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MEETING AMERICA'S NATURAL GAS DEMAND: ARE WE IN A CRISIS?

HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND RESOURCES

OF THE

COMMITTEE ON
GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED NINTH CONGRESS

FIRST SESSION

SEPTEMBER 14, 2005

Serial No. 109–93

Printed for the use of the Committee on Government Reform

Available via the World Wide Web: http://www.gpoaccess.gov/congress/index.html
http://www.house.gov/reform

U.S. GOVERNMENT PRINTING OFFICE

24–769 PDF WASHINGTON : 2006

For sale by the Superintendent of Documents, U.S. Government Printing Office
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CONTENTS

	Page
Hearing held on September 14, 2005	1
Statement of:	
Caruso, Guy, Administrator, Energy Information Administration, Department of Energy	15
Magruder, Logan, president, Independent Petroleum Association of Mountain States	52
Slocum, Tyson, research director, energy program, Public Citizen	59
Watson, Rebecca, Assistant Secretary for Land and Minerals Management, Department of the Interior	29
Zenker, Michael, senior director, North American Natural Gas, Cambridge Energy Research Associates	44
Letters, statements, etc., submitted for the record by:	
Caruso, Guy, Administrator, Energy Information Administration, Department of Energy, prepared statement of	17
Issa, Hon. Darrell E., a Representative in Congress from the State of California, prepared statement of	4
Magruder, Logan, president, Independent Petroleum Association of Mountain States, prepared statement of	54
Slocum, Tyson, research director, energy program, Public Citizen, prepared statement of	61
Watson, Hon. Diane E., a Representative in Congress from the State of California, prepared statement of	9
Watson, Rebecca, Assistant Secretary for Land and Minerals Management, Department of the Interior, prepared statement of	31
Zenker, Michael, senior director, North American Natural Gas, Cambridge Energy Research Associates, prepared statement of	47

MEETING AMERICA'S NATURAL GAS DEMAND: ARE WE IN A CRISIS?

WEDNESDAY, SEPTEMBER 14, 2005

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON ENERGY AND RESOURCES,
COMMITTEE ON GOVERNMENT REFORM,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:22 p.m., in room 2154, Rayburn House Office Building, Hon. Darrell E. Issa (chairman of the subcommittee) presiding.

Present: Representatives Issa, Marchant, Watson, and Higgins.

Staff present: Larry Brady, staff director; Lori Gavaghan, legislative clerk; Dave Solan and Chase Huntley, professional staff members; Richard Butcher, minority professional staff member; and Jean Gosa, minority assistant clerk.

Mr. ISSA. Good afternoon. First, as the Chair I would like to call this hearing to order. I want to apologize to all of those of you here for the hearing today because of a conflict by both the chairman and the ranking member required to be at another vote. Once again, I want to thank you for being here.

Natural gas prices have been at record highs because of an ongoing tight supply and demand situation in the United States. Hurricane Katrina has put an increased pressure on markets. A healthy economy has already stressed the capacity of natural gas both here and abroad. Katrina, though, awakened us to the possibility of a supply side shock and that we could find a significant portion of our natural gas supply shut off for a not so short period of time.

According to the Energy Information Administration, we are facing high energy costs this winter, spending on natural gas is forecasted to be 52 percent higher nationwide, with residential consumers in the upper Midwest experiencing an increase of 71 percent over last year to heat their homes.

U.S. industry will also be impacted by higher prices because it derives 40 percent of its primary energy from natural gas. Many industry users do not have the option of switching to other sources of fuel when natural gas prices rise. As a result of high prices, we are no longer the world's top location for making chemicals. We are now a net importer of chemicals.

Ongoing high prices have also helped to shutter 21 nitrogen fertilizer production facilities and production has moved overseas along with the highpaying jobs that industry normally has with it.

Hurricane Katrina is not the sole cause for this sobering market outlook. In fact, the tight supply and demand situation and stubbornly high prices have been an ongoing problem for at least 5

years. The natural gas market has become a victim of its own success. Most newly-constructed homes are heated by natural gas. It is a clean burning and efficient fuel compared to other fossil fuel alternatives.

But the biggest reason for the increase in year-round demand for natural gas has come from it being the preferred fuel and choice for electrical generation. Since the 1990's, for right or wrong purposes, almost every new electric power plant is powered by natural gas. From 1996 to 2000, the use of natural gas for electricity grew at an annual rate of 11 percent a year. It is time to diversify away from natural gas as a cure-all for electricity generation. The recently enacted energy bill is a step in the right direction toward that goal.

Clearly, events have caused a reexamination, or should cause a reexamination of our policies and practices in terms of domestic production. Some producers have suggested that onshore drilling operations should take place throughout the year rather than being restricted to seasonal activity, because it may have less of an environmental impact than dismantling, transporting and then rebuilding drilling pads. Likewise, some have suggested that natural gas exploration and production activities in the Outer Continental Shelf may have less of an environmental impact than oil drilling. I would appreciate any comments our knowledgeable witnesses may have on these activities and others.

The fact is that we cannot meet our current and future needs without taking a number of positive steps. We must build flexibility to meet the demand for increasing domestic production. Without a doubt we must increase imports, at least in the short run, of liquefied natural gas. We must acknowledge that the most important use of natural gas is for industrial employment. It's for those items which do not have substitutes. Certainly, the fertilizer industry, which today is leaving the United States, is a classic example of an idustry dependent on natural gas, as is the production of pharmaceutical products and many other chemicals and plastics.

It has often been said that natural gas is too good to burn, and yet that is what we are doing here today. There is a fundamental disconnect between our appetite for natural gas and our willingness to make the hard choices to satisfy it. It is time that we look at these hard choices.

Today we will examine the current and future sources of supply for natural gas consumed in the United States, as well as the effect of regulatory policies on domestic production. In short, where will our natural gas come from and what are the economic implications of the choices we make to supply our demand for natural gas?

It is often said here in Congress, and I will say it here because it fits, that we are facing a crisis in terms of adequate supplies, and with the effect of price on industry and employment we will be exporting more jobs in the short run. If we don't take steps, we will be exporting jobs in the long run. Will homeowners be able to afford their natural gas heating bills this winter, and if prices continue to skyrocket will they be able to afford it next winter?

Katrina has made an already bad situation much worse. Let us not continue a policy that makes it inevitably worse even without hurricanes.

We all look forward to hearing from our distinguished panel. We are pleased to have here today the Honorable Guy Caruso, Administrator of the Energy Information Administration at the U.S. Department of Energy. Welcome back again. The Honorable Rebecca Watson, Assistant Secretary of Land and Mineral Management in the Department of Interior. Welcome. Mr. Michael Zenker, senior director of North American Natural Gas at Cambridge Energy Research Associates. Thanks, Michael. Mr. Logan Magruder, president of the Independent Petroleum Association of Mountain States, and, I might say, a significant California employer; and Mr. Tyson Slocum, research director of the energy program at Public Citizen. I look forward to hearing their testimony.

I would now yield to the ranking member, the gentlewoman from California, for her opening statement.

[The prepared statement of Hon. Darrell E. Issa follows:]

COMMITTEE ON GOVERNMENT REFORM
SUBCOMMITTEE ON ENERGY AND RESOURCES

OPENING STATEMENT OF
CHAIRMAN DARRELL ISSA
"Meeting America's Natural Gas Demand: Are We in a Crisis?"
SEPTEMBER 14, 2005

Natural gas prices have been at record highs because of an ongoing tight supply and demand situation in the US. Hurricane Katrina has put increased pressure on markets. A healthy economy was already stressing the capacity of the natural gas market to meet demand.

Katrina added a supply-side shock by shutting-in a significant volume of Gulf of Mexico production and damaging natural gas processing facilities.

According to the Energy Information Administration, we are facing very high energy costs this winter. Spending on natural gas is forecast to be 52 percent higher as a nationwide average, with residential consumers in the upper-Midwest experiencing an increase of 71 percent over last year to heat their homes.

US industry will also be impacted by high prices because it derives 40 percent of its primary energy from natural gas. Many industrial users do not have the option of switching to other sources of fuel when natural gas prices rise. As a result of high prices, we are no longer the world's top location for making chemicals; we are now a net importer of chemicals.

Ongoing high prices have also helped to shutter 21 nitrogen fertilizer production facilities, and production has moved overseas.

Hurricane Katrina is not the sole cause of this sobering market outlook. In fact, the tight supply and demand situation and stubbornly high prices have been ongoing for 5 years. The

natural gas market has become a victim of its own success. Most newly constructed homes are heated by natural gas. It is clean-burning and efficient compared to most alternatives.

But the biggest reason for the increase in year-round demand is that natural gas has become the preferred fuel choice for electricity generation. Since the 1990s, for right or wrong, almost all new plants are powered by natural gas. From 1996 to 2000, the use of natural gas for electricity grew 11 percent ***per year***.

It is time we diversified away from natural gas as a cure-all for electricity generation and NIMBY siting problems. The recently enacted energy bill is a step in the right direction.

Clearly, events have caused a reexamination of policies and practices in terms of domestic production. Some producers have suggested that onshore drilling operations should take place throughout the year rather than being restricted to seasonal activity, because it may have less of an environmental impact than dismantling, transporting, and then rebuilding drill pads. And likewise, some have suggested that natural gas exploration and production activities on the Outer Continental Shelf may have a different environmental impact than that of oil drilling. I would appreciate any comments our knowledgeable witnesses may have about these activities.

The fact is that we cannot meet our current and future needs without taking a number of positive steps. We must build-in flexibility to meet demand by increasing domestic production. We must increase imports of Liquefied Natural Gas. And we must acknowledge that the most important use of natural gas is for our industrial and employment base. There is a fundamental disconnect between our appetite for natural gas and our willingness to make the hard choices to satisfy it. It is time we looked at these choices.

Today we will examine the current and future sources of supply for natural gas consumed in the US, as well as the effect of regulatory policies on domestic production.

In short, where will our natural gas come from, and what are the economic implications of the choices we make to supply our demand for natural gas?

Are we facing a crisis in terms of adequate supplies and the effects of price on industry and employment? Will we be exporting more jobs? Will homeowners be able to afford their natural gas heating bills? Katrina has made an already bad situation much worse.

We look forward to hearing from our distinguished panel. We are pleased to have here today:

- The Honorable Guy Caruso, Administrator of the Energy Information Administration at the United States Department of Energy.
- The Honorable Rebecca Watson, Assistant Secretary of Land and Minerals Management in the Department of the Interior.
- Mr. Michael Zenker, Senior Director of North American Natural Gas at Cambridge Energy Research Associates.
- Mr. Logan Magruder, President of the Independent Petroleum Association of Mountain States.
- Mr. Tyson Slocum, Research Director of the Energy Program at Public Citizen.

I look forward to hearing your testimony.

Ms. WATSON OF CALIFORNIA. Thank you, Mr. Chairman, and thank you so much for convening today's crucial, very, very important hearing. This subcommittee will play a vital role in examining critical issues regarding America's use of natural gas and its cost to consumers.

In the upcoming months America will be faced with critical choices in considering the amount of energy it uses, how much it pays for it, and what the long-term outlook is for energy consumption in our Nation. Now, we are here to examine the current supply and demand of natural gas and investigate what we can do to help America's consumers from paying such enormous costs for these essential goods.

Energy is in very high demand in the United States, and our country alone consumes 25 percent of the world's total energy supply and 24 percent of the world's natural gas supply. Demand is not standing still, but it is growing. Our current natural gas consumption rate is steadily increasing and prices are, as you know, at an all-time high. It is estimated by the Energy Information Administration that this upcoming winter the cost to heat houses using natural gas will be from 52 percent to 71 percent higher than it was last year. The price, differentially, depends on your location in the country. Estimates from the American Council for an Energy Efficient Economy this year said the cost, adjusted for the higher transportation, natural gas, and electricity costs, will be an additional $2,105 to the average American household. We are in a situation where people will have to choose between adequately heating their homes and purchasing the bare necessities for survival. So this committee must investigate solutions that can help alleviate this problem.

Why is the United States increasing consumption and paying these tremendous amounts for natural gas? We have seen prices of natural gas soar over the past year, with wholesale prices more than doubling from less than $5 per million Btu last September to all-time record highs of around $11 today. Energy companies are taking in revenues at rates never seen before. While I stand by the American ideal of a free-market society, my constituents should not be held hostage to heating and rising gas prices that will crush their household's budget. So I am greatly concerned, because we just had this debate with our seniors over prescription drug prices. Just imagine the added burden for this sector of American society, in addition to a majority of Americans that struggle just to make ends meet.

The effects of Hurricane Katrina have also played a huge role in our offshore natural gas production in the Gulf of Mexico, as well as onshore natural gas processing facilities. Our energy problems preceded Hurricane Katrina with tightness resulting from surging demand over the past few years. What Katrina did was expose underlying problems in our energy markets and infrastructure that we must address to avoid spreading the pain that has been inflicted upon those in the gulf coast and the broader country. In particular, I reiterate that I am concerned about the impact of higher energy prices on those least able to absorb the cost.

While much of the focus has been on a single fuel such as today's topic of natural gas, the reality is that our problems are much

deeper and more interrelated. In the past we have been able to switch between energy resources to relieve tightness in a single market. What the United States faces now is tightness in all major energy markets, which has put the country in an energy straightjacket. As a result, we need to look at reducing the demand for all energy to help rebalance our market.

Like so many of my fellow Californians, I can speak firsthand on the energy crisis in my home State, which was caused by shortsighted planning. Katrina is a natural disaster of catastrophic proportions. Supply side shock, whether it is by market manipulation, price gouging, production disaster, or transportation difficulties, must not be allowed to cripple our country.

Unfortunately, the recently passed energy bill is environmentally costly, favors large businesses, and contains inadequate solutions to reduce foreign energy dependence. I ask that we revisit and support responsible legislation that will produce effective long-term solutions.

I am fully aware that our Nation must find alternative energy sources, but we must do so in a very responsible way and in a way that will not sacrifice our precious resources such as the Arctic National Wildlife Refuge. We do not need to weaken environmental responsibility regulations.

According to the Bureau of Land Management, the data clearly shows that they have issued far more drilling permits than the industry has been able to use. Yes, we are in a crisis, but a crisis does not mean that we should not act responsibly and reasonably with due care. As legislators, we should direct resources to the next generation of science with the knowledge that it will produce more energy more efficiently with less risk to the environment than the outdated and wasteful practices of the past.

Refocusing on the topic of the day, the bottom line is we need to facilitate the short and long-term solutions for effective natural gas production and consumption while keeping prices affordable.

Mr. Chairman, I look forward to the testimony, and I thank you for bringing this subject to us today.

I yield back.

[The prepared statement of Hon. Diane E. Watson follows:]

Opening Statement
Congresswoman Diane E. Watson
Subcommittee on Energy and Natural Resources- Ranking Member
Hearing: "Meeting America's Natural Gas Demand: Are we in a Crisis?"
September 14, 2005

Mr. Chairman, thank you for convening today's crucially important hearing. This Subcommittee will pay a vital role in examining critical issues regarding America's use of natural gas and its cost to consumers. In the upcoming months, America will be faced with critical choices in considering the amounts of energy it uses, how much it pays for it, and what the long term outlook is for energy consumption in our nation. We are here to examine the current supply and demand of natural gas and investigate what we can do to help America's consumers from paying such enormous costs for essential needs.

Energy is in very high demand in the United States. Our country alone consumes 25% of the world's total energy supply and 24% of the world's natural gas supply. Demand is not standing still, but growing. Our current natural gas consumption rate is steadily increasing and prices are at an all time high. It is estimated by the Energy Information Administration that this upcoming winter, the cost to heat homes using natural gas will be from 52% to

71% higher than last winter. The price differential depends on your location in the country. Estimates from the American Council for an Energy Efficient Economy project this year's energy cost, adjusted for the higher transportation, natural gas, and electricity costs, to be an additional $2105 to the average American household. We are in a situation where people will have to choose between adequately heating their homes and purchasing the bare necessities for survival. This committee must investigate solutions that can help alleviate this problem.

Why is the United States increasing consumption and paying these tremendous amounts for natural gas? We have seen prices of natural gas ~~sore~~ soar over the past year with wholesale prices more than doubling from less than $5 per million Btu last September to all time record highs of around $11 dollars today. Energy companies are taking in revenue at rates never seen before. While I stand by the American ideal of a free market society, my constituents should not be held hostage to heating gas prices that will crush their household budget. I am greatly concerned because we just had this debate with our Seniors over prescription drug prices. Just imagine the added burden for this sector of American society, in

addition to a majority of Americans that struggle just to make ends meet.

The effects of Hurricane Katrina have also played a huge role in our offshore natural gas production in the Gulf of Mexico as well as onshore natural gas processing facilities. Our energy problems preceded Hurricane Katrina, with tightness resulting from surging demand over the past few years. What Katrina did was expose underlying problems in our energy markets and infrastructure that we must address to avoid spreading the pain that has been afflicted upon those in the Gulf Coast upon the broader country. In particular, I reiterate that I am concerned about the impacts of higher energy prices on those least able to absorb the cost.

While much of the focus has been on a single fuel, such as today's topic of natural gas, the reality is that our problems are much deeper and more interrelated. In the past we have been able to switch between energy resources to relieve tightness in a single market. What the United States faces now is tightness in <u>all</u> major energy markets, which has put the country in an energy straightjacket. As a result we need to look at reducing demand for all energy to help rebalance markets.

Like so many of my fellow Californians, I can speak firsthand on the energy crisis in my home state, which was caused by shortsighted planning. Katrina is a natural disaster of catastrophic proportions. Supply-side shock whether it is by market manipulation, price gouging, production disaster, or transportation difficulties must not be allowed to cripple our country. Unfortunately the recently passed energy bill is environmentally costly, favors large businesses, and contains inadequate solutions to reduce foreign energy dependence. I ask that we revisit and support responsible legislation that will produce effective long-term solutions.

I am fully aware that our Nation must find alternative energy resources. But we must do so in a responsible way and in a way that will not sacrifice our precious resources such as the Arctic National Wildlife Refuge. We do not need to weaken environmental responsibility regulations. According to the Bureau of Land Management, the data clearly shows that they have issued far more drilling permits than the industry has been able to use. Yes, we are in a crisis. But a crisis does not mean we should not act reasonably and with due care. As legislators we should direct resources to the next generation of science with the knowledge that it will produce more

energy efficiently with less risk to the environment than the outdated and wasteful practices of the past.

Refocusing on the topic of the day, the bottom line is: We need to facilitate the short and long term solution for effective natural gas production and consumption while keeping prices affordable.

Mr. Chairman I look forward to the testimony of our witnesses. I yield back.

Mr. ISSA. Thank you very much, Ms. Watson. Is there any other Member that wants to make an opening statement? The Chair recognizes the gentleman from New York for his opening statement.

Mr. HIGGINS. Thank you very much, Mr. Chairman. I don't have a written statement, but I do want to offer some thoughts relative to perspective.

What you see happening here is indicative of not having an effective energy policy in this situation relative to the demands that our economy places on the supply of natural gas and oil, which puts us in a very, very difficult position, from a practical standpoint, and from an economic standpoint.

If you look at the history of this economy, any time natural gas prices and oil prices increase from 50 percent from the year before, the world economy and the national economy go into recession. They go into recession because what typically happens is the producers are in a very small concentration of countries, and they are taking all of the revenues, and all the money that would typically be spent in our economy for other things goes to those countries. Thus, people's ability to buy things and to sell things in the traditional economy is significantly compromised.

But what most concerns me, at least in the shorter term, is the place that I come from, Buffalo, NY. Buffalo, NY, like many northeastern cities, is economically depressed. Buffalo is statistically by population loss and job loss the weakest economy in the entire State of New York. We also experience very cold winters. When you look at statistics, the fact of the matter is that there is going to be a 50 to 75 percent increase in the cost of home heating using natural gas. That doesn't even speak to the other sources of home heating.

Additionally, this administration cuts from year in and year out the appropriations for the Home Energy Assistance Program, which directly impacts low income and senior citizens in the Buffalo, NY, area, and throughout the entire Northeast and those other regions of the country who experience inordinately cold temperatures during the winter months.

So what I would like to hear today is less of an analysis of the problem and more solution-based responses. I know that perhaps that sounds like an oversimplification, but I think, we have enough analysis in front of us. We see that the natural trends, the traditional trends, have had an adverse impact relative to natural gas supply not meeting the demand. We also see that a natural disaster has also adversely impacted the supply side of providing natural gas.

But I think what people, particularly in Buffalo, NY and throughout this Nation are looking for, are clear, decisive answers to these problems, both in the short and the long term. With this expert panel of witnesses, that is what I am hoping to hear from this testimony today.

Thank you very much.

Mr. ISSA. Thank you. I might also agree with the gentleman from New York that we focus on, well, if we went from a SUV to a more efficient vehicle how much fuel we could save, no question at all.

However, if you drive 15,000 miles a year on a 20-mile per gallon vehicle, you are only consuming $2,250 at $3 a gallon worth of fuel.

So very clearly, we have been looking at the one area that has a limit to how much we really consume and how easily we can reduce it. Having been a Clevelander, I would share with the gentleman I do understand it is much more difficult to find a way to keep your home warm by simple changes in choice.

With that, I would ask that all of the witnesses rise and also anyone who is going to advise the witnesses to take the oath.

Ms. WATSON OF CALIFORNIA. Mr. Chair, would you yield for a just a second?

Mr. ISSA. Certainly.

Ms. WATSON OF CALIFORNIA. I wanted to announce at the end of my statement that I wanted to submit the testimony from Neal Elliott from the American Council for an Energy-Efficient Economy for the record.

Mr. ISSA. Without objection. That and any other revisions or openings statements not entered here will be allowed into the record.

[Witnesses sworn.]

Mr. ISSA. Record that everyone here answered in the affirmative.

The committee appreciates the substantive written testimony that each witness has submitted for the record. I respectfully ask that you consider it all heard and seen by us and use your 5 minutes of initial statements in order to add or find additional items that you would like to have in the record. However, it's your 5 or so minutes, and we respect the fact that you know what you need to present to us.

Since I have already introduced the witnesses, I would like to start with Mr. Caruso for his opening statements or his testimony.

STATEMENT OF GUY CARUSO, ADMINISTRATOR, ENERGY INFORMATION ADMINISTRATION, DEPARTMENT OF ENERGY

Mr. CARUSO. Thank you, Mr. Chairman, and members of the subcommittee. I appreciate the opportunity to present the Energy Information Administration's views on the recent developments in energy markets, with a focus on natural gas and the impact of Hurricane Katrina.

EIA is a statistical and analytical agency within the U.S. Department of Energy. As such we do not promote, formulate or take positions on policy issues. But even before this tragic natural disaster, crude oil, gasoline prices and natural gas were already at very high levels. On August 29th, the average gasoline price was $2.61. Diesel prices were $2.59. Crude prices were about 60 percent above where they were over the same period due to strong growth on world oil demand, in which we have used up much of the world's surplus productive capacity. Refineries, not only in the United States but in Europe and in Asia, were running at very high levels of capacity, and the production of distillate fuels and the higher than average refinery outages this summer led to a tight gasoline supply.

So the picture before Katrina was a tight oil market and an even tighter natural gas market with prices above $10 per 1,000 cubic feet. Katrina has had a significant impact, particularly on gasoline, diesel fuel and natural gas prices, with gasoline prices reaching $3.07 for the national average on Labor Day. They have come down

by about $0.11 in our survey just this Monday, but nevertheless they are still about $1 a gallon above where they were a year ago. Natural gas spot prices at the Henry Hub Center have risen sharply, reaching over $13 per 1,000 cubic feet on August 31st. Prices have declined somewhat since then and are staying at about $11 per 1,000 cubic feet.

In the near-term, the outlook for the oil and natural gas markets will depend on a number of factors, most importantly the timing and pace of the recovery to the infrastructure and operations in the gulf. Production of both oil and natural gas in the Gulf of Mexico has recovered somewhat since the initial shut-in in amounts of oil and gas. My colleagues and Secretary Watson, will go into more detail about that.

With crude oil from the Strategic Petroleum Reserve available to refiners and the full operation of crude and product pipelines restored, the rate at which refinery capacity affected by Katrina and which it can be brought back online is certainly a major factor which will affect petroleum markets this winter.

Fortunately for natural gas markets, we are in the shoulder season between the period of high demand for electricity, generation for air conditioning and the high demand for heating. The level of natural gas in storage remains above the 5-year average, but the disruption in operations due to Katrina is likely to reduce the amount put into storage during the remainder of the injection season.

Our understanding with respect to natural gas production and processing is evolving rapidly, but we are concerned that about two or three of the remaining natural gas damaged processing facilities may take several months—and this certainly can affect our ability to put gas into storage for the winter. Even if the energy system is nearly or fully restored by December, the high prices for petroleum products and natural gas are likely to remain.

In our most recent short-term energy outlook, which was released on September 7th, we used three recovery cases. I will focus this afternoon on our medium recovery case. In all of the cases normal operations are assumed to be achieved or nearly achieved by December. Natural gas markets are likely to stay tight over the next couple of months as the heating season begins.

Based on present trends, we expect natural gas prices this winter to be significantly higher than last winter, that we expect residential natural gas prices in the medium recovery case to be about 47 percent higher than the heating season of 2004–2005. And as has been mentioned, the north central region in the Midwest is likely to see some of the highest price increases this winter, nearly 60 percent. On a per household expenditure basis for natural gas, we expect that the north central region will see price expenditures increase by about 70 percent compared with last year.

So clearly this winter the economic pain of higher prices for heating by either natural gas or heating oil is going to be felt across this country, but probably the Midwest region will probably suffer the largest increases.

With that, Mr. Chairman, I would be happy to answer questions when you deem appropriate. Thank you.

[The prepared statement of Mr. Caruso follows:]

STATEMENT OF

GUY F. CARUSO

ADMINISTRATOR

ENERGY INFORMATION ADMINISTRATION

U.S. DEPARTMENT OF ENERGY

before the

COMMITTEE ON GOVERNMENT REFORM

SUBCOMMITTEE ON ENERGY AND RESOURCES

U. S. HOUSE OF REPRESENTATIVES

September 14, 2005

Mr. Chairman and Members of the Committee:

I appreciate the opportunity to appear before you today to discuss the outlook for the U.S. natural gas market.

The Energy Information Administration (EIA) is the statistical and analytical agency within the Department of Energy. We are charged with providing objective, timely, and relevant data, analysis, and projections for the use of the Department of Energy, other Government agencies, the U.S. Congress, and the public. We do not take positions on policy issues, but we produce data and analysis reports that are meant to assist policy makers make energy policy. Because we have an element of statutory independence with respect to the analyses that we publish, our views should not be construed as representing those of the Department of Energy or the Administration.

