jonah field in Wyoming is frequently cited as an example of a small, but highly productive area that was "missed" by the experts. Our analysis, as any analysis at a similar resolution, must therefore be used with the understanding that more detailed information may be needed to make decisions at the smaller scale.

RELATIONSHIP OF THE RAND METHOD TO THE EPCA STUDY

During the time we were developing our method, an interagency work group completed their study of the spatial distribution of access restrictions in the Rockies, including the Greater Green River Basin. The work group's report, known as the Energy Policy and Conservation Act (EPCA) study, took a fundamentally different approach from our study. The EPCA study pulled together a spatial analysis of access restrictions as they applied to the technically recoverable resource. These access restrictions are typically associated with environmental concerns, but they are inconsistently applied from region to region and state to state. Hence, they are a highly variable B and unreliable B measure of environmental assets. Further, by design, the EPCA study did not address issues associated with the costs of resource development at the wellhead or the infrastructure costs of transporting the resource to market.

FINAL COMMENTS

Given its capabilities, we believe our new methodology enhances the array of tools currently available. By linking economics and environmental characteristics with spatial analysis, it allows decisionmakers to consider relative priorities for development. It is also a flexible methodology that is applicable to other regions. For Federal land use planners, it provides more information to weigh energy resource values, while also helping to identify areas with higher production potential. In turn, for energy planners, it offers information to help in the comparison of policy options and can guide fuel choices and import planning. Indeed, if this information were available for all basins in the region, electric utilities or state energy planners could plan their long-term resource use more effectively by having a more realistic view of availability based on production costs. Likewise, the Energy Information Administration could use this information in its price and supply forecasts. For other stakeholders, such as state authorities, utilities, and natural gas and oil producers, it can assist in estimating energy availability and in planning for power plant and transmission infrastructure investment. Finally, this approach can be used on the local level to forecast economic impacts, such as projected revenues and jobs brought about by these land uses.

It is important to note that this new approach is not meant to be the sole tool in any decisionmaking process. Instead, it is intended to be a part of a broader set of information sources that decisionmakers might use. Further, it is not intended to replace detailed economic or environmental analyses on specific leases. What it does offer, however, is a new means to treats economic costs and environmental characteristics as integral attributes of energy resources. We believe this approach will contribute to a richer debate and assist in the kind of long-term strategic planning needed to tackle these areas of growing concern.

This concludes my testimony. I welcome any questions you may have. Thank you.

Mr. REHBERG. Thank you.

Ms. Bower?

STATEMENT OF DRU BOWER, VICE PRESIDENT, PETROLEUM ASSOCIATION OF WYOMING

Ms. BOWER. Mr. Chairman, members of the Subcommittee. My name is Dru Bower, and I am the vice president for the Petroleum Association of Wyoming, specializing in public land issues.

In 1996, Wyoming supplied the Nation with 3.4 percent of the total U.S. output of natural gas. In 2002, natural gas production for our State rose to 7.1 percent. Noteworthy is the fact that a significant percentage of Wyoming is managed by Federal agencies, approximately 49 percent of the surface and 66 percent of the mineral estate.

The Federal Government plays a significant role not only in Wyoming, but in many other Western States. Industry commends Congress for its foresight in requiring the Energy Policy and Conservation Act study. We have already been presented with the results of that study. And while some groups claim that EPCA results suggest that there is no access problem, this couldn't be further from the truth. The EPCA study is a solid beginning. However, the analysis does not go far enough to assess the full situation. Even on leased lands subject to only standard lease terms, conditions of approval are imposed in accordance with land-use decisions made by the agencies. While a lease may not be subject to additional stipulations, conditions of approval identified through project-level or site-specific environmental analysis may be required for proposed projects. Each condition of approval limits access to the lease, to some extent, whether through added cost or delay.

While the petroleum industry uses the word "access" as a "catch-all" term, the term is not limited to the availability of Federal lands for leasing. Access also encompasses the industry's ability to develop new wells in existing fields.

The National Petroleum Council is in the process of updating its 1999 Natural Gas Supply and Demand Study. It is our understanding that MPC is adding an access section which will analyze, for high gas potential, basins to determine the effects, lease stipulations, surveys for threatening an endangered species and conditions of approval have on industry's ability to explore for and develop resources. The report is due out in September of this year.

The Roadless Conservation Rule prevents road building on more than 58 million acres of National Forest System, a move that will place 11.3 trillion cubic feet of economically recoverable natural gas off-limits to exploration and development. According to the Department of Energy report, 83 percent of the natural gas resource found in the Rocky Mountain region is located in slightly less than 5 percent of the total proposed inventoried roadless areas nationwide.

