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# NATURAL GAS—AMERICA'S NEW ENERGY OPPORTUNITY: CREATING JOBS, ENERGY AND COMMUNITY GROWTH

# OVERSIGHT FIELD HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES

OF THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

Monday, February 27, 2012, in Steubenville, Ohio

**Serial No. 112-96**

Printed for the use of the Committee on Natural Resources



Available via the World Wide Web: http://www.fdsys.gov
or
Committee address: http://naturalresources.house.gov

U.S. GOVERNMENT PRINTING OFFICE

73-226 PDF WASHINGTON : 2013

For sale by the Superintendent of Documents, U.S. Government Printing Office
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# OVERSIGHT FIELD HEARING ON "NATURAL GAS — AMERICA'S NEW ENERGY OPPORTUNITY: CREATING JOBS, ENERGY AND COMMUNITY GROWTH."

**Monday, February 27, 2012**
**U.S. House of Representatives**
**Subcommittee on Energy and Mineral Resources**
**Committee on Natural Resources**
**Steubenville, Ohio**

The Subcommittee met, pursuant to call, at 9:01 a.m., Eastern Gateway Community College, 4000 Sunset Boulevard, Lecture Hall 2102, Steubenville, Ohio, Hon. Doug Lamborn [Chairman of the Subcommittee] presiding.

Present: Representatives Lamborn, Johnson, and Thompson.

## STATEMENT OF THE HON. DOUG LAMBORN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF COLORADO

Mr. LAMBORN. The Committee will come to order.

The Chairman notices the presence of a quorum which under Committee Rule 3[e] is two Members. The Subcommittee on Energy and Mineral Resources is meeting today to hear testimony on an oversight hearing on Natural Gas—America's New Energy Opportunity: Creating Jobs, Energy and Community Growth.

I want to say it is a pleasure to be here in Steubenville. I want to thank you, Representative Johnson, for hosting us. I serve on the same Committee as Representative Johnson does on Natural Resources, and he is always talking about his home district, the people here and the terrain and the needs. It is just such a pleasure to be here. So thank you for your hospitality.

Mr. JOHNSON OF OHIO. Thank you, Mr. Chairman.

Mr. LAMBORN. Under Committee Rule 4[f], opening statements are limited to the Chairman and Ranking Member of the Subcommittee; however, I ask unanimous consent that both Members with me be permitted to give an opening statement and to include any of the Members' opening statement in the hearing record if submitted to the clerk by the close of business today.

Hearing no objection, so ordered. I will recognize myself for 5 minutes.

Thank all of you for being here today. I am Congressman Doug Lamborn, and I represent the 5th Congressional District of Colorado. I also serve as Chairman of the House Committee Resources Subcommittee on Energy and Mineral Resources. Our Subcommittee has broad jurisdiction over onshore and offshore energy production on public lands. Many of us on the Committee work to ensure the expansion of energy production in this country to create job opportunities for hundreds of thousands of Americans, to in-

crease our energy security and to decrease our reliance on foreign oil.

Today we are here in Steubenville, Ohio to discuss one of the most secure sources of energy and technology our country has to offer, natural gas production. The natural gas industry has the potential to bring in billions of dollars of Federal revenue, bring energy to our national economy, create good paying jobs for thousands of Americans, and most importantly, greatly contribute to the economies of the towns and cities that benefit from this development.

The United States is blessed with some of the richest and largest natural gas shale fields in the world. The Marcellus shale, the Barnett shale, the Bakken formation are all previously unproductive areas that have just recently become extraordinarily productive gas and oil fields because of hydraulic fracturing, a process that is now used in more than 90 percent of oil and gas production wells.

Hydraulic fracturing technology enables the development of unconventional domestic oil and gas resources, such as the Bakken formation in North Dakota and Montana, which is thought to hold 4 billion barrels of oil, second only to Alaska and has kept North Dakota's unemployment rate the lowest in the country.

By encouraging policies that provide regulatory certainty for the energy industry and foster the development of natural gas, there is the potential for all communities to enjoy these same benefits from energy production. While these technological advances in horizontal drilling have helped spawn the economic development of shale oil, it has benefited and revolutionized domestic natural gas production by delivering vast amounts of cheap natural gas for the U.S. underground shale rock formations.

Shale gas production is one of the most rapidly expanding trends in onshore domestic oil and gas exploration and production today. In some areas this has included bringing exploration, production and energy to regions of the country that have seen little or no activity in the past. In 2000 shale gas provided 1 percent of our nation's gas supplies. That is just 12 years ago. Today it is 25 percent.

Half of the natural gas consumed today is produced from wells drilled within the last 3 1/2 years. This technological advancement and increased production has allowed once struggling businesses to expand into extremely successful business ventures within just the last few short years. It has created job opportunities for unemployed Americans and contributed to the coffers of many small communities.

While the Administration frequently touts its record of increased energy production and its support for increased natural gas production, their actions prove otherwise. In November the Administration removed over 3,000 acres of the Wayne National Forest from the leasing process pending a study on hydraulic fracturing. This will simply serve to further delay the creation of American jobs and energy production. This action follows a proposal last year by the Forest Service to ban the practice of horizontal drilling.

When questioned about a proposed ban on horizontal drilling, BLM Director Bob Abbey said, "I note for the record that the BLM

has no ban on directional drilling, and as a matter of policy, the Bureau generally encourages its use where appropriate to protect sensitive surface resources."

Additionally, and unfortunately, the Department of the Interior has announced plans to release Federal fracking regulations for energy production on Federal lands in the near future. Currently states are responsible for regulating oil and natural gas development stemming from the use of hydraulic fracturing. These state regulations have proved successful in overseeing hydraulic fracturing, and the industry flourished under this regime.

I also note for the record that in Colorado, if you have a question or complaint, whether it is founded or not, you call the state regulators. They are there sometimes the same day and within 24 hours in every case.

These proposed BLM Federal regulations are much more stringent, if not unreasonable, beyond any state regulations to date. The proposed regulations would likely severely inhibit natural gas production on Federal lands and greatly dissuade companies from pursuing production on these lands.

I look forward to our witnesses' thoughts on how we can successfully expand natural gas production and the benefits a robust energy industry can bring to local communities while protecting the important multiple use mission of our Federal lands and protecting the environment responsibly.

Finally, I want to thank again Mr. Johnson for hosting us here in his home district and our colleague from Pennsylvania, Mr. Thompson, for being here as well. I regret that none of our Democratic colleagues on the Committee took the interest in this vital subject to join us at this hearing.

I want to thank our witnesses and guests for taking time out of your schedules to be with us here today, and I look forward to hearing from our panels.

I would like now to recognize Mr. Johnson for an opening statement and then Mr. Thompson.

[The prepared statement of The Honorable Doug Lamborn follows:]

**Statement of The Honorable Doug Lamborn, Chairman, Subcommittee on Energy and Mineral Resources**

Thank you everyone for being here today. I'm Congressman Doug Lamborn and I represent the 5th Congressional district of Colorado and also serve as Chairman of the House Natural Resources Subcommittee on Energy and Mineral Resources. Our subcommittee has broad jurisdiction over onshore and offshore energy production on public lands and we work to ensure the expansion of energy production in this country to create job opportunities for hundreds of thousands of Americans, increase our energy security, and decrease our reliance on foreign oil.

Today we are here in Stubenville, Ohio to discuss one of the most secure sources of energy and technology our country has to offer—natural gas production. The natural gas industry has the potential to bring in billions of dollars of federal revenue, create good-paying jobs for thousands of Americans and most importantly greatly contribute to the economies of the towns and cities that benefit from this development.

The United States is blessed with some of the richest and largest natural gas shale fields in the world. The Marcellus Shale, Barnett Shale and Bakken Formation are all previously unproductive areas that are now extraordinarily new productive gas and oil fields because of hydraulic fracturing—a process that is now used in more than 90% of oil and gas production wells. Hydraulic fracturing technology is enable the development of unconventional domestic oil and gas resources, such

as the Bakken Formation in North Dakota and Montana, which is thought to hold 4 billion barrels of oil—second only to Alaska, and has kept North Dakota's unemployment rate the lowest in the nation. By encouraging policies that provide regulatory certainty for the energy industry and foster the development of natural gas, there is the potential for all communities to enjoy these same benefits from energy production.

While these technological advances in horizontal drilling have helped spawn the economic development of shale oil, it has primarily benefited and revolutionized domestic natural gas production by delivering vast amounts of cheap natural gas from U.S. underground shale-rock formations. Shale gas production is one of the most rapidly expanding trends in onshore domestic oil and gas exploration and production today. In some areas, this has included bringing exploration, production and energy to regions of the country that have seen little or no activity in the past. In 2000, shale gas provided 1% of our nation's gas supplies; today it is 25%. Half of the natural gas consumed today is produces from wells drilled within the last 3.5 years.

This technological advancement and increased production has allowed once struggling businesses to expand into extremely successful business ventures within just a few short years. It has created job opportunities for unemployed Americans and contributed to the coffers of many small communities.

While the Administration frequently touts its record of increased energy production and its support for increased natural gas production, their actions prove otherwise. In November the Administration removed over 3,000 acres of the Wayne National Forest from the leasing process pending a study on hydraulic fracturing. This will simply serve to further delay the creation of American jobs and energy production. This action follows a proposal last year by the Forest Service to ban the practice of horizontal drilling. When questioned about a proposed ban on horizontal drilling BLM Director Bob Abbey, "I note for the record that the BLM has no ban on directional drilling and, as a matter of policy, the Bureau generally encourages its use where appropriate to protect sensitive surface resources."

Additionally, the Department of the Interior announced plans to release federal fracking regulations for energy production on federal lands in the near future.

Currently, states are responsible for regulating oil and natural gas development stemming from the use of hydraulic fracturing. These state regulations have proven successful in overseeing hydraulic fracturing and the industry has flourished under this regime.

These BLM regulations go significantly above and beyond any state regulations to date and the proposed regulations would likely severely inhibit natural gas production on federal lands and greatly dissuade companies from pursuing production on those lands.

I look forward to our witnesses thoughts on how we can successfully expand natural gas production and the benefits a robust energy industry can bring to local communities while protecting the important multiple use mission of our federal lands.

Finally, I want to thanks Mr. Johnson for hosting us here in his home district and our colleague from Pennsylvania Mr. Thompson for being here. I regret that none of our Democratic colleagues on the Committee considered this matter important enough for them to join us at this hearing.

I want to thank our witnesses and guests for taking time out of your schedules to be with us today and look forward to hearing from our panels.

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## STATEMENT OF THE HON. BILL JOHNSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OHIO

Mr. JOHNSON OF OHIO. Thank, Mr. Chairman, for hosting this hearing today. I would also like to welcome you and our colleague, Representative Thompson, here to Steubenville, the home of Dean Martin. I don't know if you know that or not, but it is.

Mr. THOMPSON. I know it now.

Mr. JOHNSON OF OHIO. It is.

Mr. THOMPSON. That is pretty cool.

Mr. JOHNSON OF OHIO. Yes. But more importantly to today's hearing, Steubenville sits atop the world's largest natural gas deposits located in the Marcellus and the Utica shale. This hearing today will shed some light on the many direct and indirect eco-

nomic opportunities that are coming to Eastern and Southeastern Ohio because of oil and gas development, both new and old technologies. But it is not just Ohio.

America is blessed with the largest energy reserves in the world and according to the Congressional Research Service, the United States tops Russia, Saudi Arabia and China when it comes to reserves of oil, natural gas and coal.

Harnessing these resources is critical to Ohio's economic prosperity. Right here in Ohio it is estimated we could see up to 200,000 new good paying jobs come to Ohio with increased natural gas and oil production. But the job opportunities that will come from natural gas aren't isolated simply to harvesting the resource. These new job opportunities will be in supporting industries like manufacturing, housing, retail, entertainment and service industries, just to name a few.

In the past few weeks alone, private companies not directly involved in the harvesting of the oil and gas have announced hundreds of millions of planned investments that will create hundreds, if not thousands, of direct and indirect jobs. This is just the tip of the iceberg, ladies and gentlemen. However, you don't need to take my word for it, because ABC World News report came here right to Steubenville last October and highlighted the economic development that is coming to town. In the report the anchor stated that 300 jobs had already come to Steubenville and that another 10,000 jobs would be created over the next 3 years.

While unemployment in Steubenville is still too high and above the national average at 9.9 percent, this is a huge improvement from when it was as high as 15 percent back in 2010. As we all saw last week, it is not just the private sector and individuals that are benefiting from this development. The City of Steubenville has also taken advantage of their resources. Between selling excess water to companies and by leasing land at the old landfill in town, Steubenville will now have extra money to make long-term investments to improve infrastructure, money that they otherwise would not have had.

As I meet with senior executives and CEOs of the companies coming to Ohio to develop the natural gas resources, I always stress two very important points. In fact, I told the CEO of Hess Corporation, whose company will be drilling at the old city landfill in town, these important conditions when he came to visit with me. I tell these executives that they need to hire as many Ohioans as possible. These resources belong to the hard-working people of Eastern and Southern Ohio, and Ohioans deserve to be the ones as much as possible working on the rigs and the associated projects.

That is why I have been working with Eastern Gateway Community College and other educational institutions, trade unions like the pipefitters union represented here by Butch Taylor, and the energy companies, to ensure that our labor force has the skills necessary for the jobs, that they are given first priority when hiring starters. I also tell them that Ohioans who decide to lease their land for development must be treated fairly by their companies. Ohioans deserve to be given a fair shake by these companies and should not be taken advantage of.

All of these executives have given me their word to follow these conditions, and, ladies and gentlemen, I will hold them accountable if they do not live up to their word.

We have an opportunity to usher in a new era of American exceptionalism with Ohio energy development if only the Federal Government stays out of the way. However, the Federal Government is doing everything it can to stand in the way of growing our economy and creating jobs through increased domestic energy production. The Department of the Interior is in the process of developing new rules regulating hydrofracking on Federal lands that will serve as the blueprint for the Federal EPA rules and regulations that could stop all of this development in its tracks.

As we will hear from Mr. Simmers from the Ohio Department of Natural Resources later, the State of Ohio has been regulating hydraulic fracturing for over 60 years and we do not need bureaucrats from Washington, D.C. telling Ohio's regulators how to do the job they have already been doing responsibly for decades. I trust Ohio and Ohioans to know what is best for Ohio rather than unelected bureaucrats in Washington.

I must also point out that while there have been a lot of scare tactics on the issue of hydraulic fracturing being thrown around lately, the fact remains that there has not been one single case in the over 100 million hydraulic fracturing jobs nationwide that has resulted in the contamination of drinking water.

Mr. JOHNSON OF OHIO. Furthermore, when there were issues with the earthquakes in the Youngstown area because of nearby injection wells, the Governor and state regulators acted quickly and shut down the wells. The Governor also ordered additional monitoring of the injection wells to ensure early detection of the injection wells and to monitor for future seismic activity. They took immediate, prompt and prudent action to base their decisions on science and fact, not on political rhetoric or scare tactics.

Mr. Chairman, thanks again for taking the time to come to Steubenville today all the way from Colorado to draw attention to the excitement and the vast economic potential around energy development in Eastern and Southeastern Ohio.

With that, I yield back the balance of my time.

[The prepared statement of The Honorable Bill Johnson follows:]

**Statement of The Honorable Bill Johnson, a Representative in Congress from the State of Ohio**

Thank you, Mr. Chairman for hosting this hearing and let me be the first to officially welcome you to Steubenville, the home of Dean Martin.

More importantly to today's hearing, Steubenville sits atop the world's largest natural gas deposits located in the Marcellus and Utica Shale formations.

This hearing today will shed light on the many direct and indirect economic opportunities that are coming to Eastern and Southern Ohio because of oil and gas development using both new and old technology.

But it's not just Ohio. America is blessed with the largest energy reserves in the world and according to the Congressional Research Service, the United States tops Russia, Saudi Arabia, and China when it comes to reserves of oil, natural gas, and coal.

Harnessing these resources is critical to Ohio's economic prosperity. Right here in Ohio—it is estimated that we could see up to 200,000 good-paying new jobs come to Ohio with increased natural gas and oil production and related jobs.

But the job opportunities that will come from natural gas aren't isolated simply to harvesting the source. These new job opportunities will be in supporting indus-

tries like manufacturing, housing, retail, entertainment, and service—to name a few.

In the past few weeks alone private companies not directly involved in the harvesting of the oil and gas have announced hundreds of millions of planned investment that will create hundreds if not thousands of direct and indirect jobs. This is just the tip of the iceberg.

However, you don't need to take my word for it because ABC World News report came right here to Steubenville last October and highlighted the economic development that is coming to town. In the report, the anchor stated that 300 jobs had already come to Steubenville and that another 10,000 jobs could be created in the next three years.

While unemployment in Steubenville is still too high and above the national average at 9.9%, this is a huge improvement from when it was as high as 15% in 2010.

And as we all saw last week, it is not just the private sector and individuals that are benefitting from the oil development, the City of Steubenville has also taken advantage of their resources.

Between selling excess water to companies and by leasing land at the old landfill in town, Steubenville will now have extra money to make long term investments to improve infrastructure that they otherwise would not have the money to pay for these much needed upgrades.

As I have met with senior executives and CEOs of the companies coming to Ohio to develop the natural resources I always stress two important points.

And in fact, I told the CEO of Hess Corporation, whose company will be drilling at the old city landfill in town, these important conditions when he came to visit me.

I tell these executives that they need to hire as many Ohioans as possible. These resources belong to the hard working people of Eastern and Southern Ohio and Ohioans deserve to be the ones as much as possible working on the rigs and the associated projects.

That is why I have been working with Eastern Gateway Community College, other educational institutions, trade unions like the Pipefitter's Union represented today by Butch Taylor and the energy companies to ensure that our labor force has the skills necessary for the jobs and that they are given first priority when hiring starts.

I also tell them that Ohioans who decide to lease their land for development must be treated fairly by their companies. Ohioans deserved to be given a fair shake by these companies and should not be taken advantage of by these companies.

All of the executives have given me their word to follow these conditions and I will hold them accountable if they do not live up to their word.

We have an opportunity to usher in a new era of American exceptionalism with Ohio energy development if only the Federal Government stays out of the way.

However, the Federal government is doing everything it can to stand in the way of growing our economy and creating jobs through energy development.

The Department of the Interior is in the process of developing new rules regulating hydraulic fracturing on federal lands that will serve as the blueprint for new Federal EPA rules implementing regulations that could stop all of this development in its tracks.

As we will hear from Mr. Simmer from the Ohio Department of Natural Resources later, the State of Ohio has been regulating hydraulic fracturing for over 60 years and we do not need bureaucrats from Washington D.C. telling Ohio's regulators how to do the job they have already been doing responsibly for decades.

I trust Ohio and Ohioans to know what's best for Ohio rather than unelected bureaucrats in Washington.

I must also point out that while there have been a lot of scare tactics on the issue of hydraulic fracturing being thrown around lately, the fact remains that there has not been one single case in the over 1 million hydraulic fracturing jobs nationwide that has resulted in the contamination of drinking water.

Furthermore, when there issues with the earthquakes in the Youngstown area because of nearby injection wells, the Governor and state regulators acted quickly and shut down the wells. The Governor also ordered additional monitoring of injection wells to ensure early detection of the injection wells cause future seismic activity.

Mr. Chairman, thanks again for taking the time to come out to Steubenville from Colorado to draw attention to the excitement and vast economic potential around energy development in Eastern and Southern Ohio. With that I yield back the balance of my time.

Mr. LAMBORN. All right. Thank you. We are going to hear in a moment from Mr. Thompson.

I would ask every member of the audience to be respectful and to not interrupt or make noises and to be civil and respect everyone's rights to listen. Thank you.

Mr. Thompson of Pennsylvania.

**STATEMENT OF THE HON. GLENN THOMPSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA**

Mr. THOMPSON. Thank you, Chairman. Thanks for hosting this Subcommittee bill hearing. And thanks, Mr. Johnson——

Mr. JOHNSON OF OHIO. You're welcome.

Mr. THOMPSON.—for hosting us here and for, I perceive, the opportunity to serve with you. I want to thank the witnesses on this panel and all the panels for taking the time to come out and to provide your expertise and your opinions. It is greatly appreciated.

It is good to be in Steubenville. I have already learned a little more about Steubenville, though I am a neighbor. I represent the Pennsylvania 5th Congressional District. It is a pleasure to be at this hearing, Natural Gas-America's New Energy Opportunity: Creating Jobs, Energy and Community Growth.

I am from Pennsylvania's 5th District. This is an issue that is very important to the future of this country. This is an industry that has been around for a very long time. In fact, my district is home to where Colonel Edwin Drake drilled the very first commercial oil well, I think over 152 years ago at this point. In fact, when it comes to natural gas, 15 of my 17 counties actually have had Marcellus. It has been in that beginning epicenter as part of my district.

This is an important issue. It is a great issue to have a field hearing on, to be able to weigh both sides and to look at the opportunity and responsibility that come with it. I am looking forward to hearing the witnesses. Myself, personally, have seen what it has done in my district to move us toward energy independence, affordable energy, clean energy, and jobs, but also the importance of the responsibility side.

I am glad to see the agencies are represented here today. I know in Pennsylvania I work very closely with the same or comparable organizations, the Pennsylvania Department of Environmental Protection, to look at what the issues are and the role of state regulation and make sure it is the right regulations and it is there for protecting both people and the environment while maximizing this opportunity.

So I am going to yield back at this point and say thank you, once again, for hosting this Subcommittee hearing.

I yield back.

[The prepared statement of The Honorable Glenn Thompson follows:]

**Statement of The Honorable Glenn 'GT' Thompson,**
**a Representative in Congress from the State of Pennsylvania**

I want to thank Chairman Lamborn for holding this important hearing. And I also want to thank Representative Bill Johnson for hosting us here today.

I also want to thank the witnesses for taking the time out of your day to offer your expertise, this is greatly appreciated by this committee.

It's great to be in Steubenville. And I'm not too far away, I represent the 5th Congressional District of Pennsylvania. Similar to Ohio's 6th District, Pennsylvania's 5th sits atop the Marcellus Shale.

My District and the Commonwealth have been producing energy for some time, and our state has a long and storied history in energy.

In fact, Col. Edwin Drake drilled the world's first commercially successful oil well in Titusville in 1859, which is also located in my District.

More recently, Pennsylvania has been experiencing enormous economic benefits with the development and production of the Marcellus shale gas play. 15 of the 17 counties in Pennsylvania's 5th District have Marcellus production occurring.

We've added over 100,000 jobs in the state, have lower than average unemployment rates in many counties, and are growing our economy in Pennsylvania.

Much of this success is directly tied to the Marcellus, energy production, and related industries. This is good for my home state, it's good for consumers, and it's good for the nation.

Nationally, hydraulic fracturing in oil and gas shale formations has unlocked previously inaccessible and vast new energy supplies which has lowered energy costs in regions across the country, offering new incentives for more businesses to locate their operations here in the U.S. and new economic fortune and added jobs to our local communities.

This energy development on state and private lands—regulated at the state level—has flourished, and today's hearing goes to show what's possible in terms of energy production and job creation when the federal government is not there to interfere.

This is an important issue that we must continue to discuss, so that we can look at the opportunities as well as the responsibilities that come with development of our nation's domestic resources.

I look forward to hearing from our panelists. Thank you.

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Mr. LAMBORN. All right. Thank you. We will now hear from our witnesses.

I would like to invite forward Ms. Faye Krueger, Associate Deputy Chief, National Forest System, USDA Forest Service, and Mr. Richard Simmers, Chief of the Division of Oil and Gas Resources Management of the Ohio Department of Natural Resources.

Like all of our witnesses, your written testimony will appear in full in the hearing record. So I ask that you keep your oral statements to 5 minutes as outlined in our invitation letter to you and under Committee Rule 4[a]. With all of our witnesses, after your 5 minutes are up, you are asked to speak only in response to questions. Microphones are not automatic. Excuse me. I think today they are automatic. So that is taken care of.

The timing lights work like this: When you begin to speak, our clerk will start the timer, and a green light comes on. After 4 minutes a yellow light comes on, then the red light after 5 minutes.

Ms. Krueger, thank you for being here, and you may begin.

## STATEMENT OF FAYE KRUEGER, ASSOCIATE DEPUTY CHIEF, NATIONAL FOREST SYSTEM, USDA FOREST SERVICE

Ms. KRUEGER. Mr. Chairman, Member of the Subcommittee, it is a privilege to be here today to discuss the development of natural gas on National Forest System lands and the implications for job development, energy production, and community growth. I would like to describe the national perspective and then describe the situation here in Southeast Ohio on the Wayne National Forest. Again, my name is Faye Krueger with the National Forest System.

The Administration believes natural gas development is an important component of America's energy portfolio, and it supports our nation's security while contributing to the portfolio of energy

while considering surrounding communities and protecting our landscapes and watersheds.

Across the country, national forests and grasslands currently host over 19,000 operating oil and gas wells. Approximately 4,200 of those 19,000 wells overlay Federal minerals where the subsurface is Federally owned. Our current estimate is we are producing about 16 billion barrels of oil and 1 trillion cubic feet of natural gas per year. Our analysis shows that this development has supported over 52,500 jobs with labor income estimated at approximately $3.5 billion per year. We are currently processing around 200 permits for drilling or Master Development Plan across the nation, which would further add to the jobs and amount of oil produced and gas.

Federal gas leases cover about 5.5 million acres of the National Forest System lands. Federal royalties from leases on National Forest System lands were more than $135 million in calendar year 2009, and we will be updating these figures for other years. Three-fourths of the oil and gas wells on National Forest System lands overlay privately held mineral rights. Where the subsurface mineral estate is privately held, Forest Service works closely with the state and local government to coordinate appropriate protection of surface resources.

Where National Forests overlay Federal minerals, the Forest Service works closely with the Bureau of Land Management. Coordination between the two agencies is outlined in a National Memorandum of Understanding where BLM has a primary responsibility for subsurface impacts and the Forest Service has the primary responsibility for surface impacts. Here in the Wayne National Forest there are 1,283 oil and gas wells. Two-thirds of those overlay privately held minerals. Since 2006, a total of 12 wells have been drilled, three of which overlay Federal minerals and nine of which overlay non-Federal minerals.

Last year responding to an expression of interest from industry, five parcels with Federal minerals totaling about 3,300 acres were considered for lease sale. These parcels have been identified as being available for lease in the 2006 analysis during the revision of the Wayne National Forest plan. These parcels are in close proximity to the City of Nelsonville along the Hocking River which flows through the City of Athens. Local government officials, the President of Ohio University and others sent letters of concern asking that the parcels be withdrawn from the sale until additional environmental impacts could be more closely examined.

In response to the request, the Forest Service and BLM are working together to conduct a review of the information. This review simply reflects the need based on existing regulation for the Forest Service and BLM to evaluate other technical and environmental information and consider any changed circumstances since the decision was made in 2006. This information will inform the decision maker whether to proceed with the sale or update the environmental analysis.