The devastation of Hurricane Katrina affected offshore natural gas production in the Gulf of Mexico as well as onshore natural gas processing facilities. Natural gas production in the Federal Gulf of Mexico, which normally accounts for 19 percent of total U.S. natural gas production, suffered a peak shut-in of 8.8 billion cubic feet (bcf) on August 30, 2005. As of September 12, the shut-in volume was down to about 3.8 bcf. Natural gas spot market prices at the Henry Hub rose sharply in the days following Katrina, reaching $12.72 per thousand cubic feet (mcf) on August 30, compared to $10.16 per mcf on August 26. The spot price peaked at $13.08 per mcf on August 31, but dropped to $11.70 per mcf the following day. At the close of trading on Friday, September 9, the Henry Hub spot price was $11.36 per mcf, about $1.19 per mcf higher than the price on Friday, August 26, before the storm.

Although natural gas transmission pipelines in the path of Hurricane Katrina survived with minimal damage, the hurricane damaged natural gas processing facilities on the Gulf Coast with a combined capacity of more than 5 bcf per day. The loss of processing capacity could delay a complete recovery of some natural gas production. Our understanding of the situation is rapidly evolving, and I will discuss this in my oral remarks.

Even prior to Hurricane Katrina, natural gas prices were very high by historical standards, with September futures prices at $10.85 per million Btu ($11.18 per mcf), more than double the levels of 1 year before. In August, the Henry Hub natural gas spot price averaged over $9 per mcf, as hot weather in the East and Southwest increased natural gas-fired electricity generation for cooling demand and crude oil prices increased.

Both demand and supply factors will determine the future path of natural gas prices. In this testimony I will consider both short-term projections, as discussed in the monthly *Short-Term Energy Outlook* that was released on September 7, and a long-term perspective based on a case from the *Annual Energy Outlook 2005*, published in February 2005.

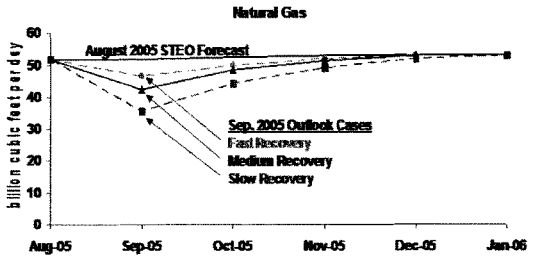
Short-Term Projections

Considerable uncertainty remains regarding the extent of damage and the schedule for recovery. For the September *Outlook*, EIA examined three plausible recovery scenarios for oil and natural gas markets: Fast Recovery, which assumes a very favorable set of circumstances for getting supplies back to normal; Slow Recovery, which assumes that significant outages in oil and natural gas production and delivery from the Gulf area continue at least into November; and Medium Recovery, which assumes a path between Slow and Fast Recovery. In all cases, return to normal oil and gas production and distribution is achieved or nearly achieved by December.

Production, Storage and Imports. Domestic natural gas production in 2005 is expected to drop by 1.5 percent in the Medium Recovery case due mainly to the major disruptions to infrastructure in the Gulf of Mexico from both Katrina and Ivan. Preliminary EIA data through June show an apparent decrease in output of 1.5 percent for the first half of 2005 compared to the same period in 2004, as recovery from the disruption caused by Hurricane Ivan in 2004 was not yet complete. In 2006 natural gas production is expected to rebound, on the strength of record drilling activity. By the middle of next year, more than 1,500 drilling rigs are expected to be exploring for natural gas in the United States, due to the high prices. This continues a steady rise in the rig

count, which began in April 2002. As a result, U.S. natural gas production is expected to increase by 3.5 percent in 2006, reaching 19.3 trillion cubic feet (tcf).

Natural Gas Production Cases After Katrina



Source: Short-Term Energy Outlook, September 2005

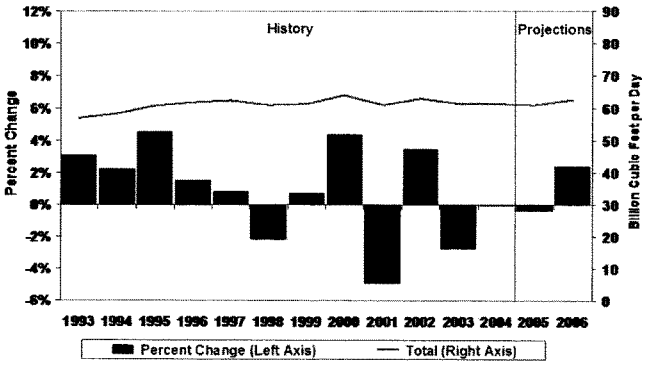
Working gas in storage was estimated at 2,633 billion cubic feet (bcf) as of September 2, which is 95 bcf lower than 1 year ago but still 95 bcf above the 5-year average. Katrina is likely to reduce the peak storage achievable over the remainder of the injection season from what was expected previously. Storage at the end of October is expected to be about 270 bcf below the year-ago level and about 50 bcf below the 5-year average.

Imports of liquefied natural gas (LNG) into the United States appear to have increased slightly in the first half of 2005, compared to the same period in 2004. Currently, total LNG imports for 2005 are expected to be approximately 710 bcf compared to 650 bcf in 2004. In 2006, LNG imports are expected to increase more significantly by 370 bcf.

Short-Term Natural Gas Demand. EIA expects demand to decline slightly in 2005 in the Medium Recovery case, compared to 2004, as a result of reduced industrial demand. Industrial demand is projected to be lower in the Medium Recovery case in all four quarters of 2005, but biggest difference is in the fourth quarter due to the hurricane.

In 2006, natural gas demand is expected to be 2 percent higher than in 2005 in the Medium Recovery case, as weather returns to normal, industrial production continues to grow, and natural gas prices ease. Assuming normal weather, natural gas-weighted heating degree-days would be 3 percent cooler than this year, increasing residential demand. Total industrial production is expected to be up, boosting industrial natural gas demand by almost 4 percent next year.

Total U.S. Natural Gas Demand Growth Patterns



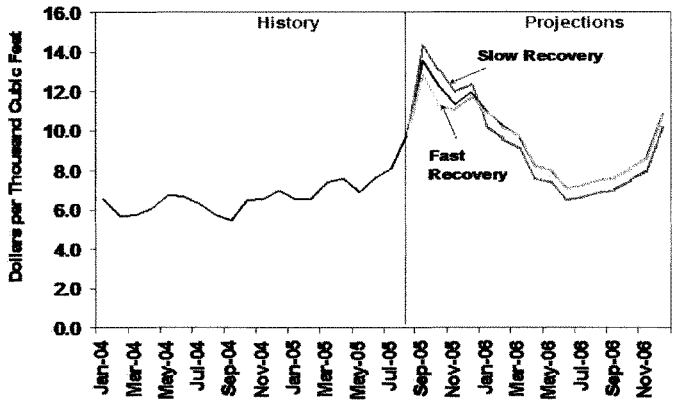
Source: Short-Term Energy Outlook, September 2005

Prices. In the Medium Recovery case, the Henry Hub natural gas spot price is expected to average $8.82 per mcf in 2005 and $8.42 per mcf in 2006. The spot price for the fourth quarter of 2005 ranges from $11 to $13 per mcf, depending on the speed of the recovery, compared to $6.47 per mcf in the fourth quarter of 2004. In 2005, the average annual price is expected to range from $8.75 to $9.14 per mcf. Spot prices are expected to ease going into 2006 as the effects of Katrina fade. However, prices at the Henry Hub are likely to remain above $10 per mcf until peak winter demand is over.

Regionally, natural gas spot prices in 2005 are expected to range between 37 and 50 percent above the 2004 average levels in the Medium Recovery case. Delivered prices to end-use customers in most regions are expected to exhibit double-digit percent

increases for the second year in a row. During the heating season, we expect residential natural gas prices in the Medium Recovery case to be about 47 percent higher than in the heating season of 2004-2005, which had a 14-percent increase over the previous heating season.

U.S. Natural Gas Spot Prices



Source: Short-Term Energy Outlook, September 2005

Household Natural Gas Heating Expenditures. In the Medium Recovery case, residential per-household expenditures for natural gas this winter are expected to be 71 percent higher than last year in the Midwest, ranging from 69 to 77 percent higher across the three cases. Increases are expected to be particularly strong in the East North Central region (Ohio, Indiana, Illinois, Michigan, and Wisconsin) because of expected higher heating-related demand in comparison to the relatively mild conditions seen last year. These estimates reflect normal weather conditions, and colder or warmer weather could have a significant impact.

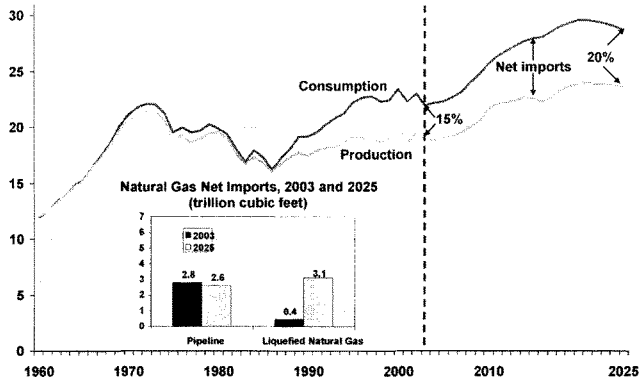
Longer-Term Projections

EIA's current long-term energy scenarios the *Annual Energy Outlook 2005* were developed in the second half of 2004. Because of the uncertainty of crude oil prices at that time, EIA analyzed a wider range of potential crude oil price cases than usual. The projections discussed in this testimony are based upon the case with the highest assumed world oil prices, called the "High B" case.

World oil prices, measured as the imported refiners' acquisition cost (IRAC), which is currently more than $6 per barrel below the price of West Texas Intermediate (WTI) that is widely quoted in press reports, averaged about $35.07 per barrel in 2004 (2003 dollars). In the highest price case in the *Annual Energy Outlook 2005*, projected oil prices in IRAC terms are assumed to decline from the current high level to $37.00 per barrel in 2010 and subsequently rise to $48.00 per barrel in 2025, all in constant 2003 dollars. World oil demand is expected to increase from 80 million barrels per day in 2003 to 111 million barrels per day in 2025.

By 2025, total U.S. natural gas consumption is expected to increase to almost 29 trillion cubic feet (tcf) or 22 percent of total U.S. energy consumption. Domestic natural gas production is expected to increase more slowly than consumption over the forecast, rising from 19.0 tcf in 2003 to 23.5 tcf in 2025. The difference between consumption and production is made up by increasing imports, particularly LNG, with a 2.7-tcf net increase expected over 2003 levels. By 2025, we expect expansion at three of the five existing LNG import terminals and construction of several new terminals.

Natural Gas Production, Consumption, and Imports, 1970-2025 (trillion cubic feet)

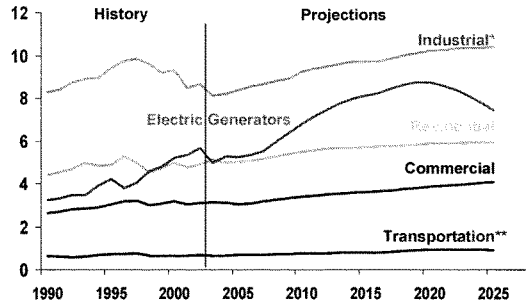


Source: *Annual Energy Outlook 2005-High B Oil Price Case*

Consumption. U.S. natural gas consumption is expected to increase at an average annual rate of 1.1 percent between 2003 and 2025. Natural gas consumption by electric generators is expected to increase by about 45 percent over the forecast, from 5.1 tcf in 2003 to 7.4 tcf in 2025, which is an average annual growth rate of 1.7 percent. Demand by electricity generators is expected to account for 26 percent of total natural gas consumption in 2025.

Most new electricity generation capacity is expected to be fueled by natural gas, which is expected to be favored over coal due to lower capital costs, higher fuel efficiencies, shorter construction lead times, and lower emissions, which outweigh the higher fuel costs. After 2020, however, the steady increases in natural gas prices cause natural gas to begin losing market share to coal.

U.S. Natural Gas Consumption by Sector, 1990-2025
(trillion cubic feet)



* Includes lease and plant fuel
** Includes pipeline fuel
Source: *Annual Energy Outlook 2005-High B Oil Price Case*

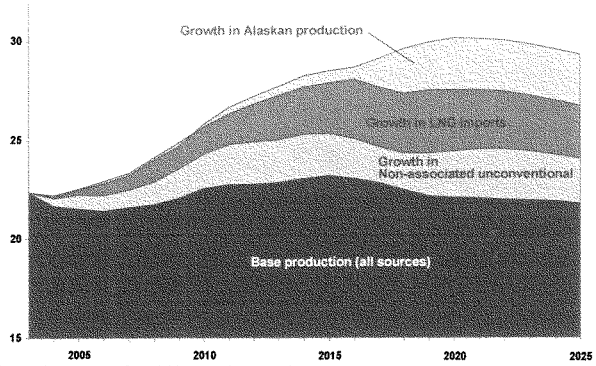
The industrial sector is the largest natural gas-consuming sector, with significant amounts used in the bulk chemical and refining sectors. Industrial consumption, excluding lease and plant fuel, is expected to increase by 2.0 tcf over the forecast period, driven primarily by macroeconomic growth.

Combined consumption in the residential and commercial sectors is projected to increase by 1.7 tcf from 2003 to 2025, driven by increasing population and economic growth. Natural gas remains the overwhelming choice for home heating throughout the forecast period.

Production. Increasing natural gas production is supported by rising wellhead natural gas prices, relatively abundant resources, and improvements in production technologies, particularly for unconventional natural gas. The national average wellhead price is projected to reach $5.32 per mcf in 2003 dollars by 2025. Increased U.S. natural gas production through 2025 comes primarily from unconventional sources and from Alaska. Unconventional natural gas production increases by 2.3 tcf over the forecast period, largely because of expanded tight sands gas production in the Rocky Mountain region. Annual production from unconventional sources is expected to account for 38 percent of production in 2025, more than any other source, compared to 35 percent today. Economic conditions allow an Alaskan pipeline to begin moving natural gas to the lower-48 States in 2017. Alaska accounts for most of the growth in domestic natural gas

production, growing by 2.6 tcf over the forecast period. Lower-48 onshore non-associated conventional natural gas production declines by about 650 bcf through 2025, as resource depletion causes exploration and development costs to increase.

Major Sources of Incremental Natural Gas Supply, 2003-2025 (trillion cubic feet)



Source: *Annual Energy Outlook 2005-High B Oil Price Case*

Depletion. A key question facing producers and policy makers today is whether natural gas resources in the mature onshore lower-48 States have been exploited to a point at which more rapid depletion rates eliminate the possibility of increasing, or even maintaining, current production levels at reasonable cost. Depletion is a natural phenomenon that accompanies the development of all nonrenewable resources. Depletion is the progressive reduction of the overall volume of a resource over time as the resource is produced. In the oil and natural gas industry, depletion may also refer more narrowly to the decline in production associated with a particular well, reservoir, or field. As existing wells, reservoirs, and fields are depleted, new resources must be developed to replace depleted reservoirs.

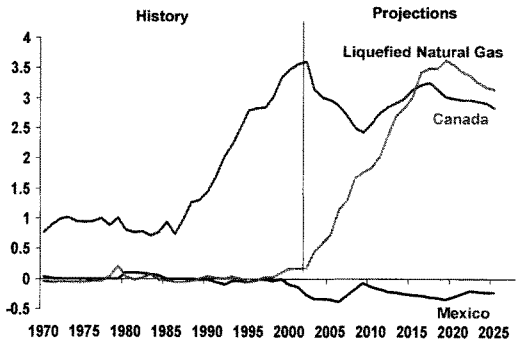
Historically, depletion has been counterbalanced by improvements in technology that have allowed natural gas resources to be discovered more efficiently, have extended the economic life of existing fields, and have allowed natural gas to be produced less expensively, making available resources that previously were too costly to develop. In

these natural gas projections, technological progress for both conventional and unconventional recovery is expected to continue to enhance exploration, reduce costs, and improve production technology.

The depletion of conventional and unconventional natural gas resources is expected to continue over the projection period as the demand for natural gas increases, continuing the trend that began in the mid-1990s. Nevertheless, with sustained wellhead prices generally over $4 per mcf (in 2003 dollars) and continued technological improvements, lower-48 unconventional natural gas production is expected to increase by more than 34 percent over current levels.

Imports. Net imports of natural gas, primarily from LNG and Canada, are projected to increase from 3.2 tcf in 2003 to 5.7 tcf in 2025. Imports contributed 14 percent to total natural gas supply in 2003, compared to an expected 19 percent in 2025.

Net U.S. Imports of Natural Gas, 1970-2025
(trillion cubic feet)



Source: *Annual Energy Outlook 2005-High B Oil Price Case*

LNG is expected to supply all of the increase in U.S. imports. We expect that existing LNG terminals will be expanded and that new facilities will also be constructed. LNG imports are expected to reach 3.6 tcf in 2019 and then decline to 3.1 tcf in 2025, as rising natural gas prices cause a decline in demand. In 2025, LNG is expected to equal 11 percent of total U.S. supply. Net Canadian imports are expected to provide 10 percent of total U.S. supply in 2025, down from 14 percent in 2003.

Prices. In the *Annual Energy Outlook 2005* High B case, average natural gas wellhead prices are projected to decline from current high levels to $3.74 per mcf in 2010, in 2003 dollars, due to expanded imports and production of unconventional and offshore natural gas. After 2010, wellhead prices are projected to increase gradually, reaching $5.32 per mcf in 2025 in 2003 dollars. Ultimately, the growth in unconventional sources, Alaskan production, and LNG imports are not expected to increase enough to offset the impacts of resource depletion and increased demand.

End-use natural gas prices are expected to reflect the trend of increasing wellhead prices. A portion of the increase in wellhead prices is expected to be offset by a projected decline in average transmission and distribution margins as a larger proportion of the natural gas delivery infrastructure becomes fully depreciated. Residential consumers, who generally pay the highest costs for distribution infrastructure, will see the largest offset.

This concludes my testimony, Mr. Chairman. I would be glad to respond to any questions you and the other Committee members may have.

Mr. ISSA. Thank you. We will hold those for the end and next go to Ms. Watson for—the Honorable Rebecca Watson, not my ranking member, for your statement.

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

Ms. WATSON. Mr. Chairman, Representative Watson, I appreciate the opportunity to discuss the role of the Department of Interior in meeting America's demand for natural gas. I would first like to acknowledge our Gulf State communities. It's difficult to comprehend the horrific impacts of Hurricane Katrina on so many people in the Gulf of Mexico region.

The Minerals Management Service is part of the New Orleans family. Last week, when I testified to the Senate Energy Committee, 67 MMS employees were unaccounted for. Today we have located all but two individuals, and every effort is being made to find them. All of us at Interior extend our condolences to every individual impacted by Hurricane Katrina.

Hurricane Katrina has dealt the central Gulf of Mexico region, its people and the oil and gas industry, a heavy blow, but we will recover. MMS, from a satellite office in Houston is working with industry to assess damage, facilitate repairs, expedite critical business processes and resume full production of oil and gas on the Outer Continental Shelf as rapidly as possible to meet the Nation's energy needs.

The oil and gas produced from the Gulf of Mexico's Outer Continental Shelf plays a major role in supplying our daily energy needs. It accounts for about 29 percent of domestic oil production and 21 percent of natural gas production. The future of natural gas production in the gulf lies in the technologically challenging frontier of deep shelf and deep water gas.

I want to have a slide put up on the screen. This map shows the path of Hurricane Katrina. It demonstrates that it moved through a core area of offshore operations.

Accordingly, on August 30th, 95 percent of oil production and 88 percent of gas production was shut in. Today, as of 2 p.m., 56 percent of oil production remains shut in and 35 percent of natural gas production is shut in. Gulf of Mexico production facilities accounting for 90 percent of gulf production escaped significant damage.

However, it is important to note, as Mr. Caruso did, that critical onshore support facilities and infrastructure sustained serious damage. The availability of these facilities will be a crucial factor in the recovery of the gulf's production.

As Mr. Caruso noted, before Hurricane Katrina we were already in a tight supply. Demand for natural gas is expected to increase dramatically both here at home and globally and well into the future.

The Federal Government plays a significant role in helping us meet this growing demand; 35 percent of domestic natural gas comes from Federal resources and 50 percent of undiscovered natural gas is expected to underlie onshore lands and offshore Continental Shelf resources.

Accordingly, developing natural gas on Federal lands is a high priority of both the President's natural energy policy in the Energy Policy Act of 2005. Turning to onshore resources, five Rocky Mountain basins hold the second largest source of natural gas after the Gulf of Mexico. Those onshore basins contain about 139 Tcf of natural gas, enough gas to heat 55 million homes for 30 years.

More than half of those lands are on public lands, managed by the Federal Government. With high natural gas prices, development interest is high. For the past several years, the Interior Department has been implementing a balanced program to aggressively make available Federal natural gas resources, yet require industry to develop those resources in an environmentally responsible manner consistent with the laws that Congress has put in place.

This next slide illustrates the progress that has been made in the last 4 years. We have issued more than 17,000 permits, which is a 74 percent increase from the last 4 years of the previous administration. Likewise, this issuance of permits has resulted in an increase in natural gas production of 17.4 percent during this same time period.

The next slide that I would ask to be put on this screen demonstrates one of the challenges. During this same time, however, we had pre-lease protests—these are administrative protests that were filed at the leasing stage, and these rose an astonishing 664 percent. Appeals of leases were up 253 percent.

These lease protests slow energy development by delaying lease or APD issuances. Leases are held up while these protests are resolved and the BLM field staff is working on addressing these protests rather than issuing APDs.

High gas prices and high demand create high workloads. As prices rise, industry's perspective on what they want to develop changes. They may come in and say, "Well, this is what we wanted to develop at this time, but these prices have made us become a little bit more ambitious." That requires us to go back and reanalyze the environmental impacts.

We are not as nimble as industry is in responding to high prices. We can't pour resources and people as quickly to address these high prices. So we are not as responsive, I think, as industry would like us to be in issuing APDs.

The good news is the Energy Policy Act is giving us resources and new direction and new timelines to address this high demand. We are hard at work at the Department of Interior, at the Department of Agriculture, at the Department of Energy, and other agencies, regulatory agencies, to meet the requirements in this act and utilize the resources to increase APD issuance. We look forward to working with Congress.

I will be happy to answer any questions.

[The prepared statement of Ms. Watson follows:]

Statement of Rebecca W. Watson,
Assistant Secretary for Land and Minerals Management
United States Department of the Interior
Before the House Government Reform Committee
Subcommittee on Energy and Resources
United States House of Representatives

Oversight Hearing

Meeting America's Natural Gas Demand: Are We in a Crisis?

September 14, 2005

Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to appear here today to discuss the role of the Department of the Interior in meeting America's demand for natural gas. The Interior Department manages the resources that provide a third of our nation's energy from coal, oil natural gas to geothermal steam and wind. Within the Department, three agencies play a significant role in helping America meet its natural gas needs: the Bureau of Land Management (BLM), the Minerals Management Service (MMS), and the U.S. Geological Survey (USGS). My testimony today will address the role of each of these agencies, as well as the natural gas provisions in the recently-passed Energy Policy Act of 2005, and the impacts of Hurricane Katrina.

Bureau of Land Management

The BLM manages over 261 million acres of public land, primarily in the western United States, and over 700 million acres of Federally-owned subsurface mineral estate. Its mandate from the Congress through the Federal Land Policy and Management Act of 1976 (FLPMA) is to manage the public lands for multiple uses and to sustain the health, diversity and productivity of these lands for the use and enjoyment of present and future generations.

The range of activities on the public lands managed by the BLM is as diverse as the land itself. Commercial uses, such as oil and gas production, mineral development, livestock grazing, and timber harvest coexist with various other uses, such as recreation, and cultural and historic preservation. Responsible stewardship of the public lands means the BLM must balance multiple and potentially conflicting uses, including increased demands for recreation and open space and energy production.

Demand for energy in this country has outstripped domestic energy production. Although domestic energy production has nearly doubled in the past 50 years, population growth, increased economic activity and more intensive use of energy in the residential transportation sectors, have resulted in significantly higher demands for energy. Today we import close to 60% of our oil. The Energy Information Agency projects that number

to grow to 70% in 20 years. Natural gas demand will grow by 40% in that same time period.

We must find ways to reduce our energy consumption and increase our energy efficiency and domestic energy production. Further, our energy production needs to be secure, affordable, and environmentally-sound.

Overview of the Onshore Oil and Gas Program

The BLM manages mineral leasing on 700 million acres of land – BLM lands, USFS lands, where federal minerals lie under private surface. The Mineral Leasing Act of 1920, as amended, and the Mineral Leasing Act for Acquired Lands of 1947, as amended, vest responsibility with the BLM for managing oil and gas leasing on approximately 700 million acres of BLM, national forest, and other Federal lands, as well as private lands where the mineral rights have been retained by the Federal Government. The BLM works to ensure that development of mineral resources is in the best interest of the Nation.

The BLM's Oil and Gas Management program is one of the major mineral leasing programs in the Federal government. The BLM administers over 45,000 oil and gas leases, of which 21,000 are currently producing and less than a tenth of 1% of the federal mineral estate is disturbed by oil and gas production operations. Domestic production from the 74,000 Federal and Indian onshore oil and gas wells accounts for eleven percent of the Nation's natural gas and five percent of the Nation's oil, with sales values exceeding $15.4 billion in Fiscal Year 2004. In 2003, we released an Energy Policy and Conservation Act (EPCA) report. This study by BLM, USGS, DOE, USFS done at request of Congress and signed by President Clinton identified 5 EPCA basins in MT, WY, UT, CO and NM as containing the largest on-shore resource of natural gas in the country and the second largest resource after the Outer Continental Shelf. These onshore basins contain an estimated 139 tcf - enough to the heat 55 million homes for almost 30 years. More than half of these lands are under federal management.

Domestic production of natural gas has been increasing over the last three years. In Fiscal Year 2002, 2.1 trillion cubic feet (Tcf) of natural gas were produced from Federal (non-Indian) lands. In Fiscal Years 2003 and 2004, 2.2 Tcf and 3.1 Tcf, respectively, were produced. In addition to the Federal onshore leases, the BLM supervises the operational activities of 3,700 producing Indian oil and gas leases. In FY 2004 308 million cubic feet (MMcf) of natural gas was produced from American Indian lands.

Resource Management Plan Amendments

Before any leasing, APD issuance or actual oil and gas production can occur on public land, the BLM must have a land use plan that allows for that use in that area. All 261 million acres of BLM lands are covered by one of 162 Resource Management Plans. Beginning in 2001, with the direction and support of Congress, the BLM initiated the largest effort in its history to revise or amend all 162 of its Resource Management Plans.

To date, the BLM has completed 33 amendments or revisions, with another 60 currently in various stages of completion. Twenty-five (25) of these plans have a significant oil and gas component.