The Petroleum Association and Public Land Advocacy urge Congress to support modification of the Roadless Conservation Rule. Removal of the 5 percent of inventoried roadless areas that overlie these important natural gas resources would still allow for the majority of inventoried roadless areas to be set aside, while providing for development of the critically important natural gas resource base.

The Federal regulatory process is exhaustive and cumbersome. It should be noted that once a lease has been issued, it becomes a contractual agreement between the Federal Government and the lessee. While the lease contract gives the lessee the exclusive right to develop the lease, it does not give the lessee the green light to start exploration or development activities.

There are several different processes and several different layers of NEPA analysis which must occur before and after leasing; primarily, at the resource management plan stage, also a determination of NEPA adequacy indicates whether additional analysis is necessary before leasing can occur, and there is also project-level and site-specific level NEPA analysis.

Consultations with other agencies also must occur, and each agency may require new restrictions that directly impact access and the economic viability of the project. BLM has implemented several new instruction memoranda designed to make the process more efficient. These IMs are a positive step in the right direction, and industry looks forward to their immediate implementation in the field. There are additional measures that must be taken to ensure timely and cost-effective access to Federal lands, and these recommendations are outlined in my written testimony.

Another important factor to consider in the Federal Regulatory process is litigation by environmentalist groups whose sole purpose is to delay or deny development of natural resources. In Wyoming, virtually all lease sales and most project-level environmental assessments and environmental impact statements, including geophysical projects, have been protested, appealed or challenged in Federal Court.

Unfortunately, NEPA has become a tool that is used as the primary impediment to oil and gas development on Federal lands. The cost of NEPA abuse is high. Litigation is paralyzing agencies' field and State offices from making decisions as their focus is shifting from land management and processing of permits to responding to frivolous litigation. Therefore, the burden of the agency's management responsibilities frequently shifts to the operators. All of these new obligations that have been historically the agency's responsibility put a tremendous burden on industry's ability to economically develop the resource for the benefit of this country.

In conclusion, the Petroleum Association of Wyoming and Public Land Advocacy appreciate Congress's recognition of the important role access to Federal lands plays in meeting the energy needs of this country through its efforts to pass an energy bill. However, many of the additional measures discussed in this testimony can also be easily addressed through the regulatory process.

Mr. Chairman and members of the Subcommittee, thank you for this opportunity to testify.

[The prepared statement of Ms. Bower follows:]

Statement of Dru Bower, Vice President, Petroleum Association of Wyoming, on behalf of Public Lands Advocacy

Madam Chairwoman and members of the Subcommittee, my name is Dru Bower and I am the Vice President of the Petroleum Association of Wyoming (PAW), specializing in public land issues. I am here today representing not only PAW, but also Public Lands Advocacy. We would like to thank the Subcommittee on Energy and Mineral Resources of the Committee on Energy and Commerce for the opportunity

to testify at this Oversight Hearing regarding "The Ability of Federal Lands to Meet our Energy Needs."

PAW is Wyoming's oldest and largest trade organization, the members of which account for over ninety percent of the natural gas and over eighty percent of the crude oil produced in the State. PAW is recognized as Wyoming's leading authority on petroleum industry issues and is dedicated to the betterment of the state's oil and gas industry and public welfare.

Public Lands Advocacy (PLA) is a non-profit organization whose members include major and independent petroleum companies as well as non-profit trade and professional organizations that have joined together to foster the interests of the oil and gas industry relating to responsible and environmentally sound exploration and development on Federal lands.

In 1996, Wyoming supplied the nation with 3.4% of the total U.S. output of natural gas. In 2002, natural gas production for our state rose to 7.1% of the total U.S. output. Noteworthy is the fact that a significant percentage of Wyoming is managed by Federal agencies.

Wyoming is a uniquely rural state comprised of 97,914 square miles and is the ninth largest state in the Union. Lands in the state, which are owned and controlled by the Federal Government equate to approximately forty-nine percent (49%) of the surface and sixty-six percent (66%) of the mineral estate. These Federal lands are managed by agencies such as the National Park Service (NPS), United States Forest Service (USFS) and the Bureau of Land Management (BLM). The remaining 51% of the surface and 34% of the mineral estate are owned by private entities, the State of Wyoming and the Tribes.