This review also makes use of best scientific and technical information before issuing drilling leases and is more efficient than having drilling leases successfully challenged in court at a later date.

These parcels sit on the edge of the Utica shale formation. There may be some potential for use of horizontal drilling and multistage hydrologic fracking and associated use of larger water volumes to extract oil and gas. The Forest Service and BLM, through this review, will look at potential environmental impacts that are associated with developing shale gas to determine if effects are still accurate as described from the 2006 analysis.

I would note that while we are reexamining potential leases on Federally owned minerals and on a portion of the Wayne National Forest, 3/4 of the 241,000 acres of the Wayne National Forest is available for oil and gas development. This includes almost 39,000 acres which overlay Federal minerals and 142,000-plus acres that overlay private minerals. Again, we are committed to contributing to the nation's energy needs and moving forward with developing jobs.

I thank you for the opportunity to appear before you today and answer any future questions you may have.

[The prepared statement of Ms. Kruegar follows:]

**Statement of Faye Krueger, Associate Deputy Chief, National Forest System, USDA Forest Service**

Mr. Chairman and members of the Subcommittee, it is a privilege to be here today to discuss the development of natural gas on National Forest System lands and the implications for job development, energy production and community growth. My name is Faye Krueger, Associate Deputy Chief for the National Forest System. Accompanying me today is Anne Carey, Supervisor of the Wayne National Forest. I would like to describe the national perspective and then describe the situation here in southeast Ohio on the Wayne National Forest.

This Administration believes natural gas development is an important component of the all-of-the-above energy portfolio that supports our nation's energy security, improves air quality, and creates jobs. The responsibility of the U.S. Forest Service and the rest of the Administration is to contribute to that portfolio while ensuring the well-being of surrounding communities, and protecting our landscapes and watersheds.

Across the country, National Forests and Grasslands currently host over 19,000 operating oil and gas wells. Approximately 4,200 of those 19,000 wells overlay Federal minerals where the subsurface is federally owned, not privately owned. Our current estimate is that these wells are producing approximately 16 million barrels of oil and 1 trillion cubic feet of natural gas per year. Our analysis shows that this development has supported over 52,500 jobs, with labor income estimated at over 3.5 billion dollars per year (Henry Eichman, Forest Service Economist, Sept. 20, 2011—IMPLAN MODEL). In addition, we are currently processing approximately 200 permits for drilling or Master Development Plans across the nation, which could potentially add significantly to the amount of oil and gas produced and jobs supported.

Federal gas leases currently cover over 5.5 million acres of National Forest System lands. Federal royalties from leases on National Forest System lands were more than 135 million dollars in calendar year 2009. We are currently working with the Department of the Interior's Office of Natural Resource Revenue to update those figures. Across the country, the Forest Service is analyzing additional lands which could be made available for leasing.

Three-fourths of the oil and gas wells on National Forest System lands overlay privately held minerals. Where the subsurface mineral estate is privately held, the Forest Service works closely with state and local government to coordinate appropriate protection of surface resources.

Where National Forests overlay Federal minerals, the Forest Service works closely with the Bureau of Land Management (BLM). Coordination between the two agencies is outlined in a national memorandum of understanding (MOU) where the BLM has primary responsibility for sub-surface impacts and the Forest Service has primary responsibility for surface impacts. (Memorandum of Understanding between United States Department of the Interior Bureau of Land Management and Untied States Department of Agriculture Forest Service Concerning Oil and Gas Leasing

and Operations, signed by Kathleen Clarke, BLM on April 5, 2006 and signed by Dale Bosworth, Chief, U.S. Forest Service, on April 14, 2006)

Here on the Wayne National Forest there are 1,283 oil and gas wells, two-thirds (62% or 790 of 1283) of which overlay privately held, non-Federal minerals. A total of 12 wells have been drilled since 2006, 3 of which overlay Federal minerals and 9 of which overlay non-Federal minerals, and all are conventional vertical oil and gas wells. The typical foot print for each of these wells, once drilled and initial reclamation is completed, is less than an acre. They produce relatively modest amounts of oil and gas. The companies drilling these wells are generally local independent producers. Although shale plays (oil and gas trapped in geologic formations of shale rock typically 6–8000 feet below the surface), are known to exist beneath the Wayne National Forest, the Forest has not yet experienced the deep and horizontal drilling and the associated high volume water use needed for that type of multi-stage hydraulic fracturing.

Last year, responding to an expression of interest from industry, 5 parcels with Federal minerals totaling approximately 3,300 acres were considered for a lease sale. These parcels had been identified as being available for leasing in a 2006 analysis during the revision of the Wayne National Forest Plan. These parcels are in close proximity to the City of Nelsonville along the Hocking River which flows through the City of Athens. Local government officials, the President of Ohio University and others sent letters of concern asking that the parcels be withdrawn from the sale until environmental impacts could be more closely examined.

Prior to moving forward with leasing the specific lands in question the Forest Service and the BLM are working together to conduct a "Review of New Information (RONI)." This review simply reflects the need, based on existing regulations, for the Forest Service and the BLM to evaluate new technical and environmental information and consider any changed circumstances since it last made these lands available for leasing in 2006. This review will inform the decision maker whether to proceed with the sale or update the environmental analysis, thereby making sure the leasing analysis in the Forest Plan adequately addresses anticipated impacts and that any future leases will be legally sound. Ensuring that the Forest Plan makes use of the best scientific and technical information before issuing drilling leases is significantly better, and more efficient, than having drilling leases successfully challenged in court.

The parcels lay on the edge of the Utica Shale, an underground geologic formation stretching across several mid-western states and containing large amounts of trapped gas and oil deposits within the shale. There may be potential for use of horizontal drilling and multi-stage hydraulic fracturing and associated use of larger water volumes to extract the oil and gas. While potential surface and subsurface impacts would need to be analyzed, the Forest Service and BLM, through this review, will look at potential environmental impacts that are associated with developing shale gas to determine if the effects are still accurate as described in the 2006 environmental analysis. Together with the BLM, the Forest Service anticipates completing the review within the next several months to determine whether to proceed with sale of leases based on the 2006 analysis or whether changed circumstances warrant continuing a more thorough environmental analysis initiated with the RONI and providing for further public involvement. We are committed to working with local and state government and other members of the public in this process in the review of new information.

I would note that while we are re-examining potential leases on federally owned minerals on the Wayne National Forest, including the 3,300 acres of the current lease parcels, three-fourths of the 241,000 acre Wayne National Forest is available for oil and gas development. This includes almost 39,000 acres which overlay Federal minerals and 142,250 acres which overlay private minerals for which the Federal government does not have a leasing role.

Again, we are committed to contributing to the nation's energy needs and look forward to moving forward in developing our nation's natural gas resources while protecting the well-being of surrounding communities, as well as the landscapes and watersheds of our National Forests and Grasslands.

Thank you for the opportunity to appear before you today and I look forward to answering any questions you may have.

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Mr. LAMBORN. Thank you.

Mr. Simmers?

**STATEMENT OF RICHARD SIMMERS, CHIEF, DIVISION OF OIL AND GAS RESOURCES MANAGEMENT, OHIO DEPARTMENT OF NATURAL RESOURCES**

Mr. SIMMERS. Mr. Chairman and Members of the Committee, I appreciate the opportunity to be here today.

I am representing Ohio's Department of Natural Resources. The Department of Natural Resources is the primary regulatory authority for oil and gas development in Ohio. We also have a primacy program for the underground injection control program with the USEPA. I did submit a five-page testimony, but I am going to speak off the cuff.

I am born, raised and educated in Ohio. I have Bachelor's degrees in biology, geology and a Master's degree in geology, all from the University of Akron. I was hired as a hydrogeologist by ODNR to investigate contamination.

Contamination can occur, but if the proper statutes and rules are in place and they are properly enforced, those can be greatly minimized to the point where they are nearly nonexistent. ODNR has a very good staff. We oversee oil and gas drilling, production and the injection disposal operations very well. As with any kind of energy development, drilling for natural gas has its risks. All undertakings of man have some degree of risks. The goal of ODNR is to, of course, minimize the potential risks by having a good set of standards, which may include statutes, rules, and in Ohio's case, conditions that can apply to permits and then oversee in the field.

There have been many claims over the past 3, 4 years that hydraulic fracturing has caused many groundwater contamination events. That is not accurate. That is not to say that contamination cannot occur, but it has not occurred through the direct act of fracturing. The Groundwater Protection Council, which is an organization of states that have injection programs, commissioned a study. They posted this study, and Ohio participated in this study.

The study evaluated groundwater contamination events over a 25-year period. And as Ohio's records of contamination were reviewed, it was shown that although contamination did occur and did occur for certain reasons, hydraulic fracturing was not a cause of contaminations over that 25-year period.

Fracking has occurred in Ohio for many years. Hydraulic fracturing, as we commonly know it, has occurred since the early 1950s in Ohio, but another form of fracturing occurred long before that. Like Pennsylvania, Ohio has a very long history of oil and gas development. The fracturing that occurred by hydraulic fracturing was done by explosives. Nitroglycerin, dynamite were sometimes put down wells to accomplish about the same goal as the hydraulic fracturing process. In essence, it breaks the rocks creating greater permeability so more oil or gas could be extracted from a particular formation.

In 2010 Ohio completed a comprehensive change of oil and gas law within the state. This is associated with Senate Bill 164. Senate Bill 165 was indeed the most comprehensive change to oil and gas law in at least a 25-year period. As this bill went through both the House and Senate in Ohio and votes eventually took place, there was nearly unanimous agreement in approving the bill. That agreement reflected, one, a good knowledge by the Ohio Legislature

in the content of the bill and it also expressed a knowledge that the bill was important and effective.

We have begun to implement that bill, and part of that implementation includes the promulgation of rules. We have begun that process. Now, Ohio has gone through a number of reviews, and I would challenge the Federal Government to go through similar reviews. Back in 1995, as part of a state review process, Ohio voluntarily allowed others to come into the state. The others included members of the Federal Government which included the DOE and USEPA as well as other state regulatory programs, the regulated industry and environmental groups. These groups came in and reviewed the effectiveness of Ohio's regulatory program. We had a follow-up to that review in 2005. These reviews are available.

They go through and they identify the effectiveness of different portions of the Ohio oil and gas regulatory program. More recently, in 2010, we had a review by STRONGER, a group that took over these state reviews, to include hydraulic fracturing. Specific standards were developed for review, and, again, the Federal Government, other state governments, environmental groups and the regulated industry came into Ohio and evaluated the effectiveness of hydraulic fracturing regulations within Ohio.

A copy of that review is available under my testimony in an electronic version. What these effectively said was Ohio is very good at this. I would challenge the Federal Government to come to the states and not just look at what they may provide for us, but come to us and ask what can we provide for you. Come to the states with the idea that maybe, maybe we do it better than you. And we would like you to come to these states.

Last summer we had USEPA, the enforcement folks from USEPA call and ask to come to Ohio so they could evaluate the effectiveness of the Ohio regulatory program. As part of that regulatory review, we had to explain how wells are drilled, how fracking occurs and how wastes are disposed, yet they were evaluating our effectiveness. Again, I would encourage the Federal Government to come to the states to find out what they can learn from us as well.

[The prepared statement of Mr. Simmers follows:]

**Statement of Richard Simmers, Chief, Division of Oil and Gas Resources Management, Ohio Department of Natural Resources**

Chairman Lamborn and members of the House Subcommittee on Energy and Mineral Resources, thank for the opportunity to testify today on behalf of the Ohio Department of Natural Resources on this topic that is so critical to protection and conservation of our precious water resources and to the future development of energy in a safe and reliable manner.

I am a professional hydro-geologist, with a Masters degree in Geology from the University of Akron and was recently appointed as the Chief of the Ohio Department of Natural Resources, Division of Oil and Gas Resources Management (DOGRM). I have spent my entire professional career (26 years) working with the DOGRM with an emphasis on groundwater resource protection. I am a resident of Stark County, a county with an extensive history of oil and gas resource development. My family is dependent upon our private water well as our sole source of domestic water supply. This is also true for most of my field inspectors and enforcement staff. My staff and I share the strongest of possible convictions regarding the importance of protecting Ohio's groundwater resources. In order to maximize protection of groundwater resources, it is absolutely critical that the states retain authority to permit and regulate the development of oil and gas resources.

All energy resource development activities have associated environmental and public safety risks. The question of our time is "What is the best regulatory framework for managing those risks?" The states currently have authority to permit and regulate oil and gas resource development, while the United States Department of the Interior, Bureau of Land Management, oversees leasing, issues permits and regulates oil and gas development on federal lands in coordination with the states. Today there are some that believe in order to adequately protect public safety; we must further expand the federal bureaucracy through passage of the FRAC Act, requiring a federal permit to stimulate a well by hydraulic fracturing. Some environmental NGOs have called for expansion of U.S.EPA's powers in other areas including rescission of the RCRA exemption, requiring produced water to be managed and disposed as hazardous waste, subjecting hydraulic fracturing and produced water disposal to the Toxic Release Inventory reporting requirements. The proposed expansion of federal authority would dramatically increase the cost of developing oil and gas resources without improving environmental protections.

Beginning in 2007, a growing number of sources including various media outlets, environmental NGO resolutions, and NGO blogs began to claim or imply that thousands of alleged groundwater contamination incidents across the country, including Ohio, had been linked to hydraulic fracturing. Collectively, these accounts, including the movie Gasland, have had a profound effect on public opinion. As a result, there is a tremendous amount of misinformation circulating through the internet about hydraulic fracturing. Anecdotal accounts and speculative statements made by persons without credentials or expertise on the topic are circulated, embellished and eventually treated and recycled as established fact. In September, 2009, a consortium of 160 national, regional, state, and local environmental and conservation organizations sent a letter to Congress urging sponsorship of the FRAC Act stating that "our organizations represent communities across the country that are concerned about drinking water contamination linked to hydraulic fracturing operations. Reports of drinking water contamination come from Colorado, Texas, Arkansas, Ohio, Pennsylvania, Alabama, and Wyoming."

As Ohio starts down the path toward shale gas development, state leaders under the Kasich administration have been meeting with local government officials to discuss issues and concerns. During those meetings state officials are often surprised to learn the breadth of local fears. At a recent meeting one municipal official asked what the state was going to do when their municipal groundwater supply was ruined by hydraulic fracturing. Based upon all this official had read, it was not a matter of "if" but "when" they would lose their municipal water well field. On September 6, 2011, a bill (SB No. 213) was introduced to ban hydraulic fracturing in Ohio until U.S.EPA had completed their study and the states had implemented all regulatory enhancements in response to U.S.EPA recommendations.

As part of the call for federal oversight, there was a concerted effort to undermine state agency credibility. In recent years, the popular literature has painted a picture of oil and gas regulatory agency officials as complicit, incompetent, indifferent, and an obstacle to positive regulatory reform. The popular portrayal of regulatory personnel stands in stark contrast with the sacrifices and effort that I've personally seen over the course of my career. I am proud to be a part of an agency composed of dedicated and competent public servants who work around the clock to inspect oil and gas resource development activities to ensure protection of groundwater resources and public safety, including witnessing of hydraulic fracturing operations.

The claims that Ohio has identified groundwater resources contaminated by hydraulic fracturing are patently false. Hence, the very premise undergirding the NGO demand for a federal takeover is inaccurate and misguided. In August 2011, the Ground Water Protection Council (GWPC) posted on line a report entitled State Oil and Gas Agency Groundwater Investigations and Their Role in Advancing Regulatory Reforms. This report can be viewed at http://fracfocus.org/publications. The study includes an evaluation of Ohio DOGRM groundwater investigations covering a 25-year period from 1983 through 2007. I personally participated in most of these investigations. Notably, during the 25-year period, Ohio did not find any incidents where groundwater contamination was linked to well stimulation including hydraulic fracturing.

Stimulation by hydraulic fracturing has been a routine part of completing most Ohio oil and gas wells in Ohio since 1951. During the study period (1983–2007), the DOGRM estimates that nearly 28,000 oil and gas wells were stimulated by hydraulic fracturing. The truth is that the Ohio DOGRM, other state oil and gas regulatory agencies, and the regulated industry have stellar track records relative to protecting groundwater resources from potential impacts. All energy development activities, including hydraulic fracturing operations, have some level of associated environmental and safety risks. The risks associated with hydraulic fracturing are well understood

and are routinely managed through the diligence of the Ohio oil and gas industry and by the DOGRM through enforcement of state regulations.

Although Ohio has not identified a single groundwater contamination incident linked to the specific practice of hydraulic fracturing, the DOGRM has recognized the need to improve monitoring and record keeping, including public disclosure of chemical additives, and has passed legislation during the past year to accomplish those objectives. In Ohio, SB–165 (2010) establishes notification and reporting requirements to improve documentation of the process and composition of stimulation fluids including additives.

Amongst other provisions, SB–165 establishes:

a. Clear well construction performance objectives that require isolation of all Underground Sources of Drinking Water behind cemented surface casing, and isolation of petroleum reservoirs prior to, during and after well stimulation operations;
b. Notification of inspectors prior to commencement of stimulation operations;
c. Immediate notification of an inspector upon detection of defective cement or casing during well stimulation operations;
d. Submittal of additional records including job logs, pumping and pressure charts, and invoices listing additives by volume; and
e. Mandates for disposal of produced water generated during the post-stimulation flowback process at Class II injection wells.

The regulatory framework for hydraulic fracturing in Ohio has been evaluated by a team of national experts. In December 2010, an independent eight-person team appointed by STRONGER completed a review of the DOGRM's regulatory framework for hydraulic fracturing against a set of national guidelines developed in 2010.

STRONGER is the acronym for a multi-stakeholder, non-profit organization named State Review of Oil and Natural Gas Environmental Regulations, Inc. that evaluates state oil and gas agency regulatory standards against a set of national guidelines. The original guidelines were developed in 1990 by the Interstate Oil Compact Commission (IOCC) and the U.S. Environmental Protection Agency (U.S.EPA). The published guidelines developed by state, environmental, and industry stakeholders, provided the basis for the State Review Process, a multi-stakeholder review of state exploration and production (E&P) waste management programs against the guidelines. In 2009, STRONGER expanded their guidelines to include the practice of hydraulic fracturing. The purposes of the State Review Process are to document the successes of states in regulating E&P wastes and to offer recommendations for program improvement.

After an in-depth review of the Ohio hydraulic fracturing regulatory program was completed, the multi-stakeholder review team concluded that the Ohio program is "overall, well-managed, professional and meeting its program objectives". The review team commended the DMRM for the following:

a) Strengthening Ohio Oil and Gas Law through amendments in Senate Bill 165 (effective June 30, 2010);
b) Expanding well completion and hydraulic fracturing reporting requirements;
c) Reviewing potential contaminant pathways during the permit review process;
d) Strengthening enforcement tools;
e) Increasing field enforcement staff levels; and
f) Improved usage of the website to disseminate information. [A full copy of the STRONGER review report can be viewed at www.dnr.state.oh.us/Portals/11/oil/pdf/stronger_review11.pdf Ohio Hydraulic Fracturing State Review]

The review team recommended that Ohio proceed with plans to promulgate new regulations regarding well construction. Draft standards have been developed and are currently under review through Governor Kasich's Business Common Sense Initiative. Once this process is complete, the DOGRM will make final amendments and submit the new standards for approval through JCARR. We believe that the new well construction rules are amongst the best in the nation and will further strengthen protection of water resources.

Ohio is not unique in its efforts to strengthen well construction standards or expand reporting requirements for hydraulic fracturing operations including chemical disclosure. Ohio actively participates in two state associations, the Ground Water Protection Council (GWPC) and the Interstate Oil and Gas Compact Commission (IOGCC), which provide forums for state regulators to interact and discuss positive regulatory advancements with peers. The states and these associations are proving to be the leaders that are driving regulatory enhancements throughout our nation. By visiting the GWPC website at www.gwpc.org—Groundwater Protection Council one can see the outstanding work that is being led by the diligent efforts of my peers in other states. States are best equipped to understand local geologic conditions, define protected groundwater resources, and grasp the unique aspects of pe-

troleum reservoirs within their respective jurisdictional boundaries. States will continue to provide the best regulatory framework.

While the states have been updating and improving regulatory standards for years, only recently did federal government (BLM) announce its intent to update their chemical disclosure requirements associated with hydraulic fracturing. While anyone can claim to be a leader, the true test of leadership occurs when one turns around and determines if anyone is following. With regard to hydraulic fracturing, the states have been, and will continue to be the standard bearers.

In conclusion, Mr. Chairman and Committee members, the states should retain regulatory authority over the practice of hydraulic fracturing. The states have established a strong track record of performance, have demonstrated proven leadership, and will continue to improve their regulatory standards, data management systems, and other programmatic tools necessary to ensure protection of groundwater resources and public safety.

Again, thank you for allowing me the opportunity to testify before you today with an in-depth explanation of shale development in Ohio and the authority given to ODNR to regulate it. I'll be happy to take any questions you may have at this time.

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Mr. LAMBORN. OK. Thank you both for your testimony. We will now begin our questions. We will have 5 minutes per Member for questions for each round. We will have two rounds for these two particular witnesses.

Mr. Simmers, you talked about the difference between the Federal and the state regulation. I, too, in my home state of Colorado believe that they are doing an excellent job. As I mentioned earlier, any landowner has a concern, they call them and they are there within 24 hours. Sometimes they are there the same day to physically inspect what that concern is. Most concerns end up being nothing that the well had anything to do with. It is other issues. However, for peace of mind, it is important to have that backup. It is important to have that capability. It is important to have that regulatory oversight should there be a problem that the drilling caused.

When you compare Federal and state, and I know you have just been talking about this, would you rather have the Bureau of Land Management oversee or the department that you are in, and then why, here in Ohio? You already, I know, explained it, but if you could go into a little more detail.

Mr. SIMMERS. In Ohio we have the expertise. We have the budget in place to properly manage a fully staffed regulatory program, and we hire trained professionals so they can go out and oversee the work that may be associated with drilling, well completion, production or even plumbing.

We, too, have a public complaint response policy in place. Ohio's policy basically says that when a call is received—we take complaints either as calls or letters—we respond either the same day or within 24 hours as well. And we generate written complaints and contact the complainant to identify the validity of their complaint, and if indeed they do have a valid complaint, how we address that complaint.

The state programs are effective, and I know they are effective because we are members of a number of organizations. I mentioned the Groundwater Protection Council, but we are also members of the Interstate Oil and Gas Compact Commission. Through these organizations the states meet on a regular basis. Not only do we meet, but we have conference calls and a series of meetings and

seminars where we share our experiences. We go through what works and doesn't work.

In this case, Ohio is kind of fortunate. Ohio's Utica shale is being developed after some of the other shale plays are being developed. In one sense, we have had the advantage of not going first. So we have learned from problems that may have occurred in other states, and we talk to those other states very frequently and in great detail.

We have promulgated or created statutes that address it. We are promulgating rules right now that will make us even more effective at this regulation.

Mr. LAMBORN. Are there things about Ohio's geology that are different from the other 49 states?

Mr. SIMMERS. There can be. Obviously along the state line with Pennsylvania, the geology can be very similar. Even with those two states, there can be substantial differences in geology. Geology is one of the factors you have to take into account when you are regulating a particular agency, organization or industry like oil and gas.

One of the things you have to look at is not only the differences in the state or local setting, but also the comprehensive package of statutes that may be in place. When I hear that a Frack Act may occur and it may address fracking in particular, it kind of bothers me, because fracking is only one tiny component of the overall operation.

If you don't start out with a good permitting process, if you don't start out with a good well construction—well construction is kind of like the foundation of a building. If you don't do that part right, then many problems can occur later. So looking at one little component is not the way to go. You have to look at the comprehensive package and see how the statutes and rules relate to one another and can be used to strengthen one another.

Mr. LAMBORN. Thank you. Ms. Krueger, in my remaining time in this first round, when do you expect the Forest Service to complete their study?

Ms. KRUEGER. We are looking at the next 3 to 5 months to get that study completed on the Wayne National Forest.

Mr. LAMBORN. I might ask you more about that later.

At this point, I would like to recognize Representative Johnson.

Mr. JOHNSON OF OHIO. Thank you, Mr. Chairman. Thank you both for your testimony here today.

Mr. Simmers, you may have responded to some of this already in your opening remarks, but how long has the State of Ohio regulated oil and gas development in the state?

Mr. SIMMERS. As an oil and gas agency since 1965. Any regulation prior to that was mainly in the mining portion of state government, and it had a primary purpose prior to 1965 of protecting underground miners as oil and gas activities may occur in the same area.

Mr. JOHNSON OF OHIO. How long has the state regulated hydraulic fracturing to harvest oil and gas?

Mr. SIMMERS. Again, it has regulated that practice since the agency inception in 1965 and has continued to effectively enforce that program.

Mr. JOHNSON OF OHIO. I know you responded to this or you asserted this earlier, but I want to just get it as a matter of record again. In all of that time that the state has been regulating hydraulic fracturing, has there ever been one proven case in which the fracking job contaminated drinking water?

Mr. SIMMERS. No, there has not. That is one of the frustrations in that. Misinformation is provided and then perpetuated by individuals, by organizations and by the media. Contamination can occur and has occurred, but not related to fracking as the process.

Mr. JOHNSON OF OHIO. Do you think that the State of Ohio is doing an effective job regulating the oil and gas industry and specifically your oversight of hydraulic fracturing?

Mr. SIMMERS. I know we are regulating this properly and effectively.

Mr. JOHNSON OF OHIO. Thank you for your answers and again for being here today, and I appreciate that.

Mr. SIMMERS. Sure.

Mr. JOHNSON OF OHIO. Ms. Krueger, in your testimony announcing that the Wayne National Forest would no longer be participating in the lease sale and I think, if I read the testimony of Supervisor Carey who was going to be here I thought—let me give you a quote. Based on new information and increased public interest on natural gas exploration, especially deep horizontal drilling, the forest will soon assemble a team of natural resource specialists to do further analysis. Is that correct?

Ms. KRUEGER. Yes, that is correct.

Mr. JOHNSON OF OHIO. My first question is: What is the new information that came about that led you to this decision?

Ms. KRUEGER. First, Anne Carey, the forest supervisor on the Wayne, is sitting in the audience today. She is here.

What new information we have is we did not look at what would happen with the surface resources for a different type of drilling, this horizontal and fracking proposal that is out there, bigger well pads, trucks getting in and out. So what was given to us by the environmental community, like I said, the university and some local concerned citizens, they wanted us to look at those effects.

So we don't look at them just as far as water goes. We look at them for all of our standards and guidelines in our forest plan. So we look at T & E species if it is germane to that. We look at water, air, several of our resources, to make sure our standards and guidelines are in place should we lease. So what we are trying to do is put a pause on the leasing, not stop it, but let that leasing move forward and make sure that we have looked at all of our environmental analysis that needs to be looked at.