The BLM uses a community-based and highly collaborative approach to planning that complies with the FLPMA, the National Environmental Policy Act (NEPA), and the President's requirements for cooperating agency status for state and local governments. This includes collaboration with specific working groups that focus on resource management plan development. The collaborative process is one in which interested parties, often with widely varied interests, work together to seek solutions with broad support for managing public lands, including issues related to the development of natural gas resources on BLM-managed lands. Resource Advisory Councils (RACs) or their functional equivalents are integral to public involvement and collaboration. The BLM recently revised its planning regulations to require the involvement of state, local and tribal governments as cooperating agencies in the development of its land use plans. Normally, BLM serves as the lead agency, though in some cases, other governmental entities serve with the BLM as joint leads.

Processing of Applications for Permits to Drill (APDS)

The BLM has experienced a greatly increased demand for natural gas drilling permits, and expects a continued high demand, especially in the EPCA basins: Powder River Basin in Wyoming and Montana, the San Juan Basin in New Mexico and Colorado, and the Uinta/Piceance Basins in Colorado and Utah. In addition, recent discoveries in the Greater Green River Basin in southwestern Wyoming and northwestern Colorado will result in additional demand for drilling permits in these areas. The processing of Applications for Permits to Drill (APDs) and offering parcels of Federal land for oil and gas leasing continues to be a major priority for the BLM. Increased funding provided by Congress and management improvements have enabled the BLM to make significant progress in responding to demand. BLM has provided for Plans of Development (PODs) groups of APDs and analysis of multiple APDs in an area for compliance with NEPA and cultural resource protection acts. A July 21, 2005 General Accountability Office report on oil and gas development found these strategies to be a good thing, stating that the bundling of permit applications "can encourage companies to plan their drilling operations more carefully and help BLM better assess the cumulative environmental impacts of drilling activities." In FY 2004, the BLM processed 7,351 APDs, approving 6,452 (on both Federal and Indian lands). As of September 3, 2005, the BLM had processed approximately 6,928 APDs (about 400 ahead of FY-2004's pace), approved 6,257 APDs (about 600 ahead of FY-2004's pace. By the end of Fiscal Year 2006, the BLM plans to substantially reduce the inventory of APDs pending for more than 60 days to 1,800, a reduction of 20 percent from 2004.

Inspection and Enforcement Functions

In addition to processing APDs, the BLM also inspects oil and gas operations. This function is critical to verifying the proper payment of royalties and ensuring necessary

environmental protection. In 2004, BLM inspectors performed nearly 19,000 inspections to ensure compliance with permit stipulations, thereby protecting the environment and human health and safety, and verifying the proper accounting of production from Federal and Indian lands. The BLM finds that most oil and gas operators diligently comply with lease stipulations, conditions or approvals, and operate effective, environmentally-sound exploration and development facilities.

I'd like to say a few words about the GAOs Inspection and Enforcement report because this issue also is addressed in the energy bill.

The July 21 GAO report on BLM's permitting activities concluded BLM is behind in I and E inspections due to heavy APD workloads. Our I and E staff continues to grow, with the budget for enforcement up $4.8 million in the last 3 years. We also allocated an additional $1 million this year to help with monitoring. Field managers are working to prioritize their workforce to meet their environmental inspection and enforcement obligations.

But we still have a hard time finding qualified people and I suspect that's something we share. Until recently, the job market for energy development was not attractive and people chose other careers. Now we are struggling to find petroleum engineers and other technically skilled people to fill vacancies.

The Energy Bill recognizes this and calls on the National Academy of Sciences to study the availability of skilled workers. We are focusing on the GAO report and its identification of the need for I&E.

Looking to the Future: The Alaska Natural Gas Pipeline

In Fiscal Year 2006, the BLM will continue leasing, exploration and development activities in the National Petroleum Reserve-Alaska (NPR-A), an area covering more than 23 million acres in the northwest corner of the state. Development of these oil and gas resources is an important component of the President's National Energy Policy. The first significant commercial production from the NPR-A is expected as early as 2008.

The BLM will also participate in the inter-agency activities relating to the siting of an Alaska Natural Gas Pipeline. On October 13, 2004, the President signed into law the Alaska Natural Gas Pipeline Act, (ANGPA), legislation that greatly enhances the prospects for approval of the Alaska Natural Gas Pipeline, which will provide enhanced access to the natural gas supplies on the North Slope of Alaska.

There are currently two Federal rights-of-way granted for an Alaskan gas pipeline: 1) the Alaska Natural Gas Transportation System (ANGTS) project, sponsored by Trans-Canada and issued in 1980; and 2) the Trans-Alaska Gas System (TAGS) project, sponsored by Yukon Pacific Corporation and issued in 1988. Other proposed projects include one sponsored by the North Slope Producers (ConocoPhillips, BP, and

ExxonMobil) and another proposed by the Alaska Gasline Port Authority referred to as the "All Alaska" project.

In order to meet the intent and provisions of the Alaska Natural Gas Pipeline Act, the Federal agencies with jurisdiction have been meeting regularly and are developing an interagency Memorandum of Understanding to define regulatory alignment.

BLM and the Energy Policy Act of 2005

The Energy Policy Act of 2005, is a comprehensive piece of energy legislation addressing: conservation; energy supply from oil, gas, coal and renewable sources (wind, biomass, geothermal and solar); distribution of energy; and research into future forms of energy. The BLM has a role to play in each of these areas. Most immediately, however, the Energy Policy Act of 2005 contains several provisions through which the BLM can work to improve the APD permit approval process, expedite oil and gas leasing on public lands, and ensure natural gas production on public lands in an environmentally-responsible manner. The Energy Policy Act of 2005 will allow the BLM to continue streamlining efforts in leasing and permitting. The BLM will work with other regulating agencies to develop a one-stop permitting process for oil and gas activities. The objective of grouping the appropriate agency personnel is to create a more efficient and effective process through which to issue permits for oil and gas activities to interested parties while ensuring that the Nation's energy resources are developed in an environmentally-responsible manner. As our Nation's energy needs continue to increase, the BLM is positioned to do its part in helping to meet that need.

Minerals Management Service

No discussion of our efforts to meet America's natural gas demand would be complete without examining the role of the Minerals Management Service and its management of natural gas resources on the Outer Continental Shelf (OCS). The OCS is a major supplier of oil and natural gas for the domestic market, contributing more natural gas for U.S. consumption than any state except Texas. As steward of the mineral resources on the 1.76 billion acres of the Nation's OCS, MMS has, since 1982, managed OCS production of more than 109 tcf of natural gas for U.S. consumption.

Today, MMS administers approximately 8,200 leases and oversees approximately 4,000 oil and gas production facilities on the OCS, accounting for 21 percent of our domestic natural gas production. The production of natural gas from the OCS exceeds 10 billion cubic feet of gas per day. Within the next 5 years, offshore production will likely account for more than 23 percent of U.S. natural gas production. The vast majority of new gas production is expected to come from deep-water and shallow water deep-gas discoveries – gas found at depths 15,000 to 20,000 and as much as 35,000 feet below the surface. In Fiscal Year 2004, $3.3 billion in royalties were paid from OCS natural gas production.

The Role of the National Energy Policy (NEP)

The President's NEP includes directives to diversify and increase energy supplies, encourage conservation, and ensure adequate energy distribution. One of the NEP challenges is to increase energy supplies while protecting the environment. The MMS has implemented a number of NEP directives to increase domestic energy supplies and enhance national energy security by ensuring continued access to Federal lands for domestic energy development, and by expediting permits and other federal actions necessary for energy-related project approvals.

For example, we are helping to ensure that the OCS remains a solid contributor to the Nation's energy and economic security by holding OCS lease sales in available non-morotoria areas on schedule. Since May 2001, DOI has held 17 OCS oil and natural gas lease sales on schedule while undertaking a comprehensive consultation process with other Federal agencies, State and local governments, and the public. These sales resulted in leasing of almost 24 million acres of OCS lands to industry for oil and gas exploration and development, and generated about $3.2 billion dollars in bonus bid revenue (not counting future royalties and rentals) for the U.S. Treasury. Production from leases issued as a result of these sales will contribute substantially to future domestic oil and gas production that will provide domestic energy to fund our economy and meet the everyday energy needs of our citizens.

The NEP also recommended that we consider economic incentives for environmentally sound offshore oil and gas development where warranted by specific circumstances. The MMS has established a suite of economic incentives to promote new discoveries of oil and gas resources for the Nation and stimulate domestic oil and natural gas production, particularly during these times of tight natural gas supply. For 2001-2005 OCS lease sales, we continued the royalty incentive program—first established by the Deep Water Royalty Relief Act of 1995—to promote interest in deep water leases, and expanded the incentive program to promote development of new natural gas supplies from deep horizons in the Gulf's shallow waters. A new regulation in January 2004 extended the deep gas incentive to leases issued before the incentives were first provided in 2001, in order to promote additional deep drilling for natural gas on the shelf. This was a first – providing incentives on already existing leases - and was done to stimulate additional natural gas in an area where natural gas distribution infrastructure already existed and could deliver any new gas to the market quickly. MMS has also developed policies for extending lease terms to aid in planning wells to be drilled to sub-salt and ultra-deep prospects, accounting for the additional complexity and cost of planning and drilling such wells beneath the salt dome (which distorts and blurs seismic imagery) and at water depths that challenge even the most advanced technologies.

In addition, the MMS has provided economic incentives for all Alaska OCS lease sales to promote leasing interest and encourage oil and gas exploration development in this area of high cost and little infrastructure.

MMS and the Energy Policy Act of 2005

The recently enacted Energy Policy Act of 2005 included 3 provisions providing incentives that are intended to stimulate exploration and production of natural gas in the OCS. These provisions provide royalty reductions in areas with very high costs. These incentives encourage exploration and production in high risk areas during a time of tight supplies and also look to develop new sources of natural gas over the longer term by—

- Adding a third tier of royalty reduction to the current shallow water, deep gas program by eliminating the payment of royalties on the first 35 billion cubic feet of gas produced from wells drilled 20,000 feet or deeper, and increasing the set of eligible leases from those in 200 meters of water or less to leases in 400 meters of water or less.
- Establishing a new category of deep water royalty reduction—no royalties will be due on the first 16 million barrels of oil equivalent production from wells drilled in 2000 meters of water or more.
- Encouraging the development of gas hydrates—a potential source of abundant future natural gas supplies—by specifying up to a 30 billion cubic feet royalty suspension volume for gas produced from hydrates.

OCS Trends

The strongest trend on the OCS today is the continuing development of the Gulf of Mexico deep water acreage. The U.S. is now in its tenth year of sustained expansion of domestic oil and gas development in the deep water area of the Gulf of Mexico (GOM). Deep water means that the distance from the water's surface to where a drill bit first touches mud is at least 1,000 feet — almost twice the height of the Washington Monument. In fact, industry is now drilling in waters seven to ten thousand feet deep, some 5 miles, and at these depths the engineering challenges increase geometrically.

In 2004, operators announced 14 new deep water producing projects and 15 new deep water discoveries. Anticipated production from these facilities will help sustain production increases in deep water, and will dramatically raise production in 2006. We expect that it will be several years before deep water areas of the Gulf of Mexico reach their full potential. The continued use of royalty incentives in the deep waters of the Gulf is intended to keep industry moving forward on new technologies and exploring deeper water frontiers. The deep water activity in the Gulf of Mexico has been a major success story. Deep water gas production is up 407 percent and oil production has risen 386 percent since 1996.

There are now about 150 deep water discoveries of which more than 107 are producing. This has helped to increase total offshore production from 980,000 barrels per day in 1995 to 1.5 million barrels per day in 2005. Additional deep water rigs are being built or moved to the Gulf from other parts of the world.

This steady advancement in deep water production over the last decade and for the coming decade would not be possible without major advances in offshore technologies that are truly amazing. Advances that allow remote control of drilling operations from control rooms that are miles away; dynamic positioning of drill ships using multiple engines that are the size of the meeting room we are sitting in; floating production platforms with surface area the size of football fields; anchoring cables to hold facilities in place that are made up of a combination of traditional steel and synthetic materials; pipe laying ships that can lay miles of pipeline in thousands of feet of water. In fact, the recently deployed Thunder Horse platform incorporated over one hundred technological advancements — things that had not been done before.

The industry ingenuity that we see in deep water is the same approach that is being used in deep shelf drilling operations on the traditional shelf where operators are targeting deep natural gas reservoirs that require drilling 15,000, 20,000 and in some instances 35,000 feet deep through extremely high temperature and pressure conditions. MMS estimates point to about 55 Tcf of natural gas in this emerging frontier.

As we sit here, operators are drilling the Blackbeard project to more than 35,000 feet – over 6.5 miles. This well will take almost a year to drill.

OCS Resource Assessments

In 2003, the MMS completed an interim update of estimates for undiscovered technically recoverable resources underlying the OCS. The mean estimate is 406 trillion cubic feet (Tcf) of natural gas, which is a 12 percent increase since 2000 for natural gas as a result of new information obtained from recent exploration in the Gulf of Mexico and revised assessments of new geological concepts in Alaska and on the Atlantic OCS. To put some perspective on the 406 Tcf natural gas resource estimate for offshore production, the Energy Information Administration Annual Energy Outlook 2005 states that "[p]roduction of lower 48 nonassociated (NA) conventional natural gas declines from 9.5 trillion cubic feet in 2003 to 8.6 trillion cubic feet in 2025."

The Nation's energy potential may not rest entirely on conventional hydrocarbon resources. Scientists are now studying the possibility that a unique and puzzling frozen "ice" crystal may hold the key to future energy resources. Methane hydrates are naturally occurring ice-like solids in which water molecules have trapped gas molecules. Hydrates are found in locations with high pressure and low temperature—over 98 percent of natural gas hydrate resources are estimated to occur in offshore ocean sediments. The USGS estimates that domestic natural gas hydrates in-place is 320.222 Tcf. In comparison, as of 1997, the mean estimate of all untapped technically recoverable U.S. natural gas resources was 1,301 Tcf, U.S. proved natural gas reserves were 167 Tcf, and annual U.S. natural gas consumption was about 22 Tcf. Discovering methods to locate, produce and transport the gas from formations to the market are key to their potential use. The Energy Bill directs Federal research efforts to this potential new energy source.

The next MMS resource assessment is scheduled to be completed this fall. The first preliminary estimate of technically recoverable methane hydrate resource potential on the

OCS should be completed next year. The MMS is working closely with the USGS to develop the methodology used in the hydrate assessment. In anticipation of industry's move to develop natural gas from methane hydrates, MMS is also developing new methods for evaluating the amount of recoverable natural gas from methane hydrates.

5-year Oil and Natural Gas Leasing Program

The OCS Lands Act requires the Secretary of the Interior to prepare and maintain a schedule of proposed oil and gas lease sales on the Federal OCS that is determined to best meet national energy needs for the 5-year period following program approval. The 5-year program specifies the size, timing and location of areas proposed for Federal offshore oil and gas leasing. In order for a lease sale to be held on the OCS, the sale must be included in the 5-year program. To be on this schedule, the area must have been part of the multi-phased analyses required under section 18 of the Outer Continental Self Lands Act (OCSLA).

MMS's goal is to develop a program that is responsive to the Nation's energy needs, ensures environmental safeguards, and addresses public concerns. In developing the 5-year program, section 18 of the OCSLA requires that we analyze and compare areas of the OCS in terms of hydrocarbon potential, environmental sensitivity, and other factors. As part of this assessment, MMS solicits and considers input from all stakeholders during multiple stages of the process. The MMS also take into consideration laws and policies of affected coastal States.

MMS has begun the process for development of a new program for 2007–2012, and issued a request for information in August. In seeking public comment, Secretary Norton reaffirmed the Bush Administration's pledge not to conduct any new leasing under the 2007-2012 five-year plan within 100 miles of Florida's coast, in the Eastern Gulf of Mexico Planning Area. MMS is also asking the public to comment specifically on whether the existing withdrawals or moratoria should be modified or expanded to include other areas in the OCS; and whether the Interior Department should work with Congress to develop gas-only leases. Throughout the process of developing a new 5-year program, MMS requests comments from states, local and tribal governments, American Indian and Native Alaskan organizations, the oil and gas industry, federal agencies, environmental and other interest organizations, as well as the general public. Consultation with affected parties also occurs at the local level through MMS regional offices.

Katrina Update

Hurricane Katrina has affected the short term production of oil and gas on the OCS. However industry is rapidly repairing the offshore infrastructure and resuming operations. As of September 12, 2005, natural gas production had resumed to 62% of pre-hurricane levels less than two weeks after Katrina. It is important to note that industry is still assessing the amount of repairs and time frames for restoring production from certain facilities. These estimates are time consuming due to the complexity of the operations and the interconnected network of infrastructure required to bring offshore

production onshore. Thus far, reports show that about 90 percent of Gulf of Mexico production didn't suffer significant damage offshore. However, it is important to note that onshore support facilities and infrastructure sustained serious damage. Many of these facilities do not have electricity, are located in standing water, and sustained wind damage. These facilities are important locations for industry workers, inspectors, and the materials and supplies that will be needed to repair offshore pipelines and platforms. Others are needed to handle the oil and gas that comes ashore from the OCS. The availability of these vital support facilities will be a critical factor in the recovery of OCS production.

We do not expect Hurricane Katrina to significantly affect the long term trends or prospects of natural gas in the Gulf of Mexico. Deep shelf gas and deep water will continue to increase their contributions to domestic production over the next decade, and the Alaska OCS and methane hydrates offer potentially greater long term opportunities.

The U.S. Geological Survey (USGS)

The USGS, which is responsible for assessing the nation's undiscovered oil and gas resources onshore and beneath State waters, estimates a total of 633.1 trillion cubic feet (TCF) of technically recoverable undiscovered natural gas. This total represents the sum of mean estimates for natural gas in conventional accumulations (308.9 TCF), in continuous accumulations that include shale gas and tight sandstones (256.7 TCF), and in continuous accumulations in coalbeds (67.5 TCF).

The bulk of undiscovered, conventional natural gas resources are located in northern Alaska and the onshore Gulf of Mexico. Most resources of continuous natural gas in shale and tight sandstones are located in Rocky Mountain basins and the Appalachian Basin. Coalbed natural gas resources are concentrated in the San Juan, Powder River, Appalachian, and Black Warrior Basins.

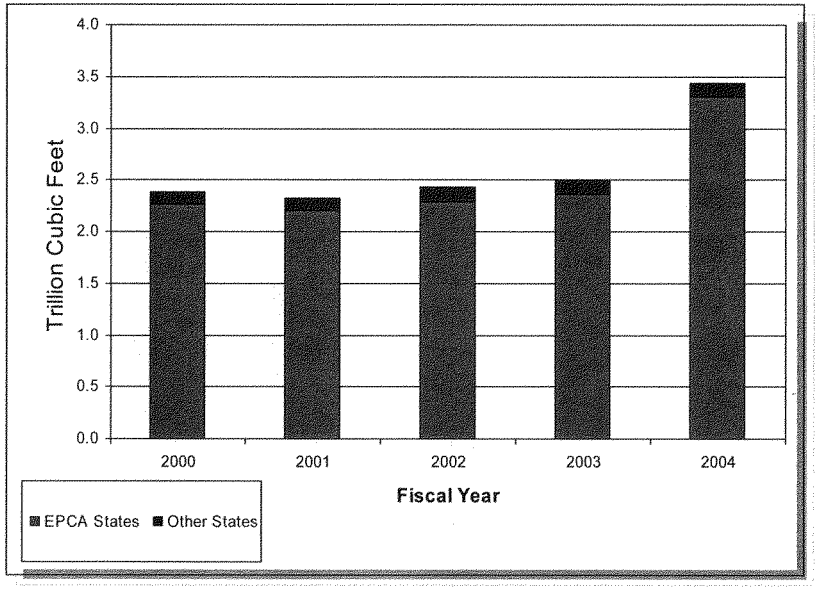
Conclusion

We expect to see a continuation of the unprecedented demand for energy and minerals leases and permits. Continued access to the environmentally sound development of natural gas resources on Federal lands and the OCS will help the nation meet its goals for secure and diverse energy sources. The Department plans to meet this unprecedented demand by continuing to improve our internal processes, implementing provisions of the Energy Policy Act, and developing program innovations that improve effectiveness and reduce cost.

Thank you for the opportunity to testify today about the Departmental role in meeting America's demand for Natural Gas. I would be happy to answer any questions you have.

Production & Revenue

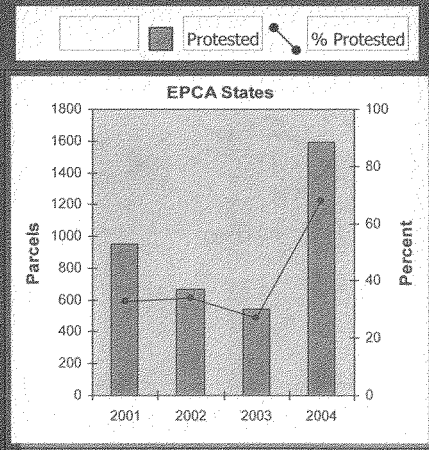
oil & gas program

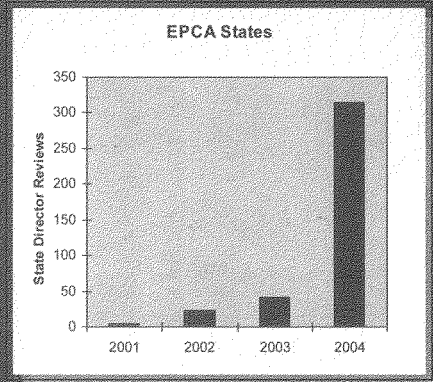


Gas Production on Federal and Indian Lands

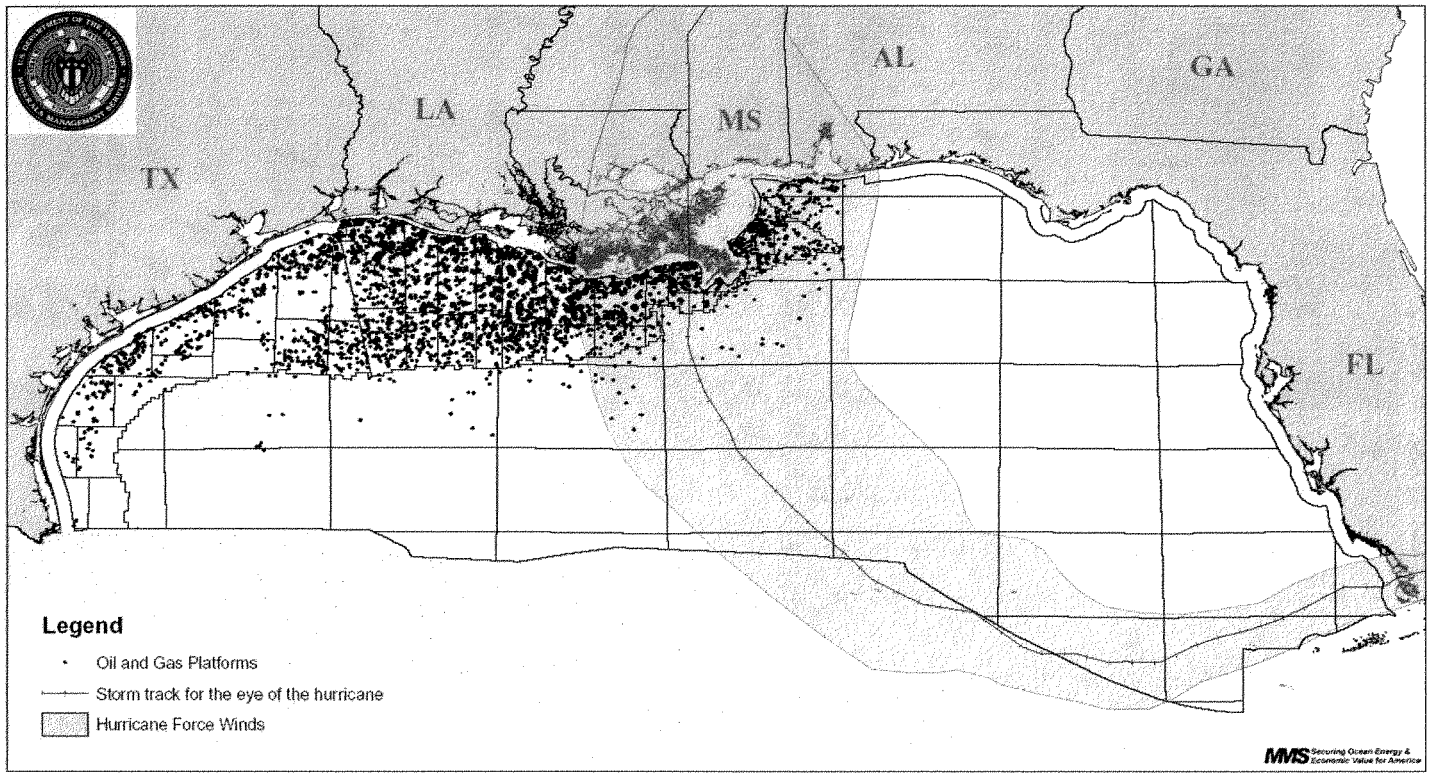
Oil & Gas Protests

	1997-2000	2001-2004	% Change
Parcel pre-lease protests	666	4425	+664
Lease appeals	366	925	+253





Hurricane Katrina, August 2005



Mr. ISSA. Thank you. Before we move on, because I want to make sure you have the full attention of the entire dais, not just the dais that remains here during the vote, we are having a series of three votes on the floor.

So with your indulgence, we are going to recess for about 15 to 20 minutes. Then all the Members will be returning directly afterwards.

With that we stand in recess.

[Recess.]

Mr. ISSA. The hearing will now come to order.

Mr. Zenker, we would look forward to your comments. Once again, your entire written statement is in the record, so you may revise and extend as you see fit.

STATEMENT OF MICHAEL ZENKER, SENIOR DIRECTOR, NORTH AMERICAN NATURAL GAS, CAMBRIDGE ENERGY RESEARCH ASSOCIATES

Mr. ZENKER. Thank you, Mr. Chairman and members of the subcommittee. I appreciate the opportunity to appear before you today to discuss the natural gas market in the United States and recent developments from Hurricane Katrina.

The market today for natural gas is very different from the one with which the Nation grew comfortable. Prices during the 1990's, as a reference period, averaged $2 per 1,000 cubic feet at the wholesale level, reflecting abundant supply. These prices certainly encouraged consumption of this environmentally friendly fuel, led to restrictions on alternative fuels, and helped launch a large wave of power plants that burn nothing but natural gas, as you, Mr. Chairman, referred to. With the market today with wholesale prices over $4 per 1,000 cubic feet for what is now 35 consecutive months and over $7 averaging this year reflects a very different market.

But I want to stress that these prices are not the result of some unexpected mysterious force or some event that caught the country off guard. Rather, the inability of continental supply to keep pace with demand is the single greatest reason for the sustained higher prices over the past few years. This supply disappointment is nothing new. In fact, U.S. wellhead capacity for natural gas has remained virtually stagnant for the last 15 years.