ENERGY POLICY AND CONSERVATION ACT

Industry commends Congress for its foresight in requiring the Energy Policy and Conservation Act (EPCA) Study, an assessment of Federal lands available for leasing in the most promising basins in the west and the obstacles to development of those resources. Released in January of 2003, the Study addressed constraints on development with respect to two factors affecting access to oil and gas resources. Those factors included: 1) whether the lands are "open" or "closed" to leasing, and 2) the degree of access afforded by lease stipulations on leased lands. The study found that approximately 39 percent of the Federal lands were available for oil and gas leasing, 25 percent is available for leasing with restrictions on operations beyond standard lease terms, and 36 percent of the Federal lands are unavailable for leasing. While some groups claim that the EPCA results suggest there is no access problem, this couldn't be further from the truth.

The EPCA study is a solid beginning; however, the analysis does not go far enough to assess the full situation. In addition to addressing leased lands, their associated stipulations and lands unavailable for lease, other important factors must be considered. For example, even on leased lands subject to only standard lease terms, conditions of approval (COA) are imposed in accordance with land use decisions made by the agencies. In other words, while a lease may not be subject to additional stipulations, conditions of approval identified through project level or site-specific environmental analysis may be required for proposed projects. Each condition of approval limits access to the lease to some extent whether through added cost or delay. Therefore, in reality, it is safe to say that all leases issued under standard lease terms are still subject to the same constraints imposed on stipulated leases. Further, some conditions of approval may be more of an impediment to exploration or development than lease stipulations.

While the Petroleum Industry uses the word "Access" as a catchall term, the term is not limited to the availability of Federal lands for leasing. Clearly, leasing is an important aspect of access to Federal lands for purposes of exploration and development; however, access also encompasses the industry's ability to develop new wells in existing fields. As such, expansion of existing production often faces numerous impediments including:

- High cost to industry and long delays for NEPA compliance;
- Delays in land use plan revisions;
- A wide variety of surveys and inventories on most projects for cultural, wildlife and other resource values that may or may not be present in a project area;
- Delays in obtaining drilling and rights-of-way permits due to a lack of adequate Federal staffing and funding in high volume leasing and development areas;
- Financial burdens placed upon industry who may have to pay for contract personnel to work on permits in field offices;
- The same restrictive management imposed to protect species listed as threatened or endangered under the Endangered Species Act are applied to unlisted species (i.e. sensitive, proposed and candidate species);

- Endless petitions to the U.S. Fish and Wildlife Service (FWS) to list plant and animal species without supporting scientific data; but, which cause Federal agencies to change their management objectives from multiple-use to restricted use; and
- Further, environmental groups are not only filing petitions with FWS to list a particular species with limited supporting scientific data; petitions are concurrently being filed by the same parties with BLM to manage the species habitat as an Area of Critical and Environmental Concern (ACEC). An area with an ACEC designation carries additional restrictions for mineral development.

NATIONAL PETROLEUM COUNCIL NATURAL GAS STUDY UPDATE

The National Petroleum Council (NPC) is in the process of updating its 1999 Natural Gas Supply and Demand Study. It is our understanding that NPC is adding an access section which will analyze four high gas potential basins (Powder River, Greater Green River, Uinta/Piceance, and San Juan) to determine the effects lease stipulations, surveys for threatened and endangered species and conditions of approval have on industry's ability to explore for and develop resources from these Rocky Mountain basins. The report is due out in September of this year.

Federal lands must play a growing role in future U.S. energy supplies. Prior to 1980, only 9% of all domestic oil and gas production came from Federal land. According to the American Petroleum Institute (API), today Federal lands produce about one third of domestic oil and gas, but are estimated to contain 77% of the oil and 60% of the natural gas resources to be found in the US. In the short period from 1995 to 2003, there has been an increase of at least 75% in estimates of remaining undiscovered domestic oil resources and over 23% in estimates of undiscovered natural gas on Federal lands. Despite greater knowledge of the occurrence of gas resources and increased demand for energy, Federal policy toward energy development has become increasingly restrictive. PAW and PLA urge members of this Committee to take steps to reverse this trend as outlined in the recommendations below.

ROADLESS CONSERVATION RULE

The Roadless Conservation Rule prevents road building on more than 58 million acres of the National Forest System—a move that will place 11.3 TCF of economically recoverable natural gas off limits to exploration and development. Ironically, this decision coincides with Administration warnings of shrinking gas supplies. The Bush Administration sees only "limited opportunities" to increase dwindling natural gas supplies over the next 12 to 18 months, calling for conservation to head off a summer shortage. Moreover, Federal Reserve Chairman Alan Greenspan has publicly stated that dwindling supplies could add serious pressure to the U.S. economy.