Mr. JOHNSON OF OHIO. You stated that a team of natural resources specialists will conduct further analysis. Can you tell me who in on the panel?

Ms. KRUEGER. Our IT team, our interdisciplinary team?

Mr. JOHNSON OF OHIO. I am sorry?

Ms. KRUEGER. You want to know what kind of members comprise our interdisciplinary team?

Mr. JOHNSON OF OHIO. Who is on the panel?

Ms. KRUEGER. Let me ask Anne, and I will find out.

On our panel for reviewing that is BLM, the state. We have hydrologists, soil scientists.

Mr. JOHNSON OF OHIO. Are there any specialists from the oil and gas industry that have been conducting fracking operations for the last 60-plus years on the panel?

Ms. KRUEGER. No.

Mr. JOHNSON OF OHIO. I am not sure I understand how we can get valid analysis of how hydraulic fracturing is going to affect the Wayne without having some specialists that participate in that industry.

You further stated that this group will review the best scientific information available with regard to the surface effects of deep horizontal drilling and lateral hydraulic fracturing. Are you aware that EPA Administrator Lisa Jackson, the Federal EPA Administrator, has said in a public Congressional hearing there is no proven case that a fracking job contaminates or has ever contaminated the drinking water?

Ms. KRUEGER. I am not aware of any study that has shown that.

Mr. JOHNSON OF OHIO. Well, the EPA Administrator has stated that. So it would be reasonable to assume that the EPA has conducted those studies; correct?

Ms. KRUEGER. Correct.

Mr. JOHNSON OF OHIO. I will yield back. We may have another round.

Mr. LAMBORN. OK. We will have another round. So you will have the opportunity to continue.

Representative Thompson?

Mr. THOMPSON. Thank you, Chairman. Deputy Chief, it is good to see you.

Ms. KRUEGER. I am the Associate Deputy Chief.

Mr. THOMPSON. Associate Deputy Chief. Well, maybe I just promoted you.

[Laughter.]

Ms. KRUEGER. Thank you.

Mr. THOMPSON. Actually thank you so much. It is good to see you. As you know, my role is on another Committee of jurisdiction, the Agriculture Committee. I chair the Subcommittee that has jurisdiction over our national forests. You have been a great partner to work with, and I appreciate your work.

A couple of questions for you. My understanding in that regards, under the multiple uses of the national forests—they are not national parks clearly—national forests, here is my understanding, and I want to get your reaction if I am anywhere close, that they were created really under multiple uses and primarily initially to make sure that this nation has the resources that it needs to be able to keep this country strong. It is the kind of resources actually that built this country. As a part of that multiple use is the access to minerals, oils and natural gas. Is that your understanding as well?

Ms. KRUEGER. Correct. We are under the Multiple Use Sustained Yield Act, and part of that is providing energy to the American people, absolutely.

Mr. THOMPSON. If you don't know the exact numbers of years, that is fine. Just approximate. How many years has the Forest Service been involved in providing energy resources?

Ms. KRUEGER. I am thinking from the mid-'40s, mid-'30s, hundreds. I have a specialist here in oil and gas.

Mr. THOMPSON. I know my national forest, which was originally and still is an oil field and natural gas field, the Allegheny National Forest, was formed almost 90 years ago actually, and it has great multiple uses. Ohio seems wonderful. I invite everybody from Ohio to come visit the Allegheny National Forest in Pennsylvania.

Given the fact we have at least a century for the Forest Service to have experience with this, in terms of the subsurface, the hydrofracking—because that seems to be the thing that is most contentious. So the more discussion on that the better, I think, to bring in different perspectives.

In your experience, has there been negative environmental damage, harm to persons or the environment over that hundred years, or it has been 60 years since we have been doing hydrofracking, on the Forest Service, just talking about the Forest Service because I want to keep you where you have responsibility for.

Ms. KRUEGER. Again, there have been fracking with oil and gas wells, fracking in general, for decades. And so, you know, I believe you said it correctly when it is done properly, we don't have the issues.

Again, we want to make sure that we follow rules and regulations, that we look at all potential environmental impacts and provide for those so that none of that does occur. So what we are doing is we are getting prepared to make sure we have everything in place when that horizontal hydrologic fracking does occur in the forest. So I don't know of any particular study that has shown negative effects from that.

Mr. THOMPSON. Right. In fact, before this joint Subcommittee, my Subcommittee in Agriculture and Mr. Lamborn's, we had a joint committee. We had representatives from the Forest Service and I think it was Director Abbey from the Bureau of Land Management. I specifically asked that question about how many wells have been drilled hydrofrack in this country. The answer was a million. And I just zeroed it in to the taxpayer-owned lands, Forest Service lands, Bureau of Land Management, and his response in terms of the environmental impact secondary to hydrofracking—and we are talking the act of hydrofracking—the response was zero.

How closely does the Forest Service work with the state environmental regulators and how important is that?

Ms. KRUEGER. Well, we work closely with the state. It is important to make sure, again, for protection for all the resources. Different states have different water rules, and different states have different authorities with EPA. So we do work closely throughout the country with our state regulators.

Mr. THOMPSON. I guess the different rules tend to make sense because the geology is a little different. The hydrology is a little different.

Well, well. Normally they just say the gentleman's time has expired.

[Laughter.]

Voice. That is what happens when you run out of energy.

Mr. THOMPSON. There you go. You go into the dark.

One quick clarification because I think I borrowed a few extra seconds, Chairman, when the electricity went out.

In terms of actual subsurface, whether it is taxpayer-owned national forests or government-owned—well first clarification, if the taxpayers own the subsurface rights in the forest, is it the Forest Service that has jurisdiction or the Bureau of Land Management for the subsurface?

Ms. KRUEGER. For the Federally owned minerals, the subsurface is regulated by BLM.

Mr. THOMPSON. Bureau of Land Management?

Ms. KRUEGER. Right.

Mr. THOMPSON. Then can the Forest Service stop, really just stop and prevent leasing when the subsurface rights are privately owned and held?

Ms. KRUEGER. When the private mineral rights are privately owned, we cannot stop that, correct.

Mr. THOMPSON. I thank you, Chairman. I yield back. I look forward to the second round.

Mr. LAMBORN. OK. Thank you. The second round here.

Ms. Krueger, if the study comes back with certain findings, is it possible that there will not be government gas under that particular condition?

Ms. KRUEGER. As we do this review of new information, if we find that something is inadequate in the forest plan the way they laid out the standards and guidelines, we would go back and have further environmental analysis done. It doesn't mean we would stop the lease, but we would open it up for public comment to give us more information. And we would look at what additional standards and guidelines or stipulations we would need to have in order to move a lease sale forward.

Mr. LAMBORN. So you are saying you don't anticipate it being shut down completely?

Ms. KRUEGER. We don't anticipate it being shut down. What we are looking at, again, is to make sure that as we move forward and a different technique is used, that we have the correct environmental standards and guidelines in place to have a successful lease program.

Mr. LAMBORN. You do realize that horizontal drilling, if that is the concern, is actually less disruptive to the surface, spot by spot, instead of going down and branching out?

Ms. KRUEGER. Our understanding is and what we are looking at is collectively you may have a larger drill pad site, but you won't have as many of those. You will also be using different water quantities, and there could be different truck traffic patterns, that type of thing, that go on. So those are the things that we would look at in addition to the other surface disturbances that could occur.

Mr. LAMBORN. Thank you.

Mr. Simmers, the Utica formation is in general—and I know I am asking you to generalize here—but in general, how deep from the surface?

Mr. SIMMERS. Six to 8,000 feet deep in general.

Mr. LAMBORN. How deep are normal groundwater supplies in Ohio?

Mr. SIMMERS. They can range from a few tens of feet to in a few parts of the state in excess of a thousand feet, although the very deep groundwaters are not widespread.

Mr. LAMBORN. So it is generally in the hundreds?

Mr. SIMMERS. It is generally in the hundreds. Back in the early '80s, ODNR adopted the Safe Drinking Water Act as its standard. We protect groundwaters in Ohio to a standard of 10,000 milligrams per liter TDS, total dissolved solids. In the early '80s, we mapped the base of that defined strata of water.

As part of our protective casing program, we required casings that are specific to water protection be set through the entire length of that USDW or underground source of drinking water.

Mr. LAMBORN. I will get to that in a second. You said the Utica is 6,000 to 8,000 feet. So at a minimum, there is 5,000 to 7,000 feet of rock between the water and the gas, a mile of rock or more.

Mr. SIMMERS. Typically, at least in the easternmost counties, yes.

Mr. LAMBORN. So what do you do as a regulator to ensure that that difference is protected so that no gas gets into the water up at the top from the gas down below?

Mr. SIMMERS. This is part of that comprehensive statute rule package. You cannot say let us regulate fracking and do it properly without doing all the other component parts of oil and gas regulation. You have to first identify what you want to protect. We have done that. You have to then develop a plan to say how you are going to protect it. We have done that.

You have to do very critical reviews of the applications that the industry submits to you to make sure they meet those criteria. Then you have to have good oversight in the field. You have to actually watch to make sure what is required is being met. Then you have to have an authority in cases where the construction did not go as it should have, where you can require the company to take corrective action if necessary or potentially plug the well and start over.

What we require are multiple layers of steel casings cemented in place to form multiple isolation barriers so when the fracking process does occur, there are many, many layers of protection to protect the fresh water.

Mr. LAMBORN. Thank you. I appreciate that answer. Some people, frankly, are not aware of that. It is good to have that explained.

Now, when the EPA came out, can you clarify, what did they not understand? That was mind boggling to me. What did you have to explain to them that they didn't get?

Mr. SIMMERS. Well, no disrespect to the individuals that came out, but they don't do oil and gas development. They were asked to come out, evaluate how effective our regulatory program is. To have some idea how effective we were, we had to explain how drilling occurs and how fracking occurs.

Mr. LAMBORN. They didn't know that?

Mr. SIMMERS. No.

Mr. LAMBORN. Wow.

Representative Johnson?

Mr. JOHNSON OF OHIO. Thank you, Mr. Chairman.

Ms. Krueger, you mentioned that you have a close working relationship with the state Department of Natural Resources and the EPA; is that accurate?

Ms. KRUEGER. With different states different relationships between the Forest Service and the state, yes.

Mr. JOHNSON OF OHIO. Are there any members of the Ohio State Department of Natural Resources or the State Department of the EPA on this evaluation panel?

Ms. KRUEGER. We have been collecting data, and we plan to set up a meeting with them next month.

Mr. JOHNSON OF OHIO. But there are no members, there are no formal members of the panel from the state?

Ms. KRUEGER. Right.

Mr. JOHNSON OF OHIO. From the state regulators?

Ms. KRUEGER. No. We have not identified any formal members, no, although we will be working with them.

Mr. JOHNSON OF OHIO. So it is totally a Washington deal.

Mr. Simmers, has anyone from that panel contacted your office for an assessment or your input?

Mr. SIMMERS. Not that I am aware of.

Mr. JOHNSON OF OHIO. Deputy Chief Krueger, is the geology of the earth the same in Ohio as it would be, say, in Colorado? How about something closer to Steubenville. How about over in West Virginia or even my colleague's area over in Pennsylvania, would the geology in West Virginia and Pennsylvania be the same as Ohio?

Ms. KRUEGER. Conferring here, it is not exactly the same, but there are many similarities.

Mr. JOHNSON OF OHIO. I didn't think so. So how then does it make sense for the Department of the Interior and possibly the Federal EPA to issue a one size fits all rule to hydraulic fracturing when it is very clear from Mr. Simmers' testimony the EPA doesn't even know about hydraulic fracturing?

Ms. KRUEGER. I understand your question. It is a good question. I cannot speak for the Bureau of Land Management or the EPA.

Mr. JOHNSON OF OHIO. I understand, and I appreciate that. It seems to me—and let me make something very clear. I am not a no-regulation person. Where it concerns public safety, public health, national defense, national security, I believe in common sense regulations. I think to me though the regulators in this particular instance who have been doing a wonderful job for many, many years right here at home know a lot more about what it takes to protect Ohio's resources than bureaucrats in Washington D.C.

With that, Mr. Chairman, I yield back. Thank you.

Mr. LAMBORN. OK. Mr. Thompson?

Mr. THOMPSON. Thank you.

Chief Simmers, you actually addressed my first question I had outlined here, and it was regarding basically groundwater resources being contaminated by hydrofracking and if that hasn't occurred in Ohio, which you did talk about—you talked about that obviously there are some other risks—that what is in place with the actual act of hydrofracking protects groundwater.

I am just curious if you can tell me a little bit about what some of those other risks might be when it comes to natural gas, what kind of regulations, rules has your agency promulgated to address those.

Mr. SIMMERS. The types of contamination can be multiple. They can be brines. They can be crude oils. They can be natural gas that can get into the subsurface and potentially even into the sources of underground drinking water. That is why it is critical to make sure the wells are constructed properly.

Mr. THOMPSON. So when you say get into the surface, these are things that are sitting on the top of surface, on the ground?

Mr. SIMMERS. Well, it can happen two ways. Contamination can occur through the underground or from the surface. We have addressed those potential pathways for the underground sources. It doesn't mean they are totally eliminated. But Ohio places the highest priority on public health and safety and environmental protection. And we have our statutes in place to do that, to accomplish that.

Most of the historic contamination has been associated with surface, either through historic practices which are no longer allowed, or through spills that might occur. And those, too, are being addressed through statute and rules.

Mr. THOMPSON. In your testimony you showed a copy of it, but I am looking for it online to get a copy of the report from an organization called STRONGER. Talk a little bit about what is the makeup of that organization. Is it nonbiased? Are there stakeholders that represent all aspects, or is this just strictly an industry-driven organization? From your testimony, I understand they do an assessment of state oil and gas environmental regulations.

Mr. SIMMERS. The STRONGER group, which I am going to read their title, it is the State Review of Oil and Natural Gas Environmental Regulations. That is the title of the organization.

This used to be part of what was a state review process that was originally run through the Interstate Oil and Gas Compact Commission. When it was in that forum, it was originally funded by the Department of Energy and the USEPA. At some point the funding dried up. It was a very effective program in its original forum, and many of the states, many of the Federal agencies wanted it to continue.

It now receives private funding to a large degree to continue this type of operation, but it is still a multistakeholder organization. The Federal Government is still included through the board. USEPA, DOE are involved, states, the regulatory program within the states, and environmental organizations as well as members of the regulated industry are all members of the board of this group.

Mr. THOMPSON. Congratulations on the state's, I guess for lack of a better word, report card under that organization.

Mr. SIMMERS. Thank you.

Mr. THOMPSON. In your opinion, and I know Mr. Johnson and the Chairman kind of addressed this, but there is a real push by just a few people in Washington to have the Federal Government really take over oversight of natural gas drilling, the Frack Act in particular. What are the potential risks of that for making sure this industry is done in a proper environmentally sound way?

Mr. SIMMERS. We have mentioned potential differences in geology which are very important to consider. Even with the comprehensive statutes and rules that we have on the books in Ohio, we have an authority to place site specific conditional requirements on individual permits. You can look at geology as a whole, but you have to look at the overall picture, again, from the time you permit a well until you begin producing or ultimately plug that well. Conditions can include those that are very specific to a well that might be in some proximity to a public water well field. You have to have the flexibility to adjust the permit and the operating requirement on a particular company to not just the geology, but to many other factors as well.

Mr. THOMPSON. Thank you, Chairman. I yield back.

Mr. LAMBORN. All right. I want to thank both witnesses for being here. I would like to ask that if any of us on the panel have a question for you in writing, that you would respond to those as well.

Mr. SIMMERS. Of course.

Ms. KRUEGER. Can I make one more comment or no?

Mr. LAMBORN. No, because we do have two more panels to hear. Thank you.

I would like to now invite forward the second panel, Mr. Tom Stewart, Executive Vice-President of Ohio Oil & Gas Association; Mr. Roland Butch Taylor, business manager, Plumbers & Pipefitters Local 396; Mr. Jack Pounds, President of the Ohio Chemistry Technology Council, and Ms. Michele Papai, City Council, Ward 3 at the Steubenville City Council.

Ms. PAPAI. Athens, Ohio.

Mr. LAMBORN. Excuse me. Athens, Ohio.

Ms. PAPAI. Thank you, sir.

Mr. LAMBORN. Like all of our witnesses, your written testimony will appear in full in the hearing record. So I ask that you keep your oral statements to 5 minutes as outlined in our invitation letter to you and under Committee Rule 4[a]. With all of our witnesses, after your 5 minutes are up, you are asked to speak only in response to questions, and the timing lights work with your 5 minutes first green. Then after 4 minutes it turns yellow, and then at the end of 5 minutes, the red light comes up. So thank you for being here.

We will now go to Mr. Stewart. We will just go down the line.

## STATEMENT OF TOM STEWART, EXECUTIVE VICE-PRESIDENT, OHIO OIL & GAS ASSOCIATION

Mr. STEWART. Chairman Lamborn, Ranking Member Holt and Committee Members, good morning and welcome to Ohio.

For over a century and a half, Ohio has been blessed with production of plentiful oil and natural gas resources. At each critical moment in our industry's history, it has been changes wrought by technology that has provided producers the ability to explore new horizons, and expand the resources base. Today the ability to horizontally drill a deep underground reservoir with exacting precision exponentially exposing the base of the reservoir rock to the wellbore has created massive efficiencies in our ability to produce oil and gas.

Ohio is now beginning a new era of oil and gas exploration made possible by technology that is unlocking reservoirs that until now were not accessible. For our entire history, we explored oil and gas from reservoirs where it had been trapped after migrating over eons from source rock where oil and gas had been formed and cooked in nature's kitchen. Now we are drilling into the actual source rocks where most geologists believe 95 percent of the oil and gas still remains in place even after feeding the traps that have produced all of the oil and gas that we have found to date.

This is a radical departure from America's recent understanding of energy dependency. The resource shale play resets the clock on readily available American-produced oil and natural gas resources providing Americans with a secure supply of reliable and efficient energy. Already shale production has fundamentally changed domestic energy markets. Past market history tells us that natural gas should be priced at a ratio of 6:1 with crude oil, meaning a price of $17.50. Instead the markets are pricing natural gas at $2.60 or 40:1 of crude.

In other words, today the industry is providing the American consumer an incredible energy bargain providing natural gas priced at 15 percent of its intrinsic energy value, a trend that the marketplace indicates will continue in the future. It is also enticing the chemical industry to reenter the United States and build new chemical manufacturing facilities.

What does this all mean for Ohio? Since 1860, Ohio has produced over 8.5 trillion cubic feet of natural gas and 1.14 billion barrels of oil. The state's geologists recently provided a volumetric calculation to estimate the recoverable reserve potential of the Utica shale. They reported that should producers extract just 5 percent of the oil and gas in place, leaving 95 percent of resource in the rock, Utica would generate 15.7 trillion cubic feet of natural gas and 5.5 billion barrels of crude oil. This is an astonishing number, an enormous perhaps once in a lifetime opportunity.

Clearly America's opportunity using shale gas and shale oil resources hinges on the regulatory structure as well as development. Managing environmental risk has been a key part of the state and Federal regulation. It remains important to keep an appropriate balance between these governmental rules.

States have historically been the regulator of well construction and completion. They have the expertise to permit new wells and should continue to be the regulatory authority. States and Federal agencies share the responsibilities of regulating waste discharges. States typically issue direct permits under broad Federal guidelines. The balance is appropriate and should be continued because states understand the potential unique issues in this area.

Because of the diversity of conditions associated with oil and natural gas production, the regulatory process must be flexible and reflect the unique conditions of the state or areas within the state. It requires the technical expertise that has been developed in each state and which does not exist within some Federal agencies. For this reason Federal law has generally deferred to the states for regulation of this industry. Over time states have been engaged in a process that validates their regulatory ability, identifies regulatory

gaps and provides a process to close those gaps and improve respective regulatory programs.

As mentioned earlier, the state review of oil and natural gas environmental regulations, STRONGER is an independent state board and governing body that manages the state review process. The process represents a stakeholder-driven collaborative effort working together to develop a regulatory framework at the state level that effectively protects the environment while recognizing unique, historic, geologic and topographic characteristics of oil and gas developed among the states.

STRONGER recently upgraded the review guidelines to include a specific section focusing on hydraulic fracturing. Over the past year, STRONGER has done frack specific reviews in six states. In Ohio, following implementation of new law, STRONGER conducted the hydraulic fracturing specific state review. The review concluded that the Ohio program was overall well managed, professional and meeting its program objectives. The state review process demonstrates the states are the best and most efficient point to regulate the industry's waste stream.

Regarding Federal land, over the past several years, new rules, policies and administrative actions made it more difficult for oil and natural gas producers to operate on Federal and tribal lands. The Department of the Interior has recently indicated it is in the process of promulgating new rules for hydraulic fracturing. The resultant loss of production not only impacts the Federal treasury, but it also hurts businesses and local communities throughout the region that rely on multiple use of Federal lands as the backbone of the economy.

The Wayne National Forest located in Southeastern Ohio is an excellent example of this.

Mr. LAMBORN. Mr. Stewart, could you start to wrap up here because our 5 minutes are up.

Mr. STEWART. The proposed regulations to govern hydraulic fracturing on Federal lands are redundant to what states are already doing to manage the environment and doing well according to EPA Administrator Lisa Jackson, and will only further delay an already slow approval process for oil and gas operations.

[The prepared statement of Mr. Stewart follows:]

**Statement of Thomas E. Stewart, Executive Vice President, Ohio Oil & Gas Association**

Chairman Lamborn, Ranking Member Holt and committee members of the House Committee on Natural Resources, Subcommittee on Energy and Mineral Resources, good morning and welcome to Ohio. I want to recognize Congressman Bill Johnson for his distinguished representation of the people who live within the 6th Ohio Congressional District who are hosting this field hearing today

I am Thomas E. Stewart, Executive Vice President of the Ohio Oil & Gas Association (OOGA), a state-based trade association representing the common interests of over 1,900 members who are engaged in the exploration and production of crude oil and natural gas resources within the State of Ohio. The Association has represented the Ohio industry since 1947. The Association also is an active cooperating association in alliance with the Independent Petroleum Association of America (IPAA), based in Washington D.C. Since 1929, IPAA has represented thousands of independent petroleum and natural gas producers throughout the nation. Independent producers drill 90 percent of wells within the United States

Today's hearing is focused on the development of America's reliable energy opportunities, particularly as they relate to new supplies of domestically produced natural gas, natural gas liquids and crude oil produced from the resource shale play. I will

also comment on the regulatory approaches that will help govern development of the resource. My comments will focus on how these events are impacting Ohio; the relationship between federal and state-based regulatory policy; and the process that validates the long-standing principle that the states are best suited to regulate the industry in order to protect the public interest and ensure protection of human health, safety and the environment.

For over a century and a half Ohio has been blessed with production of plentiful oil and natural gas resources. At each critical point in our industry's history it has been changes wrought by technology that have provided to producers the ability to explore new horizons, expand the resource base, and establish new reserves. Significant events include the development of the rotary drill bit, wire line logging, seismic technology lending an eye to what's underground, and the development of hydraulic fracturing in 1947 that by 1953 revolutionized and rejuvenated the productive capacity of wells in Ohio and across the nation.

Today, the ability to horizontally drill a deep underground reservoir with exacting precision, exponentially exposing the face of the reservoir rock to the wellbore, has created massive efficiencies in our ability to produce oil and gas. Combined with the ability to hydraulically fracture the source rock at intervals along the horizontal lateral wellbore, America's producers are using advanced technologies to reset the clock on available domestic oil and natural gas resources.

Ohio is now beginning a new era of oil and gas exploration made possible by a triumph of technology that is the key to unlocking reservoirs that until now were not accessible. Along with horizontal drilling there has been a significant shift in our thinking about where to find oil and gas. For our entire history we explored for oil and gas in reservoirs where it had been "trapped" after migrating over the eons from "source" rocks where the oil and gas had been formed and cooked in nature's kitchen. Now, we are drilling into the actual source rocks where most geologists believe 95% of the oil and gas still remains in place even after feeding the traps that have produced all of the oil and gas that we have found to date. This is a radical departure for industry from the traditional approach to oil and gas exploration. It is a radical departure from America's understanding of recent years regarding energy dependency and the availability of reliable and efficient energy. For Ohio, the result will be the development of vast new supplies of dependable energy and the creation of a multitude of jobs in the oil and gas sector as well as other business sectors that are counting on this resource to expand authentic economic opportunity.

In Ohio the Upper Ordovician Utica/Point Pleasant Shale (Utica) is the source rock for much of the oil and gas that has been produced in various conventional reservoir traps. The Utica is the newest member of the resource shale play that is revolutionizing oil and gas production in the United States.

**Economic Impact:** Already production from the resource shales has fundamentally changed domestic energy markets. Generally it takes 6 Mcf (thousand cubic feet) of natural gas to equal the energy found in one barrel of oil. So, over time and absent disruptive events natural gas has traded at about a 6:1 ratio to crude oil. That is until now. Today crude oil is trading at $105.00 per barrel. The historic trend says that natural gas should be priced at about $17.50 per Mcf. However natural gas is trading at $2.60 per Mcf or nearly 40:1. The new and efficient development of natural gas from the resource shale plays is providing the American consumer an incredible energy bargain providing a fuel priced at 15 percent of its intrinsic energy value, a trend that the marketplace indicates will continue into the future. It is also enticing the chemical industry to reenter the United States and build new chemical manufacturing facilities because they will have access to a super-competitive and plentiful feedstock, jump starting the job growth potential downstream of the wellhead

What does this mean for Ohio? Since 1860, Ohio has produced over 8.5 trillion cubic feet of natural gas and 1.14 billion barrels of crude oil. During recent history, the state's proven reserves have fluctuated annually at 40–50 million barrels of oil and 800 Bcf to1 trillion cubic feet of natural gas. Each year those reserves have produced approximately 5 million barrels of crude oil and 85 billion cubic feet of natural gas, operated by a small but vibrant production industry that has supported approximately 12,900 direct and allied jobs.

During 2009 through 2010, intense interest in the Utica Shale began to ramp up. This has led to a state-wide lease play and exploratory drilling. The State's Geologist recently provided a volumetric calculation to estimate the recoverable reserve

potential of the Utica Shale/Point Pleasant interval.[1] He reported that should producers, using new technologies, extract 5 percent of the oil and gas in place, leaving 95 percent of the resource in the rock, the Utica would generate 15.7 trillion cubic feet of natural gas and 5.5 billion barrels of crude oil. That is an astonishing number and an enormous, perhaps "once in a lifetime", opportunity for Ohio.