Drilling for gas is up in the United States by over 175 percent since 2002, yet supply is still down over that period. There are very few, if any, spare rigs available to drill more. Canadian supply, a key source for the United States, has faltered since 2001. Hurricane Katrina has only added to this picture by removing some of that scarce supply.

But beyond winter, the challenge for the next few years will be to meet demand growth that has all but assured the power sector will comprise the bulk of demand growth. I think we have heard that already today. Economic expansion is going to push these power plants into higher utilization.

The Energy Policy Act of 2005 is encouraging development of new coal, nuclear, renewable power sources—a very important step—but the lead time for these plants means they will provide no relief for the gas markets for the next few years.

With demand growth virtually assured, let's turn to the outlook for supply. I describe in my prepared testimony the substantial investment that we see that is under way in the energy industry to bring new supplies. This will play out in our view and CERA's view as follows.

Record level drilling in the United States and Canada will just offset declines from existing gas wells for no net growth in continental supply. Simply put, America's breadbasket supply regions are in collective decline, and there is not enough growth expected from the newer but smaller regions to offset losses from the larger ones. This assumes no liberalization in the land access rules. Significant additions of new LNG receiving terminals will allow growing levels of imports to catch up with demand. It's going to take some time, and it could potentially exceed demand.

Importantly, CERA sees no feasible way to meet long-term natural gas demand without substantial new LNG facilities. The supply growth will begin to soften prices in 2008, in our view. Unfortunately that means, barring anything in the immediate term to change that course, price relief for natural gas remains as far away as 2008.

Does this mean that there is nothing to be done to help shield consumers from higher prices for the winter, to Congressman Higgins' question? No, there are actions that could be taken to soften demand and thereby provide some price relief. Promoting conservation is the largest single action that we can do in the near term.

As an example, if all U.S. consumers turn their thermostats down 2 degrees Fahrenheit for the coming winter, the resulting drop in consumption of about 8 percent would be bigger than the impact that Hurricane Katrina is causing to the markets. California, as I am sure the chairman recalls, cut electricity consumption by a greater amount in 2001 in the electricity crisis.

In addition, relief can also be achieved by granting flexibility to existing power plants that can burn alternate fuels. California, as an example, could demand alternative energy from a power plant called Mohave to keep operating. Mohave is a coal-fired plant that is being shut down.

I want to stress that these actions, if they are to be efficacious for the winter, should be undertaken with great haste.

Finally, let me turn to the effects of Katrina. Katrina, of course, highlighted the precarious nature of supply in the United States, but Katrina also highlighted the adaptive nature of the gas industry. That supply was rerouted around bottlenecks, so that destruction was minimized. Mr. Caruso highlighted that bottlenecks are going to be gas processing plants for the next few months.

Katrina also highlights the risk of concentrating our new LNG facilities in the Gulf of Mexico, and that is the current path the Nation is on. There is that concentration. A large hurricane less than 300 miles to the west of the path of Katrina would pass through this growing concentration of receiving terminals. While this is not a safety concern, because the terminals are built to withstand hur-

ricanes, it would certainly have a disruptive effect on supply in the future.

This completes my testimony, Mr. Chairman, and I would be happy to respond to any questions the committee may have.

[The prepared statement of Mr. Zenker follows:]

US HOUSE OF REPRESENTATIVES
House Government Reform Subcommittee on Energy and Resources

Subcommittee Chairman: Darrell Issa, Congressman from California
Washington, DC • September 14, 2005

PREPARED TESTIMONY:
Meeting US Natural Gas Demand: The Challenge Ahead

by Michael S. Zenker, CERA Senior Director, North American Natural Gas

UNDERSTANDING THE CHALLENGE

Today the United States faces a very different natural gas market than that of the preceding two decades. A tightening of the balance between supply and demand, first evidenced in 2000, has led to higher and more volatile prices. Hurricane Katrina has only added to this picture by delivering a real shock, driving prices further up and creating considerable anxiety about the adequacy of winter supply. The run-up in natural gas prices, which has been under way for several years and has occasioned much anxiety in the United States, was predictable in the sense that its underlying cause—the inability of continental supply to keep pace with demand—has been recognized for many years. Since 2003, Cambridge Energy Research Associates (CERA) has been routinely warning that higher and more volatile natural gas prices would become the norm for the North American market.

Just as sustained higher prices were predictable, so has been the industry response to those prices. A surge in investment by companies seeking to bring new supplies, both from continental sources and imported in the form of liquefied natural gas (LNG), is well under way. However, meaningful growth in supply, mostly from LNG, will not be realized for a few more years. As a result, significant, sustained price relief will not come to the United States before 2008 at the earliest, and only then if LNG development is substantial.

This means that prices will remain strong and volatile for the next few years. The effects of Katrina will add to this, keeping prices even stronger at least through the coming winter. Without a strong dose of good news, prices should stay at higher levels until it is clear that the winter will not deliver a demand shock—and that will not be known until most of winter has passed.

Although fuel switching, or flexible demand, provides a few relief valves to the gas market, these valves are quite small. Real demand relief will come in part from demand destruction and, ultimately, from consumers who simply cannot afford the higher prices—which will also be reflected in unpaid utility bills. If actions such as encouraging the use of alternative fuels or advocating conservation are to be taken, and if these actions are to be efficacious for the approaching winter, they must be implemented immediately.

North American Continental Supply Not Expected to Keep Pace with Demand

The current market environment is driven fundamentally by a natural gas supply problem, with modest demand growth exceeding the ability of the gas industry to respond. The resource base in the United States has been producing gas for many decades; the largest basins have been thoroughly explored, and the largest fields are in decline. Accelerating decline rates for many existing wells is a fact of life in the gas exploration and production business. An oil and gas

company must first replace the production that was depleted from existing resources during the previous year before it can show any increase in net output. In addition to these factors, three issues have exacerbated the situation:

- a decade-old inability to grow natural gas production in the contiguous United States, rooted in the maturity of the resource base that is available for drilling
- the shift from strong growth in western Canadian gas production to a much slower rate of gas production growth in recent years
- a paucity of new, large continental discoveries in Canada, the United States, and Mexico—though not for lack of effort, as the industry's spending on exploration and development of new oil and gas resources has surged over the past several years

The large majority of North America's gas supply comes from mature producing areas. With America's breadbasket supply regions in collective decline, not enough growth is expected from the newer but smaller regions to offset the losses from the larger ones, resulting in a slow, continuous continental decline.

Strong evidence exists that adding more drilling rigs will not solve the problem. The drilling spike of 2000/01 and recent record drilling activity failed to grow supply. As an example, drilling for gas in the United States has surged by over 175 percent since 2002; yet, gas wellhead capacity is down by more than 2 percent over that period. CERA expects combined US and Canadian gas supply to remain essentially unchanged between 2004 and 2010, and to decline 12 percent from 2010 to 2020.

Although growth of new gas supplies will remain limited in those areas already open for exploration and production, additional gas resources are known to exist in areas that are currently off-limits. Land access will continue to be a key issue for natural gas production, especially in the Rockies, in many federal lands areas, and in politically sensitive offshore areas such as the West, East, and Florida Coasts of the United States. The nation will be challenged to balance choices between land-access restrictions and permitting delays, on the one hand, and the inevitable consequences of higher natural gas prices if no additional further lands are made available for gas production, on the other hand.

Arctic supplies of natural gas, from Alaska and the Canadian Arctic regions, will be needed to help offset increasing declines in the contiguous United States. However, it is important to note that these supplies are a decade off and are not sufficient to make up for declines from other regions.

Gas buyers and sellers are anticipating no real supply relief for the next few years and, consequently, no price relief either.

LNG: The New Supply Source

LNG is already the fastest-growing source of supply for the North American gas market, and LNG from many sources is expected to be cheaper than higher-cost domestic supplies. However, it will take time before a significant amount of additional LNG is available. The total worldwide LNG industry delivers about 19 billion cubic feet (Bcf) per day. By CERA's estimates, the combined US and Canadian market will require about 10 Bcf per day of LNG supply by 2010. This represents phenomenal growth for the LNG industry, especially when the key ingredient historically required to promote and finance LNG development—long-term, fixed-price contracts with creditworthy buyers—has been rare in the US market in recent years. In addition, many LNG developers face opposition to their proposed projects, especially on the Pacific and Atlantic seaboards.

Importantly, CERA sees no feasible way to meet long-term natural gas demand without substantial new LNG facilities. The opening of additional federal lands and the addition of Arctic resources would cause a meaningful shift in US prices but are not sufficient to completely offset the need for LNG.

CERA expects LNG development to progress, with a concentration of new receiving terminals in a small area of southwest Louisiana and southeast Texas. Many projects are under construction, and several more have been permitted. In the aggregate, these projects are sufficient to meet America's growing need for imported natural gas. They will be constructed to withstand very large hurricanes. However, it is evident that if the LNG industry is forced to concentrate its facilities in the Gulf of Mexico—and that is our current path—a large hurricane affecting this area would create a substantial disruption to natural gas supplies by causing, at best, the temporary suspension of LNG deliveries. This underscores the need to focus on developing receiving terminals not only in the Gulf, but also in other geographic regions.

Natural Gas Demand Growth All but Assured

The current market environment has not been caused by a surge in demand. In fact, demand growth for natural gas has been modest in the past several years, as demand losses in the industrial sector and efficiency gains in the power sector have helped to stem demand growth. But that is changing. Demand increases are all but assured in the years ahead.

The largest natural gas consuming sector is the industrial sector. Industrial consumers have historically exhibited the most flexibility in response to prices, curtailing natural gas consumption during price spikes. However, sustained higher natural gas prices, along with a host of other factors, have led to permanent demand loss—the shuttering of facilities and the migration of plants and factories overseas to areas with cheaper natural gas. This has not only reduced overall industrial demand, but has also left the natural gas industry with a significantly reduced shock absorber to respond to price spikes. For example, despite record high natural gas prices in 2004, industrial demand actually grew, owing to strong demand for the products produced by gas-intensive industries and constraints on importing substitute products. Nevertheless, CERA expects that sustained higher natural gas prices will continue to slowly erode demand from the US industrial sector.

In contrast to CERA's outlook for a decline in industrial gas demand, consumption from the other three natural gas consuming sectors—residential, commercial, and power—is expected to continue to grow. Despite steady efficiency gains in the use of natural gas, and new initiatives toward conservation, the growing use of this fuel in more homes, businesses, and power plants virtually assures rising consumption of natural gas. Owing to lengthy project lead times for coal and nuclear generation facilities—often in excess of a decade—displacing natural gas–fueled power plants with new, non–gas-fueled plants is not a near-term option. In addition, very few homes, businesses, and power plants have the flexibility to use alternative fuels. In the power sector, retrofitting power plants to burn alternative fuels is not being widely considered, owing to plant and environmental restrictions and to higher oil product prices.

Certain existing power plants that do not burn natural gas but instead burn oil products or coal could be more highly utilized. These plants are typically older and less efficient than new gas-fired plants. Many of these plants are under emissions restrictions that limit their operation. Although these restrictions are well intentioned, they can often force the use of gas-fired power plants instead. Restrictions on all non–gas-fired power plants should be weighed against the additional demand pressures that are shifted to the natural gas market owing to these restrictions. Judicious flexibility can be of critical importance.

Gas demand growth from the power sector is inevitable, both in the near term and over the longer term, as long as the economy grows. A large wave of new power plants was added in the past six years, and over 90 percent of these plants burn nothing but natural gas. Relative to natural

gas–fired power plants, existing coal, nuclear, and hydroelectric power plants—which make up virtually all of the rest of the power plant fleet—are cheaper today to operate on a cash-cost basis. However, these coal, nuclear, and hydroelectric power plants are operating essentially at capacity. Thus, as economic growth drives electricity demand, gas-fired power plants will become more highly utilized despite higher natural gas prices, increasing the consumption of gas. Well over half of the growth in electricity demand will be met by gas-fired generation in the next several years. Moreover, the next wave of power plants will likely include gas-fired generation.

Many industry observers, reacting to sustained higher natural gas prices, are now advocating new coal plants, renewables, and nuclear power plants to diversify generation portfolios. Plans are gaining momentum for new coal and nuclear plants that will come online several years from now. Long-term gas demand growth will be affected significantly by fuel choice for new power plants. CERA expects that substantial new coal facilities will be added, but that gas demand will continue to grow nonetheless.

CERA expects natural gas demand in the United States to grow by 8.2 percent by 2010 and by an additional 7.2 percent between 2010 and 2020.

Encouraging Conservation and Energy Efficiency

Per-customer residential demand in the United States has declined continuously and dramatically since 1971, illustrating that efficiency effects are substantial but take a long time to show results. These per-customer demand decreases result from ongoing efficiency improvements in end-use equipment as well as from improved insulation in housing units, the latter often driven by building codes.

The current market environment suggests the need to redouble conservation efforts. Experience shows that the potential effect of customer conservation can vary widely depending on the type of policies or initiatives that governments or utilities launch and on the magnitude of cost savings that the policies (often through rebates or other incentives) offer.

Balancing the market through conservation is challenging. Recent experience suggests that consumers will conserve in the event of a crisis, in response to high prices, or in response to utility incentive programs. This presents something of a conundrum. A crisis, to consumers, is an event of short duration. They expect the crisis to be resolved. Inducing conservation through high prices is not a palatable policy approach. Utility incentive programs do encourage conservation, primarily by providing financial incentives for earlier installation of more efficient equipment. These programs are potentially costly, however, and they take time to implement. Moreover, continuous gains require continuous incentives.

Still, conservation—when effective—can be a powerful weapon against tight energy markets. CERA tested a hypothetical conservation case in which natural gas heating customers adopt a uniform conservation measure across the United States every day for a typical winter (November to March). This measure assumes that all residential and commercial customers in the United States turn their thermostats down by 2 degrees Fahrenheit for the entire heating season. With this conservation measure, average heating demand is estimated to decline by 3.2 Bcf per day—about 8 percent—over the winter period, compared with average winter heating demand without the conservation measure. A cutback in demand of 3.2 Bcf per day is substantial and would reduce prices; it would have a larger impact on the market than that caused by Hurricane Katrina. However, this is purely a hypothetical analysis; the challenge of convincing all consumers to reset their thermostats is enormous, to say the least.

Sensitivity of the Gas Market to Events

Another factor further complicates the picture: the sensitivity of this tightly balanced gas market to supply and demand shocks. Both winter heating and summer air conditioning rely on

natural gas. As a result, a colder-than-normal winter or hotter-than-normal summer can stress this already tight market, sending prices even higher. The United States has enjoyed generally mild weather over the past few years. However, summer 2005 illustrated the lack of flexibility in the industry to increased demand, pushing prices even higher.

Impact of Hurricane Katrina

Hurricane Katrina delivered a large supply shock to a market that was still absorbing a demand shock from hot weather–driven growth in natural gas consumption for power production. The total supply lost from the event will not be known for some time. The market will rely on supplies from other regions and on storage gas to meet consumer needs in the near term. However, this results in using gas that was originally destined to be placed into storage for winter needs.

If Katrina has as big as an impact on natural gas supply as Hurricane Ivan had in 2004—and CERA expects Katrina's impact to be greater—then the United States could enter winter with below-average storage volumes. The United States needs additional amounts of storage gas, owing to growing overall demand and greater seasonality of demand. Thus, there will be growing concern about the adequacy of winter supply, and this anxiety will be evidenced in higher natural gas prices through 2005 and 2006.

Conclusion

North America's natural gas supply shortfall—the clear inability of domestic supply from available lands to keep pace with demand—will challenge the US natural gas market until at least 2008. This supply shortfall comes at a time when there is a growing appetite for natural gas. If no near-term measures are taken to boost supply or to dampen demand, the United States is set to experience a continuation of higher prices. This should not catch the United States off guard, since the fundamental drivers of this market condition have been forming slowly over the past few years.

This supply dilemma is provoking a response—in the form of investment, technology, and adjustment. This response will be evidenced by new supplies, alternative power technologies, and shifts by consumers. But the time lags for new, large sources of natural gas supply are different today. They are not the one-to-two-year lags that characterized the ability of the domestic industry to grow supply ten years ago, but instead are defined by the time needed to construct new, complicated supply chains with high capital costs. CERA expects the development of new LNG facilities to bring enough new supply into North America to reduce prices and volatility beginning in 2008. It will be important to facilitate, and not to impede, this important, new, long-term resource.

Michael Zenker is Senior Director of North American Natural Gas at Cambridge Energy Research Associates (CERA). His recent CERA reports include the Multiclient Study *Charting a Path: Options for a Challenged North American Natural Gas Market*; the Alert *Hurricane Katrina Slams into an Anxious Gas Market*; and the Watches *Taking the Bull by the Horns: North America's Natural Gas Industry Meets the Charge with LNG* and *No Rest for the Weary: North American Natural Gas Market Set to Be More Turbulent than in 2004.*

Mr. ISSA. Thank you very much. Now let me go on to Mr. Magruder for his opening testimony.

STATEMENT OF LOGAN MAGRUDER, PRESIDENT, INDEPENDENT PETROLEUM ASSOCIATION OF MOUNTAIN STATES

Mr. MAGRUDER. Thank you very much. You have my written testimony. What I would like to do is just point out a few significant items of interest in that testimony.

I am here representing IPAMS, which is a regional trade organization located in Rocky Mountain area. We cover 13 mountain States within the Intermountain West. We have over 315 member companies that make up IPAMS.

I want to try to educate the subcommittee members a little bit about the uniqueness of the Intermountain West and what role it can play in meeting the U.S. natural gas demand/supply situation right now. We are in a unique position in that we are located in the center of the United States. Pipeline conditions right now are delivering about 80 percent of capacity to the West, about 85 percent of the capacity going to the East. So the Intermountain West is located in the center of the country, and we deliver natural gas mostly to the East Coast and the West Coast.

I noticed from the make-up of your committee there are a lot of coastal representatives here. We have an individual from New York, California, and coastal situations.

The thing that is unique about the Rocky Mountain area is that 50 percent of the lands are owned and controlled by the Federal Government. So that means that when we attempt to develop natural gas and oil in those lands we have to work with the Federal Government, with Secretary Rebecca Watson's group.

Like the Gulf of Mexico, the Rocky Mountain region is a very important source of natural gas. We produce about 22 percent of the production for the United States. So 22 percent of the natural gas comes out of the Rockies. It's not by coincidence, but 50 percent of that production is derived from Federal lands because 50 percent of the land mass is controlled by the Federal Government.

Contrary to what Ms. Watson mentioned earlier, 60 percent of the APDs that have been issued have been drilled in 2004, and this is only 4 percent variance over the 5-year average. So we are executing on as many permits as we possibly can. Oil and gas operations only occupy about 1 percent of the land mass that the BLM regulates. So we have a very small footprint within the large vast areas of the Rocky Mountain region. Our limitations in adding more natural gas are directly related to attaining an adequate number of drilling permits on nonwilderness and nonpark lands. It is important we also obtain right of ways to be able to move the product out of those areas. You need to keep in mind that it only takes days or weeks to drill a well in the Rocky Mountain region. It doesn't take months or years to drill a well. So we can drill multiple wells in a very short time period, while at the same time the complementary permit process may take 6 months, a year, to receive a permit to drill an 8-day well. So thus, you know, as a result of that, we have to have a large inventory of permits in front of these drilling rigs in front of this—basically this manufacturing

process for methane. So it is very important that we have an inventory of permits.

The current NEPA process needs to be overhauled. I think that the BLM has done everything humanly possible to satisfy the demand of the industry. Ms. Watson mentioned that they are not as nimble as the industry, and I can tell you we are on the doorstep and we are trying to get every possible permit that we can get out of there to execute and drill wells. But the process needs to be changed. And I think it lies within NEPA, the interpretation of NEPA and the question of whether or not we are interpreting and applying NEPA correctly.

Now, what can we do in the near term to try to satisfy demand for natural gas this winter? There are a couple of things you can do. In NEPA, you have the ability to execute categorical exclusions. This is basically where someone within the BLM at the field level can exercise good business judgment. I don't think we will sacrifice any standards, any environmental standards that are basically outlined within NEPA. But basically, for us to meet the demand this year, we are going to have to change what we currently do; otherwise we are at steady state, whatever it is today. That's about all we can do.

We could also consider relaxing some of the wildlife stipulations in areas that are appropriate. The methane manufacturing business is about to shut down on November 15th. That's when the wildlife stipulations kick in in the Rocky Mountain region, so the factory is about to shut down. The question is: Can we apply good practices, best management practices, in areas that don't affect the wildlife and have everybody satisfied in the process?

I think in closing, I would like to say that high natural gas prices are not the result of a cartel controlling supply. They are the direct result of an inefficient regulatory process that governs natural gas development on Federal lands. The Federal Government, as an owner of the largest natural gas reserves, has a responsibility to ensure the adequate supplies of this domestic resource owned by Americans, produced by Americans, and consumed by Americans is developed for the benefit of the public.

I would like to thank you for the opportunity and I am certainly available for any questions.

Mr. ISSA. Thank you.

[The prepared statement of Mr. Magruder follows:]

Testimony of

Logan Magruder

On behalf of

The Independent Petroleum Association of Mountain States

Before the

House of Representatives

Government Reform Subcommittee

on Energy & Resources

September 14, 2005

Mr. Chairman and members of the subcommittee, my name is Logan Magruder and I am the President of the Independent Petroleum Association of Mountain States (IPAMS), and I am a Senior Vice President with Berry Petroleum Company. I want to thank this subcommittee for holding a hearing on "Meeting America's Natural Gas Demand" and the vital role that public lands offer in satisfying the nation's present and future energy needs.

Hurricane Katrina disrupted natural gas production from the Gulf of Mexico and exposed the dangers of the supply and demand imbalance. The irony is that while consumers are paying record energy prices, vast federal supplies of natural gas lie idle within non-park and non-wilderness areas of the Intermountain West. Federal natural gas supplies that could be produced to lower consumers' natural gas costs are instead constrained by a regulatory process that is prone to unnecessarily long delays and uncertainty. This artificial constraint - what I refer to as the "NEPA Control Valve" - limits additional natural gas production desperately needed to meet consumer demand.

The Federal Government is the single largest contributor of natural gas in our nation's economy; yet, federal policies and procedures for developing our nation's energy supplies have become outdated and are in need of an overhaul. Natural gas demand and the oil and gas industry's ability to satisfy demand have outgrown and outpaced the government's burdensome regulatory procedures. Improvements in the federal regulatory process are needed today to remove artificial constraints and allow orderly development of the public's natural gas.

The contribution of federal natural gas resources to the nation's economy is substantial. In 2004, the Intermountain West provided 22% of the Nation's natural gas.[1]

The Energy Information Administration predicts natural gas production in the Intermountain West will increase 26% by 2025.[2] With nearly 201 trillion cubic feet of natural gas beneath onshore federal lands, the Federal Government could provide significant near-term production increases.[3] Achieving this goal requires a comprehensive effort by Federal Agencies to promote natural gas development without sacrificing the intent of National Environmental Policy Act (NEPA). Eliminating delays within the regulatory system won't reduce environmental protections, but it will help deliver more natural gas to the 62 million households that rely on natural gas. It makes sense that natural gas resources owned by the American public should be developed to benefit the American public.

In order to help consumers, the Federal Government must increase production on public lands. This requires changing regulatory processes that only delay the delivery of natural gas to consumers. In theory, laws such as NEPA are the cornerstone of environmental protection. In practice, they have become long drawn out processes that nearly always end up paralyzed by special interest litigation focused on procedure. The NEPA process makes every agency decision vulnerable to legal challenges. The final result yields few environmental benefits but, instead, increases the cost of doing business with the federal government – a cost that is ultimately paid by consumers.

Conflict over natural gas development on non-park and non-wilderness federal lands limits public natural gas supplies from reaching consumers. Protests of oil and gas lease sales increased 600% during the first four years of this administration when compared with the last four years of the Clinton Administration.[4] Lease appeals have also increased 250% during the same time period.[5] My company has direct experience

with frivolous delays that tied up capital that otherwise could have been invested in the ground to produce more natural gas. This litigious landscape delays new supplies of natural gas from reaching consumers and yields little environmental benefits.

Congress has the power to address the problems with NEPA. Congress can help ensure the public's natural gas resources benefit the nation. Reducing the ability of special interest groups to challenge NEPA decisions would free up land management resources for helping the environment. Agencies should be required to include a proper, socioeconomic analysis as part of the NEPA process which clearly defines how agency land use decisions impact natural gas consumers. Congress should categorically exclude more activities from the scope of NEPA analyses. Section 390 of the Energy Policy Act of 2005, started down this path by creating a regulatory incentive for producers whose operations create fewer impacts on the environment.

Today, oil and gas activities occupy less than 1% of the surface lands managed by the Bureau of Land Management (BLM).[6] The industry does its best to comply with the system in place, but the system needs comprehensive and immediate change. While the Energy Policy Act of 2005 will yield results in the coming years, the opportunity to influence today's natural gas prices passed us years ago.

Hurricane Katrina has tragically demonstrated that small supply disruptions have very real consequences on energy prices. The arrival of more significant LNG supplies on our coastlines in 2009 or 2010 will offer a longer term solution to the current situation; but the question is "what can be done immediately to influence supply and demand pressures?" The Intermountain West offers a near-term and a long-term solution for the supply-side of the equation with enough natural gas resources to supply all of America's

household needs for 60 years.[7] Many development projects within the Intermountain West are poised to yield greater production if the Federal Government could provide greater flexibility in access and permitting. If Congress will fix the "NEPA Control Valve," these supplies can be developed in a sustainable manner. The delays and uncertainty surrounding NEPA analysis on federal land must be addressed.

In closing, let me remind this committee that high natural gas prices are not the result of a cartel refusing to produce more natural gas. They are the direct result of a continuous neglect of the regulatory process that governs oil and natural gas development on federal lands. The Federal Government, as owner of the largest reserves of natural gas, has the responsibility to ensure that adequate supplies of this domestic resource - owned by Americans, produced by Americans, and consumed by Americans – is developed for the benefit of the public. Thank you for the opportunity to testify and I look forward to answering any questions you have.

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[1] Source: America's Energy for America's Future, The Department of the Interior
[2] Source: Energy Information Administration
[3] Source: America's Energy for America's Future, The Department of the Interior
[4] Source: Bureau of Land Management
[5] Source: Bureau of Land Management
[6] Source: Bureau of Land Management
[7] Source: Energy Information Administration

Mr. ISSA. Mr. Slocum, as with the other folks, we very much would appreciate your expanding upon your written statement, if at all possible.

STATEMENT OF TYSON SLOCUM, RESEARCH DIRECTOR, ENERGY PROGRAM, PUBLIC CITIZEN

Mr. SLOCUM. Thank you very much, Mr. Chairman, and other members of the subcommittee. I am Tyson Slocum. I am Director of Research for Public Citizen's energy program. We are a national consumer advocacy group. We represent about 160,000 consumers across the United States. And I have done an extensive amount of research on energy markets.