According to the Department of Energy Report, Undiscovered Natural Gas and Petroleum Resources beneath Inventoried Roadless and Special Designated Areas on Forest Service Lands, November 2000, 83 percent of the natural gas resource found in the Rocky Mountain Region is located in slightly less than 5 percent of the total proposed Inventoried Roadless Areas (IRA) nationwide. PAW and PLA urge Congress to support modification of the Roadless Conservation Rule. Removal of the 5% IRAs that overlie these important natural gas resources would still allow for the majority of the IRAs to be set aside while providing for development of the critically important natural gas resource base.

FEDERAL REGULATORY PROCESS

The Federal regulatory process is exhaustive and cumbersome. To comply with requirements of the Federal Land Policy and Management Act (FLPMA), agencies are required to prepare land use plans. The National Environmental Policy Act (NEPA) requires agencies to evaluate how proposed Federal actions will affect the human environment. Environmental Assessments (EA) must demonstrate that impacts associated with a proposed action can be mitigated and that the net effects are not significant. If the EA shows a project has significant impacts, an Environmental Impact Statement (EIS) must be prepared which identifies and discloses the potential effects of the project, along with identified mitigation measures to be used if the project is approved.

Resource Management Plans (BLM) or Land and Resource Management Plans (USFS) have been developed for all Federal lands. Each plan is subject to an extensive EIS process; the plans identify what areas will be available for oil and gas leasing and the stipulations to be applied to those leases (i.e. No Surface Occupancy (NSO), seasonal restrictions for wildlife protection, etc.). In addition, the plans establish operating standards, which must be met before proposed projects are implemented.

BLM also conducts a "Determination of NEPA Adequacy" (DNA) before a lease parcel is actually included in a Federal lease sale. This determination indicates whether additional analysis is necessary before leasing occurs. (Similar DNA analyses are typically prepared before a project is allowed to proceed.)

It should be noted that once a lease has been issued, it becomes a contractual agreement between the Federal Government and the lessee. However, while the lease contract gives the lessee the exclusive right to develop the lease, it does not give the lessee the green light to start exploration or development activities. Every proposed project is subject to a site-specific NEPA analysis before a permit is approved by the agency. In addition, consultation with other agencies must occur. For example, consultations with the U.S. Fish and Wildlife Service (USFWS) or a State Historic Preservation Office (SHPO) may be required if listed threatened and endangered species or cultural resource issues are involved, respectively. Each agency may require new restrictions that directly impact access and the economic viability of the project.

BLM has implemented several new Instruction Memoranda designed to make the process more efficient. These include:

- Enhanced Consistencies in Conditions of Approval;
- Cultural Resources Management (block clearances of 40 acres and modeling);
- Revision of Onshore Order 1;
- Revision of the Gold Book on Operations; and
- Plans of Development (POD) Requirements (master POD addressing two or more proposed wells in close geographic proximity to one another that share common Drilling and Surface Use Plans).

These IMs are a positive step in the right direction and industry looks forward to their immediate implementation in the field. In fact, industry hopes to work closely with BLM in its revisions of the Onshore Order No. 1 and the Gold Book on Operations. However, there are additional measures that must be taken to ensure timely and cost effective "access" to Federal lands. We recommend that new Instruction Memoranda be issued to address the following:

- In order to eliminate costly and time-consuming redundant NEPA analyses, the agencies must utilize existing NEPA documentation by either tiering or incorporating by reference all existing NEPA analyses to avoid reanalyzing issues that have already been addressed and for which decisions have already been made. In other words, in areas where expanded development is proposed, no new resource data collection is necessary; simply a new cumulative effects analysis is required; and
- Additionally, no new cumulative effects analysis is necessary if a project proponent wishes to increase recovery of the resource by directionally drilling new wells from existing locations that were already approved and drilled under a previous decision document. Since no new surface disturbance will result, no further NEPA analysis is necessary.

FRIVOLOUS LITIGATION

Another important factor to consider in the Federal regulatory process is litigation by "environmentalist groups" whose sole purpose is to delay or deny development of natural resources. In Wyoming, virtually all lease sales, and most project level EAs or EISs, including geophysical projects, have been protested, appealed, or challenged in Federal court. The same is true for the other Rocky Mountain States.

Unfortunately, NEPA has become a "tool" that is used as the primary impediment to oil and gas development on Federal lands. PAW and PLA support without qualification the Act's provisions for public comment, identification of alternatives to the proposed action, and consideration of impacts and mitigation measures to be used. Unfortunately, some groups view these same provisions as opportunities to stop proposed projects without regard for cost and delay impacts on land management agencies, the U.S. taxpayer, or multiple users of the public lands.