On September 20, 2011 the Ohio Oil and Gas Energy Education Program released a study they had commissioned describing the economic impact of the existing Ohio exploration and production industry and the impact the resource shale play will have on Ohio.[2] The study was based on similar development in the neighboring Marcellus Shale play. In regard to Utica Shale development the study concluded the following:

- Ohio's natural gas and crude oil industry's will reinvest approximately $246 million on new exploration and development in 2011, and is estimated to ramp up to $14 billion by 2015. Over the next five years, oil and gas producers are projected to reinvest over $34 billion in exploration and development, midstream, royalty and lease expenditures.
- Ohio's natural gas and crude oil industry, via its expenditures, could generate approximately $12.3 billion to the gross state product and have a statewide output or sales of $23 billion.
- Ohio's natural gas and crude oil operators (producers) could distribute more than $1.6 billion in royalty payments to local landowners, schools, businesses and communities based on an estimate of 2,837 new Utica wells drilled and completed (in production) between 2011 and 2015. This could exceed the total amount of royalties paid for all geological formations between 2000 and 2010.
- Between 2011 and 2015, Ohio's natural gas and crude oil industry will help create and support more than **204,520 jobs** due to the leasing, royalties, exploration, drilling, production and pipeline construction activities for the Utica Shale within Ohio. Industry wages are projected to grow to more than $12 billion in annual salaries and personal income to Ohioans by 2015.

Coupled with the readily available and affordable energy resource, the expansion of job growth suggests that development of the Utica Shale may be the most significant positive economic event to take place in Ohio for decades to come.

**Regulatory Policy:** The principal regulatory authorities managing the environmental risks associated with oil and natural gas production are state agencies acting under state law or as the delegated regulator under federal law. To put the regulatory process in context, it is useful to understand some key elements of developing a well and generating production.

Except on federally owned resources, the regulatory responsibility rests with the state oil and natural gas agencies for permitting well construction and completion. These agencies set the standards that must be met in drilling a well such as location limits, construction standards (including steel casing and cementing requirements) and surface management requirements. Well construction requirements are particularly significant because they are the principal methods of protecting against ground water contamination. By creating a barrier between ground water and the wellbore, oil and other chemicals from the well cannot move into water formations—and water cannot move into the wellbore. This technological approach has been used effectively for 75 years and is continually improved. Well completion regulations determine the management of technologies to stimulate production from oil and natural gas containing formations. Hydraulic fracturing is a well stimulation technology. Consequently, since its invention in the late 1940's, its use has been regulated by state oil and natural gas agencies. Throughout the past six decades this regulatory structure has effectively protected against the environmental risks of fracturing without the involvement or intervention of the federal government. Proposals that the federal government needs to insert itself into well construction and completion regulation fail to show that any justification exists suggesting a failure of the current state based regulatory system or that the federal government has either the expertise or the capacity to regulate the 35,000 or more wells drilled annually in the United States.

In fact, where the federal government does have regulatory authority related to oil and natural gas production, it relies on the state regulators to conduct the daily regulation efforts. Federal environmental laws apply to oil and natural gas produc-

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[1] *Shale Formations and Their Potential;* Larry Wickstrom, R. A. Riley, M. T. Baranoski, C.J. Perry, and M.S. Erenpreiss; Ohio Department of Natural Resources, Division of Geological Survey; October 2011, www.OhioGeology.com

[2] *Ohio's Natural Gas and Crude Oil Exploration and Production Industry and the Emerging Utica Gas Formation, Economic Impact Study;* Kleinhenz & Associates, Ohio Oil and Gas Energy Education Program; September 2011 www.oogeep.org

tion activities when waste is generated. Most specifically with regard to the development of emerging shale gas and shale oil formations, the applicable federal laws address the disposal of produced water (including hydraulic fracturing flowback water)—the Safe Drinking Water Act and the Clean Water Act (CWA). The applicability of the law depends on the disposition of the produced water. Produced water injected underground is regulated under the SDWA; produced water discharged to the surface is regulated under the CWA. The SDWA and the CWA operate similarly. The federal government creates a national framework but the laws rely on state regulators to bear the larger permitting burden through the delegation of that role from the Environmental Protection Agency (U.S. EPA).

With respect to the SDWA, regulation of underground injection is defined by the Underground Injection Control (UIC) program. The UIC program creates a series of Classes for different types of injection wells; Class II applies to oil and natural gas production. In 1980, Congress modified the SDWA to allow for primacy under the law to be granted to states for Class II programs based on equivalent effectiveness rather than adoption of the specific EPA regulations. Most oil and natural gas producing states with active underground injection operations have primacy based on equivalency with or more stringent than the federal program. Class II wells can either be used for disposition of water or for reinjection into formations as a type of secondary recovery to increase production. Only water produced from oil and gas wells can be injected into a Class II well. Nothing else. And, if something was, that would be a violation of the federal SDWA and Resource Conservation and Recovery Act (RCRA).

According to EPA, the use of injection wells was documented as early as 300 A.D. and large-scale commercial use of injection wells in the U.S. began in the 1930s. The oil and gas industry isn't the only industry that has used injection wells as a safe and well-regulated disposal means. Other industrial sectors that rely on injection wells include: chemicals, manufacturing, food and agriculture, plastics and metal/steel. Ohio is home to 10 so-called Class I wells (industrial wastes) that accept concentrated high-toxicity wastes generated by industrial processes. Ohio hosts 58 Class III disposal wells that accept fluids used to dissolve and extract minerals such as uranium, salt, copper, and sulfur.

Today, there over 144,000 Class II UIC wells operating within the United States. On average, those wells accept more than 2 billion gallons of water per day that is associated with oil and natural gas development. Clearly, without the delegation of this program to the state regulatory bodies, the federal law would be virtually incapable of implementation.

In 1983, U.S. EPA delegated primacy authority to Ohio to run the UIC program. As the host of the oil and gas regulatory program, the Ohio Department of Natural Resources received the authority to manage the Class II program. Under the primacy agreement the ODNR issues UIC permits for Class II wells, but U.S. EPA set the standards for construction, maintenance and continuous monitoring of the Class II wells. [3] The Ohio UIC program is regularly audited by U.S. EPA and has undergone peer reviews conducted by the Ground Water Protection Council.

Except for a minor amount used by local governments for dust and ice control, it is the law of the State of Ohio that oil and gas related produced water must be disposed of using a Class II UIC well constructed to the federal standards. Industry has constructed a network of Class II wells along the breadth of eastern Ohio to service the needs of oil and gas producers who must comply with Ohio law. Currently there are 181 Class II injections wells operating in Ohio or 0.12 percent of nation's total population of such wells. The Ohio wells accept about 1.03 million gallons of produced water per day, or less than 0.05 percent of the total nationwide volume

Opponents of oil and gas development have stated that the industry is exempt from federal regulation. Again, this is an attempt to politicize the process. In regard to this, recall that the Safe Drinking Water Act sets standards for public water supplies including establishment of the Underground Injection Control Program, a process that has the specific purpose to permanently dispose by impoundment of a waste in an appropriate underground reservoir.

Hydraulic fracturing is a well completion procedure designed to induce permeability in a low-perm oil and gas reservoir by creating a fracture—a pathway—through the targeted reservoir rock to more readily allow the oil and gas to move through the reservoir and into the wellbore to then be lifted to the surface. With few exceptions, it is a one-time procedure. It is never an ongoing procedure (like Class I or II injection). It is not the disposal of a waste stream. In fact, it is done

[3] *Technical Program Overview: Underground Injection Control Program;* United States Environmental Protection Agency; Office of Water 4606 EPA 816–R–02–025; revised July 2001

to make a well capable of production in order to efficiently withdraw in commercial quantities product from the rock, including the water that was used during the frac job.

There have been anti-oil and gas organizations that have attempted to construct an argument that fracturing is the same thing as Class II injection of produced waters and should be regulated as such under SDWA. That argument is an attempt to fit a square peg in a round hole and it fails by virtue of the various definitions of the processes being discussed.

Congress never had the intention of regulating a well stimulation process under the SDWA as a waste disposal process. In 2005 Congress clarified that view by stating very simply in the 2005 Energy Policy Act that hydraulic fracturing—or storage gas injection for that matter—is not underground injection. Congress did not exempt the industry from the SDWA as others claim. In fact, industry's produced waters waste streams are specifically regulated as Class II injection and fully covered under SDWA federal regulation. There is no "loophole". The language is definitional and straight forward. Nowhere does it say that the oil and gas industry and its activities that are relevant to the Act are exempted from SDWA regulation.

**Corroboration of State-Based Regulation:** The operation of oil and natural gas wells has been regulated since the 1920's with an increasing emphasis on environmental controls since the 1960's. This regulation has been and continues to be done effectively by the states—a reality that has been recognized by the Congress and by the EPA. Because of the diversity of conditions associated with oil and natural gas production, the regulatory process must be flexible and reflect the unique conditions in a state or areas within a state. It requires the technical expertise that has been developed in each state and which does not exist within the EPA. For this reason federal law has generally deferred to the states for the regulation of this industry.

**GWPC:** The Ground Water Protection Council (GWPC) is an organization of state ground water regulatory agencies which come together to mutually work toward the protection of the nation's ground water supplies. The purpose of the GWPC is to promote and ensure the use of best management practices and fair but effective laws regarding comprehensive ground water protection.

During August 2011, the GWPC issued a report that investigated the regulatory history of Texas and Ohio as it relates to oil and gas production and protection of groundwater resources.[4] The report conclusively demonstrates that the state regulatory agencies within these states, both significant oil and gas producing states, have prioritized regulatory reforms and strategically applied resources to improve standards that reduce risk associated with state-specific compliance issues. Over time, both Ohio and Texas have strategically enhanced regulatory standards for state-specific oil and gas E&P activities that have been found to cause groundwater contamination incidents. In other words, the states have made consistent ongoing improvements to protect the environment and the public interest that is tailored to each individual state's characteristics and needs.

**STRONGER:** Over time the states have engaged in a process that corroborates their regulatory abilities, identifies regulatory gaps and provides a process to close those gaps and improve their respective regulatory programs. The State Review of Oil and Natural Gas Environmental Regulation, Inc. (STRONGER) is an independent stakeholder governing body that manages the state review process.

The overall objective of the State Review Process is to help state oil and gas regulatory programs improve. The key innovative aspects of the State Review Process are the teams made up of equal representation from the environmental community, state regulators, and industry that come together to conduct an authentic peer review critique of a state's regulatory program, benchmarking the program against a national set of guidelines that itemize the critical elements necessary to protect the public interest and environment.

This process represents a stakeholder-driven collaborative effort working together to develop a regulatory framework at the state level that effectively protects the environment while recognizing the unique historic, geologic, and topographic characteristics of oil and gas development among the states.

STRONGER recently updated the review guidelines to include a specific section focusing on hydraulic fracturing. Over the past year STRONGER has done frac-specific review in six states. In Ohio, following implementation of new law (Senate Bill

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[4] "*State Oil and Gas Agency Groundwater Investigations and Their Role in Advancing Regulatory Reforms,*
A Two-State Review: Ohio and Texas", Scott Kell, Groundwater Protection Council, August 2011, www.gwpc.org

165), STRONGER conducted a state review specific to hydraulic fracturing. The review concluded that the Ohio program was overall well managed, professional and meeting its program objectives.

The Secretary of Energy (USDOE), Advisory Board (SEAB), Shale Gas Production Subcommittee interim reports [5] and the recent National Petroleum Report on Shale Gas [6] have specifically commended the State Review Process.

The State Review Process demonstrates that the states are the best and most efficient point to regulate the industry's waste streams. The process provides for a system of constant improvement and an opportunity to share and promote new or unique regulatory concepts among the states, while maintaining the flexibility needed to meet individual states' needs.

**Department of the Interior and Federal Lands:** The Department of the Interior has recently indicated it is in the process of developing regulations for the use of hydraulic fracturing on federal lands and tribal lands in trust. Historically and effectively, states have been the primary regulator for well construction and stimulation techniques like hydraulic fracturing, and for good reason which I've outlined in detail. While the proposed regulations have not been formally noticed, I understand a draft proposal was sent to the Office of Management and Budget for initial review and separately a draft was released to the press providing a first glance at what the Department is considering. Upon review, it is apparent these draft regulations will add significant costs and burdens to companies operating on federal lands without any appreciable improvement in environmental protection.

Over the last several years, new rules, policies and administrative actions have made it more difficult for oil and natural gas producers to operate on federal and tribal lands. In fact, the American Petroleum Institute (API) recently issued a report that for Bureau of Land Management (BLM) lands new oil and natural gas leases were down 44 percent in 2009/2010 compared with the previous year. In addition, the study also found that permits and new wells drilled on federal lands were also down by roughly 39 percent over the previous year. This loss of production not only impacts the federal treasury, but it also hurts businesses and local communities throughout the region that rely on "multiple use" of federal lands as the backbone of their economy. The Wayne National Forest located in southeastern Ohio is a good example of this.

The draft BLM regulations proposed for hydraulic fracturing are more burdensome than those any western state has already implemented. By requiring a 30 day pre-job approval and forcing operators to submit a separate application for their hydraulic fracturing operations, the BLM has established a system that is doomed to fail. The 30 day clock is also unrealistic and does not recognize the realities of a hydraulic fracturing job as it is being completed. In addition, the draft regulations raise a host of questions regarding what will be required for operators to remain in compliance with the regulations.

The proposed regulations to govern hydraulic fracturing on federal lands are redundant to what states are already doing to manage any environmental risk, and doing well according to EPA Administrator Lisa Jackson, and will only further delay an already slow approval process for oil and gas operations. At a time when our nation is looking for ways to increase job creation and economic activity, the proposed regulations will take us further from that goal and will instead create further hardship for oil and gas producers and the mineral owners—American taxpayers—who desire those revenues and economic activity.

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**Tom Stewart** serves as the executive vice president of the Ohio Oil and Gas Association (OOGA), having been elected to that position in September 1991. At OOGA, Stewart is director of staff; editor of the Association's publications; an industry spokesman to media outlets and other forums; and, on behalf of OOGA members' interests, serves as public policy advocate in Columbus and Washington D.C.

Stewart serves as the Ohio associate representative to the Interstate Oil and Natural Gas Compact Commission (IOGCC), having been appointed to that position by Governor George Voinovich in 1997. IOGCC (http://www.iogcc.state.ok.us/) is an organization of governors of the oil and natural gas producing states established to promote the conservation and efficient recovery of domestic oil and natural gas resources while protecting health, safety and the environment.

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[5] *Secretary of Energy Advisory Board, Shale Gas Production Subcommittee, 90–Day Report;* SEAB, August 18, 2011, http://www.shalegas.energy.gov/

[6] *Prudent Development: Realizing the Potential of Abundant North American Natural Gas and Oil Resources,* National Petroleum Council, September 15, 2011, http://www.npc.org/

Stewart is an active participant with the Independent Petroleum Association of America (IPAA)(www.ipaa.org) and serves on the IPAA Environment and Safety Committee, the Communications Steering Committee, the Gas Pipeline Safety Sub-Committee and is an original member of the management team organizing the national BRIEF Project. http://www.energyindepth.org/

In December 2001, Stewart was elected to the Board of the State Review of Oil and Natural Gas Environmental Regulations, Inc. (STRONGER) as one of three representatives for the U.S. oil and gas exploration and production industry. During 2003, Stewart served as chairman of the STRONGER Board. He currently serves as vice-chair of the organization. STRONGER is a non-profit organization created to administer and advance the state review process of the States' oil and gas exploration and production waste management regulatory programs. STRONGER is a stakeholder-driven process with equal representation from government, industry and the environmental community. STRONGER's objective is to foster constant improvements in state oil and gas regulatory programs in order to protect human health, safety and the environment. http://www.strongerinc.org/

From August 2002 to November 2005, Stewart served as the secretary treasurer of the Liaison Committee of Cooperating Oil and Gas Associations. The Liaison is a national network organization of state and regional trade associations that represent the independent oil and gas exploration and production industry in the United States. Stewart was responsible for coordinating the organization's efforts.

Prior to joining OOGA, Mr. Stewart has fifteen years of formal experience in the oil and gas industry as an oil and gas producer and provider of contract drilling services. He is the third generation of his family to engage in exploration, development and production of crude oil and natural gas.

**The Ohio Oil & Gas Association** is a statewide trade association with over 1,900 members who are actively involved in the exploration, development and production of crude oil and natural gas within the State of Ohio. Since 1947, the Association's mission is to protect, promote, foster and advance the common interests of those engaged in all aspects of the Ohio crude oil and natural gas exploration and production industry.

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Mr. LAMBORN. OK. Thank you.

[Disturbance in hearing room.]

Mr. LAMBORN. I will ask you to respect everyone's rights.

[Disturbance in hearing room.]

Mr. LAMBORN. Please try to respect everyone's rights.

[Disturbance in hearing room.]

Mr. LAMBORN. Please respect everyone's rights.

[Disturbance in hearing room.]

Mr. LAMBORN. This gentleman here in the blue. In the next row behind they were loud also.

[Disturbance in hearing room.]

Mr. LAMBORN. Please respect everyone's rights. This lady here is disrupting also.

[Disturbance in hearing room.]

Mr. LAMBORN. Does anyone else want to leave or be disruptive? I would ask everyone to respect the people's rights who are here, who are testifying, the diversity of views that will be testifying.

Ms. PAPAI. Thank you.

Mr. LAMBORN. I think they all deserve to be heard. So I would ask each member of the audience to respect the right of the witnesses and the rest of the public who are here that want to hear the witnesses.

We will now continue with Mr. Taylor who represents Local 396.

Mr. Taylor?

**STATEMENT OF ROLAND BUTCH TAYLOR, BUSINESS MANAGER, PLUMBERS & PIPEFITTERS LOCAL 396**

Mr. TAYLOR. Thank you, Chairman Lamborn. Members of the Subcommittee on Energy and Mineral Resources, thank you for the opportunity to appear here today to discuss natural gas, America's new energy and creation of jobs and growth in the community, especially in the Mahoning Valley.

My testimony today here will focus on the economic recovery, not on my organization of the Plumbers and Pipefitters, but many organizations as well as businesses in the industry in and outside of shale. There have been numbers of opportunities and benefits from partnerships that have been formed.

Road to economic recovery. As reported in the regional chambers, the economic engine of the Youngstown-Warren region known as the Mahoning Valley was revving up in recent years. Since 2008 economic development project announcements have resulted of an impressive $1.5 billion investment. That is 5,098 new jobs, 7,840 either maintained or retained jobs. The shale industry development boom that is coming into Ohio is bringing industrial cities, such as Youngstown, Warren, Salem, East Liverpool, Wellsville and Steubenville back to life. These projects that our organization has been part of includes V&M Star, the leading producer of seamless mill and tubular goods for the oil and gas industry, has started construction in Youngstown in the new $650 million, 1 million square foot seamless tubular production mill. It has created over 1,500 construction workers' jobs and over 300 from my organization, United Association. In advance of that is 350 plant jobs in advanced manufacturing plus more phases are to come, such as a finishing mill, water treatment plant and many more.

V&M Star's sister company VAM-USA is a manufacturer of premium pipe connections used in the shale drilling process. This will consist of a 200,000-square foot finishing plant at a cost of $57 million and will employ 200 construction workers and over 100 new manufacturing jobs.

Universal Stainless in North Jackson, Ohio, has a 200,000-square foot building with a cost of $100 million, manufacturing in aerospace and oil and gas production, and it also includes 200 construction workers, 100 new plant jobs. It was completed in 2010 but still is adding on and expanding.

Patriot Waters has built a state-of-the-art fracking water treatment facility in Warren, Ohio which created 43 jobs. More of these types of facilities are being built around the area. These are a small part of many of the projects that are developing in Mahoning Valley, like General Motors Lordstown, R.G. Steel, RTI Metals, as well as commercial growth in the hospitals and schools. For example, Youngstown State University has announced plans for a Natural Gas Water Resource Institute to better prepare its students for jobs related in Utica shale. Eastern Gateway Community College has remodeled two facilities in the Youngstown-Warren area for training in such positions within the building trades or jobs in the community.

I would like to finish my economic recovery by talking about two companies that have relocated into the area and that Local 396 has agreements with for pipe fabrication and components in industrial

projects, and they do work both nationwide as well as outside this country.

First is De-Cal Mechanical. It is a pipe corporation, pipe fabrication plant, and it has relocated a branch from Detroit, Michigan into the Youngstown, Ohio area. The Youngstown offices opened in 2011 by purchasing a 16,000-square foot building near the V&M Star project. In less than 1 year, they are expanding their fab shop operations by 46,000 square feet and increasing their employment, employees, members of my local, from 40 to 130. This partnership was formed by both government, local and Federal, regional chambers, management as well as labor working close together to make this happen.

Evets Oil and Gas, V.E.C. Incorporated, is a mechanical company that has been involved in Marcellus shale on the electrical side. The company has expanded to offer their turnkey operations to gas corporations and has worked nationwide, has 200 compressors built, $2 million fab shop in Girard, Ohio, and they have a strong reputation in quality work.

I can see my time is getting close, so I am going to jump over to some of the things that are important in my statement. Natural gas holds in Ohio a very, very strong future in Local 396 both with its contractors and business. The manpower is so great we increased our apprenticeship program as well as our welder certifications. Our plan is to add more metal trades into the fab shop and helpers into the oil and gas. With this expansion, we have been able to recruit numbers of young people that are interested in this career, displaced workers and Veterans overseas. Part of the program is the VIP, which is known as UA Veterans In Piping.

Our general president, Bill Hite, has started a partnership with the military, and with this there is 16 weeks accelerated class, 2 weeks of transition into the civilian life. By this project alone there has been over a thousand military officers/military into the construction business.

My closing is to thank Chairman Lamborn for the opportunity to provide this Subcommittee with the achievements and opportunities that Plumbers & Pipefitters have experienced. There have been a few elected officers/officials that have wanted to put a moratorium on this industry. I feel this would be a travesty, especially concerning the growth that we have experienced over the years, and the drilling process has not really started in Ohio.

One of my members from Local 396 was asking how I am handling the headaches of the demands of the work picture. My reply to him was, "I would rather deal with the headaches than the heartaches that I have experienced over the last 2 years when there were no opportunities."

I welcome this Committee and very well appreciate it, much appreciate it for being able to appear in front of you. Again, I want to thank you. I skipped over a couple of things because I know my time was limited, but I wanted to thank you both, Congressman Bill Johnson and Tim Ryan, for their support, not only for opportunities to get grant money for our Veterans to get into this workplace, but also the symposium for the Utica shale in order to draw people to Ohio. Thank you.

[The prepared statement of Mr. Taylor follows:]

**Statement of Roland "Butch" Taylor, Jr., Business Manager, United Association of Plumbers & Pipefitters Local 396**

Chairman Lamborn and members of the subcommittee on Energy and Mineral Resources: Thank you for this opportunity to appear here today to discuss with you Natural gas—America's new energy, and the creation of jobs and the growth of our community in the Mahoning Valley. My testimony today will focus on the economic recovery, not only in my organization of the Plumbers & Pipefitters, but other organizations, as well as all businesses in the industry and outside of the Shale industry. All have had numerous opportunities to benefit from the partnerships that have been formed.

**Road to Economic Recovery:**

As reported by the Regional Chamber, the economic engine of the Youngstown-Warren region known as the Mahoning Valley has been "revved up" in recent years. Since 2008 economic development project announcements have resulted in an impressive $1.5 billion investments, 5,098 new jobs and 7,840 maintained/retained jobs.

The Shale gas development boom that is coming into Ohio is bringing industrial cities in the region, such as Youngstown, Warren, Salem, East Liverpool, Wellsville, and Steubenville back to life. Projects that our organization have been part of include:

1. V&M Star, the leading producer of seamless pipe and tubular goods in the oil and gas industry. They have started construction in Youngstown on a new $650 million, one-million square foot seamless tubular product mills. It has created over 1500 construction workers jobs (over 300 from the United Association) and 350 plant jobs in advanced manufacturing. Plus more phases are to come, such as a finishing mill, water treatment plant, and many more.
2. V&M Star sister company VAM–USA, a manufacturer of premium pipe connections used in the Shale drilling process, will build a 200,000 square-foot finishing plant at a cost of $57 million and employing 200 construction workers, with over 100 new jobs in manufacturing.
3. Universal Stainless in North Jackson, Ohio. A 200,000 square-foot building with a cost of $100 million dollars. Manufacturing in aerospace and oil and gas production. 200 construction workers, 100 new plant jobs. This was completed in 2010, it has since been added on to and expanding.
4. Patriot Waters built a state-of-the-art fracking water treatment facility in the city of Warren, creating 43 jobs. Plus more of these types of facilities are to be built in the area.

These are a small part of the many projects that are developing in the Mahoning Valley, like GM Lordstown, R.G. Steel, RTI Metals, as well as commercial growth in hospitals and schools. For example, Youngstown State University announced plans for a Natural Gas Water Resource Institute to better prepare its students for jobs related to Utica Shale. Also, Eastern Gateway Community College has remodeled two facilities in the Youngstown-Warren area for training into such positions as the Building Trades and jobs in the community.

I would like to finish with Economic Recovery by talking about two companies who have relocated to our area, that Local Union 396 has Agreements with to fabricate pipe and components for Industrial projects nationwide and even outside the country.

1. De-Cal is a mechanical contractor and pipe fabrication plant who relocated a branch office from Detroit, Michigan to Youngstown, Ohio. The Youngstown offices opened August 2011 by purchasing a 16,000 square foot building near the V&M Star Company and in less than one year plans to expand its fab shop operation by 46,000 square feet and increase their employees/our members from 40 to 130. This is a partnership of both government—local and federal, Regional Chamber, management and labor who work very closely to make this happen.
2. Evets Oil and Gas, V.E.C., Inc. is a new company in the mechanical field, but has been involved with the Shale Industry under the electrical side. The company is expanding to offer turn-key opportunities. Work would expand in the gas compressor station. This company travels nationwide and has installed more than 200 compression stations and plans to build a 2 million dollar fab shop in Girard, Ohio. They have a strong reputation for quality work.

Because of the gas industry and the VM Star project, our 52 signatory contractors, such as Roth Bros, Prout Boiler, Western Reserve Mechanical and McCarls, employ over 400 of our members, working in all facets such as the new shale oil, industrial,

light commercial and residential. Local Union 396 is very proud to support them and have a great labor-management relationship.

**Training:**

Natural gas holds promise for the future of Ohio and the future for Local Union 396 signatory contractors and businesses in our area. The manpower needs will be so great that we have increased our apprenticeship program, as well as our welder certification programs. Our plans are to add to such support groups as Metal Trades so that they will be utilized into the Fab shops, and Helpers to be utilized into the oil and gas industry. Both Metal Trades and Helpers will be used in a pre-apprenticeship program for future students of the piping industry. This is where we can start recruiting individuals that are young students looking for a career, as well as displaced workers and veterans coming from overseas back into the workforce.