I last testified before this committee last year when I talked about the role of recent mergers in the petroleum industry, and lax regulations were having an impact on higher gasoline prices. After I gave my testimony, those findings were echoed by the U.S. Government Accountability Office.

We focus on energy policies at Public Citizen and how they impact consumers. Speaking of energy policies, Congress and the White House recently passed an energy bill that was supposed to be comprehensive, but obviously it's not that comprehensive if we are holding a hearing today on what we need to do about natural gas policy. The only thing comprehensive about that energy bill, unfortunately, was the large financial incentives to energy producers. Public Citizen counted about $6 billion in taxpayer subsidies to the wealthiest corporations in the U.S. economy. We don't think that makes a lot of fiscal policy sense or energy policy sense at the time of record high prices. The market should be providing all that incentive, not taxpayer dollars.

There was a lot of talk here on the panel today about demand and problems with rising demand and the Council, the American Council for an Energy Efficient Economy, provided testimony for the record that's available here today that outlines some very excellent policy steps to reduce natural gas demand by 10 percent by the year 2020. Public Citizen strongly supports backing those measures because clearly there are things that Congress can do to provide incentives to individuals and businesses to help us use natural gas more efficiently.

I have also heard a lot of talk here today about natural gas production. I am familiar with a January 2003 Interior Department survey of natural gas and oil production on Federal lands that found only 12 percent of natural gas on Federal land is completely off-limits to drilling, and that leaves 88 percent of Federal land either completely open or partially open to drilling. I think that should set aside any sort of argument that environmental regulations are somehow standing in the way of producing adequate amounts of natural gas.

The one issue that I have not heard today is the problem of regulation over natural gas markets generally. I think it is very important to note the research that I compiled as part of my testimony that documents the significant problems that have been going on with natural gas companies in the United States. We have documented that America's natural gas companies have been fined over $2 billion in the last 3 years for manipulating natural gas markets.

This clearly shows that we do not have an adequate regulatory framework over natural gas markets, and we feel that there is market manipulation continuing today in the United States. Absolutely, supply and demand is playing a role here, but we think that the evidence of massive amounts of market manipulation, as evidenced by the fines levied by Federal Government agencies, shows that we need a stronger set of regulations, kind of like what Congress did when they passed the Sarbanes-Oxley bill in the summer of 2002. Congress was presented with clear evidence of systemic fraud and abuse in the U.S. accounting sector and so as a result, Congress saw fit to greatly improve and strengthen regulatory oversight over that industry.

Well, you forget that many of the accounting scandals were heavily concentrated in energy companies. And I think that there continues to be inadequate government oversight, and so Public Citizen has four basic regulatory suggestions that we offer to this subcommittee and we urge you to support them.

The first one is to establish a just and reasonable rate standard over the production of natural gas. Currently, such a standard exists for the production of electricity. It is enforced by the Federal Energy Regulatory Commission. And because of that standard, companies like Enron that were engaged in illegal manipulative behavior during the West Coast energy crisis are now forced to provide refunds to West Coast consumers. In fact, just several weeks ago, Enron had to provide $400 million in refunds. That was only possible because the Federal Government has regulatory jurisdiction over the production of electricity. No such regulatory oversight exists over natural gas production.

Second, we need to restore transparency over natural gas trading exchanges. Since 2000 these exchanges were deregulated, and we support legislation that was introduced in April by Missouri Republican Sam Graves that would restore and strengthen transparency and accountability over natural gas trading markets.

Third, Public Citizen supports improving trading price limits. Right now there are very strict price limits on agricultural commodities like beef and lumber and milk. This is to reduce volatility. The price limits over natural gas are laughable. They are only $3 per 1,000 BTUs, and if that threshold is crossed, trading is only suspended for 5 minutes. This encourages a great deal of volatility and it allows hedge funds and other financial players to make a lot of money at consumers' expense.

We also support exploring the concept of natural gas storage requirements modeled on the Federal strategic petroleum reserve. Thank you very much.

Mr. ISSA. Thank you.

[The prepared statement of Mr. Slocum follows:]

Testimony of Tyson Slocum, Research Director
Public Citizen's Energy Program
www.citizen.org

September 14, 2005

Before the House Government Reform Subcommittee on Energy and Resources

The Need for Stronger Regulation of U.S. Natural Gas Markets

Thank you, Mr. Chairman and members of the Subcommittee on Energy and Resources for the opportunity to testify on the issue of natural gas markets.

My name is Tyson Slocum and I am Research Director of Public Citizen's Energy Program. Public Citizen is a 30-year old public interest organization with over 160,000 members nationwide. We represent consumer interests through research, public education and grassroots organizing.

I last testified before the House Committee on Government Reform in May 2004, when I documented how recent mergers and lax regulation in the petroleum industry created uncompetitive markets, leading to higher retail gasoline prices for consumers—a fact later confirmed by the Government Accountability Office.

With record high energy prices and a natural gas industry with a terrible track record of manipulating markets, it is a no-brainer that stronger regulations are needed to protect consumers from ongoing market manipulation. Strengthening transparency empowers market participants and makes for more efficient, competitive markets, which in turn lead to fair prices for consumers.

Of course, reducing demand must be a crucial part of any reform. The American Council for an Energy-Efficient Economy has outlined a number of cost-effective efficiency measures that would collectively save more than 10% of U.S. natural gas usage by 2020. The more natural gas saved through improving efficiency in America's homes and businesses, the less pressure there is to produce or import more natural gas.

But unfortunately, the energy bill passed by Congress and signed by President Bush in August does little to address America's energy problems. After all, if it did, there wouldn't be a need for this hearing today. As long as Congress does nothing to address natural gas demand or reform America's dysfunctional natural gas markets, clear signals are sent to the industry that the sky's the limit for prices.

Remember, environmental regulations are not restricting the drilling of natural gas in the United States. An Interior Department study concludes that federal leasing restrictions—in the form of wilderness designations and other leasing restrictions—completely block

drilling of only 12% of the natural gas in the five major U.S. production basins on 104 million acres stretching from Montana to New Mexico. While only 12% is totally off-limits, 63% of America's natural gas reserves on federal land are fully available for drilling, with the remaining 25% featuring partial limitations on drilling.[1] This is significant, as about 35% of America's natural gas production is on federal land. This report contradicts industry claims that environmental laws are squelching natural gas production.

While rising demand is clearly playing a role higher natural gas prices, there is also no question that lax regulations over natural gas markets are also hitting consumers hard. Why do we think this? Well, just take a look at the track record of the natural gas industry. Federal and state governments have authorized over $2 *billion* in fines, penalties, refunds and other enforcement actions against natural gas companies for manipulating domestic natural gas markets—an amount far less than the amount by which natural gas companies are alleged to have manipulated prices. Anti-competitive actions by the handful of natural gas companies—made possible by inadequate regulation over the industry—are a determining factor in the 187% increase in natural gas prices since 1999 (the wellhead price has soared from $2.14 per thousand cubic feet in June 1999 to $6.15 per thousand cubic feet in June 2005).

In the wake of Enron's collapse, Congress recognized that strengthening regulations over corporations was necessary to protect consumers and investors. In the summer of 2002, Congress wisely passed the Sarbanes-Oxley Act, imposing regulations on the accounting industry and the auditing process for corporations. The majority of recent corporate accounting scandals have been concentrated in the energy industry. But the Sarbanes-Oxley Act addresses what is arguably the "secondary" problem: natural gas and power companies primarily engaged in accounting fraud as a means to hide the enormous revenues they were earning from price-gouging consumers. Congress has thus far ignored the glaring need for a Sarbanes-Oxley-type reform of *energy regulations.*

Congress can restore accountability to natural gas markets and protect consumers by supporting Public Citizen's 5-point reform plan:

- Establish a "just and reasonable" standard for natural gas.
- Re-regulate natural gas trading exchanges to restore transparency.
- Order trading exchanges to reform natural gas trading price limits.
- Mandate natural gas storage requirements.
- Improve energy efficiency to reduce demand.

The American Council for an Energy Efficient Economy has submitted comments for the record describing the benefits of energy efficiency on reducing natural gas demand. I will now discuss the market regulation reforms necessary to protect consumers from high natural gas prices.

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[1] *Scientific Inventory of Onshore Federal Lands' Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to Their Development*, BLM/WO/GI-03/002+3100, January 2003, www.doi.gov/news/030116a.htm; www.blm.gov/nhp/spotlight/epca/EPCA_fact_sheet_draft06.htm

Establish a "Just and Reasonable" Standard for Natural Gas

While the CFTC regulates the natural gas futures markets, the Federal Energy Regulatory Commission is in charge of regulating other aspects of natural gas markets. While FERC has a legal mandate to ensure that electricity prices under its jurisdiction are "just and reasonable," it has no such "fair price" standard for natural gas. As natural gas continues to have a bigger impact on the U.S. economy—not to mention setting the de facto price of electricity due to its use as fuel for power—Public Citizen urges the Subcommittee on Energy and Resources to support legislation that would establish a "just and reasonable" standard for all natural gas production.

While FERC does regulate the transportation of natural gas through pipelines (and can enforce "just and reasonable" rates there), this is a tiny portion that ultimately determines the price of natural gas.

The largest portion, production, was deregulated by two Congressional acts. First, the Natural Gas Policy Act of 1978 phased-in the removal of most wellhead price controls. This was followed up by the 1989 Wellhead Decontrol Act, which ended the last remaining price controls.

While there was merit to getting rid of price controls, Congress made the mistake of completely removing FERC jurisdiction over wellhead prices. So we went from having strict price controls to having markets dictate the price, with no opportunity for FERC to step in and regulate the rates being charged by producers. That's why a "just and reasonable" standard comparable to electricity does not exist for natural gas.

The solution is to extend FERC regulation over wellhead prices, which would include subjecting producers to "just and reasonable" standards—just as FERC has the current authority to subject electricity producers to "just and reasonable" standards.

Indeed, the National Association of Gas Consumers (a coalition of municipal gas systems) filed a complaint with FERC in 2001[2] arguing that skyrocketing natural gas prices were not "just and reasonable," and requested that FERC either: a) set an emergency nationwide price ceiling; or b) initiate an investigation into whether or not refunds could be ordered for those prices above the "just and reasonable" standard.

FERC dismissed the complaint: "A number of parties contend the Commission should also take action to limit the prices at which natural gas can be sold. However, under the Wellhead Decontrol Act, and the Commission regulations implementing that Act, natural gas prices have been effectively decontrolled. Therefore, the Commission declines to take the requested action on the instant complaints."

So what is the solution? Amending the Natural Gas Act[3] to expand FERC's "just and reasonable" jurisdiction over wellhead prices. Changing this statute to include "the

[2] docket RP01-223, http://elibrary.ferc.gov/
[3] 15 USC § 717 ("Regulation of natural gas companies"), www.gpoaccess.gov/uscode/

production or gathering of natural gas" would help hold natural gas producers accountable.

The 9th Circuit Court of Appeals recently ruled that FERC had broader power than it currently exercises to force energy companies to provide refunds to consumers for overcharging. The ability of FERC to order such refunds, however, is contingent upon the existence of the "just and reasonable" standard enshrined in the Federal Power Act. Without such a standard for natural gas, consumers are left unprotected.

Restore Transparency of Natural Gas Trading Exchanges

Natural gas companies have exploited energy industry deregulation to engage in one of the largest consumer rip-offs in history. Despite only moderately rising demand (which grew only 4.2% from 1999 to 2000), natural gas prices increased 245% over that short time period. This market manipulation trend may be continuing since Congress and the two federal regulatory commissions with jurisdiction have not reformed the rules that allowed the manipulation to occur.

Over the last three years, the federal government has obtained over $2 billion in settlements against natural gas companies for market manipulation. These fines cover manipulation of energy trading markets, but only represent a fraction of the total amount by which consumers have been price-gouged. For example, California alone estimates that it is owed $9 billion for energy market overcharging. This wide discrepancy between what consumers are owed and what the government has forced natural gas companies to pay exists because the federal government, through legislative and regulatory action, has severely limited its ability to effectively oversee the industry.

Both the CFTC and FERC have been negligent in policing these markets effectively. The CFTC is directly responsible for regulating commodities trade on futures exchanges (such as the New York Mercantile Exchange), but also has the power under the Commodity Exchange Act to intervene against traders in the under-regulated over-the-counter (OTC) markets. FERC is responsible for most non-exchange natural gas market issues.

Natural gas futures trading only began in November 1989, and it is clear that the significant problems that continue to plague these immature trading markets do not warrant today's weak federal oversight. Contracts representing billions of BTUs of natural gas are traded every day on NYMEX. An increasing share of this trading, however, has been moving off regulated exchanges like NYMEX and into unregulated OTC exchanges. The Bank of International Settlements estimates that in 2004, the global OTC market has grown to over $248 *trillion*. Growth in global OTC derivatives markets has averaged 31.6% since 1990.[4]

Traders operating on exchanges like NYMEX are required to disclose details of their trades to federal regulators. But traders in OTC exchanges are not required to disclose

[4] www.financialpolicy.org/fpfspb25.htm

such information, allowing energy companies, investment banks and hedge funds to escape federal oversight and more easily engage in manipulation strategies. The need for stronger consumer protections is more urgent as powerful new players—led by hedge funds and investment banks—now dominate natural gas trading.

Energy trading on these OTC exchanges was greatly expanded at the beginning of 1993 when the CFTC, under the chairmanship of Dr. Wendy Gramm, granted an exemption requested by Enron and eight other companies for energy contracts (including natural gas) from exchange-trading requirements and anti-fraud provisions of the Commodity Exchange Act. By doing so, the CFTC voluntarily limited its ability to police energy trading markets.

The growth of these OTC exchanges exploded in 2000 when Congress passed the Commodity Futures Modernization Act which, among other things, largely exempted trading of energy commodities on OTC exchanges from federal government oversight. As a result, many investment banks and energy companies opened their own electronic exchanges where the bulk of their activities were unregulated. Since the law took effect, the industry has been plagued by dozens of high-profile scandals attributed to the lack of adequate regulatory oversight over trader's operations.

Public Citizen supports efforts to re-regulate energy trading by subjecting OTC markets to tougher oversight and enhanced consumer protections.

But the latest such effort in the Senate, an amendment to the energy bill, was rejected by a vote of 55-44 in June 2003 (Amendment 876 to S.14). The amendment would have largely repealed the 1993 CFTC and 2000 Congressional deregulation acts.

The measure was defeated after a public spat between Warren Buffett, chairman of Berkshire Hathaway, and Federal Reserve chairman Alan Greenspan. Buffett called the underreguated derivatives markets "weapons of mass destruction" in March 2003, and Greenspan took the unusual step of publicly disputing Buffett's assertions.

In the House, Public Citizen supports HR 1638, introduced in April 2005 by Missouri Republican Rep. Sam Graves. His legislation takes important steps to improve transparency of these deregulated natural gas trading markets, and would also forbid CFTC members from working for any organization subject to Commission regulation for one year.

Graves' legislation is clearly aimed at the CFTC's troublesome streak of "revolving door" appointments and hiring which may further hamper the ability of the agency to effectively regulate the energy trading industry. In August 2004, CFTC chairman James Newsome left the Commission to accept a $1 million yearly salary as president of NYMEX, the world's largest energy futures marketplace. Just weeks later, Scott Parsons, the CFTC's chief operating officer, resigned to become executive vice-president for government affairs at the Managed Funds Association, a hedge-fund industry group that

figures prominently in energy derivatives markets. Such prominent defections hampers the CFTC's ability to protect consumers.

It is prudent to enhance regulatory oversight over natural gas trading markets considering the new breed of trader that is beginning to dominate these markets. Public Citizen research has identified more than 200 hedge funds that have developed significant positions in natural gas trading markets. In addition, investment banks—led by Goldman Sachs and Morgan Stanley—have already firmly established themselves as dominant players in natural gas trading. Given the sheer size and political muscle behind these hedge funds and investment banks, greater transparency over their actions is needed now more than ever.

Reform NYMEX Natural Gas Trading Price Limits

Trading exchanges can impose price limits on daily trading as a way to protect consumers. For example, in response to the Mad Cow scare, the Chicago Mercantile Exchange (CME) imposed a price limit on cattle of 3¢ per pound—so if the price fluctuates more than that amount, trading on cattle is stopped until the next day. The 3¢ limit is about 0.04% of the current trading price of live cattle—a very low threshold that protects consumers and producers from volatility. Even commodities unaffiliated with Mad Cow- like "scares" have strict price limits. Trading in milk futures contracts is suspended until the following day if the price changes more than 75¢ (5.3% of the current price). Trading in lumber futures is halted for the day if the price swings more than $10.00 per thousand board feet (3% of the current price). These severe price limits help control volatility and reduce damaging speculation. The CME implemented these strict price limits typically at the request of producers, since many of the price swings were hurting their bottom line.

But NYMEX has weak price limits on natural gas trading. If the price changes by $3/Btu during a daily session, then trading is suspended for only 5 *minutes*. This $3 limit is 27% of the current price at Henry Hub ($11 per thousand cubic feet), compared to the much smaller range of 0.04% to 5% listed in the above agricultural commodities. This means that NYMEX tolerates more volatility in natural gas trading markets, making it a more attractive market for speculators to profit at the expense of consumers. But, unlike agricultural products with tough price limits, the natural gas producers and speculators are making billions of dollars off these volatile natural gas markets.

Public Citizen urges the Subcommittee on Energy and Resources to pass legislation forcing NYMEX to set stricter price limits for natural gas in order to better protect consumers.

Mandate Natural Gas Storage Requirements

While under-regulation of energy trading markets allows market gaming to set natural gas prices, published natural gas storage levels influence the price. If natural gas storage levels are at historically high levels, the market typically will lower the price of natural gas, since more natural gas is available to release in response to demand fluctuations.

For years there has been a strong correlation between the amount of working gas in storage and the wellhead price of natural gas. But in recent years, the natural gas industry has kept less product in storage, which in turn has sent strong signals to markets to help drive the price of natural gas higher. Acknowledging that there may be flaws in allowing natural gas companies to set storage levels by themselves, Public Citizen recommends the creation of a "Strategic Natural Gas Reserve," perhaps modeled on the Strategic Petroleum Reserve. A federally-controlled and regulated natural gas storage system would help ensure that natural gas storage levels are adequate to meet demand.

It is important to note that in recent years, the correlation between storage levels and prices has become less strong. This trend may be attributable to an over-reliance of natural gas users on futures trading, rather than physical storage, as a hedging tool. In addition, the less-transparent natural gas trading markets since 2000 may also be contributing to this deviation from standard correlations, as market manipulation—rather than true supply and demand—sets prices.

Details of the $4.4 billion in fines and other payments by natural gas companies to government authorities to settle allegations of market manipulation

Company	Payment ($millions)	Agency	Date	Description of Enforcement Action
AEP (Columbus, OH)	$ 81.0	CFTC	Jan-05	false reporting and manipulation of natural gas markets
Acquila (Kansas City, MO)	26.5	CFTC	Jan-04	making false reports and manipulation of natural gas prices
Black Hills Corp (Rapid City, SD)	3.0	CFTC	Jul-03	Black Hills subsidiary Enserco Energy manipulated natural gas prices
Calpine (San Jose, CA)	1.5	CFTC	Jan-04	reporting false volume and price data of natural gas
CenterPoint (Houston, TX)	0.3	FERC	Jun-05	abuse of affiliate transactions involving natural gas transportation
Cinergy (Cincinnati, OH)	3.0	CFTC	Nov-04	false reporting of trade information concerning natural gas prices
CMS Energy (Jackson, MI)	16.0	CFTC	Nov-03	false reporting and attempted manipulation of natural gas prices
Dominion Resources (Richmond, VA)	5.0	FERC	Aug-03	improper sharing of natural gas storage inventory information
Duke Energy (Charlotte, NC)	28.0	CFTC	Sep-03	false reporting and manipulation of natural gas
Dynegy (Houston, TX)	5.0	CFTC	Dec-02	Dynegy (ChevronTexaco owns 25%), through its 50% stake in West Coast Power (Xcel subsidiary NRG owns the rest) manipulated natural gas prices
El Paso Corp (Houston, TX)	1,690.0	FERC	Nov-03	manipulating natural gas pipeline capacity into California
El Paso Corp (Houston, TX)	20.0	CFTC	Mar-03	intentionally manipulating natural gas prices
EnCana (Calgary, Canada)	20.0	CFTC	Jul-03	EnCana's subsidiary, WD Energy, manipulated natural gas prices
Enron (Houston, TX)	35.0	CFTC	Jul-04	manipulation of natural gas prices
Entergy Koch Trading (New Orleans, LA)	3.0	CFTC	Jan-04	reporting false volume and price data of natural gas
Mirant (Atlanta, GA)	12.5	CFTC	Dec-04	false reporting and manipulation of natural gas
Nicor (Naperville, IL)	0.6	FERC	Aug-04	Nicor improperly shared natural gas storage data.
NiSource (Merrillville, IN)	2.5	FERC	Aug-03	NiSource's Columbia Gas subsidiary improperly shared natural gas storage data
Oneok (Tulsa, OK)	3.0	CFTC	Jan-04	reporting false volume and price data of natural gas
Reliant Energy (Houston, TX)	18.0	CFTC	Nov-03	false reporting and attempted manipulation of natural gas prices
Sempra Energy (San Diego, CA)	29.0	CA PUC	Nov-04	manipulating natural gas markets
Shell (The Hague, Netherlands)	30.0	CFTC	Jul-04	Shell's Coral Energy subsidiary manipulated natural gas prices
Western Gas Resources (Denver, CO)	7.0	CFTC	Jul-04	knowingly reported false natural gas price and volume info
Williams Cos (Tulsa, OK)	20.0	CFTC	Jul-03	intentionally manipulating natural gas prices
Williams Cos (Tulsa, OK)	7.6	FERC	Jun-05	manipulating natural gas markets
Xcel (Minneapolis, MN)	16.0	CFTC	Jan-04	Xcel's subsidiary, e prime, manipulated natural gas prices
subtotal	**$ 2,083.5**			
Enforcement actions combining natural gas and power manipulation				
Duke Energy (Charlotte, NC)	$ 207.5	CA AG	Jul-04	power and natural gas manipulation
Duke Energy (Charlotte, NC)	142.5	FERC	Dec-03	manipulation of power and natural gas prices in the west coast energy market
Williams Cos (Tulsa, OK)	1,817.0	CA AG	Nov-02	violating the Unfair Competition Act by illegally pricing power & natural gas
Williams Cos (Tulsa, OK)	140.0	FERC	Jul-04	manipulation of power and natural gas prices in the west coast energy market
subtotal	$ 2,307.0			
grand total	**$ 4,390.5**			
Pending lawsuit alleging natural gas manipulation				
NRG (subsidiary of Minnesota-based Xcel)	-	CFTC	Jul-04	The CFTC is suing NRG for manipulation of natural gas prices

Mr. ISSA. And with that, I am going to ask the first round of questioning. And perhaps just a comment to Mr. Slocum. You know, I am a little older than you are, and I have been in towns that enforced their speed by having a speed trap and caught everybody and collected a lot of money. And I have been in towns where they just sort of ignored the speed limit and people drove 10 miles, 20 miles, 30 miles over the speed limit.

It was a surprise to me that in your opening testimony that you indicated that the amount of money you collect is an indication that there is no enforcement, or that there is a pervasive problem. I would say from my experience that the more money you are collecting, the more an agency is doing its job, and perhaps even collecting money when somebody even makes an unintentional error but makes an error for which there is fining. And you might want to try to in your future testimony try to break down the fines so as to eliminate logical good enforcement that is doing its job from the possibility of, as you said, a widespread lack of good enforcement. Today obviously we don't have the facts for it, but like I say, I look at $2 billion as a significant amount of enforcement.

Perhaps I could open up by quoting yesterday, while touring the gulf and assessing the damage of Hurricane Katrina, Energy Secretary Bodman said, "The great concern is about natural gas." Are we in a crisis? Will we have enough natural gas to heat our homes and run our factories this winter, and at what price?

I guess for those who were involved in the pricing—and I am going to start with Mr. Magruder—are we going to have enough, and at what price?

Mr. MAGRUDER. I think we are in a situation right now where production is at pretty much a steady state. If you take the Rocky Mountain region as an example and its ability to deliver more natural gas, I'd tell you yes. We do have the ability to immediately deliver for natural gas because the wells don't take that long to drill. The infrastructure is already there and we can execute and eliminate some of the pressure this winter. I don't think it's going to be a solution, and I don't have the crystal ball to tell you what the price is going to be.

We are certainly not pricemakers, as I mentioned in my testimony. But I just know if we don't take any action, we can expect higher prices and the current process is not going to work. I would hope that this subcommittee has the power to enforce or recommend some changes, and I personally think it is all behind the NEPA process. If you look at the way that the industry is able to execute and perform on State and fee lands in the same States and in the same vicinity, just a sand wedge away from a Federal lease, we are able to execute it within a matter of weeks. But it takes up to a year in a lot of cases to do the same thing, same procedure, same execution on a Federal parcel.

So I think that yeah, we are in for a pretty tight winter if we don't take any action right now. We've got Katrina that's contributing to the supply picture. I don't know if we know the total outlook of the results of Katrina at this time. I think the jury's still out on that. But the Rocky Mountain region and the players in the Rocky Mountain region stand ready to perform, given the proper flexibil-

ity. And I don't think we will sacrifice any of the NEPA standards in the process.

Mr. ISSA. Thank you.

Ms. Watson, I have a question and maybe—I want to make sure you're the right person for it. An application to drill taking 6 months for an 8-day drilling—there was some testimony that indicated that this, that the ratio between applications and actual drilling, I think 60 percent were being drilled and 40 percent had not been drilled, if I understand correctly, creating a backlog of approved applications—costs the U.S. Government substantially zero.

Why wouldn't we want to encourage the greatest amount of preapproved applications, the greatest amount of ability to preload flexibility, particularly for a crisis like this?

Ms. WATSON. Well, we are interested in processing applications for permit to drill, so we have zero incentive not to process them. But as Mr. Magruder testified, we have laws that we have to comply with—NEPA is just one of them—on Federal lands. In addition to the National Environmental Policy Act, which is a process to take a hard look at the environmental impacts, we also have to comply with the National Historic Preservation Act. States do not. We also have to comply with the Endangered Species Act, section 7. States do not have to comply with that. They have to avoid the take of endangered species. We have the Clean Water Act, the Clean Air Act. In other words, we have a number of Federal environmental laws that Congress in its wisdom has passed to protect and balance the environment with the need to produce energy.