The cost of "NEPA abuse" is high. For example, the burden of agencies' management responsibilities frequently shifts to operators; such as preparation of NEPA documentation, resource inventories and species surveys, monitoring activities and ensuring adequate staff is available to process permits. All of these new obligations put a tremendous burden on industry's ability to economically develop the resource for the benefit of the country.

RECOMMENDATIONS

In conclusion, PAW and PLA appreciate Congress' recognition of the important role access to Federal lands plays in meeting the energy needs of this country through its efforts to pass an energy bill. However, many of the additional measures

discussed in this testimony can also be easily addressed through the regulatory process.

PAW and PLA recommend the following:

- Reiterate the importance of Federal lands in meeting the nation's energy needs;
- Provide adequate funding for BLM staffing to specifically address APD and Rights-of–Way backlogs;
- Require timely issuance of leases in areas determined to be available for oil and gas leasing;
- Require timely issuance of APD and Rights-of–Way;
- Eliminate the 5% of Inventoried Roadless Areas in the Rocky Mountain Region that encompass 83% of the natural gas resources found within the areas covered by the Roadless Conservation Rule;
- Encourage aggressive implementation of recently issued BLM Instruction Memoranda (IM) that provide field guidance for improving processing of APDs and Rights-of–Way; and
- Recommend issuance of new IMs that eliminate redundant NEPA analyses.

Madam Chairwoman and members of the Subcommittee, thank you again for the opportunity to share with you our perspective regarding the "Ability of Federal Lands to our Meet Energy Needs".

Mr. REHBERG. Thank you.

Mr. Eppink, could you explain to me real quickly what is Advanced Resources International, just so I have a basis of knowledge of your background, are you in business or are you—

Mr. EPPINK. Yes, we are a medium-sized consulting firm, about 28/25 professionals, and we concentrate on energy, largely natural gas. Our client base is both Federal agencies, the industry and Governments and industry overseas.

Mr. REHBERG. So you provide what kind of consulting?

Mr. EPPINK. Technical and strategic consulting.

Mr. REHBERG. As to whether they, let us say, the companies actually go in, and lease, and develop or lease, develop?

Mr. EPPINK. Well, to be honest, we are a little bit removed from the actual leasing per se. It is more of the strategy of going after what technologies and what strategy is appropriate for coalbed methane or tight gas in the U.S.

Mr. REHBERG. Do you, in your consulting business, then, make a determination of the technical opportunities that might be coming up? Again, I guess I want to ask you the question what do you think is going to happen in the year 2020? What level of production or what areas do you use your crystal ball and make a determination we are going to be able to move into that we don't currently know now? And then I will follow that up with a question—

Mr. EPPINK. That is a very good question. In fact, part of our practice, one of my partners does quite a bit of work in that area.

It is clear that in the future the makeup of natural gas, especially with the depletion rates that we have now, is going to be different than it is today. We are moving, in the U.S., we are moving to more marginal portions of the resource. They are harder to get at, and the actual amounts of resources proved up per individual well is less than it has been in the past. So to stay in the same place, you have to peddle twice as fast.

But by the same token, there is quite a bit of resource in the U.S., in the Rockies in particular. The issue is not so much resource. It is the difficulty of getting at it from a number of factors, from an operator's point of view, technology, price, access, all of these sorts of issues contribute. So you ask me in 2020 what the picture is going to look like, it is clearly going to be different than

it is today. We will be using much more unconventional natural gas. Speaking about natural gas, in particular, we will be using much more unconventional natural gas. Coalbed methane will not be unconventional any more. It is clearly mainstream.

There will be much more tight gas. Hydrates I think will be something that will be ramping up, and gas shales, gas shales as well.

Mr. REHBERG. This panel is a reflection of a problem that I have long felt, and I warn people about, I am an advocate of peer review and sound science, but there are different peers and different science. Could you compare your consulting opinion and methodology with RAND's approach?

Mr. EPPINK. Yes. Sure.

Mr. REHBERG. And then use the Jonah field in Wyoming as an example of why you may think it makes good sense, where their recommendation is it is uneconomic.

Mr. EPPINK. Well, a number of things come to mind on that. We do an awful lot of economic studies, and my contention is not that economic studies shouldn't be done, it is that you have to be careful about what you conclude from economic studies.

As you go further down the resource chain from gas in place, to technically recoverable, to economic, each item becomes more and more tenuous. And economics in particular can be unstable, depending on what price you use. If you had done a study in 1999, compared to when prices were low, compared to what they are now, your economics would be advised a little bit differently.