By expanding our training programs, we are going to utilize some of the programs that have been set up for us by the United Association, such as the UA Veterans in Piping (VIP). Our General President of the United Association, Bill Hite, has created this program to include a partnership with the US military. The VIP Program provides retired vets with 16 weeks of accelerated welding training. But before that career-training begins, they kick-off the program with an additional two weeks of transitional training to help returning veterans adjust to civilian life. The training is free to veterans who are placed in construction careers nationwide. Over 1,000 veterans are already on the job. General President Hite received distinguished service awards from the Military Officers Association of America.

Another program we have enforced: Pathway through the Building Trades, Education and Opportunity to Employment. This will also seek out and address the minorities and women in well-paid jobs and careers, upgrading their skills in order to achieve their academic goals both in training and the apprenticeship programs in the building trades.

We have been able to apply for grants in order to recruit welders, such as the downhill program. Our goal is that this program will expand into having proficient welders in the oil and gas industry. I would like to thank both Congressmen Bill Johnson and Tim Ryan for their support in this program.

Our Local went from close to 40% unemployment two years ago, to full employment, with over 440 traveling members from the United Association from all over the country working in our jurisdiction at one time. And no lay-offs are in the future.

**Partnerships:**

The working relationships that we have in the Mahoning Valley are a big part of the success and the great opportunities that we have now. Our organization of Plumbers and Pipefitters Local 396 works very closely with the Regional Chamber and the Columbiana County/Wellsville Chamber, so close in fact that labor leaders from the Building Trades have a position on the Board of Directors at the Chamber. We have worked to build a positive relationship with bipartisan elected officials in order to build trust and work together as a team, with one goal: to improve the community that we live in.

With the support of both Congressman Bill Johnson and Tim Ryan, we have put together a Symposium Meeting for the oil and gas industry (Utica Shale Drilling). It will bring together companies of the oil and gas industry, piping contractors that have true expertise in their fields, Tech Belt/Energy companies, Community Colleges, and State Colleges. Businesses that are affiliated, the Regional Chamber of Commerce, and Labor, including Local 396, will work together to play a key role in the Shale development.

In closing, thank you, Chairman Lamborn, for the opportunity to provide the subcommittee with the achievements and opportunities that Plumbers & Pipefitters Local 396 have experienced. There have been a few elected officials wanting to place a moratorium on this industry. I feel that this would be a travesty, especially considering the growth that we have experienced already, and the drilling process has not even started yet. I have had a member of Local 396 ask me how I am handling the headaches of all the demands with the work picture. My reply to him was, I would rather handle the headaches than the heartaches that we have experienced these past few years, when there were no opportunities. Again I would like to thank the committee for my appearance here. It has been overwhelming and much appreciated. If there are any questions I would be pleased to take them at this time.

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Mr. LAMBORN. Thank you, Mr. Taylor, so much.

Mr. Pounds?

**STATEMENT OF JACK POUNDS, PRESIDENT, OHIO CHEMISTRY TECHNOLOGY COUNCIL**

Mr. POUNDS. Thank you, Mr. Chairman, Members of the Subcommittee.

I am Jack Pounds. I am President of the Ohio Chemistry Technology Council. We are a trade association for the chemical industry in Ohio which has historically been really the foundation for the major part of manufacturing activities in the state. The value of chemicals produced in Ohio each year is approximately $28 billion, and about 20 percent of that is sold to customers outside of the United States. So we are an important player in the global economy.

Unfortunately the chemical industry in Ohio and in the United States as a whole has been in a state of slow to no growth for much of the past decade. This reflects really two things: First, the recession or near-recession conditions in the largest markets for products of chemistry and, second, the advantage that chemical companies outside the United States have over our companies here in terms of feedstock costs and energy costs.

The basic feedstocks that are purchased and further processed by the chemical industry around the world are primarily derived either from oil or from natural gas. In the United States, unlike Europe, the chemical industry feedstocks primarily come from natural gas. About 80 percent of them in the United States are from natural gas.

In recent years natural gas prices have fluctuated dramatically as you well know, rising from under $2 per million British Thermal Unit back in the late 1990s to over $13 per million BTUs in the early to mid-2000s, and they continue to be very volatile. Yes, they are down today, but it is still a very volatile commodity.

For our chemical companies in Ohio, unpredictable natural gas supply and pricing coupled with recession in the major markets for our chemicals have stifled new investment and job creation in an industry that is the foundation for almost all manufacturing. That is a technology resource that is vital to our country for its long-term viability and our national security.

I should also note that purchased energy costs are an important consideration to our chemical industry. We are a major energy user, and right now in Ohio, as you well know, more than 80 percent of our electricity is generated from coal. That resource is in question and at some point, natural gas may be the resource that has to take its place. As recently as two years ago, no one in our industry in Ohio saw any magic bullet solution to the dual challenges that our industry faced of high and unpredictable costs of raw materials and the same with purchased electricity.

Now with the emergence of Ohio's vast shale gas reserves onto the scene, it is my belief that Ohio's chemical industry is about to experience a renaissance. I say this because sensible, responsible development of the shales will make Ohio's chemical industry competitive with companies in any region in the world except Saudi Arabia and Canada.

That is because the shale gas can provide, first, lower feedstock costs that our chemical companies will use those feedstocks to create innovative high technology content products for sophisticated

customers around the world, and second, a long-term supply of natural gas that can fuel utility boilers that generate low cost electricity.

The feedstock benefit reflects the fact that much of Ohio's shale formations contain high levels of wet gases which are fractioned, such as ethane, butane and propane. These fractions are the critical feedstocks for the chemical industry today, and when they are processed through a fracking facility will yield basic chemicals, most importantly ethylene from methane.

If I could refer the Committee to the chart that we have here, in the upper left-hand corner it shows how we start the ethylene chain. And ethylene is really the most critical chemical raw material. You have the natural gas well, the wet gas fraction. Ethane is separated from that at the central fracking facility. We soon hope to have one of those located in this region. And then from the fracker it goes to the other chemical plants, and those chemical plants will make things like polyvinyl chloride, vinyl chloride, ethylene glycol, styrene, polyethylene, polypropylene, and those are the materials that really then are sold to other companies.

We have about 2,500 companies in the plastics and polymers industries in Ohio that take those materials and make every sort of consumer, medical device that you can imagine, lots of coatings for appliances, cars, that sort of thing, and those things are sold to customers around the world. So Ohio is a huge player in that marketplace in the world today. This is going to position our chemical industry to provide basic feedstocks to so many other different industries.

Last year the American Chemistry Council Economics Division published an economic study, which the Committee has in its possession, that concludes that a new cracker facility in this region with the capacity to create 1 million metric tons of ethylene from ethane each year could trigger construction of new chemical production facilities in Ohio that would add $4.8 billion in additional chemical production value, about 17 percent increase in the production from chemicals in Ohio; would lead to the direct, indirect and induced creation of 17,000 new jobs, $600 million in new payrolls; and provide our existing 2,500 polymers/plastics businesses in the state with a reliable, competitive and close-by supply of the ethylene derivatives that they use in their business.

Mr. Chairman, as a native of this part of the state, it would seem our young people generation after generation move away to find opportunities to make a life for themselves elsewhere. I have a strong personal interest in seeing things change here. The opportunities for Ohioans to benefit from sensible development of our shale resources represents a once in a lifetime opportunity. I would urge the Congress to look upon this as an exciting first step in making our state, this part of the state and our people here players in the global economy with a standard of living that benefits a people that deserve it, who have a great work ethic here.

I thank you again for the opportunity to be here this morning.

[The prepared statement of Mr. Pounds follows:]

**Statement of Jack R. Pounds, President,**
**Ohio Chemistry Technology Council**

Good morning, Mr. Chairman:

My name is Jack Pounds, and I am president of the Ohio Chemistry Technology Council, the non-profit association for the chemical industry in the state of Ohio. The chemical industry in Ohio has always been a major part of the manufacturing-based economy of the state. Our chemical companies are engaged in the research, development, and production of highly-sophisticated chemistries that are sold to customers around the world who use them as the basic building blocks for the thousands of products that make our modern lifestyles possible. The value of chemicals produced in Ohio is more than $28 billion annually, with approximately 20% of those representing sales to customers outside the United States.

Unfortunately, the chemical industry in Ohio—and in the United States as a whole—has been in a state of slow to no growth for much of the past decade. This reflects (1) recession or near-recession conditions in the largest markets for the products of chemistry, most notably the auto, construction, and manufacturing sectors of the economy; and (2) the advantage chemical companies outside the U.S. have in terms of feed stock and energy costs.

While tax and regulatory policies in this country have also played a role in the industry's decline, the most significant factor has been the unpredictability in the costs of chemical feed stocks and purchased energy.

**Feedstock Costs:**

The basic feed stocks that are purchased and further processed by the chemical industry around the world are primarily derived from oil and natural gas. In the United States, more than 80% of the chemical industry's feed stocks come from natural gas. In recent years, natural gas prices have fluctuated dramatically—reaching over $13 per million British Thermal Units (BTUs) in the early to mid-2000s, and continues to be very volatile. For our chemical companies in Ohio, unpredictable natural gas supply and pricing—coupled with recession in major markets for chemicals—have stifled new investment and job creation in an industry that is the foundation for almost all manufacturing in the U.S. and that is a technology resource that is vital to our long-term economic viability and national security.

**Purchased Energy:**

The chemical industry is a major energy user, and purchased electricity is a large component of production costs. The threat that coal may not be a long-term source of electric power in Ohio has loomed over the industry for many years, and has a definite impact on where new investments are located by major chemical companies.

**Ohio's Shale Gas Represents a Potential "Renaissance" in Ohio's Chemical Industry:**

As recently as two years ago, no one in our industry in Ohio saw any "magic bullet" solution to the dual challenges of high and unpredictable costs of raw materials and purchased electricity.

Now, with the emergence of Ohio's vast shale gas reserves onto the scene, it is my belief that Ohio's chemical industry is about to experience a "renaissance". I say this because sensible, responsible development of the shales will make Ohio's chemical industry competitive with companies in any region of the world—except for Saudi Arabia and Canada. That is because the shale gas can provide both (1)) lower cost feed stocks that our chemical companies will use to create innovative, high-technology content products of chemistry for sophisticated customers around the world, and (2) a long-term supply of natural gas to fuel utility boilers to generate low-cost electricity.

The feedstock benefit reflects that much of Ohio's shale formations contain high levels of "wet gases", which are fractions such as ethane, butane, and propane. These fractions are the critical feed stocks for the chemical industry today—and when they are processed through a cracking facility, will yield basic chemicals, most importantly, ethylene from ethane.

If I may refer to the chart here, a copy of which has been provided to the subcommittee, I can point out the route from a natural gas well to ethane collection to a cracker where ethylene is produced to other major chemicals and then to some examples of the thousands upon thousands of products that are critical to each of us.

Last year, the American Chemistry Council's Economics Division published an economic analysis (*Shale Gas and Petrochemical Investments in Ohio*—provided to the subcommittee) that concludes that a new cracker facility in this region with the

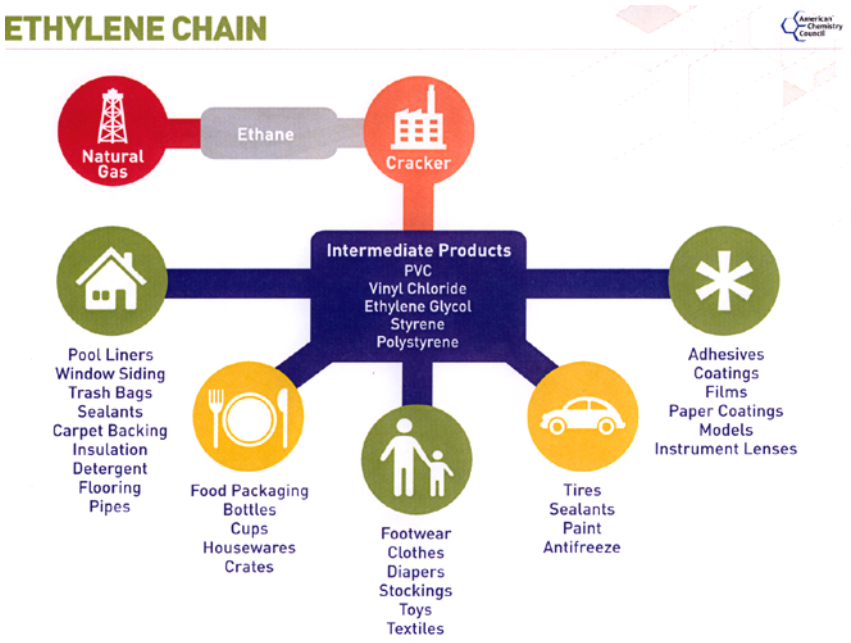
capacity to create 1 million metric tons of ethylene from ethane could trigger construction of new chemical production facilities in Ohio that would:

- add $4.8 billion in additional chemical production (+17%);
- lead to the direct, indirect, and induced creation of 17,000 new jobs in Ohio, $600 million in new payrolls, and $170 million in new tax revenues for Ohio governments; and,
- provide our existing 2,500 polymers (plastics) businesses in the state with a reliable, competitive, and close by supply of the ethylene derivatives they use in their businesses.

Mr. Chairman, as a native of this part of the state who has seen generation after generation of our young people move away to find opportunities to make a better life for themselves, I have a strong personal interest in seeing things change here. The opportunities for Ohioans to benefit from sensible development of our shale resources represent a once in a lifetime opportunity. I would urge the Congress to look upon this as an exciting first step in making our state, this part of the state, and our people players in the global economy, with a standard of living that befits a great people with a great work ethic.

Thank you again for the opportunity to share my excitement with you.

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# Shale Gas & New Petrochemicals Investment in Ohio

American Chemistry Council
July 2011

This analysis is an addendum to the previous ACC analysis completed in March 2011, titled *Shale Gas and New Petrochemicals Investment: Benefits for the Economy, Jobs, and US Manufacturing.* That report presented the results of an analysis conducted to quantify the economic impact of the additional production of petrochemicals and downstream chemical products stimulated by an increase in ethane availability. This present analysis focuses on the benefits to the state of Ohio should a new petrochemicals complex be constructed in that state. It specifically examines the additional output, jobs and tax revenues generated from a private sector investment in petrochemicals.

That Ohio could be the site of a new petrochemicals complex to take advantage of the lower feedstock costs arising from shale gas is obvious. Ohio features the seventh largest state chemical industry in the United States, with revenues of over $28 billion and employing more than 42,000 people. Logistical and other significant infrastructure is present as well and the pipeline carrying NGLs from the Marcellus to Sarnia will pass through the northern tier of the state. The state features access to the Great Lakes and major rail as well as excellent universities (Case Western Reserve University, University of Akron, Cleveland State University, Ohio State University, etc.) with strong chemistry, materials science, polymer science, and chemicals engineering departments. Ohio also has considerable shale gas deposits. Furthermore, Ohio is within 500 miles of most of the US industrial base.

Because petrochemical investment has shifted towards the Gulf Coast in recent decades, there is little excess petrochemicals capacity in Ohio that could be restarted to take advantage of shale gas developments. The analysis thus assumes the construction of "greenfield" facility, including a hypothetical 1.0 million metric ton per year world-class ethylene cracker as well as affiliated polyethylene and other downstream derivative plants. In addition to these battery limit process plants, investment for site development, utilities, logistics and other site-affiliated infrastructure is included. In total, such a petrochemicals complex would necessitate a $3.2 billion investment. In addition, the renewed availability of these basic chemicals would also likely foster additional output of high value-added chemistry products as well. In the long-term, this would add $4.8 billion in additional chemical industry output. The IMPLAN model was employed to assess the direct, indirect and induced effects of petrochemicals investment in Ohio. It was found that the benefits to the Ohio economy would be manifold.

The output and employment generated by additional ethane utilization in the petrochemical and derivative industries would be significant. The additional $4.8 billion in chemical industry activity would generate over 2,400 high-paying, desirable jobs in the Ohio chemical industry. Innovative, creative and pacesetting, the business of chemistry is one of the most knowledge-intensive industries in the manufacturing sector.

**Table 1: On-Going Economic Impact in Ohio from New Petrochemical Production in Ohio**

| Impact Type | Employment | Payroll ($ Million) | Output ($ Billion) |
|---|---|---|---|
| Direct Effect | 2,453 | $303 | $4.8 |
| Indirect Effect | 8,689 | $525 | $2.0 |
| Induced Effect | 6,004 | $234 | $0.7 |
| **Total Effect** | **17,146** | **$1,062** | **$7.5** |

In addition, new petrochemical production in Ohio would generate purchases of raw materials, services, and other purchases throughout the supply chain[1]. Thus, an additional nearly 8,700 indirect jobs would be supported by the boost in ethane utilization in

[1] While much of the supplies and materials are sourced from Ohio businesses, other purchases come from outside the state. Because this analysis focuses on the impact to the state of Ohio, those impacts are not considered.


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the state. Finally, the wages earned by new workers in the chemical industry and workers throughout the supply chain are spent on household purchases and taxes generating about 6,000 payroll-induced jobs in the state. All told, the additional $4.8 billion in Ohio chemical industry output could generate $7.5 billion in output to the Ohio economy and more than 17,000 new jobs in Ohio generating a payroll of nearly $1.1 billion.

**Table 2: Economic Impact in Ohio from New Investment in Plant and Equipment in Ohio**

| Impact Type | Employment | Payroll ($ Million) | Output ($ Million) |
|---|---|---|---|
| Direct Effect | 6,288 | $332 | $914 |
| Indirect Effect | 2,101 | $113 | 319 |
| Induced Effect | 3,359 | $131 | 393 |
| **Total Effect** | **11,748** | **$575** | **$1,626** |

The one-time $3.2 billion investment in a Ohio petrochemical complex would result in more than $900 million in spending inside the state of Ohio. The remaining $2.3 billion is used to purchase equipment and supplies produced outside the state. This investment in plant and equipment generates over 6,300 jobs in Ohio, mostly in the construction and capital equipment-producing industries. Indirectly, another $319 million in output and 2,100 jobs would be generated throughout the supply chain. Finally, a further $390 million in output and more than 3,400 jobs would be created through the household spending of the workers employed building, making, and installing the new plant and equipment as well as those employed throughout the supply chain. All told, a $3.2 billion investment in the Ohio chemical industry would support nearly 12,000 jobs and $600 million in payrolls in Ohio.

**Table 3: Tax Impact in Ohio from New Petrochemical Production in Ohio ($ Million)**

| Impact Type | Payroll | Households and Proprietors | Corporations and Indirect Business Taxes | Total |
|---|---|---|---|---|
| Federal | $93.5 | $64.7 | $42.1 | $200.2 |
| State and Local | $1.4 | $23.8 | $143.2 | $168.5 |

**Table 4: Tax Impact in Ohio from New Investment in Plant and Equipment in Ohio ($ Million)**

| Impact Type | Payroll | Households and Proprietors | Corporations and Indirect Business Taxes | Total |
|---|---|---|---|---|
| Federal | $55.1 | $30.8 | $12.8 | $98.7 |
| State and Local | $0.9 | $15.0 | $42.5 | $58.3 |

The IMPLAN model (for Ohio) also allows a comprehensive estimation of additional tax revenues that would be generated across all sectors as the result of increased economic activity. With new petrochemical production in the state, the additional jobs created and added output would lead to a gain in tax receipts. State and local taxes on payrolls, households, and corporations would yield about $169 million per year to Ohio governments. Furthermore, Ohio revenues would rise by $58 million during the investment phase of the project.

ACC Economics & Statistics Department

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Mr. LAMBORN. OK. Thank you.

We will know hear from Ms. Michelle Papai who sits on the city council of Athens, Ohio.

## STATEMENT OF MICHELE PAPAI, ATHENS CITY COUNCILPERSON, 3rd WARD, ATHENS, OHIO

Ms. PAPAI. It is interesting to be on the other side of the light.

Mr. LAMBORN. Are all your meetings as quiet as this one?

Ms. PAPAI. Oh, I have lived in Athens, Ohio.

[Laughter.]

Ms. PAPAI. Chairman, Committee Members, thank you for inviting me to speak.

My name is Michelle Papai, I am a member of Athens City Council. I am fully engaged with my constituency. In my day job I also

meet regularly with Southeastern Ohio residents from all socio-economic backgrounds. I have witnessed a tremendous groundswell of community concern about shale drilling since dozens of formal protest letters were submitted to the Bureau of Land Management last fall requesting withdrawal of gas and oil lease sales in Wayne National Forest land.

These included letters by the Mayor of Athens, Athens City Council, Athens County commissioners, water district heads and the President of Ohio University. President McDavis' letter states, quote, "It is our duty to lead and support our campus and greater community as we seek safe living conditions, healthy economies and fertile land where we live and work. The potential December 7, 2011 sale poses a threat to a healthy living and learning environment at Ohio University," end quote.

Athens City Mayor, Paul Wiehl, wrote, quote, "Our city's water supplies, economy, safety and public health will all be severely harmed by the sales. We will not be able to fulfill our duty to protect our water supply if these sales go through," unquote.

Over 300 protest hard copy letters and 1,800 signed petitions and emails were sent to the Wayne. Our concerns are economic, environmental, ethical. They are about the threats to our quality of life and to the viability of our community. Athens City Council and county commissioners have passed resolutions expressing economic and environmental concerns. The commissioners call for stricter state and Federal Governmental regulations. Environmental impacts are documented daily in other parts of the country. Our city council resolution references the USEPA Pavilion Studies that document benzene at 50 times safe drinking water levels. Serious fracking contamination has been found endemic in Pennsylvania as well.

Our aquifer on which 70,000 people depend for drinking water is shallow, permeable and inextricably linked to the health of the Hocking River. The Ohio Division of Natural Resources has not even mapped aquifers in our part of the state. How can we possibly proceed with deep shale drilling on the Wayne when this is the only source of water for most of the residents of Athens County as well as for many residents of adjacent Morgan County.

The depth of our water table ranges from surface level to 20 feet. Our aquifer averages 60 feet below ground making it highly susceptible to surface or near surface contamination. Previous coal mining has left our land riddled with shafts. Drilling through these will provide pathways for gas and chemical migration and release acid water assuring corrosion of wells, casings and eventual well failure.

Athens County is mostly rural and poor. Economic development is, of course, important to us, but so is the long-term sustainability of our county. Studies on current shale plays show that job growth comes to only about ten percent of industry production, and most jobs are temporary and go out of state. Our tourism, rural beauty, local food and arts industries, institutions of higher learning and green technologies are all incompatible with industrialization of our countryside and degraded area water.

Two distinctive Athens County institutions, Ohio University and Hocking College, are central to our economy. Water and/or air con-

tamination would severely threaten them and, therefore, our region's economy. What parent would want to send their child to an industrialized zone with highly polluted air and contaminated water? That is why students come to Ohio University from the North.

We are concerned about property values, not only of leased land, but also nearby properties. Real estate agents have spoken with me about sales lost due to lack of buyer's ability to protect their land. Insurance agents are receiving calls from homeowners discussing their property is unprotected because industrial operations nullify contracts. The FHA will not provide a mortgage for property with a drill site. Neither will HUD. These are devastating economic impacts that we fear will become widespread.

Ohio's Attorney General has stated his concerns about dishonest practices, inadequate regulation and chemical disclosure. Documented examples exist of landsmen in Athens County making false statements such as, quote, "Only fresh water," unquote, is injected into their gas wells.

I have spoken with many citizens who feel that they have leased under duress. They say, "I have a small amount of acreage, and they will take it anyway," quote-unquote, or, quote, "my neighbors have signed, so I signed a nonsurface lease so I will have the resources to leave," unquote.

Other hard working taxpayers who have not signed have stated they will leave if drilling occurs on neighbor's property because they will not tolerate resulting air pollution, potential water contamination, high levels of truck traffic, noise and light pollution.

Ohio Representative Sutton isn't here—Johnson and the rest of the Committee, as national leaders and policymakers, I urge you to make a stand now. These issues demand close scrutiny, rigorous regulation and a reasonable systemic approach. I ask that a full National Environmental Policy Act analysis be required at Bureau of Land Management's request for hydraulic fracturing in the Wayne National Forest, Athens County, Ohio.

Please hear the voice of the people that elected you and help us. There is too much at risk for our Appalachian communities. We must take the safest paths possible. As a local official my hands are tied with the State of Ohio. They have the control. ODNR has all the control.

Thank you.

[The prepared statement of Ms. Papai follows:]

**Statement of Michele M. Papa, Athens City Councilperson, 3rd Ward**

Committee Members, thank you for allowing me to speak today.

I am here as an elected official for the City of Athens, located in Athens, Ohio and home to the main campus of Ohio University. Our city's population is about 24,000 with university enrollment of about 20,000. The county of Athens has a population of about 65,000 with 506 sq. miles. Almost 78% of that area is forested.

You may be wondering, why am I speaking today? In October, our community quickly rallied and responded to the notification of pending lease sales of over 3200 acres of Wayne National Forest land for gas and oil drilling, which could include deep shale drilling and high volume horizontal hydraulic fracturing. The Athens City Council sent a formal letter asking that the BLM halt the sales, stating, "Athens City Council, Athens City, Ohio is a statutory city that relies upon a riparian aquifer as the sole source for its municipal water system. . .We are concerned that the leasing, drilling, and operation of the potential wells in the Utica Shale will have a deleterious effect on our sole source municipal water supply. It must be

noted that we have a meager water supply in general in unglaciated Ohio, and our water source is inextricably bound to the health of the Hocking River (http://ohioline.osu.edu/aex-fact/0480_05.html). We are also concerned that the leasing and drilling of these parcels could negatively impact wildlife, habitat, and human health and recreational enjoyment." The letter concludes, "We request the withdrawal of the lease sale until the proper environmental analysis is conducted and our water supply is protected."

The BLM also received letters from the President of Ohio University, Athens County Commissioners, Burr Oak Regional Water District, Athens City Wellhead Protection Team, the Athens City administration, and 42 other official bodies and individuals (blm.gov/es/st/en/prog/minerals/protests_information.html), a record number, indicating the level of concern and the severity of the threat to our water supply, economic and public health, and quality of life,.

Athens City administration's letter states,

> The City of Athens is filing this action because our city's sole source riparian aquifer drinking water supplies will be severely impacted by these sales and because it is our duty by law to protect our drinking water supply. We are concerned that the stipulations in your lease do not protect the Hocking River and the aquifer, on which our City's water supply depend.
>
> The City of Athens has an interest in these sales because our city's water supply, economy, safety, and public health will all be severely harmed by the sales. We will not be able to fulfill our duty to protect our water supply if these sales go through.

**Athens Drinking Water Supply will be severely threatened by this sale**

> The City of Athens drinking water supply is a sole source aquifer continuous with the aquifer under and nearby—downhill and downstream of—the Wayne parcels to be sold. It is also adjacent to and recharged by the Hocking River, which will be deleteriously impacted by these sales.
>
> The water table in our well fields ranges from surface level to 20' below the surface throughout the year. The aquifer that feeds Athens' water supply is shallow, averaging a maximum of 60 feet below ground level. It is therefore especially susceptible to pollution from surface level and near-surface level contamination.