But I was struck by something that you said at the beginning of this hearing. You—or actually it was Representative Higgins, said this: He wanted to look at solutions. And I would like to identify for you that in the Energy Policy Act, we have some solutions, some of which are in effect right now, and they also go to a problem that Mr. Magruder identified. One that was put in effect the day the President signed the bill on August 8th is a requirement that we have to tell industry within 10 days whether their application for permit to drill is complete. If it is complete, BLM must process it in 30 days. That is in effect right now. We are going to issue two instruction memorandums to the field—they just went out of my office yesterday—to instruct our field managers on these provisions of the act so they understand what they mean, and so we are getting to work on that provision of the act right now.

Another provision that went into effect the day the act was signed are categorical exclusions that Mr. Magruder talked about. There are five categorical exclusions for APDs that are in the act; and again, we are working with the Forest Service and the Bureau of Land Management, because they apply to both of our lands, to get that written and prepared and out very shortly. It's in effect now, but we need to give the proper guidance to our field to implement that.

And finally one of the issues that was raised on the issue of wildlife stipulations in year-round drilling, that is a very difficult question, the issue of balancing wildlife. Wildlife is important to many of these Western States. Many of those States have a significant income from hunting. It's part of the lifestyle of that State, part of what they look at as well as whether they enjoy hunting or not.

We work with the State game and fish agencies and hunting groups to try and balance that. We are working right now in Wyoming and looking with a couple of companies up there at year-round drilling. How can we do year-round drilling and still keep the wildlife herds at a good level?

We also implemented a policy just this summer on offsite mitigation. So while we are going to have wildlife impacts, we are going to mitigate those impacts through utilizing money that companies pay to purchase acreage elsewhere. And so we are trying to be flexible to address some of the concerns that industry has brought up.

Mr. ISSA. I appreciate that.

And my final question is actually, again, or at least the first round is again is for Secretary Watson and Mr. Magruder.

I saw that litigation in regards to natural gas production on public lands has greatly increased. To the extent that we have legal maneuvers tying up BLM resources and slowing down the natural gas process, is there a way that we can qualify and reduce these delays; and particularly noting that this is a jump from the Clinton administration at 666 protests to 4,429 protests over a comparable period? I don't think there is any industry that is growing faster than this.

Ms. WATSON. It seems to be a booming industry. I'll agree with you there. It's quite a jump.

Mr. ISSA. So there are no lawyers considering going into gas drilling, I guess, at this time.

Mr. MAGRUDER. They don't need to take the risk. All they have to do is file the case.

Mr. ISSA. What can we do? Are there Executive powers that can be used to somehow streamline this process? Because it's not only, obviously, the quantity but the time they are consuming and the gas that isn't coming on-line as a result.

Ms. WATSON. I think the GAO did a study and examined the administrative appeals process and compared how the Minerals Management Service and the Bureau of Land Management handles these type of appeals, and identified the fact that the Bureau of Land Management has one more step in the process than does MMS. There is administrative action that the Secretary could take to address that.

There is always, of course, Congressional action that Congress could take to address this situation. It is a tough situation. I mean, clearly there are folks out there that do not want to see public lands developed for any number of commodities' uses. Natural gas production is only one area. We are also seeing it in the renewable energy as wind energy is being developed. Geothermal. In your State of California, folks are stopping that as well.

Mr. ISSA. I understand that now wind is not good enough because a bird dies. So it is going to be interesting to find out what form of energy is acceptable.

You know, solar also uses a lot of water to clean the lenses. It is interesting that everyone's found that conservation is the only answer so that we can save ourselves into energy self-sufficiency while producing zero energy. I have always found that to be interesting. Yes.

Mr. MAGRUDER. I would like to offer—we were talking about solutions, and I am certainly glad to hear that we have some memorandums that will be sent out pretty soon. And believe me, IPAMS is there to help implement those and assist any way we possibly can.

But I'd like to suggest two things. And I think that—you know, we have existing locations using directional drilling technology; we can drill from the existing locations. If we were to introduce an order immediately that it's OK to operate within the given best practices defined for a given area that has a known recess, you can drill from the existing locations, we really don't do any further disturbance. We don't build any more roads. All we do is drill a second well from a given location. That could immediately offer more production and we could start that immediately.

And the other thing is to do program-wide type permitting, similar to what the BLM is currently doing in the Powder River Basin. They will approve as many as 40 wells in one application. In other areas of the Rocky Mountain region, with the exception of that area, it has to be done site specific. Each individual well has to be permitted. If we are in a given area where we're basically just manufacturing natural gas and we are applying the same best practices approved by the BLM, the question is why can't we do—approve a certain area for development as opposed to very site specific, as long as we conform to the archaeological studies and everything else that was mentioned.

So I think there is a lot of flexibility that can be granted and still meet the guidelines of NEPA and all the other requirements. Those two things would offer immediate increase in production.

Mr. ISSA. Excellent.

And with that, I would recognize the gentleman from New York, Mr. Higgins, for his round of questioning.

Mr. HIGGINS. Thank you very much, Mr. Chairman. Just again, thank you for your testimony. It's very helpful. But it's also very revealing.

I think about where the problem is. There are some pretty divergent views here. Some are suggesting more regulation, others suggesting less. Some are suggesting that the energy bill was helpful. Some are suggesting that the energy bill just passed was harmful. The fact of the matter is it just seems like we're stuck. And we're stuck because we have become increasingly reliant on natural gas not only to heat our homes directly, but also as an alternative fuel source to electricity production. So whether you're paying a gas bill this winter or you're paying an electricity bill, that bill is going to be profoundly influenced by the price of natural gas.

Mr. Slocum, you had mentioned that the new energy bill had some $6 billion in industry subsidies. Could you elaborate a little bit further? I don't quite understand.

Mr. SLOCUM. Sure. Well, I mean first of all there are $27 billion total in subsidies to the energy industry. I isolated $6 billion to the oil gas and natural gas industry. The largest tax break for the natural gas industry was just over $1 billion in tax breaks to allow them to depreciate the value of their natural gas pipelines much quicker than under current law. There are additional new government spending programs such as the new ultra deepwater drilling

program that is $1½ billion in new government spending in direct subsidies to encourage research and development in new ultra water drilling in the Gulf of Mexico. There is an additional $1 billion in tax breaks for geological and geophysical expenditures that allows companies to write off more of the cost of production.

Again—and then there's also a series of royalty relief programs. Again, Public Citizen strongly feels that the record-high commodity prices for natural gas and oil should be providing all the incentives necessary to the industry to provide this product and that scarce taxpayer dollars should not be given to a highly profitable industry.

Mr. HIGGINS. You know, the other issue here is the whole impact of Hurricane Katrina. Based on this map that was provided in our packet here, I mean, just the cluster of oil and gas platforms that are seemingly disproportionately located on the border of host States indicate a further problem that may be resolved in the longer term but obviously presents some severely complicating factors relative to the price of natural gas this upcoming heating season.

On the issue of conservation, a number of you, all of you, have made, I believe, specific reference to conservation, and it seems like there is always a rhetorical run-up to the whole notion of promoting conservation toward the goal of reducing dependency and reducing costs. But I have reviewed the energy bill just passed by Congress, and I don't see it. I don't see a real and meaningful Federal policy with respect to conservation for individuals and for businesses. And when I say real and concrete, I mean meaningful financial incentives, meaningful incentives to really pull back or reduce significantly our consumption.

Any thoughts with respect to that by any of you?

Ms. WATSON. Well, I think the—when we speak of the energy bill being comprehensive, I would like to defend the fact that it is comprehensive; and the bill begins with conservation, looks at supply and includes both renewable energy, fossil fuels, future sources such as hydrogen and methane hydrates and then looks at research and reports to develop energy. And as to conservation there are several measures in there.

Now, what is meaningful is certainly in the eyes of the beholder. But there are measures there for Federal agencies with our fleet, and the Federal agency is the largest consumer of energy in the Nation. So these directives to Federal agencies to make their buildings and their fleets more efficient will have an important impact on energy supply.

And I will tell you that the administration right now in light of Hurricane Katrina is looking at these conservation measures in the short term, and the direction of the energy bill is in there and it is an important prong. Now, it certainly is not what everybody wanted, but it is something more than minimal.

Mr. HIGGINS. You know what I think it does now? Here's what I think it does. I think it provides just enough incentive for the development of alternative energy sources to say that we are doing something, and disproportionately provides incentives to the status quo. And the problem with that for me is that it doesn't change anything. It doesn't change anything. Because we are talking about it today, we probably talked about it last year at this time and the

year before, and we'll be talking about it 10 years hence; because I think when you look at our whole dependence on energy sources, be it natural gas or foreign oil, we're really stuck. Unless we take aggressive measures to promote aggressive measures, real measures to promote real conservation, we'll continue to be stuck in this rut.

The people who are held hostage are not the people who are being talked about here today, and that's the people who I represent, i.e., those who are going to get devastated in the next several months with not only extraordinarily high home heating costs, but extraordinarily high gasoline prices at the pump. And of this exacts a devastating impact on the economy of regions, particularly those that are most vulnerable in terms of climate, in terms of economics, but it is devastating the economy of this Nation as well.

In my hometown we used to have a place, called Buffalo Color. Buffalo Color used to manufacture—a chemical company—indigo dye, which was the supply source for all of the blue jean companies. One of the consequences of high natural gas prices is devastation of the chemical industry, including Buffalo Color in my community. So from an economic standpoint primarily, but there are so many other secondary impacts that filter through this economy that are really hurting us badly.

I think it was Mr. Slocum who talked about other industries where problems had been identified, be it the financial or accounting industries, aggressive regulation followed which seemingly provided safeguards. I would rather not have to take into consideration more aggressive regulation of the energy industry. But toward the goal of greater transparency, toward the goal of greater accountability, toward the goal of fairer gas trading prices, that is something that this Congress needs to look at, because if we don't take more decisive action, more meaningful action, more real action, the problem is only going to get worse; because as all of you have agreed, the cost for natural gas increases roughly with the rate of inflation. As inflation increases, those prices will increase, and this is what will hurt our consumers and ultimately the world economy, and, more importantly, the U.S. economy.

So, but I thank you. This was very helpful and you were all very informative and forthright. Thank you.

Mr. MAGRUDER. Mr. Chairman, I would like to comment on one statement earlier about all the incentives that were offered. I can guarantee you for an independent producer in the Rocky Mountain region, there were really no incentives offered in the energy bill other than greater flexibility on access, which we have talked about.

We have a pilot project that was incorporated in the energy plan, energy bill, that identifies seven high-priority BLM offices in the Rocky Mountain region. That is really the only benefit that we truly gained.

We actually lost ground. If you had to score the energy bill on our balance sheet, we actually lost ground. So it may be that deepwater drillers in 7,000 feet of water have an incentive. My hat's off to them for drilling in 7,000 feet of water and willing to take that type of risk. But in the Rocky Mountain region for the average driller and the average producer, other than the pilot program that

the BLM is implementing right now to try to beef up the output of permits in the seven critical offices, really that's the benefit and that's the carrot that we are trying to bring to fruition. So the big question we have as an independent community, when will that be put in place?

So if there is anything that you can do to help the BLM right now, it's to get behind that pilot program and make sure that's implemented. And I would seriously reconsider some of the actions that we could possibly implement and take immediately, drilling on existing locations in the Rocky Mountain region, that could offer additional production also.

Mr. ISSA. Thank you.

And with that, we would recognize the gentleman from the drilling of oil and natural gas region, the gentleman from Texas, Mr. Marchant.

Mr. MARCHANT. Thank you, Mr. Chairman. My questions are for Mr. Caruso, Ms. Watson, and Mr. Zenker. And it has to do with the liquefied natural gas market.

Just a few months ago, I had an opportunity to go to South America on a narcoterrorism fact-finding trip. But while we were down there we were lobbied, and pretty heavily, about the existence of a lot of liquefied natural gas in South America and its availability and how cheap it was if we could just find a way to get it into the United States.

Just recently, in Secretary Norton's comments about the storm in the gulf, she talked about the fact that there is really no world market yet for liquefied natural gas.

Could you comment about that whole market and did the energy bill effectively address that issue? How long would it take for those markets to kick in if we were equipped to have docking stations, etc.?

Mr. CARUSO. Yes, that's an excellent point. I think our—the Energy Information Administration and, I think, Mike Zenker's presentation from CERA today are pretty much in agreement that if we are going to meet the kind of demand outlook that most forecasters are expecting, LNG will have to play a huge role in the supply of LNG from the existing facilities in Trinidad. Algeria and Nigeria will need to be supplemented. We expect to see a lot coming from Qatar in the Persian Gulf. But there is also, as you point out, potential from South America—Peru, Bolivia, Venezuela in particular—in addition to the existing facilities in Trinidad.

So we're looking for a quadrupling of the amount of LNG coming into this country compared with what it is today over just the next 10 to 15 years. So we need to do our part, which is building regassification facilities, which are I think well underway, with a large number already approved by FERC and the Coast Guard.

But the supply side also needs to be dealt with, and that is the point you have made about gas in South America and elsewhere that needs to be liquefied. So we're looking for LNG supplies to, we think, put some downward pressure on gas prices, but that is going to take time. We don't see a substantial amount of LNG increments beyond the existing facilities until about late 2007 and the beginning of 2008.

Mr. MARCHANT. Do you find that—is there a built-in disincentive for the drillers and the domestic producers who are the same people that are importing the liquefied natural gas and regassifying it and putting in the pipelines? Are they the same companies?

Mr. CARUSO. Some are. You know, there are some of the major oil and gas companies that are investing in regassification as well as those who are not, who are more directly involved in the foreign supply such as British Gas and others. But I would say a substantial share of the new regassification facilities are also the existing oil and gas companies.

And the point of the energy bill, there was a section in that bill that did facilitate the permitting of regassification under FERC jurisdiction, which I think will be helpful, although as we found in Ms. Watson's comments that there are still a number of other hurdles with respect to State and local opposition as well.

Mr. MARCHANT. Thank you.

Mr. ZENKER. If I could add to that. Certainly these prices have triggered a huge enthusiasm to build LNG in North America. We've gone from LNG not really being even an issue for North American natural gas 5 years ago, to the point where we have far more terminals than are needed. This industry has demonstrated again and again that it will do a good job of overbuilding the market and pressing prices back down quite rapidly.

With LNG, I think what some of the overseas owners of gas are looking at, is that just a few years ago gas prices in the United States were too low to justify the construction of these terminals. So while there's a lot of enthusiasm, there's also a lot of risk in putting a $5 billion liquefaction cargo container and regassification terminal program together.

That said, I agree with Mr. Caruso that enthusiasm is translating into construction. We are going to see huge growth in shipments of LNG into the United States. That's starting already. Unfortunately that's a few years out. The big new volumes are in 2008. And we have more terminals under construction in the United States than we are going to need. That's the good news.

The tricky part is that the supply piece, the areas that you visited, that's going to be the pacing item, the building of what are called the liquefaction facilities to put the cargoes in, the liquefaction, the LNG tankers and then transport to the United States. Our long-term price outlook suggests that LNG is going to significantly dampen prices in 2008, so it's a very critical part of the outlook.

Mr. SLOCUM. If I may add something on LNG. I am sure that Congress has held many hearings talking about the dangers to national security of being reliant on OPEC member nations for our crude oil supplies. I can safely predict that if all of these LNG facilities are constructed in the United States, 10 or 15 years from now Congress will be holding hearings about how did we allow our country to become reliant on OPEC for natural gas. Because that is where the LNG is going to be coming from; from OPEC. So I think that is a very important consideration to make.

Also, the energy bill that was passed in August greatly impedes the ability of State governments to adequately oversee the construction of these LNG facilities. I personally work with about 100

community organizations across the country that have raised significant concerns, and their ability in our democracy to have adequate oversight over the permitting and construction of these facilities is hampered by the energy bill, which gives FERC exclusive jurisdiction over the construction of these facilities.

Mr. MARCHANT. Thank you very much.

Mr. ISSA. Before I recognize the ranking member, I should disclose that I was on the Energy and Commerce Committee as a member at the time that we recognized that there are NIMBYs; and I guess you pronounce them NIAOBYs, the ones that are not in anyone's back yard. If any of you have ever tried to put an LNG facility in, what you discover is there is no back yard that wants it. There never will be a back yard that wants it. I'm not saying there won't be a small city, but there'll always be somebody in the area that doesn't want it.

So at least from this Member, on a bipartisan basis, I actually think that one of the things that the Congress has done that was very important was centralizing to the Federal Government the authority, recognizing that the gentleman from California, the gentleman from Michigan, Mr. Dingell, and all the rest of us, certainly hear from our home but are filtered through the greater national need.

I would like to, before I pass it on, just have one quick question. Mr. Zenker, if I understood correctly, you said there are too many facilities being built, physically under construction. My understanding is there are zero in California and as all of us from California know, there isn't enough capacity right now to guarantee natural gas coming in from the gulf area. So if I could modify what I think I heard you say is, in some places there is an excess of construction, well, at least in California there isn't any construction and we are an area at the end of the pipeline. Is that correct?

Mr. ZENKER. Yeah, that's a good clarification, Mr. Chairman: And to followup on that, you are right that we're seeing a growing concentration of the new construction of LNG receiving terminals in the gulf, specifically in two Louisiana parishes and in the eastern portion of Texas, and not in the consuming markets of California or the eastern seaboard. When I said we are, maybe the more appropriate term would be we're seeing enough construction of regassification terminals relative to the liquefaction facilities that are coming on, that will not be the constraint in bringing LNG to the market. However, we aren't seeing them built in the consuming markets.

Mr. ISSA. Thank you. With that, I'd recognize the gentlewoman from California, Ms. Watson.

Ms. WATSON OF CALIFORNIA. Thank you so much, Mr. Chairman.

In noticing during Katrina, the fact that many people could not escape the depressed area of New Orleans because, a, they didn't have automobiles or, b, they could not afford the gasoline, and all of us saw lines as long as 5 miles with people waiting 5, 8 hours just to get gas, and then to get to the pump and see the prices. Well, I call that gouging. So I know that there is a great deal of profit attached to the production of energy, be it natural gas, be it gasoline or whatever.

I want to know—and I am going to direct this one to Mr. Tyson Slocum because he is here representing Public Citizen—what can we do in terms of public policy, Mr. Slocum, to protect our environment, to address the demand, and to make these different kinds of sources of energy affordable?

Mr. SLOCUM. Representative Watson, first of all, you are absolutely correct that there is indeed a strong correlation between the record profits being enjoyed by oil companies and the record prices being charged to consumers. The EIA compiles information, for example, on profit margins in the U.S. refining industry. In the 1990's they were consistently around $0.20 a gallon profit margin. In 2004 that profit margin had jumped to $0.40 per gallon. And because large oil companies like Exxon Mobil and Chevron Texaco and BP are monopolies, they're vertically integrated. They have oil production in the United States and all over the world. They own oil refineries. They have other downstream mechanisms. You've got a lot of control over the market.

As I mentioned in my testimony, it's not just Public Citizen coming to that conclusion, it's the U.S. Government Accountability Office, which showed in a study in May 2004, that recent mergers have directly led to high gas prices and, in fact, the largest five oil companies operating in the United States today have enjoyed profits of $254 billion since 2001. That's a very healthy profit margin.

So what can be done about it? Well, first of all, we clearly need to do something about demand. Our Nation's fuel economy is worse today in 2005 than it was in 1987. That's because of our appetite for fuel-inefficient automobiles like SUVs that have a loophole from the standard fuel economy rate. This is where the energy bill really failed to address the fundamental problem, because the United States is the largest consumer of oil in the world. We use 25 percent. So unless we address that, we are not going to be able to get our way out of this crisis. Remember, the United States is the third-largest crude oil producing Nation in the world and we are one of the largest natural gas producers. Even if we doubled our oil production to match that of Saudi Arabia, we'd still be importing half of our oil. So we are never going to be able to produce our way to independence, and that's where the energy bill fails the logic test. We need to address demand.

Second, I think that we should order an immediate investigation into allegations of price gouging by oil companies. We already have evidence presented by the Federal Trade Commission in March 2001 that major U.S. oil companies were intentionally withholding supply from the market in order to drive prices up. However, because no evidence of collusion was found, there was no violation of antitrust law, a clear loophole in our Nation's antitrust system.

I think that critical commodities, whether they be Enron's control over electricity, whether it be natural gas companies, or whether it be oil companies, should not be able to intentionally withhold supplies in the market. That should be illegal and I think that an immediate investigation should be commissioned by Congress.

Ms. WATSON OF CALIFORNIA. Let me just do a followup question. You said that it should be illegal. What would be, or who would be the body that would declare those activities illegal? Where do you see—who has the authority to do that?

Mr. SLOCUM. Well I think the Department of Justice would be reasonable. I mean, they enforce our Nation's laws, and I think that you can have some clear laws on the books that oil is a critical commodity in the U.S. economy and should be treated as such. It should be treated a little differently, especially when people like Federal Reserve Chairman Alan Greenspan talk about the severe negative economic consequences of sustained high energy prices.

So there is a national public interest involved here in making sure that there is a direct connection between high prices and supply and demand. Clearly supply and demand are driving higher prices, but I think that an investigation is warranted to find out whether or not there is anything going on above and beyond that.

Ms. WATSON OF CALIFORNIA. Now, this I am just putting out for anyone who wants to address it. But I missed your testimony and I'm sorry that I did that, particularly my relative over there, Watson. But do you think that our laws are adequate when it comes to conservation and environmental protections? What do we need to do so that in our quest for energy sources we do not continue to pollute our environment?

And by the way, I live in Los Angeles under the flight path going to LAX, and they start to reduce their gasoline as they come in toward the airport. You can go outside and you can run your hand across the panes and it's black. So I know that gets into my carpeting, it gets into my nostrils, and everybody else's that lives in my household. So our environment certainly has been changed because of our use of these fuels and all.

So what do you suggest in terms of conservation? Do we have laws on the books already to take care of this? How do we protect our environment, therefore protecting the health of our citizens? Anyone want to comment?

Ms. WATSON. Well, I think we, as I said in my testimony and in answer to some of the questions, we have a number of Federal laws on the books to protect the environment that Congress has passed over the last 30 years setting standards for clean water and clean air, protecting our cultural history, history of our Nation. We have laws to protect wildlife, endangered species, as well as other wildlife. So we try to balance the protections of those important values, that quality of life that comes from a clean and healthy environment with the quality of life that comes from affordable energy.

You spoke eloquently of the impacts on the elderly and the poor in our Nation from high energy prices. High energy prices coming from a tight supply impact our quality of life. Equally so, a bad environment impacts our quality of life. And the trick for a Federal manager such as myself is trying to find that right balance so that we protect the environment but get the energy that our citizens need to have a quality of life that they can afford.

I think we have good environmental laws in place. We heard testimony that the processes that we have can sometimes pile up one on top of each other and really impede our ability to get energy out in the timeframe that we need it. Right now we have high demand and lack of supplies: Can we work within this web of laws to get the energy out in time to get the prices down so they don't impact your constituents? That's the difficulty.

Ms. WATSON OF CALIFORNIA. Can we do more?

Ms. WATSON. I think we can always do more. I think that we as American citizens can do more to conserve. I think that we in this room, many of us are leaders, and I think we all can lead by example and help educate the folks.

One of the things that I have found in my job is that many of our citizens don't understand much about energy, where it comes from, how we can impact our use of it. A simple thing, turning down the thermostat can have a huge impact. Turning lights out in a room. Again, California set an example when they had their energy crunch. They had a campaign of education to their citizens. They were able to reduce energy consumption between 6 and 12 percent, which had an impact and helped them get through their crisis. I think we do more in that arena. The energy bill points a direction there.

The President's energy policy also has conservation prongs. We in the Federal agencies can and have been doing that. Industry has done that over the last 30 years. But we all can do more and I think it's a public education effort that we need to engage in.

Ms. WATSON OF CALIFORNIA. I come from a State—we come from a State where we love our automobiles. Our automobiles speak of who we are. You know, you don't ask a person what kind of work they do or what's their family history. You ask what kind of car do you drive. I always use this test when I go into a high school auditorium speaking to students, you know: How many of you drive? How many of you want to drive? And it never fails, every hand goes up. Either they drive or they want to drive. I ask them what is the speed limit, and somebody will say 50, somebody will say 75. I said, you're all wrong; it's whatever we say it is.

Do you know we control everything that has to do with the car? We tell you how many passengers can ride in it, how you have to ride in it, what beverages you can have in it, what condition they have to be in, what color you paint it, how much you pay for it in terms of taxes, where you park it, on and on and on. That starts bringing something home to them.

What I feel is that we probably are the greatest violators in the State of California. My colleague, I don't know how many cars you have, but you can only drive one at a time.

Mr. ISSA. Fuel consumption is not based on how many are in the garage, it is based on how many miles you drive and how much mileage they get.

Ms. WATSON OF CALIFORNIA. And what kind of fuel you have to put in it. Our kids—you are right, I am saying all of this in support. We have to do a better job of educating. Does anybody know about these doughnuts? That means you drive as fast as you can, you spin on the rims. You can see it. They do it at 4 a.m., by the way, from 1 a.m., to 4 a.m. You can see—I guess the rubber on the wheels—and that is using energy.

So, I think one way is to really do a better job in our elementary schools. But if any of the rest of you—I mean, if you own six cars that use diesel fuel and you can only drive one at a time, and when you get out there, you are expending all of that time, or maybe each one of your kids drives one. I am just wondering what we can do, because we really have a challenge.

Mr. ZENKER. Representative Watson, if I could add to that.

Ms. WATSON OF CALIFORNIA. Yes.

Mr. ZENKER. I am also from California. I did live through the California electricity crisis. California did set an interesting but cautionary example for energy conservation. Just for historical precedent, American consumers have trimmed on a per customer basis about 30 percent of natural gas per household since 1970.

So these are the effects of energy efficiency programs implemented for appliances, building codes, and so forth. Home heaters—water heaters have become much more efficient.

In terms of what has been implemented to cause very immediate or measurable impacts in the short term, California is often held out as a leading example. But living in California and having followed the energy markets during that crisis, we saw that consumption of electricity in natural gas continued unabated and grew through the crisis until we finally faced real blackouts. Utilities implemented an incentive program called the 20/20 program, which finally put an incentive on top of increased prices in front of consumers. They responded by cutting—9 percent is the number that we came up with, electricity consumption in one-quarter, very swift change and an almost equal amount of natural gas.

However, when those incentives are removed, gas and electricity consumption rebounded to near pre-crisis levels. So it showed that continuous incentives are required to cause continuous conservation by consumer, at least in the current mindset.

Mr. ISSA. Thank you. Being a San Diegan, very specifically, part of California, we delivered almost from the beginning of the crisis, far more than the 6 to 9 percent, because our prices went up immediately. Unfortunately, and I am not trying to be partisan here, the history uniquely was it was probably the only time in which there was a short supply while wholesale price went up, retail prices were maintained, and as a result, consumption didn't go down. We simply had Representative Watson and my constituent—deliverers of electricity, go bankrupt. But we share with some regularity comments about Enron, WorldCom and other companies that have abused the public trust. But certainly Pacific Gas & Electric was abused by a system that said that you will pay for and you will sell for the same amount, even when it becomes subsidizing retail price to where you are delivering the electricity for less than you pay for it wholesale. Hopefully, we will all learn that when it comes to conservation, that is not the right way to attain it.