I reviewed the RAND study, and I think, to be honest, I don't find the RAND approach particularly new, in all deference to Debra and her group. We have done studies for the DOE that are similar on a township-by-township basis of the Greater Green using GIS overlays previous to EPCA.

One of the criticisms that I did have of the RAND study is that it puts the environmental filter after the economics, and I think properly, to make a proper assessment, you need to bring—it is the operators who face these environmental constraints—and so they have to work them into their economics. And so if you are going to put an environmental filter on, it really needs to go before the economics and how it impacts the economics.

We did a study just recently published for the Department of Energy on the Powder River Basin, coalbed methane, looking at seven options for water disposal associated with development of the coalbed resources. And we did a resource assessment, we did technically recoverable resource assessment, and then we did economics scenario based on the seven methods of disposal. But we put the environmental costs associated with those into the economics. So I think the RAND study, it should have put the environmental filter before the economics.

I think economics can be useful, but they can't be the pivotal decision point. The issues are too complex, and economics, it can suffer from the prices of the day, depending on what price are you going to use; are you going to use $3? $5?

Mr. REHBERG. Mr. Kind?

Mr. KIND. Thank you, Mr. Chairman.

Thank you, panelists, today for your testimony.

Ms. Knopman, let me ask you, in regard to the RAND study and the calculation with regards to economically viable methods, now, just so I am clear, is RAND advocating the consideration of economically viable resources as the sole consideration that should be calculated under the equation or just part of the mix as a factor in determining what viable sources make economic sense to go out and produce?

Ms. KNOPMAN. We have been very clear that this is one factor, among several, but it is an important factor.

There are quite a number of points I would like to clarify if I may just use this opportunity to do so. There are multiple uses of economic forecasting in the resource area. One can sort of go up the chain to a macrolevel analysis, precisely what Mr. Greenspan was concerned about. How much resource is likely to be available at what cost. The only way that he can get answers to that question is if he has tools to draw on to give him a sense of what the nature of our resource base is and how much it may cost, given what we know now. It is a snapshot, absolutely, but that is how he gets a sense of what is available.

The kind of analysis that we have done is intended to be used for that kind of purpose. It is intended to be used by State energy planners who are trying to get a sense of what Mr. Souder was concerned about in his State. It is also a tool that can be used in Federal land use planning to set priorities, but it is one consideration when you look at the economics among several.

Mr. KIND. So I guess economically viable considerations is another way of saying cost benefit in regards to the other costs that are calculated into the equation, transportation infrastructure matters, things of that nature?

Ms. KNOPMAN. Well, we didn't do a cost-benefit analysis. What we were looking at was some way of getting a handle on what the relative profitability might be of extracting resource and different formations given our knowledge today of technology. Just as Jeff mentioned, the assumption with our method is that it is dynamic, that one would constantly update, it is transparent, it is easy to go back and examine the effect of certain assumptions on cost. In fact, the greatest uncertainty in our economic analysis comes from the underlying estimates of technically recoverable resource. That is where the biggest uncertainties come. We can vary a lot of our cost parameters, but it is really the uncertainty of the underlying estimate that has the biggest effect on the range that one comes up with.

Mr. KIND. Well, just dealing with the Rocky Mountain regions, can you give us some type of assessment or picture in regards to economically viable considerations dealing with transportation infrastructure matters, the feasibility of producing in that region and the costs that we may be looking at.

Ms. KNOPMAN. Yes. Well, what we discovered was that using the assumptions that we lay out in our report, that you could, within the Greater Green River Basin, we are not able to apply our analysis to the whole Rocky Mountain Region, though we would like to see that done and believe that would be useful, but in the Greater Green River Basin, up to 65 percent could be profitably produced if the market price were in the neighborhood of $5 per million Btu.

The incremental costs, the extra costs from transportation, for actually getting the resource out, is actually relatively small compared to the drilling and development costs. So that we found did not really play that large a role.

When the price of natural gas goes higher, there is more of that technically recoverable resource that is obviously going to be accessible. All of these numbers are subject to adjustment as a new technology comes on-line and improvements are made in engineering.

Mr. KIND. Got it. Thank you. Thank you for your testimony.

Thank you, Mr. Chairman.

Mr. REHBERG. Mr. Bishop?

Mr. BISHOP. Thank you, Mr. Chairman. If I could maybe ask two or three questions here.

First of all, and, Ms. Knopman, I am going to apologize for this, but I am going to ask you to give me a technical answer, and realize you are speaking to a nontechnical mind. So it is going to be a rhetorical challenge for you.

But assuming that, take the Powder River Basin, for example, if you had performed your resource assessment in 1990 using that same methodology, would the coalbed methane play in that Powder River Basin have been deemed to hold an economically recoverable resource?