**AWater withdrawals will threaten our water supply**

> According to the Atlas of Reported Withdrawals by County for Athens County, Ohio, the county's public water systems already use 99% of total withdrawals for public use daily.
>
> Athens City currently draws close to 5 million gallons a day, which is sometimes close to the capacity of the aquifer to recharge. Diminished water in the river has historically resulted in diminished availability in city wells. The city is already withdrawing close to the total water available per day on many days of the year.
>
> Significant water withdrawals from the aquifer and/or from the Hocking River are expected to occur and are currently allowed by Ohio law for deep shale horizontal hydraulic fracturing. According to the USEPA, each Marcellus well requires 2–10 million gallons of water per well (Kargbo et al., Natural Gas Plays in the Marcellus Shale, *Environ. Sci. Technol.,* 2010, *44* (15), pp 5679–5684). Utica wells, often twice as deep, generally require greater volumes than do Marcellus wells.

**AToxic chemicals used in drilling, fracking, and production will threaten our water supply**

> Many hundreds of highly toxic chemicals are injected into wells for deep shale drilling and horizontal fracturing, including known carcinogens and neurotoxins, at rates of tens of thousands of gallons per well.[1] Flowback water and sludge contain high levels of toxic chemicals, according to EPA documents published by the New York Times: "Diesel is not the only component of fracturing fluid that contains high levels of BTEX and other toxic materials. Indeed, companies have disclosed to the authorities in NY and PA that they use other types of petroleum distillates that contain high levels of benzene, a human carcinogen that is considered unsafe in drinking water at levels above five parts per billion, the equivalent of a few drops

[1] EPA/600/D–11/001/Feb 2011water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfm 19–24

in a swimming pool. Some of these petroleum distillates that the industry uses include kerosene, mineral spirits, petroleum naphtha and Stoddard solvent. According to scientific literature, these additives can contain up to 93 times the amount of benzene contained in diesel."[2]

EPA testing of brine in the Pennsylvania Brine Treatment—Franklin plant recorded benzene at 26 times federal drinking water standards.[3]

Because chemicals used by the gas and oil industry for drilling, fracturing, and production are exempted from regulation by the SDWA, Clean Water Act, and RCCRA, these levels are neither monitored nor reported.

**ARadioactivity will threaten our water supply**

Flowback waters and sludge can also contain high levels of radioactivity, according to documents submitted to New York State and Pennsylvania authorities. One Pa. report cites levels of radium 400 times the federal drinking water standard.[4] New York State's Department of Environmental Conservation analyzed 13 samples of wastewater brought thousands of feet to the surface from drilling and found levels of radium 226, a derivative of uranium, as high as 267 times the limit considered safe for discharge into the environment and thousands of times federal drinking water standards.[5]

University of Buffalo researchers report the tendency of high-pressure, high-volume injections to facilitate release of uranium into flowback water and to bind it to chemicals in the water.[6]

Athens authorities are particularly concerned because southeast Ohio's deep shales are reported to have high levels of uranium, possibly especially in the deeper Utica shale.

Our city's water treatment facility can neither monitor nor adequately remediate these radioactive pollutants."

The report also states, "Deep shale drilling and horizontal fracturing spills, explosions, and leaks have caused high levels of radioactive and chemical pollution of waters. For example, the New York Times published a test sample taken Sept. 2, 2009 by the Pennsylvania Department of Environmental Protection of spilled drilling wastewater, which showed "radium levels of 6,540 pCi/L, or more than 1,000 times the drinking water standard."[7]

Numerous other reports by Pennsylvania authorities discuss large volumes of discharge into creeks,[8] including a tributary of the Susquehanna that resulted in filing of a lawsuit against Chesapeake Energy by the State of Maryland.[9]

Below surface migration is widespread and well documented. A Colorado creek, contaminated by benzene from a deep underground migration of injected chemicals in 2004 which resulted in fines to Encana by the Colorado Oil and Gas Conservation Commission, still had high levels of benzene in groundwater monitoring wells sampled near the creek in mid-2011.[10] The *Proceedings of the National Academy of Sciences* recently documented methane migration into drinking water supplies.[11]

The Denver Post reports that just three companies reported 350 spills since January 2010, including releases of benzene and other carcinogens three times in one month into surface waters in one county. [12]

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[2] nytimes.com/interactive/2011/02/27/us/natural-gas-documents-1.html#document/p391/a9939
[3] nytimes.com/interactive/2011/02/27/us/natural-gas-documents-1.html#document/p416/a9943
[4] op. cit. p. 646.
[5] scientificamerican.com/article.cfm?id=marcellus-shale-natural-gas-drilling-radioactive-wastewater
[6] upi.com/Science_News/2010/10/25/Tapping-natural-gas-could-unleash-uranium/UPI–62061288048109/
[7] op. cit. p. 644 ff.
[8] op. cit, multiple documents
[9] see for example NY Times,, op.cit., p. 1056 ff.; reuters.com/article/2011/04/20/us-chesapeake-spill-idUSTRE73J6D820110420, newsworks.org/index.php/local/item/18791–02spfrack
[10] Chakrabarty, Gargi. Commission Oks Record Fine for Natural Gas Seep, Rocky Mountain News, 8–18–04; Olsson Associates, West Divide Seep Area Second Quarter Monitoring Status Report for June 2011, Table 1 cogcc.state.co.us
[11] Stephen G. Osborn, et al., "Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing," *PNAS,* May 17, 2011, 108 (20), pp. 8172–8176
[12] denverpost.com/breakingnews/ci_18880544, 9/12/11

The City's letter concludes that the sales will "irreparably impair the drinking water supplies and economy of the City of Athens, Ohio." [13]

Ohio University's letter to the BLM, signed by Dr. Roderick McDavis, states;

> *Statement of Reasons:* It is our duty as an institution of higher education to lead and support our campus and greater community as we seek safe living conditions, healthy economies and fertile lands where we live and work. The potential December 7, 2011 sale of the publicly owned lands referenced above poses a threat to a healthy living and learning environment at Ohio University.
>
> Ohio University is currently unable to support a practice that is not strictly regulated and highly accountable. We request the withdrawal of the lease sale until a comprehensive, objective environmental and economic analysis is conducted and the absence of risk to our water supply, community health, and local economy can be assured.

The city of Athens is located south and west of "The Wayne" as we locals call it. The Hocking River runs from the Northwest to the Southeast corners of the county where it empties into the Ohio River at Hockingport. The Hocking River and its aquifer is the origin of most of the counties drinking water. Our county uses several water systems due to prior contamination from coal mining and past gas extraction. Athens County has several Class II injection wells, and waste is delivered from out of state everyday. We have recently experienced serious water contamination from industrial processes. About eight years ago, it was determined that the chemical C–8 had been found in the water systems in the Eastern part of the county. A class action lawsuit was settled with Dupont, which had been releasing the chemical into the Ohio River for 30+ years. This county has suffered from the effects of resource extraction and chemical industrialization. Many of you may know that a few months ago a transfer gas pipeline exploded in Northern Athens County causing serious damage and destroying homes.

As a resident of this county for 18 years, I have become very fond of the natural beauty, as have many others who travel to our area on a regular basis for tourist activity and for those who want to attend university in a beautiful non-urban setting. Prior to my election I was aware of hydraulic fracturing, but only from a distance. With 'the Wayne issues' and subsequent appearance of landmen feverishly signing up private landowners in the county, my knowledge base and understanding had to increase. In November I traveled to Golden, CO and received an earful from friends who have lived through the 'gas boom' there. In January, I traveled with nine other Athens county residents to Wetzel County, W. Va, to see hydraulic fracturing gas extraction first hand. Having grown up in industrial communities, I wasn't shocked by the industrial character of the operation. The sheer scale of the operations, the drastic changes to the landscape, and the loss of farmers and rural landowners way of life was what shocked me the most. Listening to residents describe the changes to their lives was extremely difficult. Many thought they were helping their families. What they've since learned after 4 years of drilling is that they aren't better off, and their way of life has changed drastically. The degradation of the landscape, changes in the topography, and loss of previously good water wells was significant. It was fortunate that we were able to see before and after photographs. I quickly began to think of "The Wayne" and other areas of Athens County were leases have been signed. The stories are not new to the members of this committee. They are the same no matter what community you travel to that has experienced this type of drilling. Some are better than others, but the changes are profound.

The questions began to arise: Can this be process be carried out without making such a huge footprint to the land? How does a community handle the increased traffic, and toxic substances traveling on its roads? How do we protect our water and air from surface damage? What is happening thousands of feet below the surface? Can the method ever be safe? Even if fracking, ideally carried out *can be* perfectly safe, in practice mistakes happen, and corners are cut because of human error, and the consequences of such mistakes are potentially extremely serious and, in the case of aquifer contamination, irreversible and certain to destroy our entire community.

Where will the vast amounts of water required come from? Our river?

As a city councilperson looking into the Ohio Revised Code and municipality rights, one quickly learns that our protections are extremely limited. Where are the checks and balances? Oh yes, and where are the jobs? Community after community

[13] Athens City formal protest letter, October 7, 2011, RE: Protest of the Bureau of Land Management's Notice of Competitive Oil and Gas Lease Sale Concerning Parcels in Perry, Gallia, and Athens Counties, Ohio

reports insignificant increase in local employment. All the studies show less employment than what was initially promised. Property values decline, often drastically

A recent Pennsylvania economic analysis states that reports of job growth from Marcellus activity are greatly overstated. Rather than the purported 48,000 jobs, "Actual jobs data tell a different story. This briefing paper demonstrates that Marcellus Shale drilling has created no more than 10,000 jobs. . .The number of jobs created by Marcellus industries is small—less than 10%—compared to the 111,400 increase in jobs in all state industries since Pennsylvania's recent employment trough in February 2010." The report concludes, "The modest contribution of the Marcellus Shale to job growth must also be balanced against the impact of drilling on other industries, such as tourism and the Pennsylvania hardwoods industry. It is also important to balance the contribution of the Marcellus Shale to job growth against the so-far unfunded environmental liability of the industry." [14]

Economic impact studies by researchers independent of industry, cited by economist Janette Barth (3/4/11), document the negative economic impacts of extractive industries historically and dispute the glowing picture painted by industry:

"Fossil Fuel Extraction as a County Economic Development Strategy: Are Energy-Focusing Counties Benefiting?", Headwaters Economics, September 2008. (http:/headwaterseconomics.org) concluded that counties that were not focused on fossil fuel extraction experienced higher growth rates, more diverse economies, better-educated populations, a smaller gap between high and low income households, and more retirement and investment income.

Another study, "Mining the Data: Analyzing the Economic Implications of Mining for Nonmetropolitan Regions" (W.R. Freudenberg and L. Wilson, *Sociological Inquiry,* 72, 4: 549–75), concluded that unemployment and poverty worsened in mining counties in non-metropolitan regions. It found that the highest levels of long-term poverty are in places where there was once a thriving extractive industry.

Why doesn't the industry disclose the contents of fracking waste? Perhaps this is the most disturbing feature of the entire undertaking—if the method is safe and established what possible justification could there be for excluding the industry from almost all of the federal laws that protect public health?

Our community is very concerned about air emissions from this extractive industrial process. Our state laws barely regulate emissions, permitting virtually unrestricted open venting and flaring. Because the industry is exempted from aggregation standards of other industries, tons of volatile organic compounds will be emitted without reporting, let alone any restriction. U.S. EPA reports that hydraulic fracturing of one well creates approximately 23 tons of volatile organic compounds (VOCs) emissions, roughly 200 times more than if the well was not hydraulically fractured.[15]

The *New York Times* report on risks of deep-shale drilling and horizontal hydraulic fracturing documents air pollution issues: "Air pollution caused by natural-gas drilling is a growing threat. . .. Wyoming, for example, failed in 2009 to meet federal standards for air quality for the first time in its history partly because of the fumes containing benzene and toluene from roughly 27,000 wells, the vast majority drilled in the past five years. . .In Texas, which now has about 93,000 natural-gas wells, up from around 58,000 a dozen years ago, a hospital system in six counties with some of the heaviest drilling said in 2010 that it found a 25 percent asthma rate for young children, more than three times the state rate of about 7 percent." [16]

The USEPA [17] documents air emissions (p. 55): "One of the largest potential sources of air emissions from hydraulic fracturing operations is the off-gassing of methane from flowback before the well is put into production. The NYS dSGEIS [Draft Supplemental Generic Environmental Impact Statement] estimated that 10,200 mcf of methane is off gassed per well." The document reports up to 24,000 mcf of methane released per well (Armendariz, 2009). "This gas is typically vented or flared, although reduced emissions completion methods can capture up to 90 percent of the gas. High concentrations of methane could also pose an explosion threat. On-site fuel tanks and impoundment pits containing flowback may also be sources of VOC and hydrogen sulfide emissions (ICF International, 2009a). The VOCs found

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[14] *Digging Deeper into Job Claims,* Keystone Research Center, June 2011

[15] USEPA Proposed Rule, "oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews," Federal Register/Vol. 76, No. 163 at 52757, http://www.gpo.gov/fdsys/pkg/FR–2011–08–23/pdf/2011–19899.pdf

[16] nytimes.com/2011/02/27/us/27gas.html?_r=4&scp=5&sq=natural%20gas&st=cse

[17] EPA/600/D–11/001/Feb 2011water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/index.cfm

in flowback may include acetone, benzene, ammonia, ethylbenzene, phenol, toluene, and methyl chloride (NYSDEC, 2009)."

The EPA report continues, "Truck traffic is also a potential major source of air emissions.. . .the National Park Service estimated that total truck traffic of between 300 and 1,300 trucks per well would occur in the Marcellus Shale production areas. The NPS estimated that this could have a significant effect on regional nitrogen oxides levels (NPS, 2008)." USEPA also states, "Reports from Texas have linked pollutant emissions from natural gas drilling in the Barnett Shale to substantial reductions in air quality (Michaels et al., 2010). Additionally, areas of highly concentrated natural gas development in southwest Wyoming and eastern Utah have experienced episodes of degraded air quality (e.g., high levels of winter time ozone concentrations). Diesel engines used to run compressors, generators, drill rigs, and pumps may also create significant emissions." [18]

Theo Colborn and colleagues [19] state: "In addition to the land and water contamination issues, at each stage of production and delivery tons of toxic volatile compounds (VOCs), including BETX, other hydrocarbons, and fugitive natural gas (methane), can escape and mix with nitrogen oxides ($NO_x$) from the exhaust of diesel-fueled, mobile, and stationary equipment, to produce ground-level ozone (CH2MHILL 2007; Colorado Department of Public Health and Environment [CDPHE] 2007; URS 2008; U.S. Congress, Office of Technology Assessment 1989). One highly reactive molecule of ground level ozone can burn the deep alveolar tissue in the lungs, causing it to age prematurely. Chronic exposure can lead to asthma and chronic obstructive pulmonary diseases (COPD), and is particularly damaging to children, active young adults who spend time outdoors, and the aged (Islam *et al.* 2007; Tager *et al.* 2005; Triche *et al.* 2006). Ozone combined with particulate matter less than 2.5 micrometers produces smog (haze) that has been demonstrated to be harmful to humans as measured by emergency room admissions during periods of elevation (Peng *et al* 2009). Gas field ozone has created a previously unrecognized air pollution problem in rural areas, similar to that found in large urban areas, and can spread up to 200 miles beyond the immediate region where gas is being produced (U.S. Congress, Office of Technology Assessment 1989; Roberts 2008). Ozone not only causes irreversible damage to the lungs, it is similarly damaging to conifers, aspen, forage, alfalfa, and other crops commonly grown in the western U.S. (Booker *et al.* 2009; Reich 1987; U.S. Congress, Office of Technology Assessment 1989). Adding to this air pollution is the dust created by fleets of diesel trucks working around the clock hauling the constantly accumulating condensate and produced water to large waste facility evaporation pits on unpaved roads. Trucks are also used to haul the millions of gallons of water from the source to the well pad."

So again as an elected official, I ask: "what does our Athens Community gain"? Increased tourism in the Wayne? Unlikely. Better hunting? Not likely if we look at the results of the West Virginia US Forest Service study on the effect of spilled fracking fluids on forests [20] or the new study on animal impacts [21]. Congested roadways? I think of schools that are situated close to the National Forest. In Wetzel County, the school buses have to be escorted on narrow winding county roads when the industry is operating their vehicles, which is almost continuous. The associated infrastructure and building transfer lines through forests leave an extensive footprint.

Reports from North Dakota and Pennsylvania on social impacts paint an ugly portrait of increased crime, including rapes and other assaults, suicides, people displaced from housing due to outrageous increased housing prices due to the influx of temporary workers, and other negative impacts on the quality of life.

Dr. Simona Perry documents the social impacts of the so-called shale boom in Bradford County PA.[22] She compares the impacts to the trauma of abusive relation-

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[18] EPA/600/D–11/001/February 2011

[19] Theo Colborn, C. Kwiatkowski, K.Schultz, and M. Bachran, "Natural Gas Operations from a Public Health Perspective," *International Journal of Human and Ecological Risk Assessment,* 17(5) Sept 2011

[20] 56% of trees in the fluid application area were dead within two years. Mary Beth Adams, *Land Application of Hydrofracturing Fluids Damages a Deciduous Forest Stand in West Virginia, J. Environ. Qual. 40:1340–1344 (2011)* http://www.nrs.fs.fed.us/pubs/jrnl/2011/nrs_2011_adams_001.pdf

[21] Bamberger, M. and Oswald, R., "Impacts of gas drilling on human and animal health," New Solutions, 22(1) 51–77, 2012, in press.

[22] chec.pitt.edu/mediasite.cidde.pitt.edu/mediasite/SilverlightPlayer/Default.aspx?peid=689293c50f404f12b8c628b8f2285780, Dr. Simona L. Perry, Rennselaer Poly-

Continued

ships. Rapid transformation of landscape from rural, agricultural to industrial with greatly increased truck traffic and more dangerous and inconvenient travel as well as dust, diesel fumes, and noise are major sources of aggravation, stress and fear. The people she studied have experienced irreversible changes in connections they had with families' history, childhood memories, land, and neighbors, as well as with present and future. The fear of losing land, health, and children's future gave members of a focus group a "death" feeling. One member described it as a dread in the pit of her stomach. "It feels like we're losing our love. The things we love the most may be taken away." One resident described the situation as **deception desecration, and denial.** They talk repeatedly of broken hearts. Dr. Perry tells the story of a man arrested and incarcerated for 5 days and given a diagnosis of bipolar disorder as well as a bill for roadwork for hampering workers using his land as a staging ground. Dr. Perry uses the term, cycle of abuse, to describe the impacts of this industrialization on their community, lives, land, and loved ones.

Athens County is a uniquely valuable region for its ecotourism, the presence of a major university, and a National Forest. Soon we will have the US Rt 33 corridor completed, which happens to go thru "the Wayne". What an ironic twist if all the careful environmental engineering that went into constructing the new highway goes to the wayside for hydraulic fracturing development. And even more, what a tragedy if our viable local economy and community with its vibrant tourism, arts, green technologies, and local and organic foods industries are destroyed in the rush to exploit our region for shale gas and oil.

To come back to the risks to water: The risk of damaging and extracting vast amounts of water from our supply could be a game changer for this area. Will we become like Arizona where we have to have controlled use? Our area has gone through significant water cleanups from the coal tailings in our creeks and from underwater mine flooding. In Wetzel County, after the industry extracted water from the streams and local sources, they began to ship it in by tanker truck and also in pipelines that stretch for miles along the county roads as water is pumped from the Ohio River. Will this happen to the Hocking River? A salient discussion point: How is it that 5% of landowners, (a very generous estimate of landowners choosing to lease) can determine the course of public policy in Athens County?

While one should not neglect the energy needs of the country and region, it is imperative to our region that we develop sources of energy that do not destroy our economy, health, and environment. And it is essential that these sources are developed on a level playing field, where dangerous forms of extraction are not encouraged by industry misinformation, government ties to industry, and shady deals. Already there have been evidence of unethical dealings on the part of landmen [23], and the Ohio Attorney General feels strongly that additional oversight is needed in the process of land leasing and in state and federal regulation of the industry. New laws are required to overturn such bizarre measures as the "Halliburton Loophole", and the companies that carry out hydraulic fracturing must be accountable for their impacts on communities.

Our County Commissioners, Democrat and Republican, recently unanimously passed a resolution calling on the U.S. Congress to pass the FRAC Act, which would repeal the exemptions from the Safe Drinking Water Act and require disclosure of chemicals used in fracking. Additionally, the Commissioners' resolution states, "We call upon the state of Ohio and the Ohio Department of Natural Resources to

- Increase the number of state inspectors commensurate with the planned increase in drilling activities
- Conduct geotechnical investigations of soil and rock stability prior to any drilling or surface impoundments such as dams or holding ponds
- Require full disclosure of the chemical constituents used during deep shale drilling and hydraulic fracturing and the disposal methods for deep shale drilling and hydraulic fracturing waste
- To update regulations on the use of class 2 injection wells to reflect the increased volume and known content of deep shale drilling and hydraulic fracturing waste
- Regulate water withdrawal from public waters for hydraulic fracturing operations

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technic Institute, "It's like we're losing our love": Bradford County social impacts from shale boom. 11/11

[23] http://ecowatch.org/2012/as-fracking-boom-hits-ohio-deceptive-industry-practices-squeeze-landowners/provides links to an audio tape and transcript of a leasing session in which a Cunningham Energy representative states that only water is used in the drilling and fracturing process in addition to making other statements that conflict with the lease stipulations and industry practices. Recorded in Athens, Ohio, October 7, 2011.

- Prevent installation of wells in source water protection areas
- Increase the bond required to cover for deep shale drilling and hydraulic fracturing operations
- Increase the severance tax to pay for county-level remediation."

Like Attorney General Dewine's recent statements, this call speaks to the inadequacy of Ohio law and enforcement capabilities to protect our air, water, and local economic health from the impacts of this industrial process.

On this particular date as an elected official and one who has to answer to many constituencies, I do not believe the necessary safety regulations are in place to begin drilling in the Wayne National Forest in Athens, County, Ohio.

As national leaders and policymakers, I implore you to stop kicking the can down the road to the next state, region or community. This is no different than the gas drillers who pick up and move their operations to a new locality after imparting damage. These issues demand thoughtful regulation at the *national* level. There are tens of thousands of voters who are negatively impacted everyday. Is the return worth the demonstrated risks?

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Mr. LAMBORN. All right. Thank you and thank all of you for your testimony. We will now begin our first round of questions. That is exactly why we are here, to learn about the need for regulation, and I in particular want to learn about state regulation versus Federal regulation.

So I will start with you, Mr. Stewart. Do you see a difference between the two, and in your opinion, which would be better? Because there is no question that there is going to be and needs to be regulation, but which would be better?

Mr. STEWART. Mr. Chairman, as I said in my testimony and I think you heard from Chief Simmers, most of the environmental laws that are being applied in the state are being applied underneath the landmark Federal laws, Clean Water Act, Safe Drinking Water Act, Clean Air Act, that delegate authority down to the states, because the states have their unique characteristics and, therefore, it is the best to leave it down to the states to do that.

That is the reason the STRONGER organization exists particularly in terms of Resource Conservation and Recovery Act, to make sure the states keep that authority, but continuously identify gaps and make recommendations in ways to improve and ways to fill the gaps. So the states have generally been delegated as authorities over time.

The State of Ohio has a complete and thorough regulatory structure. Just last year in the last general assembly, they enacted Senate Bill 165. That was the most significant amendment to oil and gas law since the law was created in 1965. It addressed all the issues being debated nationally and gave an Ohio response. Since that time, as I have testified, STRONGER has come in and peer critiqued that. The person that chaired the STRONGER review was one of the most noted environmentalists on oil and gas laws known in the United States. Dr. Puls, who was conducting the EPA study, sat in the on the review. The review team, which was endorsed by environmental stakeholders, state oil and gas agency stakeholders, industry, USEPA, USDOE, said the State of Ohio is professional, well managed, meeting its objectives and then there is added that there a lot to recommend to other states on how to do it right.

Mr. LAMBORN. What does a natural gas company have to do in Ohio under Senate Bill 165 before it can drill? What kind of regulation or scrutiny does it face?

Mr. STEWART. Before you can get a drilling permit from the State of Ohio, you must have the ability, you must show the ability through bonding that you are prepared to meet all of the regulatory structures that are set forth in Ohio 1509 and the Ohio Administrative Code 1501. Then you must apply for a permit and show the plan to drill and construct and operate the well according to the regulations and the statute. Then you must apply that.

As it relates to hydraulic fracturing, after 165, it was made clear that once you hydraulically fracture a well, you must submit to the public record what is called frack ticket which shows you everything that went into the well, at what stage it went into the well, how much of it went into the well, from the beginning, called the pad, to the very end, called the flush. You must hand in what is called a frack chart that shows you pressure and rate over time. All of those chemicals must be listed on MSDS sheets on the ODNR website. Because of that one amendment right there, 165, the Ohio Environmental Council wrote a letter in support of Senate Bill 165. And I have to note that 119 out of 130 members of the Ohio General Assembly who voted on the bill voted in support of Senate Bill 165.

Mr. LAMBORN. Thank you.

Mr. Taylor, you have already gone through this some already, but what is the difference in the economy locally now versus a few years ago before hydraulic fracturing combined with horizontal drilling was available?

Mr. TAYLOR. It is in my report. There is a lot of affiliation. The steel industry is coming back to life. Two years ago or a little bit more, we had 40 percent unemployment in our local. With 40 percent of unemployment, we were very much having to reach out to areas across the country in order to provide employment for our members. Now not only do we have those 40 percent working, we are a hundred percent employed with no future layoffs. As reported, we had over 440 travelers from outside the country—from the country, from all over the country I should say, into the Mahoning Valley area working at one time or another drawing an income.

So with that expansion, now we are looking into getting more places, touching the bases on training, experiencing growth that we have never even dreamed of having.

Mr. LAMBORN. Thank you.

Mr. Johnson?

Mr. JOHNSON OF OHIO. Thank you, Mr. Chairman.

Mr. Taylor, we will just continue on with you. In your testimony, you talk about this economic recovery that Mahoning Valley has seen in the past few years. Can you briefly explain how the morale of citizens in the Mahoning Valley, folks that you deal with every day, has changed because of all the development of shale and natural gas?

Mr. TAYLOR. It is very easy to explain, Mr. Johnson, Congressman Johnson. Two years or better there was a gray cloud that was formed over the Youngstown area. Since the announcement of V&M Star and then with this industry, it has been a very optimistic attitude, very. The funds that we have created for our local

as well as for the membership and drawing an income has been up tremendously.

As I stated before, two years ago when you have a lot of heartaches and you are really worried about what was happening within the community or outside the community and membership outside of the community, you tend to worry, and there is a lot of resources that you just can't stretch out to have. Now we are just having a great optimistic attitude. The growth is huge. We are trying to plan for the future. We have put a program together called Pipe. It is a marketing program to not only reach out to young people to get into this industry, but also to explore trying to gather a greater market share.