I am being cautioned by my able staff that it is time to bring this session to a close. With your indulgence, members of the subcommittee will be submitting additional questions in writing.

But with that, I want to thank all the panelists for their candid remarks in addition to their written testimony. Today our witnesses confirmed that domestic production and current imports do not give us the flexibility and supplies to meet demand and reduce prices from the high level they are—the unbelievably high level they have now obtained. The vulnerability of concentrating much of our energy infrastructure in one region, the Gulf of Mexico, is another real issue that was brought up here today.

We must also insure that demand is not spurred by becoming more dependent on natural gas for new electricity. Natural gas is an efficient fuel that is essential to our economy. The choices we

make affect our industry's competitiveness, our employment and the prices we pay to heat and cool our homes.

We must stay focused. We must insure that we make the tough choices to meet our energy needs, both on the supply and on the conservation side. Natural gas supplies are too important to our country to do otherwise.

We will hold the record open for 2 weeks from this date for those who may want to submit for possible inclusions. With that, once again, I would like to thank the panel, and we stand adjourned.

[Whereupon, at 4.45 p.m., the subcommittee was adjourned.]

[Additional information submitted for the hearing record follows:]

TESTIMONY OF R. NEAL ELLIOTT, PH.D., P.E.
Industrial Program Director
American Council for an Energy-Efficient Economy (ACEEE)
Submitted to
House Government Reform Subcommittee on Energy and Resources
September 14, 2005

Summary

While much of the recent attention in policy communities has been on natural gas wholesale prices or gasoline pump prices, the reality is that our problems are much deeper and more interrelated. In the past, our energy problems tended to be with a single energy source, be that gasoline, heating oil, natural gas, or electricity. This situation has in the past allowed us to switch between energy sources to relieve tightness in a single market. What the United States faces now is tightness in *all* major energy markets, which has put the country in an energy straightjacket, unable to turn to other conventional energy resources for relief.

The good news is that ACEEE research shows that energy efficiency and conservation are the most viable near-term strategy for moderating natural gas prices and are also vital to stabilizing longer-term gas markets. Our testimony first discusses the roots of the current situation, assesses the potential impact of energy efficiency on wholesale natural gas prices, and points out the limits of supply-side solutions. It then focuses on ACEEE's analysis, which shows that we can cut wholesale gas prices by as much at 25%, or about $1.50 per MCF. These savings would put over $100 billion back into the U.S. economy, at a cost of $30 billion in new investment, of which $7 billion would be public funds.

Federal and state governments currently spend over $2.5 billion annually on energy efficiency, in research, development, deployment, and other programs. The 5-year, $7 billion public investment we recommend would average $1.4 billion annually and would represent a 56% increase in public commitment to efficiency. Given the benefits (a 25%-plus drop in natural gas prices, more than $100 billion in direct economic benefits, and thousands of new jobs), an aggressive federal and state energy efficiency and conservation effort over the next 5 years is perhaps the best investment we could make in the American economy.

ACEEE's recommendations for near-term action include:

1. **Increase funding for efficiency deployment programs.** We recommend that Congress increase FY 2006 appropriations for federal programs that deliver near-term energy savings to consumers (including the ENERGY STAR programs, the Weatherization program, and DOE's suite of other best practice programs) and that the Administration follow suit in its FY 2007 budget request. These programs can be of great help in Katrina-affected areas, and with added funding, they can quickly ramp up energy savings nationally in the next few years.
2. **Expand public benefits funds for efficiency.** Eighteen states collectively spend over $1 billion on public benefits efficiency programs funded through utility bill fees. Other

states (and Congress) should follow this example, and states with current programs should increase funding levels. Most states operating such programs coordinate their efforts with federal programs like ENERGY STAR; this partnership should be continued and expanded, so that the benefits can be felt in more states.

3. **Expand and extend tax incentives for high-efficiency technologies.** Congress should add to and extend the incentives for energy efficiency technologies that were included in the Energy Policy Act of 2005. The Combined Heat and Power incentive that was included in the Senate bill should be restored and the incentives for new homes and commercial buildings should be extended since a two-year tax credit is too short to significantly influence design and construction practices.
4. **Conduct a national efficiency and conservation campaign.** The Energy Policy Act of 2005 authorized a $90 million per year public education campaign on energy efficiency. DOE and EPA should co-lead this partnership effort among efficiency manufacturers, farm organizations, utilities, states, local governments, and others to accelerate efficiency investments and encourage short-term behavior modifications. California spent about $30 million in 2001 on a concerted public awareness campaign; evaluations indicate that this campaign was responsible for a more than 6 percent energy reduction in California in that year, and that a significant fraction of these savings persisted for several years.

Recommendations for longer-term action include:

1. **Accelerate federal efficiency standards.** The recently enacted Energy Policy Act of 2005 includes important new appliance standards for which DOE's appliance efficiency standards program will need to undertake rulemakings. In addition, DOE has a backlog of rulemakings from earlier laws. DOE should accelerate these rules and in particular allow cold-weather states to elect a higher standard level for residential furnaces and include furnace fan efficiency in the standard. DOE should take higher gas prices into account in setting the final rule.
2. **Support advanced building codes.** Building codes are an important element in the efficient policy portfolio, insuring that buildings built today place minimum strain on tomorrow's energy supplies and put minimum pressure on market prices. The International Energy Conservation Code (IECC) is widely adopted in states, but many states need to update their codes. DOE should both push for more aggressive model codes like the IECC and provide more support to states and local governments in implementing better codes.
3. **Expand research and development.** Congress should increase funding for advanced technologies that save natural gas in: buildings through advanced heating, cooling, and hot water systems, advanced envelope designs, and control systems; industry through CHP, advanced manufacturing processes, motors and other components; and power generation through CHP and other advanced generation technologies, plus efficient transmission and distribution technologies.
4. **Create efficiency performance standards for utilities.** Texas' electricity restructuring law created a requirement for electric utilities to offset 10% of their demand growth through energy efficiency, and enabled them to use public benefits funds for this purpose. Similar approaches have been pursued in Nevada, Hawaii, Illinois, Connecticut, and

California, and the Energy Policy Act of 2005 authorizes a study and pilot program on this issue. DOE should request and Congress should approve funds for these efforts

5. **Expand support for Combined Heat and Power (CHP).** CHP generates electricity far more efficiently than most of the conventional natural gas generation. Congress should expand its support for CHP by restoring the CHP tax credit that was dropped in the energy bill conference at the last minute. States should also mandate utilities to provide fair and reasonable interconnection and tariff treatment for new CHP systems.

Introduction

ACEEE appreciates the opportunity to provide our comments to the Subcommittee on the important subject of energy efficiency as a response to the severe problems in U.S. natural gas markets. Our analysis shows that energy efficiency and conservation efforts are the most effective response to these challenges over the next few years, and also offer longer-term insurance against future gas price spikes and shortages.

ACEEE is a non-profit organization dedicated to increasing energy efficiency as a means for both promoting economic prosperity and environmental protection. We were founded in 1980 and have developed a national reputation for leadership in energy efficiency policy analysis, research and education. We have contributed in many ways to Congressional energy legislation adopted during the past 20 years, including, the National Appliance Energy Conservation Act of 1987, the Energy Policy Act of 1992, the Energy Title of the 2002 Farm Bill, and the Energy Policy Act of 2005. We are also an important source of information for the press and the public on energy efficiency technologies, policies, and programs.

The Current Natural Gas Problem

While much of the recent attention in policy communities has been on natural gas wholesale prices or gasoline pump prices, the reality is that our problems are much deeper and more interrelated. In the past our energy problems tended to be with a single energy source, be that gasoline, heating oil, natural gas or electricity. This situation has in the past allowed us to switch between energy sources to relieve tightness in a single market. What the United States faces now is tightness in <u>all</u> major energy markets, which has put the country in an energy straightjacket, unable to turn to other conventional energy resources for relief.

These problems have been many years in the making, and should have not come as a surprise. We initially became aware of impending energy problems in the winter of 2000-2001, when limited supplies hydro-electric power and tight natural gas combined with a cold winter that forced natural gas prices to record high levels and contributed to shortages in electricity in California and other parts of the country in the hot summer that followed. While it is now clear that some players manipulated these tight markets to their advantage, it is also clear that tight supplies of natural gas combined with high demand for electricity created the conditions that allowed this manipulation to occur.

In part these tight markets resulted from a dramatic shift to natural gas-fired electric power generation, fueled in part by low cost of gas for much of the 1990s, the low cost to build new natural gas fuel generation, and the prospects for continued plentiful supplies of low-cost gas

projected for the future (Figure 1). This resulted in the construction of over 250,000 megawatts of new generation in the 2000-2005 period – an unprecedented addition of new generation to the power base. While some of this capacity was highly-efficient combined cycle units, a significant share was inefficient simple cycle turbines. This new demand came during a period when increases in domestic production of natural gas slowed due to a maturing of existing gas fields and imports from Canada fell as their "gas bubble" was depleted. These factors combined to fundamentally shift North American gas markets, leading to a dramatic and sustained increase in natural gas prices resulting from the increasing demand for natural gas exceeding the market's ability to deliver new supplies. While we saw imports of liquefied natural gas surge as importation facilities built in the late 1970s were reactivated, this rapid increase was small and has not been sustained because the siting and construction of new LGN terminals takes years.

During the same period, demand for gasoline surged in the U.S. as the economic recovery and consumer shift to larger vehicles drove demand. As a result of this high demand (and resulting high prices), refiners shifted their limited production capacity for the past few years to these motor fuels during the late winter when they would normally be producing heating oil, meaning that fuel oil inventories have been falling. In the fall when refiners shifted to heating oil production, they had to try and catch up with demand to avoid shortages. This means that our refineries, in spite of making significant additions to production capacity for the past few years, have found themselves pushing their refineries to production levels they were not intended to maintain just to keep up. As a result we have seen steadily increasing refined goods prices for the past few summers.

With four unusually warm winters and three cool summers, many forgot about problems with natural gas, heating oil markets and electric power systems. Over the past two year the focus turned instead to gasoline prices, while demand for electricity and natural gas continued to increase. Natural gas market experts became increasingly alarmed that we were but a hot summer or a cold winter away from not just market tightness but acute shortages.

As natural gas prices continued to rise, electric generators turned increasingly to coal as their fuel of choice, leading to surging demand. This year has seen growing strains emerge in coal markets as demand has exceeded the industry's ability to ramp up production and late-winter snows and rains lead to derailments in the west, reducing the ability to get Power River Basin coal to eastern power generators, forcing generators to draw down coal supplies at power plants normally reserved to handle supply disruptions during extreme winter weather. As this summer's late heat wave baked the country, generators were forced to turn to natural gas as their fuel of last resort. With this surge in natural gas demand, additions to storage for the coming winter began to drop precipitously (see Figure 2).

As a result of these events, the U.S. found its inventories of natural gas, heating oil and coal at the end of August at levels well below the last few years. While the stores of fuels have sufficed for the past few winters, the past several winters have been quite mild and even then many energy experts have been nervous that we were perilously to shortages at those levels. Thus we saw run-ups in heating oil, coal and natural gas prices for much of late July and August to nominal if not real record problems.

Then came Katrina. This storm disrupted energy infrastructure in the Gulf of Mexico on an unprecedented scale. As of this week, oil and gas production remain disrupted – perhaps for months to come – while almost 5 percent of U.S. oil refining capacity remains down. These challenges make what was already on track to be a difficult winter for energy even more difficult. The economic and social consequences of high energy prices perhaps combined with outright shortages paints a dire picture. In particular the pain will fall disproportionately on lower income consumers who are least able to absorb the additional energy costs. ACEEE has estimated that combining heating, electricity and motor fuels, the average household will be paying about $2000 per year more in 2006 than in 2002 – an increase of over two-thirds in just four years. These energy bills add up to a $200 billion tax on the economy that is already reducing economic growth forecasts. While we can hope for a mild winter, Congress must prepare for the harsh consequences that would result from an early, cold winter.

The good news is that there is a proven energy resource that could provide near-term relief. Energy efficiency and conservation represents a significant opportunity to quickly and cost effectively reduce energy demand, thus allowing available energy resources to go further while also providing some price relief to consumers, and reducing the risk that energy expenditures will derail the economic recovery.

It is important to remember, however, that all our energy markets are interrelated, so energy efficiency and conservation cannot be about one fuel only – say natural gas – but rather needs to be deployed broadly to achieve significant market impacts. Reducing gasoline consumption frees refining capacity to produce heating oil. Reducing electricity consumption reduces demands on coal and natural gas markets, allowing them to recover. So what is needed is a call to action on energy efficiency and conservation.

Energy Efficiency as a Vital National Resource

Energy efficiency is a quiet but effective energy resource, having contributed substantially to our nation's economic growth and increased standard of living over the past 30 years. Energy efficiency improvements since 1973 accounted for approximately 25 quadrillion Btu's in 2002, which is about 26% of U.S. energy use and more energy than we now get annually from coal, natural gas, or domestic oil sources. Consider these facts which are based primarily on data published by the federal Energy Information Administration (EIA):

- Total primary energy use per capita in the United States in 2003 was down slightly relative to 1973. Over the same 30-year period, economic output (GDP) per capita increased 74 percent.
- National energy intensity (energy use per unit of GDP) fell 43 percent between 1973 and 2001. About 60% of this decline is attributable to real energy efficiency improvements and about 40% is due to structural changes in the economy and fuel switching.[1]

[1] Murtishaw, S. and L. Schipper, 2001, *Untangling Recent Trends in U.S. Energy Use*. Washington, D.C.: U.S. Environmental Protection Agency.

- If the United States had not dramatically reduced its energy intensity over the past 29 years, consumers and businesses would have spent at least $430 billion more on energy purchases in 2002.
- Between 1996 and 2002, GDP increased 21 percent while primary energy use increased just 2 percent. Imagine how much worse our energy problems would be today if energy use had increased 10 or 20 percent during 1996-2002.

Energy Efficiency's Resource Potential

Even though the United States is much more energy-efficient today than it was 25 years ago, there is still enormous potential for additional cost-effective energy savings. Some newer energy efficiency measures have barely begun to be adopted. Other efficiency measures will be developed and commercialized in coming years, with proper support:

- The Department of Energy's national laboratories estimate that increasing energy efficiency throughout the economy could cut national energy use by 10 percent or more in 2010 and about 20 percent in 2020, with net economic benefits for consumers and businesses.[2]
- ACEEE, in our *Smart Energy Policies* report, estimates that adopting a comprehensive set of policies for advancing energy efficiency could lower national energy use from EIA projections by as much as 11 percent in 2010 and 26 percent in 2020.[3]
- The opportunity for saving energy is also illustrated by experience in California in 2001. Prior to 2001 California was already one of the most-efficient states in terms of energy use per unit gross state product (ranking 5th in 1997 out of 50 states[4]). But in response to pressing electricity problems, California homeowners and businesses reduced energy use by 6.7% in summer 2001 relative to the year before (after adjusting for economic growth and weather)[5], with savings costing an average of 3 cents per kWh,[6] far less than the typical retail or even wholesale price of electricity.
- ACEEE's analysis of efficiency potential studies shows that cost-effective technologies could save a median 24% of electricity use and 9% of gas use nationwide.[7] While the efficiency potential number for gas seems low, there has been relatively little analysis of

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[2] Interlaboratory Working Group, 2000, *Scenarios for a Clean Energy Future*. Washington, D.C.: Interlaboratory Working Group on Energy-Efficient and Clean-Energy Technologies, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy.

[3] Nadel, S. and H. Geller, 2001, *Smart Energy Policies: Saving Money and Reducing Pollutant Emissions through Greater Energy Efficiency*, www.aceee.org/energy/reports.htm. Washington, DC: American Council for an Energy-Efficient Economy.

[4] Geller, H. and T. Kubo, 2000, *National and State Energy Use and Carbon Emissions Trends*. Washington, DC: American Council for an Energy-Efficient Economy.

[5] California Energy Commission, 2001, *Emergency Conservation and Supply Response 2001*. Report P700-01-005F. Sacramento, CA.

[6] Global Energy Partners, 2003, *California Summary Study of 2001 Energy Efficiency Programs, Final Report*. Lafayette, CA.

[7] Nadel, S., et al. 2004. "The Technical, Economic, and Achievable Potential for Energy Efficiency in the United States: A Meta-Analysis of Recent Studies." In *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*. American Council for an Energy-Efficient Economy, Washington, DC.

gas efficiency potential. Moreover, other ACEEE analysis shows that the greatest source of natural gas savings is indirect; it comes through reducing electricity use, which then displaces gas consumed in power generation.

Energy Efficiency Potential for Natural Gas

ACEEE has conducted years of research on the energy efficiency potential in a wide range of technologies and end-use sectors for all the major energy supply resources. For example if we look at the efficiency potential for natural gas, we identified a number of cost-effective efficiency measures that would collectively save more than 10% of U.S. gas usage by 2020. A sample of these measures is shown in Table 1. It is important to note that these savings are only direct gas end-use savings; indirect savings, which reduce gas used in power generation by saving end-use electricity, greatly expand the potential for gas energy efficiency.

Table 1. A Sample of Natural Gas Energy Efficiency Measures[8]

	Measure	Current Efficiency	Efficiency Target	Units for Efficiency Target	Potential Gas Savings in 2020 (TBtu)	Average Cost of Saved Energy ($/therm)*
1	Ind'l management practices	Typ. plant	8%	savings	402	0.351
2	Comm'l building retrocommissioning	149	134	kBtu/sf	362	0.229
3	Res duct sealing & infiltration reduction	Avg. home	20%	H&C svgs	310	0.450
4	Residential windows	.64/.65	.33/.44	U-Factor/ SHGC	233	0.154
5	Commercial furnaces and boilers	standard units	Power burner	savings	181	0.082
6	New homes	Avg. home	30%	H&C svgs	178	0.401
7	Res. furnaces/boilers (equip. & install.)	82%	90%+	AFUE+	162	0.479
8	Sector-based comm retrofit (e.g. offices)	0.5	0.4	therms/sf	162	0.361
9	Advanced commercial glazing	1.3/.69	.45/.45	U/SHGC	145	0.301
10	Comm'l new construction	90.1-1999	30%	savings	140	0.322
11	Res. combo gas space & water htg unit	82/59	90/90	AFUE/EF	85	0.543
12	Comm'l cooking and ventilation	typ equip	improved		76	0.300
13	Major residential appliances	Federal Standards	21%	savings	53	-0.859
14	Res. gas water htg (stand-alone units)	0.59	0.62	Energy Factor	52	0.370
15	Bldg. operator training & certification	Typ O&M	Better		51	0.063
			TOTAL		2,590	

* Note: Cost of Saved Energy is the cost of a measure per unit of unit of fuel saved. Measures costing less than retail gas prices (currently averaging $0.83/therm for residential customers) are cost-effective. A negative cost of saved energy means that savings in non-energy costs can fully pay for the measure.

Energy Efficiency's Effect on Wholesale Natural Gas Prices

- Over the past three years, ACEEE has conducted analyses of the effect energy efficiency and renewable energy could have on natural gas wholesale prices. In the tight markets we are experiencing, small changes in demand or supply have large impacts on price. To test this market principle, we used one of the best available markets model of U.S. gas markets, designed and operated by Energy and Environmental Analysis, Inc., the consulting firm who used the same model to support the National Petroleum Council (NPC)'s 2003 natural gas study. We tested the wholesale price impact of small (2-4%) changes in natural gas demand over the next 1-5 years. The next five years contain large

[8] Nadel, S., 2002, *Screening Market Transformation Opportunities: Lessons from the Last Decade, Promising Targets for the Next Decade*, Washington, DC: American Council for an Energy-Efficient Economy available online at http://aceee.org/pubs/u022full.pdf.

risks for the American economy if gas prices do not stabilize, and energy efficiency is the most widely available and rapidly deployable resource in that timeframe, as most new gas supply options will take six or more years to bring on line.

- What we found was that moderate gains in end-use efficiency over the next five years can reduce wholesale gas prices would cut wholesale gas prices as much at 25%, or about $1.50 per MCF (see Figure 3). This would bring substantial price relief to all gas consumers, particularly farmers and manufacturers. Achieving these results would cost about $30 billion in new investment, including about $7 billion in public expenditures, but would generate over $100 billion in direct economic benefits, including direct energy savings to customers who invest in efficiency and lower gas prices to all energy users. The ratio of benefits to costs would be more than three to one.[9] Our most recent analysis was conducted before the recent further tightening in the energy markets, so we would anticipate that the price impacts would be even greater.
- Our findings are quite consistent with those of the National Petroleum Council study. The NPC report calls for energy efficiency to offset about 4% of demand growth by 2010, and about 19% by 2025.[10] It also estimates that 2010 wholesale prices would fall by about 20% under its Balanced Future policy scenario.[11] Our analysis simply took a more detailed look at a specific efficiency investment scenario, using the same analytical approach and tools.
- A major finding of our study, which is not apparent in the NPC report, was that the majority of the natural gas savings came indirectly, through investments in electricity efficiency. This effect stems from the fact that natural gas has become the marginal generating fuel in many power markets, so that electricity savings tend to displace gas used for generation more than any other fuel. Also, because the average efficiency of natural gas generation remains low, especially at peak times, saving one unit of electricity backs out several units of gas at the generator. Thus saving electricity is a key to saving natural gas, and adding electricity-saving measures to the list in Table 1 would greatly expand the potential for gas demand reduction.

Impact of Efficiency at the Regional Level

While it would be ideal to achieve energy efficiency and conservation benefits in all parts of the country, achieving savings in just a few key regions would still benefit all consumers nationally. Our recent report also analyzed a scenario based on natural gas and electric end-use efficiency investment in eight Midwestern states (IA, IL, IN, MI, MN, MO, OH, and WI). Gas prices for power generators in the region have tripled since 1999, while industrial rates jumped 64% and residential/commercial rates increased by 44%. These price increases translate into an increase in natural gas expenditures of almost $350 per household in the Midwest.[12]

Realizing these efficiency gains in the Midwest would benefit both the region and the nation as a whole (see Figure 3). Our analysis shows that a 1% electricity and gas annual efficiency savings

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[9] Elliott, N. et al. 2005. *Impacts of Energy Efficiency And Renewable Energy On Natural Gas Markets: Updated and Expanded Analysis.* American Council for an Energy-Efficient Economy, Washington, DC.
[10] National Petroleum Council. 2003. Op. cit., Vo. 1, page 8, Figure 3.
[11] Ibid., page 11, Figure 6.
12 Kushler, K., et al. 2005. *Examining the Potential for Energy Efficiency to Help Address the Natural Gas Crisis in the Midwest,* American Council for an Energy-Efficient Economy, Washington, DC.

in just the Midwest would result in a national reduction in natural gas prices of 2% in the first year and 6 % in 2010; this would benefit all U.S. gas users. Within the Midwest region, natural gas bill savings to residential, commercial, and industrial consumers would exceed $4.14 Billion from an investment of about $1.12 Billion over five years. Energy efficiency investments could reduce residential gas bills by over 3% in the first year alone. These savings will grow in the future, averaging $86 per year per residential natural gas customer.

The bottom line of our most recent analysis is that with gas markets becoming tighter this year, as the economy grows and as high oil prices induce some industrial users to switch back to gas, a near-term strategy to invest in energy efficiency holds even greater potential to benefit the economy

Economic Impacts of Investments in Natural Gas Savings

Our analysis shows that a new public commitment to energy efficiency investment, on the order of $7 billion over 5 years, would generate $23 billion in private investment and create over $100 billion in economic benefits. These benefits would appear in the form of natural gas and electric bill reductions to consumers who invest in efficiency, price reductions to all natural gas users, and price reductions to electric utilities. We have not accounted for the non-energy benefits of energy-efficient technology, which can include increased productivity and improved quality. Moreover, we have not modeled the indirect economic impacts of increased sales and services related to energy efficiency investments, nor the induced effects of consumer spending of reduced energy bills on other goods and services. These effects would substantially increase the economic benefits of energy efficiency investment.

The combined benefits of energy efficiency and lower natural gas prices would be especially helpful to two consumer groups: lower-income households and gas-intensive industries. High energy prices are generally very regressive, as lower-income households spend a much higher percentage of total income, and of housing costs, on energy. Households that are able to obtain below-market housing may initially believe that they have found affordable housing, but a series of high gas heating bills can change that perception. Non-payment can lead to gas service disconnection, which can lead to health problems from under-heated homes, safety problems from improvised heating devices, and homelessness. Federal programs, such as the Low Income Home Energy Assistance Program (LIHEAP) and Weatherization Assistance Program (WAP), can help offset the impacts of high energy prices, but these programs are under-funded, particularly in this current high energy price environment. Indications are that last winter's LIHEAP allocations were used up by mid-winter. An energy efficiency scenario that emphasized low-income programs would make LIHEAP dollars go much further, minimizing the impact on low income consumers and on local governments and utilities that would otherwise have to pick up the bill.

Gas-intensive industries have a very different but nonetheless vital set of concerns regarding natural gas prices. Leaders of the chemical industry wrote to the President and leaders of Congress at the beginning of 2004, urging major new policy action to balance natural gas

markets.[13] This letter pointed out that natural gas has imposed more than $100 billion in an effective "tax" on the economy since 2000, and that many thousands of industry jobs have been lost as a result. Many of these companies, being unusually attuned to gas prices, have already implemented many energy efficiency and other measures, and thus their ability to control gas costs internally is very limited. They depend on the broader efficiency policy scenario we describe to bring relief to their businesses. If we can achieve the price reductions our analysis shows is possible, we can reduce costs in these vital industries, bring back some good manufacturing jobs to the U.S., and support the overall economic recovery.

In this context, we suggest that the energy efficiency policy scenario we describe should be viewed as an economic stimulus, analogous to a tax cut. Our analysis shows that an efficiency policy commitment could generate a "tax cut" of similar magnitude. Moreover, the efficiency scenario provides economic benefits at a very low public cost. Our analysis shows that the $100 billion-plus in benefits from efficiency requires a public outlay on the order of $7 billion, achieving very high leverage.

Energy efficiency investments not only provide substantial economic benefits at low levels of public expenditure, they also compete very effectively in terms of net employment and GDP impacts in comparison to other energy resource investments. A key fundamental economic reality in this regard is that energy efficiency investments create more jobs per dollar invested than do energy supply investments. For example, sectoral employment multipliers differ greatly between sectors. Energy supply sectors, including mining, refining, and utilities, create 5 to 10 jobs per million dollars of expenditure. Sectors affected by efficiency investments, including services, construction, and retail trade, create 19 to 25 jobs per million dollars of expenditure.[14] This means that energy efficiency investments can create two to five times as many jobs as supply-side investments. While both supply and demand-side investments will be needed to achieve and sustain balanced natural gas markets, we submit that energy efficiency investments provide a stronger job-creation stimulus.