Ms. KNOPMAN. With any area, it doesn't matter where, and it doesn't matter when, one would make assumptions, just as is done in every other aspect of the economy and every economic sector, make assumptions about available technology and what that technology could do, given current market prices.

That assessment would only be as good as those assumptions, and it is probably true that that would have been, there would have been a conclusion drawn that at today's prices, with today's technology, that would not have been a resource that was likely to be developed. We don't make a judgment in our own methodology of whether something should or should not be developed. All that we can do is show that under certain market conditions, under assumptions about various prices, cost of production, that it would be profitable, a resource would be profitable to develop.

So I think the answer would have been, and it would not have been particular to RAND's approach, this would have been true had the USGS done the economic analysis or an industry association, it is not particular to any group, the same conclusion would have been drawn, which is under those assumptions, no, it would not have been.

Mr. BISHOP. If all of these analyses, if every analysis, then, is a living analysis, it is going to change by the criteria and conditions change. How long do these analyses have as far as their shelf life?

Ms. KNOPMAN. That is a really good question, and I guess I would answer that by saying, in terms of the resource assessment, given the time in which the USGS can go back and review their technically recoverable assessment, resource estimate, you are probably looking at a maximum of 5 years or so. However, on the economic side, conditions could change within a year if a new technology came on-line or if prices shot up. So you have to know, in any decisionmaking context, what assumptions are underlying your analysis, no matter what it is.

Mr. BISHOP. Mr. Eppink, would you agree with that?

Mr. EPPINK. Well, yes, I think I agree, if you had done in 1990, an economic analysis of Powder River Basin, it wouldn't have passed, and if you had made a decision based on that analysis, you probably would have dismissed it. But I think people generally recognize it had technical potential.

My difficulty isn't with doing economics per se; it is, as Debra pointed out in their own study, the driving force is not the economics, it is the technically recoverable resource, and that is why I maintain in my testimony, for purposes of EPCA, using technically recoverable resource is satisfactory.

If you go to economic resource, and it is not RAND that contends that you should only use economically recoverable resources, it is some of the environmental groups, I think it can be misleading. So it does depend on when an economic analysis is done. It will clearly taint—taint is probably the wrong word—but it will clearly dictate the economic parameters under which you are going to run it, and you would probably come to different conclusions then if you base your analysis on technically recoverable resources. Because it was clearly recognized in 1990, in the Powder River Basin, that the coal was there.

Mr. BISHOP. Mr. Chairman, if I could ask one more question. I beg your indulgence because I am going to have to leave and get a picture taken with an artist winner that is being hung up in the tunnel.

If I could ask Ms. Bower just one question. You went to a different area, and it is one where we, as a Congress, could obviously deal. You talked about lawsuits, frivolous lawsuits, especially on NEPA. Do you have any specific proposals of how we, as Congress, could deal with those frivolous lawsuits based on NEPA or similar statutes that produced the post-leasing problems?

Ms. BOWER. Mr. Chairman, Congressman Bishop, I think it is a complex problem. NEPA allows for public comment. We certainly are not advocating that you change NEPA to eliminate public comment and their participation in the public process. I think it is probably twofold, and I think IBLA is probably addressing one part of that, and that is lawsuits that come in, they try to address within I think 90 days to decide whether or not the merits of the case should move forward or whether or not it is not right to be in court in the first place.

Another thing that is very concerning, at least from the Agency's perspective, is when these lawsuits are filed, it takes up a tremendous amount of staff time and resources to address the administrative records and prepare the administrative records and State Director reviews.

If we could encourage that the prevailing party would be reimbursed for costs incurred after the case has been ruled upon, that may help with the coffers of the Federal Government as well.

Mr. BISHOP. Thank you.

Mr. Chairman, thank you.

Mr. REHBERG. Thank you.

Ms. Knopman, I didn't have an opportunity to go through the same drill that I did with Mr. Eppink with you, so I would like to

ask you the same questions of your group. Essentially, you are economists?

Ms. KNOPMAN. RAND is a nonprofit organization of about 11- or 1,200 full-time researchers of all disciplines. We have a full complement of economists. We have many physical scientists, we have MDs, we have lawyers. We really cover the whole spectrum. I, myself, have a doctorate in engineering.

Mr. REHBERG. Are you able to work with companies or is this strictly a nonprofit independent research source that provides information essentially to Government?

Ms. KNOPMAN. Most of our clients are Government, either at the Federal or State and local level. However, RAND does do some private-sector work, fairly limited, but we do it, as long as it doesn't compromise our ability to be independent and publish our work, which is very important to us.