Mr. JOHNSON OF OHIO. Great. In your testimony, you said that you would rather be dealing with the headaches having too many opportunities rather than the heartaches of having no opportunities. How do you think the Plumbers & Pipefitters would react if the Federal EPA or other bureaucratic organizations in Washington issue new rules that will slow down this development and potentially cost your members their jobs?

Mr. TAYLOR. It would be very tough because we don't want to go back to what was in the past. There is 60 years of data that is here. Let us look at that. Let us improve what we can. Let us make it safe. Nobody wants it not safe. But we have enough where we can move forward and not stop what looks to be a bright future for us, especially in our industry.

Mr. JOHNSON OF OHIO. Well, thank you. Thank you for those answers and thank you again for your testimony today, and I look forward to continuing to work with you and companies that are trying to make sure that this opportunity is there and available for the citizens of Eastern and Southeastern Ohio.

Mr. Pounds, in your testimony you talk about the economic benefits that Ohio could see if a major petrochemical company placed a new ethane cracker. The Chairman reminded me under clothing of polyester suits, and I owned a couple of those.

[Laughter.]

Mr. JOHNSON OF OHIO. I am sure you probably did, too. I hate to put you on the spot here, but you wouldn't happen to have any good news on that front today, on that cracker plant, do you?

Mr. POUNDS. Well, I wish I could give you the answer you are looking for. I know that Royal Dutch Shell has indicated they are going to build a cracker in the Appalachian Midwest. I didn't know when I was a kid that I lived in Appalachia, but I guess we did. That tells me it is West Virginia, Pennsylvania or Ohio, which is pretty obvious. While I hope it is on this side of that imaginary line that we call the border, I will tell you the good news is wherever it is at in the region, it is going to benefit our chemical industry and our folks in southeastern Ohio.

We already have a chemical industry here. We already have a strong polymer/plastics industry in the state which are going to be major customers for the products of that cracker. The reason they want to do it in this region is that ethylene and some of the other fractions that you will take out of the ethane and the propane, they don't like to travel. You don't want to transport them. There are expenses in doing that.

So by fracking the stuff here and using it here locally, the chemical industry, I think, will see more chemical plants built, a lot of them in your districts. I think the ones that are already here are going to expand. We have tremendous resources as does Pennsylvania. We have the river with barging facilities along it in some of the sites that are being considered. We have tremendous workforce potential here.

Mr. JOHNSON OF OHIO. Oh, absolutely. Correct me if I am wrong, but this is a manufacturing corridor all along Eastern and Southeastern Ohio. If we want to see manufacturing come back like we haven't seen it in many, many years, these are products that would come out of that cracker plant that would go into many, many different forms of manufacturing and you think about the manufacturing companies that would come here and park on top of a nearly boundless source of energy because it would significantly reduce their operating costs.

Is that a valid——

Mr. POUNDS. It is absolutely true. We already have had chemical companies contact us talking about when do you think we are going to know because we want to get looking at sites that are close to the cracker.

Mr. JOHNSON OF OHIO. The Governor and Senator Portman and I, we have been working hard with trying to make sure that the Shell folks know that we want that cracker plant.

Mr. POUNDS. We appreciate that very much.

Mr. JOHNSON OF OHIO. Mr. Chairman, I have more questions. I will wait for the next round. I yield back.

Mr. LAMBORN. We will have a second round of questions right after this. Then we will conclude.

Mr. Thompson.

Mr. THOMPSON. Thank you, Chairman.

Mr. Pounds, I want to start with you. I want to wish you best of luck on the cracker, but I am not routing for you.

[Laughter.]

Mr. THOMPSON. I will make it real clear. I am from the Keystone state. But you know what? We are all going to win.

Mr. POUNDS. Absolutely.

Mr. THOMPSON. Let us break this down a little bit. And you got some of it referenced. I want to look specifically in Ohio. Can you give us some idea of the variety of manufacturers that use natural gas as a feedstock or as a process?

Mr. POUNDS. Natural gas as an energy source to generate electricity, that is increasingly important, and obviously coal has got a target on its back primarily from the Federal EPA because of its war on carbon.

So going forward that is going to be important to all manufacturing, because energy for most manufacturing companies, certainly in the chemical industry, is second or third on your cost structure. We are a very intense user of energy. So that is going to be important to all manufacturing in your state and Ohio certainly, being able to generate electricity from natural gas if we get to that point.

But for the chemical industry, the real advantage here is that we are going to be making ethylene from natural gas whereas our competitors in Europe primarily do it from oil. They buy oil.

Mr. THOMPSON. We hear the term wet gas. Can you talk about that? There is no wet gas in my Congressional district. There seems to be obviously an extra advantage to wet gas.

Mr. POUNDS. Certainly. Natural gas as a fuel for boilers is a commodity. Right now it is a couple of bucks, a little over a couple of bucks a million BTUs, British Thermal Units. When it has the wet gas fraction in it, the propanes, the butanes, the ethanes, that wet gas has much higher value because you don't burn that as fuel. You take that off. You send it to the cracker. The cracker then produces the very high value ethylene, and then from the ethylene you go down to the other things.

Those are all sold basically on performance, for medical devices, whatever people are fabricating, working with, and you are talking basically about the polymer side, the chemical business then, the absolute versatility, the productivity, the creativity of people that do that in the United States. You think about the plastics, for example, in hospitals, any kind of flexible tubing, whatever kind of properties you want for that. Essentially every material in this room has some sort of polymer content to it except those of us who have natural fiber suits, which I do not.

I think if you just look around and consider that, it is such an integral part. We take it for granted to a great degree. But it is really the American manufacturing advantage over the rest of the world. I think that we can produce those kinds of products, continue to put a lot of research and development into it.

So I think the potential for revitalizing the manufacturing corridor in Pennsylvania and Ohio is also absolutely incredible. Eighty percent of our gross domestic product in Ohio was from manufacturing. We are down under 50 percent now. But we are a manufacturing state. So I think it is coming back, and it is really becoming very encouraging.

Mr. THOMPSON. So to take that one step further, in your opinion, let us take it right down to the individual citizen, people that live in every city, every borough, every township, how would they benefit from that?

Mr. POUNDS. The American Chemistry Council economic study that I referenced, and I believe the Committee has it in their possession, talks about the job creation just in the chemical industry-related piece of this of about 17,000 jobs, roughly 2,500 of those directly working in new chemical facilities or expanded facilities here, then another 6,000 or so that are going to be created because of the support structure, transportation, engineering, consulting, buying materials and supplies for the facilities, and then the induced effect which is when the folks that get those first round of jobs go out and spend money, you need government services, all that sort of thing. You get up to a number around 17,000.

That is a pretty standard model that economists use, and I think it is pretty representative of what you can expect here. That is just related to the chemical industry. Other manufacturing, certainly I think you are going to see it come on along here. I have heard a lot of discussion about, particularly with the drilling site, those

people aren't going to be permanent here. Well, that may be because they do have some special expertise in things. But the other jobs that are going to be created in the chemical industry, downstream from that, are going to be permanent jobs. I think it is going to be a tremendous increase.

One of the issues we have in the chemical industry right now is job preparedness. Do we have the folks ready to work in the expanded chemical industry. Even the basic entry level chemical operator jobs require a pretty sophisticated educational background, not college, but we need to have people with good math skills, understand physics, chemistry, mechanical systems. So there is going to be much, much better kinds of jobs available to our citizens than there have been in the past.

Mr. THOMPSON. I chair the Congressional Career and Technical Education Caucus with Mr. Langdon from Rhode Island, and I couldn't agree more, the opportunities that are exciting for folks through career and technical education.

Thank you, Chairman.

Mr. LAMBORN. Thank you.

For our second round of questions, thank you for your patience, for your earlier testimony.

Mr. Stewart, there has been some concern expressed over groundwater and could it be contaminated during the drilling process or by the water that was used in the well after it is disposed of later. Can you address those concerns from your perspective?

Mr. STEWART. The key to protecting groundwater resources is called casing in cement. You asked me earlier what steps you have to go through in the regulatory process in the State of Ohio. When you apply for a permit, you must put together a casing program that is then approved through the permitting process.

The casing program is specifically designed to protect groundwater resources. It is called the initial strain, which is called surface casing, which is set through the groundwater resources and then cemented. So even if there were contaminants, as was suggested earlier, from other resources like coal mining, they couldn't reach the surface casing. And it is even further protected by the initial strain. So the entire construction of the well is critical to the process.

Where there have been problems with oil and gas development, almost always it is related to well, construction issues. So the State of Ohio and other states that have this activity are in a constant search about how to improve the regulatory structure specifically as it relates to well construction.

Mr. LAMBORN. Thank you. Now, what about the disposal of water afterwards?

Mr. STEWART. That is a very good question.

Mr. LAMBORN. After it is used in the fracking process.

Mr. STEWART. That is regulated underneath a process set up underneath the Safe Drinking Water Act called the Underground Injection Control Program. The best and most preferred method for managing low toxicity, high volume waste, which is produced water from formations, is to put it down a Class II well, otherwise put it in the same formation it came from or deeper.

Often under the Class II program set up by USEPA, the states gain primacy that delegated authority on behalf of USEPA to do that on their behalf and the states'. That is the case in the State of Ohio. Since the early 1980s, the Ohio DNR, the agency run by Rick Simmers, has set up a program for UIC Class II injection. In 1985 it was actually the law of State of Ohio.

It was enacted at that time that all produced water must be disposed of down a Class II well at standards exceeding the Safe Drinking Water Act, Federal landmark law. And since that time, there has been a system of Class II wells built up and down eastern Ohio to manage Class II just specifically from oil and gas wells taking on average 7 to 8 million barrels of produced water every year.

Mr. LAMBORN. So the water that comes out of the well is put back into another well?

Mr. STEWART. It is put down into a well specifically constructed to the standards of the Safe Drinking Water Act specifically designed to manage that waste stream and put back into the formation it came from or deeper.

Mr. LAMBORN. Now, I have just seen a little bit of the proposed BLM regulations that have only come out several weeks ago, and I am still studying those. But I am concerned that it adds another layer of sometimes contradictory regulation on top of the current state regulation.

What could that do to the economy that we are talking about was in the doldrums previously that now is coming back strong if we add that second layer of regulation and it—well, I have concerns. But tell me if those concerns are well founded or not.

Mr. STEWART. That is a good question, Mr. Chairman. The draft that I have seen—I understand that there is no official rule promulgation or anything out for official comment. But I have seen a draft just this past week. My read on it is that they are trying to duplicate what is already been done with Frack Focus, a program set up underneath the Groundwater Protection Council in coordination with the Interstate Oil and Gas Compact Commission. So we have a Federal agency trying to duplicate what is already been done with excellence, which is also supported by industry, and many of the states' regulatory agencies are lining up behind it as well.

The other troubling point that I saw in it was that it also set up a duplicative reporting system where you not only report what you actually use, but try to predict what you would use, and it is very hard to do that, because you are never going to know exactly how you are going to stimulate a well until you expose the formation, have done electric logging on it, evaluate the formation potential, thickness, geology, rock characteristics, rock mechanics, to better understand how you are going to stimulate this well the most effective way possible.

Mr. LAMBORN. There are different formulas and processes of putting it under pressure that are used in each well?

Mr. STEWART. Oh, absolutely. Hydraulically fracturing the well is a function of petroleum engineering that is highly engineered to get exactly what you want to do.

Mr. LAMBORN. So each well is unique?

Mr. STEWART. Absolutely.

Mr. LAMBORN. Different from the next well?

Mr. STEWART. Even from the well that was drilled half a mile away it can be very much unique.

Mr. LAMBORN. So if the feds come in and say we want to know every time you make a change, that could just cripple the new well production?

Mr. STEWART. What I read in the draft was that they are trying to get you to predict what you would use. And what I am testifying to, sir, is that that is very difficult to do, and in the end what you predict will more than likely not be what you actually use.

Mr. LAMBORN. So at the end you go back to them every time you make even a minor change?

Mr. STEWART. You create a bureaucratic system that doesn't work.

Mr. LAMBORN. That would just tie up production astronomically.

Mr. STEWART. I admire the forestry department for going back and looking at their environmental assessment. Surface impacts from pad drilling are different from the type of drilling that has taken place in the Wayne National Forest over time. There are thousands of wells in the Wayne National Forest. I think they should look at the environmental impacts. But I don't think that to put layering on of new regulation that is already being effectively done by the states underneath delegation from the Federal landmark laws and which has been proven by a peer-critiqued review process is going to be very effective.

Mr. LAMBORN. Thank you.

Mr. Johnson.

Mr. JOHNSON OF OHIO. Thank you, Mr. Chairman.

Back to that cracker plant, Mr. Pounds, is it safe to say that if state legislators that might be in opposition to hydraulic fracturing or the Federal bureaucrats are successful in getting a moratorium on hydraulic fracturing, do you think that cracker plant will come to Ohio or the Appalachia region?

Mr. POUNDS. Representative, I really can't answer that. That is a decision that is made at the corporate level of Shell. That is way, way beyond my ability to understand. But I would say that if there is a moratorium on fracking, I think we will have lost a once in a lifetime opportunity to really address more critically for the country our energy issue and, secondarily and most importantly, the chemical industry, our basic ability to be competitive in our chemical manufacturing and then derivatively through the entire manufacturing in the United States.

Mr. JOHNSON OF OHIO. I appreciate that.

Mr. Stewart, you sit on the board of STRONGER, an organization consisting of state regulators, industry officials like yourself, and environmentalists that look and evaluate states' oil and gas regulations.

Can you tell the Subcommittee today how Ohio's oil and gas regulations stack up against other states'?

Mr. STEWART. Mr. Johnson, the State of Ohio has gone through three reviews underneath the state review process, '95, '05 and then 2010. In the '95 report they found regulatory gaps, suggested ways to improve, and from that came the very first what is called

RBDMS database system in which the public has vast new access to resources going on with oil and gas activity and the regulation from them.

In 2005 following House Bill 278, there was another review that found the program to be well managed and functioned. In 2010 the report just specifically focused in on hydraulic fracturing and well construction issues. And that is when, as I testified, they said the program is well managed, professional, meeting its program objectives, and they have a lot to be proud about how they do the job.

So the collaborative group of stakeholders representing parties that usually seem to make war on each other come together in a corral called the guidelines, which are the national set of guidelines itemizing elements necessary for good state regulatory program, they come together with their partners at USEPA and DOE and actually try to find ways to improve the situation instead of using it for political reasons.

Mr. JOHNSON OF OHIO. In your opinion, what would happen to the oil and gas industry in Ohio if the Bureau of Land Management's proposed rulemaking and regulating hydraulic fracturing for Federal lands is copied by the Federal EPA to regulate oil and gas development using hydraulic fracturing on private lands?

Mr. STEWART. Mr. Johnson, I think it would be very difficult for them to overlay a regulatory system that has already been delegated down to the states. There is this threat that EPA will step into an area that they have never stepped into it as it relates to all of the states. Even EPA will tell you that in order to manage—we mentioned before 1.2 million wells have been hydraulically fractured over time here in the United States—it would be very difficult for them to effectively step in and manage that on behalf of the state.

There are 36,000 wells drilled in this country every year. So what would happen, you would have a permitting morass that would stop oil and gas development in the United States, and the price of oil and gas would skyrocket, and Jack's members would go back to the foreign countries that they were forced to go to in the first place.

Mr. JOHNSON OF OHIO. Thank you.

Ms. Papai, you stated a quote. There was one individual in there I believe—I can't remember which one it was, but he said we can't protect our water supply.

Ms. PAPAI. The Mayor is concerned about protecting the water supply, yes.

Mr. JOHNSON OF OHIO. His exact quote was what? He said we can't protect our water supply, right?

Ms. PAPAI. He said, quote, "Our city's water supply, economy, safety, and public health will all be severely harmed by the sales."

Mr. JOHNSON OF OHIO. What science went into that? What analysis was done to lead him to that assertion, do you know?

Ms. PAPAI. He gets his research and where——

Mr. JOHNSON OF OHIO. You are on the city council?

Ms. PAPAI. I absolutely am.

Mr. JOHNSON OF OHIO. Have you engaged with the state Department of Natural Resources? Have you looked at their regulatory process and have you met with members?

Ms. PAPAI. I have been doing that most recently and also at the ODNR and Ohio Revised Code that we have to follow, and there are many deficiencies. There are, dare I say loopholes, but situations for regulation. That is my largest concern, is the regulatory aspect of it. I have visited fracking sites. I have been to areas.

Mr. JOHNSON OF OHIO. You stated in your testimony that there is one in Pennsylvania, I believe you said, where you cited an example where fracking had——

Ms. PAPAI. A study that had been done.

Mr. JOHNSON OF OHIO.—contaminated drinking water. Is that what you said?

Ms. PAPAI. Yes.

Mr. JOHNSON OF OHIO. You know that for certain? Have you told the EPA about that? Because Lisa Jackson is looking for one. Have you notified the EPA that you have one?

Ms. PAPAI. Well, there is the Pavilion Study that is out there.

Mr. JOHNSON OF OHIO. I would encourage you to write a letter as soon as we are done here, because the Federal EPA is looking for one. So if you have an example of one, I would encourage you to do that.

Ms. PAPAI. No problem.

Mr. JOHNSON OF OHIO. Thank you, Mr. Chairman. I yield back.

Mr. LAMBORN. And to Pennsylvania, Mr. Thompson.

Ms. PAPAI. Go ahead, Mr. Thompson.

[Laughter.]

Mr. THOMPSON. Thank you. Thank you, Chairman.

Ms. PAPAI. The Keystone state.

Mr. THOMPSON. There you go, that is right, Keystone state.

Mr. Taylor, first of all, as a proud dad of both a son and a daughter-in-law in the United States Army, thanks for what your union does, working on the partnership both of training programs that we have all supported and of putting our—they are not all young people. I do not want to say minor young people, but there are many heros of many different ages serving, that when they are done with that service, that they have a place of great training that they can come to. So I appreciate that.

Mr. Taylor, how important are energy costs to the employers, the manufacturers, where your workers work? What kind of role does energy cost play for those job providers?

Mr. TAYLOR. I can say that it is a big part of their budget when they go to bid a project. Up in the audience here, to answer that better, is Bill Cornell from McCarl's. He is vice-president of operation construction. And he can tell you the cost factors and the breakdown of it. Since I represent the labor side, we have our goals in training and then in capabilities of the manpower. But I can tell you that when we sit down to discuss—we have within our organization a great labor/management group. When we sit down, we talk about the situations within our industry, the pitfalls, the positives. We try to work together on them. And that is a constant conversation, is the outside, not just the wages, but all the expenditures that goes into a project for a bid to make a profit for a business.

Mr. THOMPSON. We have had a time just 3, 4 years ago that natural gas was $13, $14 a thousand cubic feet. It is $2.40 today. So let us go back in time when the natural gas, we had to rely on

other countries for some of it. Is it fair to say that when energy costs are high, it is crushing to jobs here in Ohio?

Mr. TAYLOR. Yes, very much so.

Mr. THOMPSON. Thank you.

Mr. Stewart, I talked in my opening comments natural gas needs to be pursued. It is an opportunity to seize, but the responsibility falls on all of us to do that and certainly to protect the public interest and protect both the health of people, citizens and environment. So in your opinion, why are states best suited to accomplish that mission versus the Federal Government?

Mr. STEWART. EPA's regulatory report in 1988 to the U.S. Congress as it related to regulation, Subtitle C of the Resource Conservation Recovery Act, EPA recommended to Congress and then Congress further adopted specific treatment to oil and gas that recognized that because of the unique geologic, geographical, population, industry characteristics that changed from state to state, that it is the states, therefore, that are the best regulators for this industry. And that philosophy has generally carried through under treatment underneath Clean Water Act, Safe Drinking Water Act, Clean Air Act, where they delegate that authority down because the states know their individual specifics better.

That is another way of saying that Pennsylvania and Ohio really are not alike. There is a reason the river runs through it. We are all different from Texas. And Texas is different from California, thank God, and we are all different from Alaska.

Mr. THOMPSON. I thought we put that river there just to stop immigration.

[Laughter.]

Mr. STEWART. Actually it was geology.

Mr. THOMPSON. Oh, it was geology. A follow-up to that then, and you really started to address that, why would a Federal law or frankly Federal primacy over regulation of oil and gas be virtually impossible to implement?

Mr. STEWART. At the Federal level, sir?

Mr. THOMPSON. Yes, sir.

Mr. STEWART. Because there is so much activity happening in each of the individual states that Federal command and control run off of Constitution Avenue there in downtown D.C. would not be able to keep up and manage all the different permits. There are 144,000 UIC wells operating in the United States to manage, produce waters from among the 33 producing states. Managing permitting obligations just for that one small sector of the industry would overwhelm USEPA, and they know it.

Mr. THOMPSON. I have a couple questions I want to ask. Some of the folks that were here and left, these are some of the claims I hear. Number one, that hydrofracking in particular is something that is new, that we are experimenting on the citizens. Can you address that?

Mr. STEWART. There is nothing new about hydraulic fracturing. The way my father did his first frack job in 1953 is the exact same principle, the frack jobs I did during my career and are being performed today in the oil and gas industry. It is simply a matter of taking a hydraulic medium, fresh water, applying it against the reservoir rock and at a certain pressure you induce a fracture in

the rock creating a pathway for the oil and gas to more efficiently come into the wellbore. It is exactly the same process.

We talked about it earlier today, and I think it was maybe you that mentioned it, the difference is horizontally drilling laterals. And you said it I think, sir, that you could drill like 25 vertical wells and come close to achieving the same—you said it, Mr. Chairman—you can achieve the same process or you can do it very efficiently by going down, making a lateral, drilling out 6,000 feet, exposing 6,000 feet of the reservoir rock to the wellbore and creating, in effect, 25 or 30 wells inside one wellbore. That is the only difference.

Now the rock doesn't know whether you are going horizontally or vertically. It has no idea.

Mr. THOMPSON. If the Chairman will bear with me, just one other, because these are views that folks have, and I think it is important to have this debate.

I also hear the claim that why are we doing this when frankly it had been 152 years since we drilled that first well. So in 152 years we have essentially exhausted all the oil and natural gas that is available. That is why we have to move to a green alternative immediately. I want to get your response to that. That is a claim I hear.

Mr. LAMBORN. Then we have to wrap up.

Mr. STEWART. Mr. Thompson, we are changing that. We are producing so much natural gas in this country that it is treated at severe discount to historic values. There is so much crude oil that is being produced in the Bakken shale that despite what everybody thinks is a high priced crude oil, it is traded at a $15 to $17 discount compared to world oil prices.

The United States is always ranked in the top five in oil and crude oil production and ranked, I think, in the top ten in oil and gas reserves. What we have done is used technology to unlock the key to where the bore was actually fed all of the 150 years. We are in a new era.

Mr. LAMBORN. OK. Thank you for your responses. I wish we had more time to ask questions of this panel, but we have a schedule to keep. Thank you for being here.

I would like to now welcome and invite forward Mr. Ed Looman, Executive Director of Progress Alliance; Mr. Dennis Heller, President and CEO of Stephenson Equipment, Inc. and with Associated Equipment Distributors; Dr. Robert Chase, Chairman and Professor of the Department of Petroleum Engineering of Marietta College; Ms. Christine Hughes, Owner of Village Bakery and Cafe, Della Zona Restaurant, Catalyst Cafe Bakery—I hope you brought some samples today—and Mr. Nathan Johnson, Staff Attorney at the Buckeye Forest Council.

Like all of our witnesses, your written testimony will appear in full in the hearing record, so I ask that you keep your oral statements to 5 minutes as outlined in our invitation letter to you and under Committee Rules. The timing lights are green at first. After 4 minutes they turn yellow, and then after 5 minutes they turn red.

So we will now go down the line. Thank you all for me being here and giving us your valuable time.

Mr. Looman?

**STATEMENT OF ED LOOMAN, EXECUTIVE DIRECTOR, PROGRESS ALLIANCE**

Mr. LOOMAN. Thank you, Mr. Chairman, Congressmen, welcome to Jefferson County. Eastern Ohio is quickly becoming a national hub for continued growth and development of the shale industry. Recent studies have indicated the Utica and Marcellus shale industry could help create and support more than 200,000 jobs from now until 2015 in Ohio. We could experience an overall wage and personal income boost of $12 million by 2015.

Additionally, royalty payments to landowners, schools, businesses and communities could increase to as much as $1.6 billion by 2015. Total tax revenues expected to rise from now until 2015 and reach roughly $479 billion. Industry expenditures related to Utica shale alone development could generate approximately $12.3 billion in gross state product and result in the statewide output of sales of more than $23 billion.

I believe this data speaks directly to the name of today's hearing, creating jobs and community growth. This area of Ohio has been given great geological gifts, and the economic potential is tremendous. The area you are visiting today has a very rich history. It once was a sprawling steel making area, also benefited from years of activity related to the mining of coal. Since the well documented struggles of the steel industry began, this area and its hard working people have suffered. Thousands of good paying jobs that we once had have now disappeared.

Thus the shale industry represents a major, major opportunity for Jefferson County and other counties in eastern Ohio. Some have labeled it as a once in a century opportunity. Jobs expected to be created will impact generations to come with new employment opportunities. Already thanks to the shale industry, we have seen a new wealth created in this area thanks to royalty payments. Local unemployment rate has fallen nearly 2 percent from 2010 to 2011, again thanks to these new employment opportunities.

Progress Alliance, I would point out, is the public/private economic development organization serving Jefferson County. We are, I am very proud to say, a true public private partnership. Our funding comes from both government and private business. The mission of Progress Alliance is three-fold in nature, attract new jobs in Jefferson County, work with those outstanding companies we have to keep them here and help them grow, and market Jefferson County as a great place to live, work and place.

In recent months the activity level at Progress Alliance has hit record level. We either have or are working with more than 35 companies looking to move here as part of the shale experience. Each prospect tells us the same thing, companies want to support existing local businesses and hire local workers.

We are experiencing a time like never before. Attraction efforts for us have taken on a whole new meaning. Generally speaking, we had to go out and beat the bushes and now the bushes are beating us. And we love that kind of mode of operation. Job creating prospects are stopping by our office on a regular basis unexpectedly

looking for land, looking for a building to establish operations and looking for opportunities to hire local workers.

One of the other things you need to understand is that Jefferson County has taken many steps to prepare itself for what lies ahead. Our county commissioners have formed an oil and gas committee designed to address issues related to communications and education. Eastern Gateway College that you are visiting today is providing training for our workforce. A community action commission has developed informational workshops designed to prepare local workers for opportunities in the shale industry.

We are also working to improve our services including possible extension of the runway at our Jefferson County Air Park to support additional corporate traffic along with the installation of an automated weather observation system.