Barriers to Free-Market Solutions to the Energy Problem

A free-market advocate might argue that high natural gas prices contain their own remedy, since by economic theory price elasticity would cause demand to fall when prices rise. This argument contains a fundamental element of truth, and ACEEE believes in markets as a key focus for energy efficiency solutions. However, several factors in today's U.S. markets keep the laws of economics from being applied in their purest form:

- Falling energy intensity. Over the last 30 years, U.S. energy intensity (measured in BTU per dollar of GDP) has fallen by more than 40%, in part because of improving energy efficiency. While this is generally good news for the economy, it also has the effect of blunting the market-based response to high energy prices. When energy costs less as a percentage of the total cost of running a business, owning a home, or driving a car, consumers typically are less sensitive to price increases, and that market waits longer to

[13] Letter from 11 chemical industry CEOs to President Bush and leaders of Congress, January 20, 2004
[14] 2001 IMPLAN database for the United States, per MRG Associates 2004.

respond to the situation than in a higher energy-intensity environment -- this leads to a crisis. The implication is that relying solely on market response to price signals would require energy prices to rise to economically damaging levels before the market corrects itself. We should not, and need not have to incur such economic damage—judicious energy policy action can forestall needlessly high natural gas prices.

- Income elasticity of demand. Indications are that rising incomes in many demographic segments tends to increase demand for energy services. Households that can afford half-million dollar homes and $50,000 vehicles are relatively insensitive to energy costs.
- Current policies promote increased use of natural gas. Environmental policies aimed at reducing air pollutant and greenhouse gas emissions have made natural the fuel of choice for power generation and industrial use in many areas. This tends to override fuel price considerations.
- Lack of Price Transparency. Price signals work only when customers receive clear, consistent, and timely price information. In today's gas markets, it is very difficult to understand prices in ways that encourage efficiency investments. Several issues stem from this point:
    - Contract structures, in which many utilities and customers purchase gas in annual or multi-year contracts, have delayed the "bad news" of price increases, such that motivations for efficiency investment are delayed. Unfortunately, this will shortly change.
    - Price volatility not only confuses customers seeking to predict future prices, it also reduces investors' willingness to take risks on efficiency or on supply investments.
    - Most customers see prices only retrospectively, after they receive bills for past consumption.
    - With today's complex bills, calculating the full price per unit of energy and normalizing it for weather or other factors, takes a level of analytical ability beyond most consumers.

These factors have insulated many consumers from the emerging energy crisis. Market forces will ultimately drive gas demand down, but the question is how soon and at what cost to our economy.

In addition to these broad barriers to efficiency investment, a variety of more specific market barriers to energy efficiency keep worthwhile investments and behavior changes from being made, even when prices rise. These barriers are many-fold and include: "split incentives" (landlords and builders often don't make efficiency investments because the benefits of lower energy bills are received by tenants and homebuyers); panic purchases (when a product such as a water heater needs replacement, there often isn't time to research energy-saving options); and bundling of energy-saving features with high-cost extra "bells and whistles."

Energy efficiency is also hobbled by being a "distributed resource". It is found in more than 100 million homes, over 5 million commercial buildings, and hundreds of thousands of factories. In most homes and smaller businesses, the information and technical skills needed to understand and pursue energy efficiency projects are not available. Moreover, the transaction costs of

developing, financing and implementing a multitude of small projects are much higher than for a relatively few, large energy supply projects. This tends to shift investment capital toward the larger projects, even when studies show that the efficiency resource is more cost-effective.

For these reasons, policy and program initiatives are needed to realize the benefits of energy efficiency for the economy and the environment as a whole.

Recommended Near-Term Steps

ACEEE recommends the following near-term actions for Congress and the Administration to respond to the looming threat of natural gas prices.

1. **Increase funding for efficiency deployment programs.** We recommend Congress increase FY 2006 appropriations for federal programs that deliver near-term energy savings to consumers, including the Energy Star programs, the Weatherization program, and DOE's suite of other best practice programs, and that the Administration follow suit in its FY 2007 budget request. These programs can be of great help in Katrina-affected areas, and with added funding, they can quickly ramp up energy savings nationally in the next few years.
2. **Expand public benefits funds for efficiency.** 18 states collectively spend over $1 Billion on public benefits efficiency programs funded through utility bill fees. Other states, and Congress, should follow this example, and states with current programs should increase funding levels. Most states operating such programs coordinate their efforts with federal programs like Energy Star; this partnership should be continued and expanded, so that the benefits can be felt in more states.
3. **Expand and extend tax incentives for high-efficiency technologies.** Congress should add to and extend the incentives for energy efficiency technologies that were included in the Energy Policy Act of 2005. The Combined Heat and Power incentive that was included in the Senate bill should be restored and the incentives for new homes and commercial buildings should be extended since two-year tax credit is too short to significantly influence design and construction practices.
4. **Conduct a national efficiency and conservation campaign.** The *Energy Policy Act of 2005* authorizes a $90 million per year public education campaign on energy efficiency. DOE and EPA should co-lead this partnership effort among efficiency manufacturers, farm organizations, utilities, states, local governments and others to accelerate efficiency investments and encourage short-term behavior modifications. California spent about $30 million in 2001 on a concerted public awareness campaign; evaluations indicate that this campaign was responsible for about 20 percent in that year, and that a significant fraction of these savings persisted for several years.[15]

These initiatives can make a difference in the next five years, which will be critical in avoiding crippling gas market problems. Otherwise, U.S. economic growth will remain at risk.

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15 Kushler, M. and E. Vine. 2003. *Examining California's Energy Efficiency Policy Response to the 2000/2001 Electricity Crisis*. American Council for an Energy-Efficient Economy, Washington, DC.

Recommended Longer-Term Steps

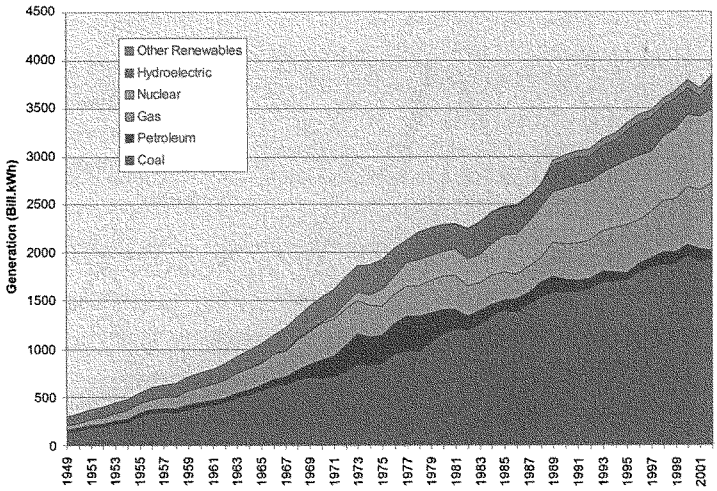
Looking three years and beyond, ACEEE recommends the following actions:

1. **Accelerate federal efficiency standards.** The recently enacted *Energy Policy Act of 2005* includes important new appliance standards for which the Department of Energy's appliance efficiency standards program will need to undertake rulemakings. In addition, DOE has a backlog of rulemakings from earlier laws. DOE should accelerate these rules, and in particular allow cold-weather states to elect a higher standard level for residential furnaces and include furnace fan efficiency in the standard. DOE should take higher gas prices into account in setting the final rule.
2. **Support Advanced Building Codes.** Building codes are an important element in the efficient policy portfolio, insuring that buildings built today place minimum strain on tomorrow's energy supplies and put minimum pressure on market prices. The International Energy Conservation Code (IECC) is widely adopted in states, but many states need to update their codes. DOE should both push for more aggressive model codes like the IECC, and provide more support to states and local governments in implementing better codes.
3. **Expand research and development.** Congress should increase funding for advanced technologies that save natural gas in: buildings through advanced heating, cooling, and hot water systems, advanced envelope designs, and control systems; in industry through CHP, advanced manufacturing processes, motors and other components; and in power generation through CHP and other advanced generation technologies, plus efficient transmission and distribution technologies.
4. **Create efficiency performance standards for utilities.** Texas' electricity restructuring law created a requirement for electric utilities to offset 10% of their demand growth through energy efficiency, and enabled them to use public benefits funds for this purpose. Similar approaches have been pursued in Nevada, Hawaii, Illinois, Connecticut, and California, and the Energy Policy Act of 2005 authorizes a study and pilot program on this issue. DOE should request and Congress should approve funds for these efforts
5. **Expand support for Combined Heat and Power (CHP).** CHP generates electricity far more efficiently than most of the conventional natural gas generation. Congress should expand its support for CHP by restoring the CHP tax credit that was dropped in the energy bill conference at the last minute. States should also mandate utilities to provide fair and reasonable interconnection and tariff treatment for new CHP systems.

ACEEE's experience with these programs and policies gives us confidence that they can make a critical difference in bringing balance to natural price prices and supplies in the coming years. We look forward to working with the Committee on these important issues.

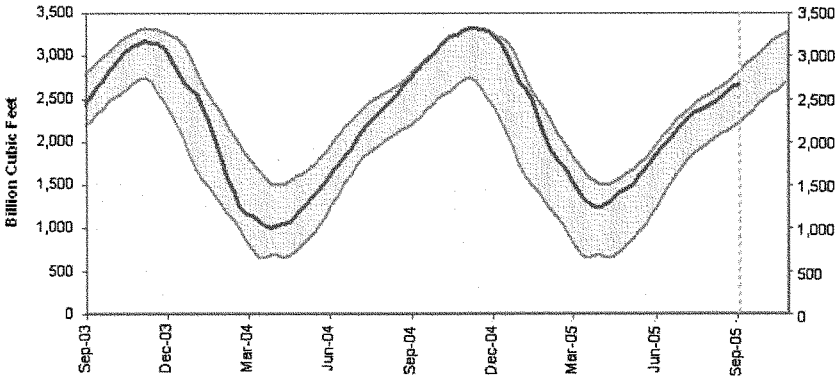
Thank you for the opportunity to share our views with the Subcommittee.

Figure 1. Fuel Sources for Electricity Generation



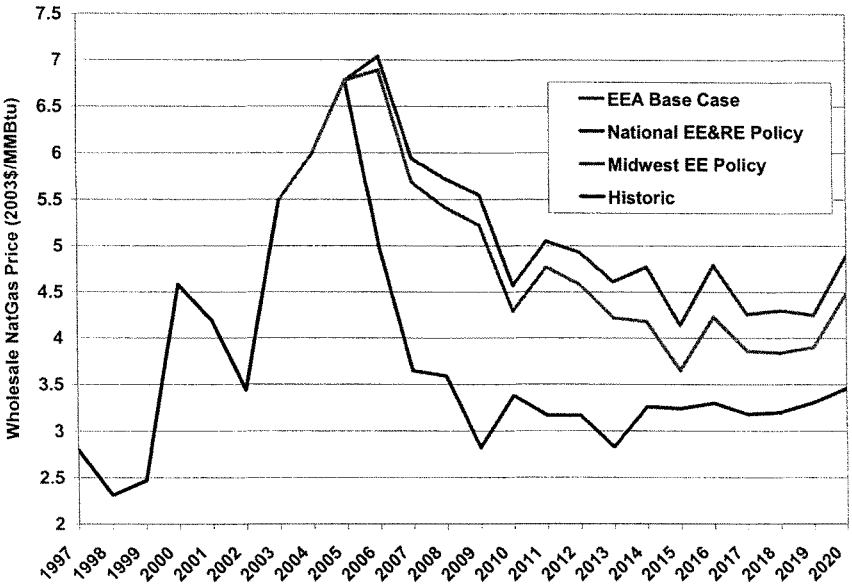
Source: ACEEE staff analysis based on Energy Information Administration data

Figure 2. Working Gas in Underground Storage Compared with 5-Year Range



Source: Energy Information Administration, September 8, 2005

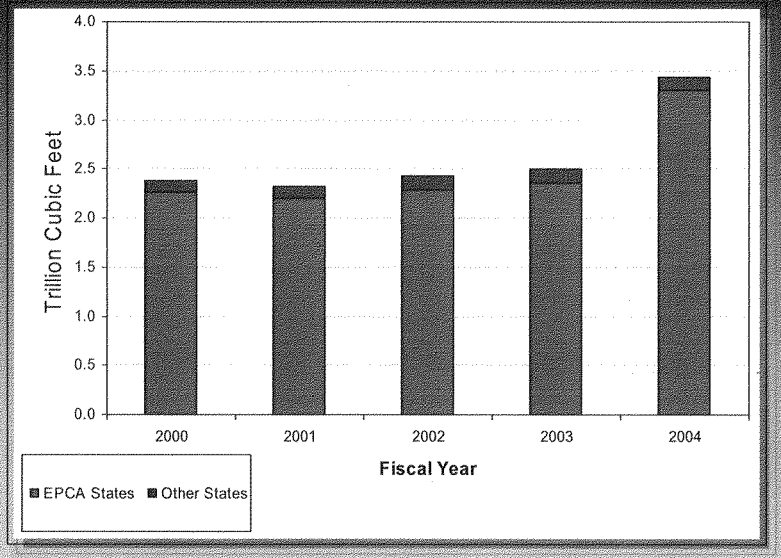
Figure 3. Impact of Midwest and National Scenarios on Wholesale Natural Gas Prices (Henry Hub) Relative to 2004 EEA Forecast



Source: ACEEE Analysis, 2005

Production & Revenue

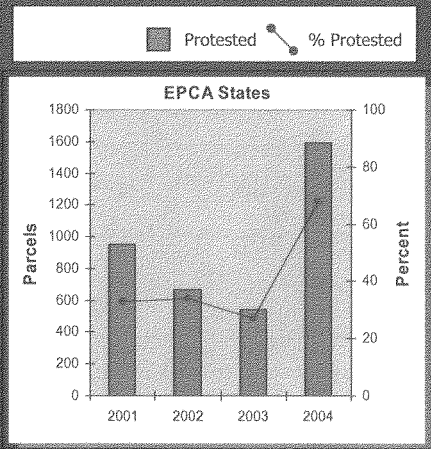
oil & gas program

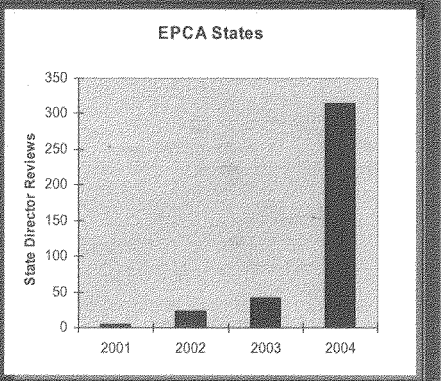


Gas Production on Federal and Indian Lands

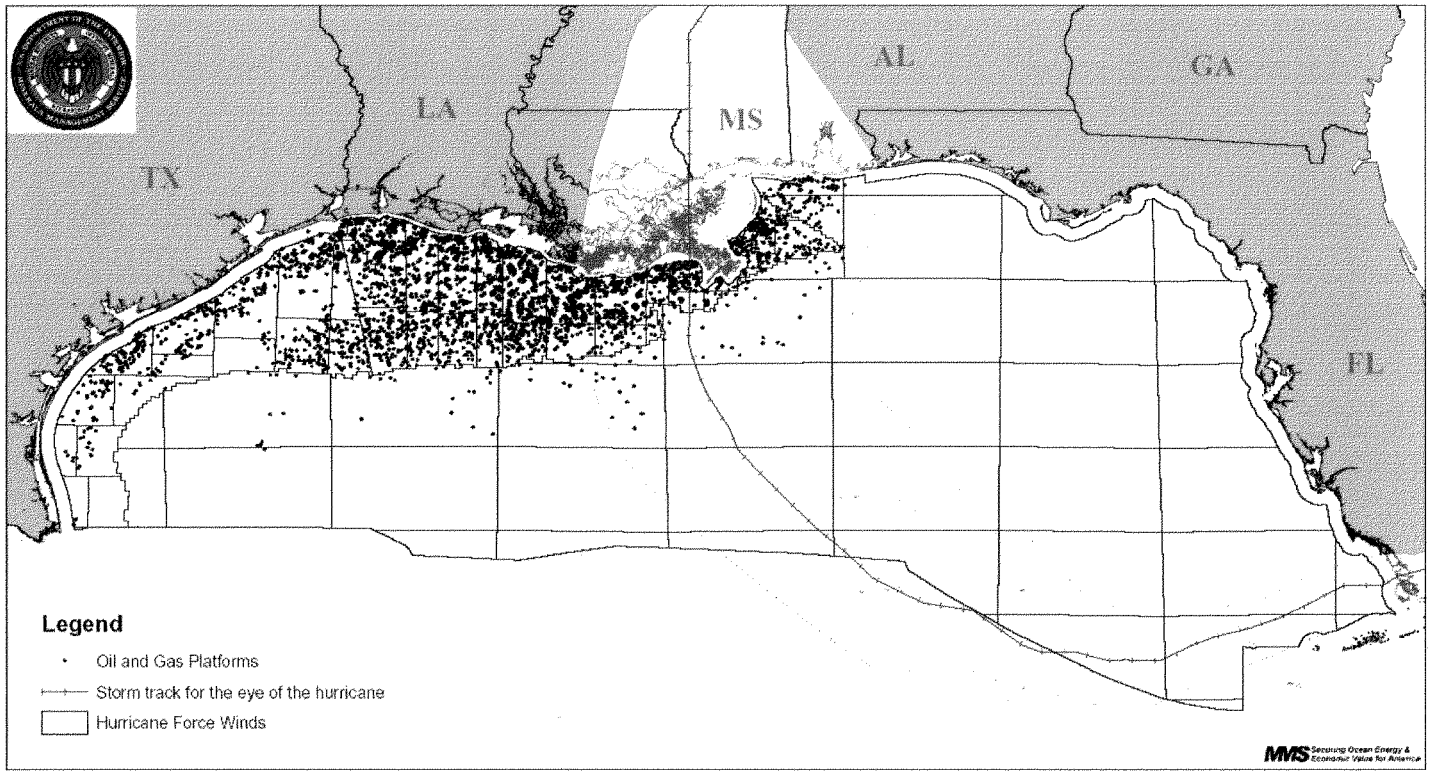
Oil & Gas Protests

	1997-2000	2001-2004	% Change
Parcel pre-lease protests	666	4425	+664
Lease appeals	366	925	+253





Hurricane Katrina, August 2005



Department of Energy
Washington, DC 20585

November 17, 2005

The Honorable Darrell Issa
Chairman
Subcommittee on Energy and Resources
Committee on Government Reform
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

On September 14, 2005, Guy F. Caruso, Administrator, Energy Information Administration, testified regarding "Meeting U.S. Natural Gas Demand and the Role of Domestic Production on Federal Lands".

Enclosed are answers to three questions that were submitted by you to complete the hearing record.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Lillian Owen, at (202) 586-2031.

Sincerely,

Jill L. Sigal
Assistant Secretary
Congressional and Intergovernmental
Affairs

Enclosures

Printed with soy ink on recycled paper

QUESTION FROM REPRESENTATIVE ISSA

Q1. What are the components of natural gas costs (E&P, marketing, distribution)?

A1. There are five major classes of activities in the domestic natural gas industry, that contribute to the ultimate cost of natural gas -- exploration and production, gathering systems and gas processors, pipelines and storage operations, local distribution, and marketing.

Exploration and production costs include exploration, leasing, drilling, maintenance, direct and indirect labor costs, taxes, and overhead.

Gathering systems move the gas from the well or lease either to the processing plants where the gas is brought to pipeline quality before removal of nonhydrocarbons and extraction of natural gas liquids or directly to major pipeline systems. Costs incurred by gathering systems and processing plants include: facility construction and operation; acquisition or leasing of rights-of-way, direct and indirect labor costs; taxes and overhead.

Pipelines and storage operators provide transportation and storage. Pipelines transport gas: from one interconnect to another (pipeline to pipeline); to- or from-underground storage fields; to distribution companies (delivery at the citygate); or in some cases, directly to large consumers. Costs incurred include construction, operation, and maintenance of facilities, acquisition or leasing of rights-of-way or storage reservoirs, direct and indirect labor costs, taxes, and overhead.

Distribution companies deliver natural gas to consumers in a specific geographic location – the "distribution area" or "service area." Generally distribution companies are granted the right and obligation to provide this service by a State agency. While distribution companies may also deliver gas that is not sold from their own inventory to consumers, in virtually all cases, distribution companies sell gas that they own. The costs incurred by this activity include purchase of natural gas for sale to their customers; construction and maintenance of the distribution-system's pipes and other company-owned plant, direct and indirect labor costs, and taxes.

Finally, marketing activities involving the sale of product (natural gas) or services (e.g. transportation or storage) overlay all four of the activities mentioned above. Costs involved include the purchase of gas for resale, direct and indirect labor costs, and overhead.

QUESTION FROM REPRESENTATIVE ISSA

Q2. Also, please explain the differences between natural gas prices in the supply chain (wellhead, city gate, residential, etc.). In short, how are natural gas prices set?

A2. The supply chain starts with the price paid to the producer at the wellhead. Value is added through processing of the gas to achieve pipeline quality, transportation and storage, all of which are necessary to move gas from the wellhead to the citygate – the point where custody is transferred from the pipeline to the local distribution system. The cost to consumers for gas sold directly by a distribution company is determined by the price it paid for that gas plus a fixed fee and variable distribution costs related to the amount of gas delivered, plus taxes. Consumers buying gas from a third-party marketer pay the marketer for the commodity and the distribution company for provision of services. Most gas is delivered to consumers by distribution companies who charge according to the tariffs authorized by a State agency.

QUESTION FROM REPRESENTATIVE ISSA

Q3. Why do prices substantially vary between different parts of the country (e.g. the expected rise in natural gas residential heating costs in the upper-Midwest versus other parts of the country)?

A3. The end-use prices of natural gas vary between different regions of the country because the costs of production, transportation and distribution of natural gas vary from region to region. A very large share of the Nation's natural gas is produced in Texas and Louisiana as well as offshore in the Gulf of Mexico. The price of natural gas in the Gulf and Southwest regions of the country is generally less expensive than the price of natural gas in other parts of the country, because the distance the gas needs to travel from the wellhead to the burner tip is generally not large. Relatively little natural gas, on the other hand, is produced in the upper-Midwest. The distance between the producing regions and consuming regions of the country is considerable. As a result, the cost of transporting the natural gas (through pipelines) from the producing regions of the country to the consuming regions is significant. This additional cost is added to the burner tip price.

There are also other reasons, for regional end-use natural gas price differences. For example, distribution costs per unit of gas consumed will tend to be lower in areas where gas use is relatively high, since the fixed costs of distribution infrastructure are spread across a larger volume of consumption. Distribution costs will also tend to be lower in areas where the costs of long established distribution infrastructure have already been recovered in past rates. Colder areas with both high volume usage and long-established infrastructure will tend to have relatively low per-unit distribution charges. In such areas, the cost of the gas commodity tends to be a larger fraction of the total consumer bill than it is in regions with milder climates and newer distribution infrastructure.

Because of this, changes in the price of the gas commodity tend to have a particularly large percentage impact on the delivered price of gas to consumers in colder areas with long-established infrastructure. Labor and capital costs as well as taxes also vary across states which can add differences in distribution costs.

Submitted by Mr. Issa for the record for the 9.14.05 hearing entitled

The Energy Policy Act of 2005 — Tax Provisions – Public Law 109-58*

Tax incentives for the bill total $14.6 billion over 11 years from FY 2005 to FY 2015 (net with over $3 billion in revenue offsets is $11.5 billion). Major provisions include:

- **$1.6 billion in tax incentives for clean coal**
- **$2.7 billion to extend the renewable electricity production tax credit**
- **$1.3 billion for conservation and energy efficiency**
- **$1.3 billion for alternative motor vehicles and fuels**
- **$2.8 billion for fossil fuel production**

* Source: *CQ House Action Reports,* "The Energy Agreement, Edition: Conference Summary," No. 109-5/July 28, 2005, p. 29.

Response to Chairman Issa's question (dated Sep. 21, 2005) to Mike Zenker, CERA (re: "Meeting America's Natural Gas Demand: Are We in a Crisis?")

Dear Chairman Issa,

Thank you for your question regarding the Liquefied Natural Gas (LNG) market. Cambridge Energy Research Associates (CERA) appreciates the opportunity to assist your Committee in any way we can.

CERA believes that the LNG industry has made steady progress toward a fully functional international market, and will continue to do so over the next several years. While there is no standard measure of a truly functional international market, there is today a portion of LNG that is traded globally according to price signals in consuming markets, including the United States. In 2004, almost 12% of a nearly 20 billion cubic feet (Bcf) per day LNG market was sold on a spot basis, with a greater percentage traded on a spot basis in the Atlantic Basin. This compares with current Unites States (contiguous 48 states) consumption of about 60 Bcf per day in 2004. Indeed, the entry of the United States into the global LNG market is one of the principal drivers of the emergence of a global natural gas market.

However, the bulk of LNG trade remains tied to long-term contracts between producer and consumer. Markets like Japan that do not have pipeline gas alternatives depend on dedicated contractual supply. These long-term arrangements will remain a key component of LNG trade for some time.

It is notable that the current level of globally flexible LNG is far from sufficient to make up for the shortfall in supply due to hurricanes Katrina and Rita. The availability of spot LNG varies with European and Asian market conditions. Moreover, global supplies currently are tight, owing in part to the effect of outages at liquefaction facilities (the supply end) in Trinidad, Nigeria and Australia; ongoing supply difficulties in Indonesia; and the slower than expected ramp-up to full production of new facilities that have come on line in 2005, such as those in Egypt. Hence, while current US price levels are more than sufficient to attract additional cargoes, there simply is not much spot LNG available. Unlike in Europe and Asia, buyers in the United States typically do not commit to long-term supply contracts, leaving the United States prone to the availability of spot cargoes.

In the years ahead, a growing percentage of LNG will be available to arbitrage around the world. In particular, when both liquefaction capacity (the supply end) and regasification capacity (the receiving end) expand rapidly toward the end of the current decade, the global market will expand significantly. Most of the facilities necessary to accomplish this expansion are already under construction.

By the end of the decade, the United States will import 10-15 percent of the gas it consumes in the form of LNG. The global LNG market will be approaching 40 Bcf per day in total volume, and the percentage of LNG sold on a short term basis will increase. Although the amount of

LNG that can be redirected on a short-term basis to the United States from other markets at the end of the decade will still be only roughly 3-5 percent of United States consumption, that amount, combined with the ongoing use of storage in the United States and Canada, should be sufficient to moderate the price effects of most demand swings in North America. Further, it will begin to more closely integrate the United States natural gas market with that of Europe, driving the emergence of a global gas market.

Please do not hesitate to contact me or CERA if you have further questions.

Mike Zenker
Senior Director, North American Natural Gas
Cambridge Energy Research Associates
(510) 874-4375

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