Mr. REHBERG. In your 2002 papers, you had a criteria for viable resources. But since that time, that designation has been dropped. Can you explain why?

Ms. KNOPMAN. We learned. That was an interim report. It represented what our thinking had been at that time, as we began the study, as we spoke with people like Jeff, and many of the folks on the EPCA team, and got into the topic more deeply. We understood that that was not a particularly useful term, and we didn't need it to do what we thought needed to be done, which was to show how economic criteria could be, and environmental measures could be brought into an analysis of the resource.

Mr. REHBERG. Would you say that Mr. Eppink made a point about the environmental costs being included up front? It would seem logical to me, someone who actually has to manage resources for a living, that when you talk about economics, to have placed it after the fact, probably, in my mind, kind of discounts the entire study.

Ms. KNOPMAN. Well, that is not entirely accurate as to what we did, though I take Jeff's point. Our estimates of costs include an assumption about what the environmental measures would be taken in a particular type formation. It didn't explore many different alternatives, and for that I think Jeff's suggestion is quite useful in that we could be looking at various environmental mitigation costs up front in the economic analysis. We made an assumption about a set of costs and approach for environmental mitigation.

What we do on the environmental side is look at a set of environmental measures related to water quality, related to ecological resources. We don't attempt to assign any dollar figures to dealing with those particular measures. We are simply associating the values of those measures with the underlying resource and leaving it at that. We are not-

Mr. REHBERG. But if the theory is economics, and you are applying a value on the opportunity to develop the resource, why wouldn't you put a cost or an estimated cost?

Ms. KNOPMAN. We do. We do. It's included in our cost base. The costs of compliance are included in our cost base. Now, it did not include, just to be correct here, we did not include transaction costs, so we didn't include litigation or the costs of obtaining a

permit, and that would be great to include. We should do that. We didn't—

Mr. REHBERG. I was leaning more toward the direction of my prior questioning of Ms. Watson about the after-leasing costs, that it is not a done deal once the permit is granted. There is a huge economic cost beyond that—

Ms. KNOPMAN. The way our method is set up, you can add as many costs as you want, and that would be worth doing. What it would show is simply that it would be more expensive across the board probably, though there may be differences from one formation to another to extract the resource. So all of our availability curves would just sink down a bit. That is all that would happen there. But one can add as many costs as you want.

Mr. REHBERG. Mr. Johnson, just so you don't feel left out of this process, can you explain, in more depth, the importance of the BP well in Alaska. Is the drilling of the well assured, and what would the Government do to make certain it is drilled?

Mr. JOHNSON. At this point, I have sort of heard both ways. The Department of Energy seems to think it is going to happen. BP I think to their credit is saying as they are doing their studies, whenever they come to a decision point, they review the data and make sure that economically it is worth continuing. My best guess is that, in fact, during the winter of 2004, actually, it would be, I believe, five wells being drilled in a gas reservoir with associated gas hydrates, and the plan will be to depressurize the reservoir which would then dissociate the hydrates.

I think that the main thing is to make sure that the funding is there, particularly for the Department of Interior. The U.S. Geological Survey is providing a lot of the technical support for this. The Department of Energy has done some very good things, but I get the feeling gas hydrates are just not very high on their priority list, and perhaps should be.

Mr. REHBERG. Japan has stated that it believes that it can become an energy exporting country solely on the basis of its gas hydrates. Do you feel that much potential exists?

Mr. JOHNSON. In Japan?

Mr. REHBERG. Yes.

Mr. JOHNSON. I think there is a very strong likelihood that that is the case. They have drilled a few wells closely spaced a couple of years ago. This coming year they are planning to drill, I believe, it is somewhere between 20 and 30 wells, to really evaluate this. They are developing the production technology. They are modeling it. They are planning to move ahead, although with the Japanese program, there is a sense of caution, and perhaps that is simply the way that they like to operate.

I get the feeling if Japan really wanted to have hydrate production, they could have it in 2 years. I think their plan is to have it in about 10 or 12 years, but the potential is definitely there.

That same case could be made in the United States. We are designing a program for production quite a ways down the road. If we design the program differently, we could move that time table up.

Mr. REHBERG. I want to thank you for taking time out of your busy schedules. The members of the Committee may have

additional questions that they would like to have answered, and we would ask that they submit those, and if you could give us written responses to that. The Committee hearing records will be left open for a period of 10 days. And since I see my colleagues have all moved on, and there is no further business before this Committee, it now stands adjourned.

[Whereupon, at 11:36 a.m., the Subcommittee was adjourned.]