My goal today would be to help you understand that the shale industry represents a major opportunity for this area of Ohio. It is an opportunity for us to recover, an opportunity for us to move forward. This energy opportunity does indeed represent an opportunity to create thousands of jobs and allow this community and others in shale play to grow. Those of us living inside this play and those living outside all must understand that we have a huge opportunity here and one that we cannot let slip away.

To not totally pursue the opportunity together, to overregulate this opportunity and to miss this opportunity would be a major mistake on all of our parts. Thank you very much.

[The prepared statement of Mr. Looman follows:]

**Statement of Ed Looman, Executive Director, Progress Alliance**

Eastern Ohio is quickly becoming a national hub for the continued growth and development of the shale industry.

Recent studies have indicated the Utica and Marcellus shale industry could help create and support more than 200,000 jobs from now until 2015. Ohio could experience an overall wage and personal income boost of $12 billion by 2015 from industry spending.

Additionally, royalty payments to landowners, schools, business and communities could increase to as much as $1.6 billion by 2015. Total tax revenue from oil and gas exploration and development in the Utica shale formation from now until 2015 is projected to be roughly $479 billion. Industry expenditures related to Utica shale development could generate approximately $12.3 billion in gross state product and result in a statewide output or sales of more than $23 billion.

The data speaks directly to the name of this hearing: creating jobs and community growth." This area of Ohio has been given great geological gifts and the economic potential is tremendous.

The area you are visiting today has a very rich history. It once was a strong steelmaking area. It also benefitted from years of activating related to the mining of coal. Since the well-documented struggles of the steel industry began, this area and its hard-working people have suffered. The thousands of good-paying jobs that once were available have disappeared.

Thus, the shale industry represents a major opportunity for Jefferson and surrounding counties. Some have labeled it "a once in a century opportunity." The jobs expected to be created will impact generations of local residents.

Already, thanks to the shale industry, we have seen new wealth created in our area thanks to royalty payments. The local unemployment rate fell nearly 2 percent from 2010 to 2011 thanks to new employment opportunities.

Progress Alliance, I would point out, is the public-private economic development organization serving Jefferson County. We are, I am proud to say, a true public-private partnership. Our funding comes from both government and private businesses. The mission of Progress Alliance is three-fold in nature: attract new jobs to Jefferson County, work to retain those already here and provide assistance when existing companies look to expand; and market Jefferson County as a great place to live, work and play.

In recent months, the activity level for the Progress Alliance staff has hit a record level. We either have or are working with more than 35 companies looking to move here as part of the shale experience. Each prospect tell us the same thing: the company wants to support existing local businesses and hire local workers.

We are experiencing a time like never before. Job-creating prospects are stopping by on a regular basis, looking for land or a building to establish a local operation.

You also need to understand that Jefferson County has taken many steps to prepare itself for what lies ahead. Our county commissioners have formed an oil and gas committee designed to address issues related to communication and education. Eastern Gateway Community College is providing training to our workforce. Our Community Action Commission has developed informational workshops designed to prepare potential workers.

Also, the county is working to improve its service, including the possible extension of the runway at the Jefferson County Airpark and the installation of an Automated Weather Observation System.

My goal today is help you understand that the shale industry represents a major opportunity to help this area of Ohio recover and move forward. Truly, this new energy opportunity does indeed represent an opportunity to create jobs and allow communities to grow.

Those of living inside this play and those outside all must understand the opportunity we have. To not totally pursue this opportunity together, to over-regulate this opportunity and to miss this opportunity would be a major, major mistake.

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Mr. LAMBORN. Thank you.

Mr. Heller?

**STATEMENT OF DENNIS HELLER, PRESIDENT/CEO, STEPHENSON EQUIPMENT, INC.**

Mr. HELLER. Good morning, Chairman and Distinguished Members of this Subcommittee.

It is certainly my pleasure to be here with you both as President and CEO of Stephenson Equipment. We are a company that sells and rents construction equipment in Pennsylvania and New York. We are also as a member of the Associated Equipment Distributors board of directors.

First I am going to discuss how my company has benefited from shale energy and the impact that this is having on our industry and the need for the Federal Government to stay out of this growing segment. Shale energy has had tremendous growth potential at our company over the last two years. In fact, nearly ten percent of my company's 120 employees have positions directly attributable to the Marcellus shale.

The energy companies that are coming into the state have invested millions of dollars on roads, road improvement to move the sand, water, pipe and materials to and from job sites. As a result, they are renting equipment from Stephenson Equipment.

The next growth segment we have seen is in crane sales. We are a large dealer of mobile cranes, and we provide sales, rentals and operator training. An example of that is a crane that is mounted on a ten-wheel Peterbilt. It is a highly mobile crane. It sells for about a half a million dollars. We also sell those. We provide parts and service business for these, and it has provided tremendous opportunity for my employees.

In 2009 as an example, we would have purchased 17 cranes for sale and rent. Last year we purchased 55. Again, taking the ticket price, this is a lot of dollars. To give you a true idea of the economic impact on our company, we just need to look at the numbers. In 2010, our revenues were $61.4 million. Last year we were over $73

million. This growth came from one area, and that is simple: Marcellus shale.

Stephenson Equipment is not unique to this. In preparation for this hearing, AED conducted a survey among equipment dealers in Ohio and Pennsylvania that have play in the energy segment. Fifteen of the companies surveyed employ more than 3,000 workers. Fourteen of those companies said some portion of their 2011 revenue was directly or indirectly attributable to the Marcellus shale. In aggregate, the increase among those companies was $356 million for a total of $25 million average increase per company.

Mr. LAMBORN. Wow.

Mr. HELLER. Several of the companies said that last year was a record year for them, and that is a stark difference from our dealers in other areas of the country that do not have Marcellus or energy play. They are still in a recession or depression. Past economic data indicates that for every dollar spent on construction equipment generates $3.19 economic benefit to the economy. Thus the 2011 shale energy-related revenues equal about $1.135 billion.

As might be expected, the equipment market is creating and sustaining many jobs. Most respondents to the survey said about 25 percent of their employment was a direct result of the Marcellus business, and that currently was about 574 estimated jobs. The Marcellus business hits every dealer level. It doesn't matter what type of dealer. We happen to be crane and road equipment, but you could be selling skid loaders, earth moving equipment or gloves. You are affected by this industry.

So it is a very far-reaching business, and it has been very good for our operation in Pennsylvania. And it is not surprising that equipment dealers in both Pennsylvania and Ohio overwhelmingly believe that Marcellus shale has the potential to be an economic game changer in their future.

Comments from the survey respondents specifically on energy and the development of their companies, the industry, the local economy can be found in my written testimony. They paint a dramatic picture and are worth reading.

In conclusion, Mr. Chairman, medium sized companies like mine are seeing unprecedented growth. We believe policymakers must protect public health, safety and the environment while allowing the shale industry to grow and prosper. Furthermore, bureaucrats in Washington must refrain from regulating this industry from their desk and allow the state governments to measure the benefits and impacts of shale energy development. I appreciate any questions. Thank you for the opportunity to speak.

[The prepared statement of Mr. Heller follows:]

**Statement of Dennis Heller, President and Chief Executive Officer, Stephenson Equipment, Inc., Harrisburg, Pennsylvania, on Behalf of Associated Equipment Distributors**

Chairman Lamborn, Ranking Member Holt, and other distinguished members of this subcommittee, my name is Dennis Heller, and it is my pleasure to appear before you today both as a small business owner, directly impacted by energy shale development, and in my capacity as a member of Associated Equipment Distributors (AED) Board of Directors.

I am the president and chief executive officer of Stephenson Equipment, a company that sells and rents construction equipment and provides crane service, parts,

and operator training at seven locations in Pennsylvania and New York. Stephenson Equipment has 120 employees.

AED is the trade association representing distributors of construction, mining, energy, forestry, industrial, and agricultural equipment. AED has more than 500 members, the overwhelming majority of which are small businesses. AED's average member achieves about $40 million per year in revenues and employs 80 people.

I appreciate the opportunity to come before the Committee to discuss how my company is benefiting from shale energy extraction, the positive impact on the construction equipment industry, the impact on the broader economy, and guiding principles for policymaking in this area.

**Impact of Shale Energy Development on Stephenson Equipment**

Shale energy extraction has resulted in exponential business growth at Stephenson Equipment over the last two years. In fact, nearly 10 percent of my company's 120 employees have positions directly attributable to Marcellus Shale energy development.

Stephenson has benefitted on several fronts. Energy companies have invested substantial resources in building and expanding roads and highways for hauling sand, water, pipes, and other materials to and from the Marcellus Shale. Backhoes, pavers, and rollers are working across northern Pennsylvania providing the infrastructure needed to transport materials and workers to fracking sites. Additionally, Stephenson's rentals, part sales, and service calls have grown substantially.

Perhaps the largest growth is evident in crane sales. Stephenson Equipment offers a complete line of cranes and operator training. One of the hottest sellers is a crane mounted on a 10-wheel Peterbilt truck that is one of the core products used at fracking sites to handle pipe, coiling, and rig erection. These sell for over $500,000 apiece. The sale and rental of these cranes, combined with the parts and services business, has been a boon for my company and its employees. In 2009, we purchased 17 cranes for sale and rental and two years later, we purchased 55 cranes for sale and rental. The reason for the jump in sales is simple—the Marcellus Shale.

To give you an idea of the true economic impact of energy shale development on Stephenson Equipment, we just need to look at the numbers. In 2010, my company's revenues were $61.4 million. The following year, we saw a 16 percent increase in revenues to $73 million. Furthermore, my Pennsylvania locations generate more revenue and are more profitable than my New York locations because of shale energy extraction.

**Shale Energy's Impact on the Construction Equipment Industry**

Stephenson Equipment is not unique in having been positively impacted by the shale energy boom in the region. In preparation for this hearing, AED conducted a survey of its members in Ohio and Pennsylvania with operations in the Marcellus and Utica shale regions. The results provide a compelling snapshot of the impact that shale energy development is having on the equipment industry. Note however that the results discussed below only capture the impact on companies that participated in the survey and AED has not sought to project results across its broader membership.

Fifteen equipment companies with combined employment of 3,176 workers responded to AED's online survey, which was conducted between Feb. 17 and Feb. 22. Fourteen companies (93 percent of respondents) said some portion of their 2011 revenues was directly or indirectly derived from shale energy development. The total aggregate revenue from that activity for all respondents in 2011 was $356 million. The average shale energy-related revenue was $25.4 million per company. Anecdotally, several responding companies reported that 2011 was a record year in an industry that is still in a depression in other parts of the country where shale energy is not a market factor.

A 2008 economic study by Professor Stephen Fuller at George Mason University in Fairfax, Virginia estimated that, "[e]very dollar of direct spending for the purchase of heavy construction equipment generates a total of $3.19 in economic impact—one dollar of direct spending and $2.19 in indirect and induced economic activity from the re-spending in other sectors of the national economy of monies paid to equipment distributors." Thus, AED estimates the total economic impact of the aggregate revenues from shale energy activity reported by Pennsylvania and Ohio survey respondents at $1.135 billion.

As might be expected, the equipment market activity is creating and sustaining many jobs. Survey respondents directly or indirectly supporting the shale energy industry report that an average of 24.7 percent of their workforce in Ohio and/or Pennsylvania is attributable to that activity. AED calculates that shale energy is

supporting 574 jobs at the equipment distribution companies that responded to the survey.

According to survey participants, the shale energy industry and businesses that support it are utilizing the full range of equipment AED members sell, rent, lease, and service. Every segment of the dealer universe is being touched by shale energy; distributors who specialize in small equipment, such as skid steer loaders, and in specialty products are just as likely to benefit as dealers who sell heavy earthmoving equipment.

Not surprisingly, equipment distributors in Ohio and Pennsylvania overwhelmingly believe that the shale energy sector has the potential to be an economic game changer for the industry. Eighty-seven percent of survey respondents said that if the shale energy sector continues to grow, it will have a significant and positive impact on their companies, allowing them to expand and add new workers. Thirteen percent said they expect the shale energy sector to have some impact but that it would not be a significant factor in their future success. It is notable that not a single respondent said they did not expect shale energy to have at least some positive impact on their company in the years ahead.

In addition to providing objective data, Pennsylvania and Ohio construction equipment distributors responding to the survey made the following comments about the impact of shale energy development on their companies, the industry, and the economy as a whole:

- "In 2011 alone our company hired 100 new people to serve this market which we have only been involved with for two and half years."
- "[Shale energy development has led to] the only growth of new jobs in western Pennsylvania since steel and other mills left in the 80's."
- "The shale gas industry has created many new job positions and will continue new jobs as we grow this segment. The contractors performing the work have been very responsible and very good to the local economy and Pennsylvania businesses. We are pleased with the care [with which] they manage job site safety, security and concern to protect the environment. Based on the shale market, we see future growth for our company combined with our suppliers."
- "[Our company] conducts business in the eastern Pennsylvania areas. To date we have not directly felt the shale energy impact although we feel strongly that if allowed to continue and/or to expand, either a direct impact or strong positive indirect impact will be felt by our company by way of rentals or sale of equipment."
- "We are seeing activity from the people getting royalty checks, the drilling companies and their contractors. The bigger potential long term impact is on people supporting those activities in hotels, restaurants, housing and other related businesses. We expect this to continue to grow IF the political environment allows that to happen."
- "If shale energy exploration is allowed to progress, the only unemployment we should see in Pennsylvania or Ohio will be those who do not want to work. Besides the temporary jobs created from drilling and pipeline work, permanent jobs will be created from proposed cracker plants and refineries. Safe exploration practices should be emphasized, but not at the expense of progress."
- "The shale energy sector is having a profound effect on my company. We are currently reorganizing our internal structure and facilities to accommodate the projected increase in business. After what our business has been through over the past several years in this challenged economy, Marcellus Shale is a needed shot in the arm. In addition to projected revenues of $1.5 million in 2012 from the shale sector, we are currently projecting capital expenditures for tooling and equipment in excess of $1 million in order to position our company for future years in the Marcellus Shale play areas. The road to Marcellus Shale is paved with gold for all involved if our leaders do not get in the way!"
- "While driving demand for some of our products upward, it is also affecting the availability of skilled service technicians and mechanics. While such a scarcity is a negative in the short run, in the long term it increases the need for skilled workers and drives both employment and wages."
- "The developing shale gas opportunity in Ohio and Pennsylvania is increasing business activity and demand for construction products in all facets of our business—parts, service and sales. This positive impact will continue with direct benefits as long as well-sites and pipelines are constructed, and with continuing indirect benefits from the economic prosperity that results in infrastructure and commercial growth."
- "We have been anticipating an increase in our shale play related business for about nine months, and this business began growing for us in the fourth

quarter of 2011. Over the next three to five years, we expect this business to grow exponentially, and we expect the business to be very demanding and very profitable. We have now dedicated two individuals full-time to manage old and new customer relationships, and we are developing expectations, procedures and systems internally to support this growing business segment. Much of the business will be rental, though we have sales opportunities associated with [original equipment manufacturers] that are providing equipment to the firms who are focusing on the shale play. Servicing the customer is our #1 priority, on their terms, which are different and/or more demanding than the average customer's. Risks do exist for us in this business, pertaining to how much inventory and how many personnel we dedicate to this business. Overall, we are thankful to see this business opportunity in Ohio, and we are hopeful that excessive regulation doesn't choke it off before we and the State of Ohio capitalize on the opportunities."

**The Entire U.S. Economy Benefits from Shale Energy**

The entire U.S. economy is reaping the economic benefits from energy shale development. According to an IHS Global Insight study prepared for the America's Natural Gas Alliance, the shale gas contribution to Gross Domestic Product (GDP) was more than $76 billion in 2010. Assuming Congress permits shale energy development to continue, projections show this sector increasing to $118 billion by 2015, and tripling to $231 billion in 2035.

Additionally, the shale gas industry is creating a significant number of jobs. According to the same study, in 2010, shale gas supported over 600,000 jobs, which included 148,000 direct jobs in this country, nearly 194,000 indirect jobs in supplying industries, and more than 259,000 induced jobs. Over 63,000 of these jobs were in the construction sector, one of the hardest hit by the recession.

Importantly, with all levels of government struggling to generate revenues, IHS Global Insights found that in 2010 shale gas production contributed $18.6 billion in federal, state, and local government tax and federal royalty revenues. By 2035, these receipts will more than triple to just over $57 billion. On a cumulative basis, the shale industry will generate more than $933 billion in federal, state, and local tax and royalty revenues over the next 25 years.

**The Federal Government Should Stay Out of the Way**

The economic and job creation benefits of energy shale development are clear. However, in order for the economy to reap the full reward from shale energy, the federal government must refrain from micromanaging the industry and defer to state regulators. It is AED's position that:

- Advancing technologies in horizontal drilling and hydraulic fracturing have made possible production of vast and previously unavailable reserves of natural gas and oil from shale. This has created hundreds of thousands of jobs, enhanced energy security, spurred economic growth, improved manufacturing competitiveness, and lowered the cost of energy to consumers. Public policy should facilitate and encourage continued development to the greatest extent possible.
- Other new methods of extracting oil and gas from shale should be pursued with continued aggressive research and development, and when economically viable, production.
- Balanced regulation is necessary to protect public health and the environment, while encouraging innovation and expansion in the shale energy industry.
- The benefits and impacts of shale energy development are best measured and understood at the state level. It should therefore continue to be regulated locally and not by the federal government.

**Conclusions**

The shale energy sector is flourishing and many sectors of the economy are reaping the economic benefits. The small companies that comprise the construction equipment industry, such as Stephenson Equipment, are seeing unprecedented growth directly resulting from shale energy development. However, imprudent government action could undermine the viability of this sector.

Policymakers must protect public health, safety, and the environment, while allowing the shale energy sector to continue to grow and prosper. Furthermore, bureaucrats in Washington must refrain from regulating the industry from their desks in the nation's capital and allow state governments to measure the benefits and impacts of shale energy development.

Mr. LAMBORN. OK. Thank you.
Dr. Chase?

**STATEMENT OF ROBERT CHASE, CHAIRMAN/PROFESSOR OF THE DEPARTMENT OF PETROLEUM ENGINEERING, MARIETTA COLLEGE**

Dr. CHASE. Thank you, Chairman Lamborn, Congressman Johnson, Congressman Thompson. I am honored to be asked to testify before you today regarding the impact natural gas can have on America's future.

I have been serving as the Chairman of the Department of Petroleum Engineering and Geology at Marietta College for the last 35 years. I have had close to a thousand students go through my program and take their place in industry all over the globe. My students now numbering 300, nearly 300 in the petroleum engineering program and 49 in the geology program come primarily from Ohio, Pennsylvania and West Virginia. I also have students from all around the country and the world, including Saudi Arabia, Kuwait, China and Africa.

We offer only an undergraduate program and BS degree in petroleum engineering at Marietta College, but we are the only small private liberal arts college in the Nation to offer this unique major. This year I have had over 20 companies on campus recruiting my seniors for permanent jobs and my underclassmen for summer internships. Our graduates are in high demand. The manpower demand won't stop with just engineers and geologists, however.

I have been working closely with Washington State Community College and the Washington Career Center in an effort to help them prepare curricula that will educate and train technicians and field personnel that the industry will require going forward. Several other technical colleges around the state are also preparing tracks of study for their students that will prepare them for jobs in our industry as well.

I have been teaching courses in natural gas engineering for 37 years. My Master's and Ph.D. research were focused on gas storage and producing methane from coal respectively. By the way, all three degrees are from Penn State. I have had research contracts with the Department of Energy and the Gas Research Institute in Chicago, with all of my research being focused on natural gas engineering topics.

While we knew we had vast resources of natural gas in coal and shale back in the '70s, we just did not have the technology necessary to free that resource from the very low permeability or tight reservoir rocks. The natural gas trapped into those rocks was uneconomical to recover because technology had not been developed yet to get that gas out of the rocks, but things have changed dramatically in the U.S. in just the last ten years. Advances in horizontal drilling that had been traditionally employed mainly in offshore environments and multistate fracturing have opened up vast untapped resources of natural gas and oil in shale formations like the Marcellus and Utica.

The recent study released by U.S. Energy Information Agency revised the unproved technically recoverable reserves of natural gas in the Marcellus shale down to 141 trillion cubic feet. That 42 per-

cent revision downward means that the Marcellus still has the potential to meet the nation's entire natural gas needs for the next seven years. Just 15 or so years ago the nation's total proven natural gas reserves were only 200 trillion cubic feet. We have come a long way. Now one formation alone in the back yard of Appalachia boasts the same reserves.

The Utica shale is in its infancy of development, and its recoverable reserve potential cannot be estimated with any accuracy yet, but one thing is known: Some of America's largest oil and gas companies have wagered billions of dollars and placed it in the hands of landowners. Companies have leased over 4 million acres of land in Ohio with the expectation of producing both gas and especially oil in commercial quantities. There is a lot to be said about contamination, that we hear about contamination of groundwater, and Tom Stewart addressed a number of the issues that I thought were very important. And I would just like to say a few things about that.

Along with the development of our shale resources comes the necessity to care for the environment. Thanks to movies like Gas Land that are rooted more in fiction than fact, the public has been polarized against the process of hydraulic fracturing which is an absolute necessity in the process of extracting gas and oil from tight shale formations. Over a million wells have been fracked in the U.S. since the 1940s and over 60,000 wells in Ohio alone. There are no data to substantiate the claims made in Gas Land that hydraulic fracturing contaminates groundwater.

In fact, a recent study just released by the University of Texas affirms the fact that fracking does not contaminate groundwater. In another paper published by George E. King of Apache Corporation through the Society of Petroleum Engineers, King estimates that in a worst case scenario, that the odds of a hydraulic fracture treatment in a formation less than 2,000 feet deep penetrating a fault that extends back to the surface are one in 200,000. He estimates the chance of this happening in a strata deeper than 2,000 feet being zero. Thank you.

[The prepared statement of Dr. Chase follows:]

**Statement of Dr. Robert W. Chase, Marietta College, Department of Petroleum Engineering and Geology**

Chairman Lamborn, Congressman Johnson, Congressman Thompson, guests, I am honored to be asked to testify before you today regarding the impact that natural gas can have on America's future.

I have been serving as the chair of the Department of Petroleum Engineering and Geology at Marietta College for the last 35 years. I have had close to 1,000 students go through my program and take their place in industry all over the globe. My students, now numbering nearly 300 in the petroleum engineering program and 48 in the geology program, come primarily from Ohio, Pennsylvania and West Virginia. I also have students from all around the country and the world, including Saudi Arabia, Kuwait, China, and Africa. We offer only an undergraduate program and B.S. degree in petroleum engineering at Marietta College and we are the only small, private liberal arts college in the nation to offer this unique major. This year I have had over 20 companies on campus recruiting my seniors for permanent jobs and my underclassmen for summer internships. Our graduates are in high demand.

The manpower demand won't stop with just engineers and geologists however. I have been working closely with Washington State Community College and the Washington County Career Center in an effort to help them prepare curricula that will educate and train technicians and field personnel that the industry will require going forward. Several other technical colleges around the state are also preparing

tracts of study for their students that will prepare them for jobs in our industry as well.

I have been teaching courses in natural gas engineering for 37 years. My masters and PhD research were focused on gas storage operations and producing methane from coal, respectively. I have had research contracts with the Department of Energy and the Gas Research Institute in Chicago, with all of my research being focused on natural gas engineering topics. I was, in fact, way ahead of my time with my research focused on gas production from coal seams and the Devonian shale formation back in the mid-1970's. While we knew we had vast resources of natural gas in coal and shale back in the '70's, we just did not have the technology necessary to free that resource from the very low permeability (or tight) reservoir rocks. The natural gas trapped in those rocks was uneconomical to recover because technology had not been developed to get that gas out of the rock formations.

But things have changed dramatically in the U.S. just in the last ten years. Advances in horizontal drilling that had been traditionally employed mainly in offshore environments and multi-stage fracturing have opened up vast untapped resources of natural gas and oil in shale formations such as the Marcellus and Utica-Point Pleasant shales.

A study recently released by the U.S. Energy Information Agency revised the unproved technically recoverable reserves of natural gas in the Marcellus shale down to 141 Tcf of gas. The 42% downward revision still means that the Marcellus has the potential to meet the nation's entire natural gas needs for seven years. Just fifteen or so years ago, the nation boasted total proven recoverable natural gas reserves of only 200 Tcf. Now one formation alone in the backyard of Appalachia boasts approximately the same.

The Utica shale is in its infancy of development and its recoverable reserve potential cannot yet be estimated with any accuracy, but one thing is known—some of America's largest oil and gas companies have wagered several billion dollars and placed it in the hands of landowners. Companies have leased nearly 4 million acres of land in Ohio with the expectation of producing both gas and especially oil in commercial quantities.

The relatively low current price for natural gas is obviously great for consumers, but makes it difficult for companies to justify spending $5–6 million dollars to drill and complete gas wells. Consequently, companies have focused their attention on other shale formations like the Eagle Ford, Niobrara, Bakken, and now the Utica that produce oil along with natural gas.

The nearly 4 million acres of land that have been leased in Ohio potentially represent 25,000 horizontal wells that could be drilled in the state for a total investment of nearly $125 billion over the next 20 to 25 years. It is estimated that the number of horizontal wells drilled will rise from 11 last year to over 130 this year and over 1,000 a year by 2013 if the resource potential proves true. The surge in drilling activity should result in a significant drop in the unemployment rate in Ohio thanks to the creation of good paying jobs in the petroleum industry and all areas that support it. Job growth across all sectors will likely come in between 65,000 and 200,000 by the year 2014 as estimated by recent economic impact studies supported by the Ohio Chamber of Commerce and the Ohio Oil and Gas Association Energy Education Program.

Thanks to our newfound ability to extract oil and gas from shale, U.S. and Canadian oil production is expected to grow by more than 3.1 million barrels per day (BPD), reaching 12.1 million BPD and surpassing the record of 11.2 million BPD set in 1973, according to BENTEK Energy LLC. U.S. imports of foreign oil will fall more than 40% by 2016 according to their study.

The Boone Pickens' Plan for conversion of our nation's truck fleet to natural gas along with the construction of more natural gas-burning power plants have the potential to reduce green house gas emissions significantly and take advantage of the cheapest and the second most abundant fossil fuel, next to coal, in the nation. America has the potential to reduce its imports of foreign oil even more if it institutes a plan like Pickens'. With our abundant sources of natural gas, we could even become a net energy exporter.

Along with the development of our shale resources comes the necessity to care for the environment. Thanks to movies like *Gas Land* that are rooted more in fiction than fact, the public has been polarized against the process of hydraulic fracturing which is an absolute necessity in the process of extracting gas and oil from tight shale formations. Over a million wells have been fraced in the U.S. since the late 1940's, and over 60,000 wells in Ohio alone. There are no data to substantiate the claims made in *Gas Land* that hydraulic fracturing contaminates groundwater. In fact, a recent study released by the University of Texas affirms the fact that fracing does not contaminate groundwater.

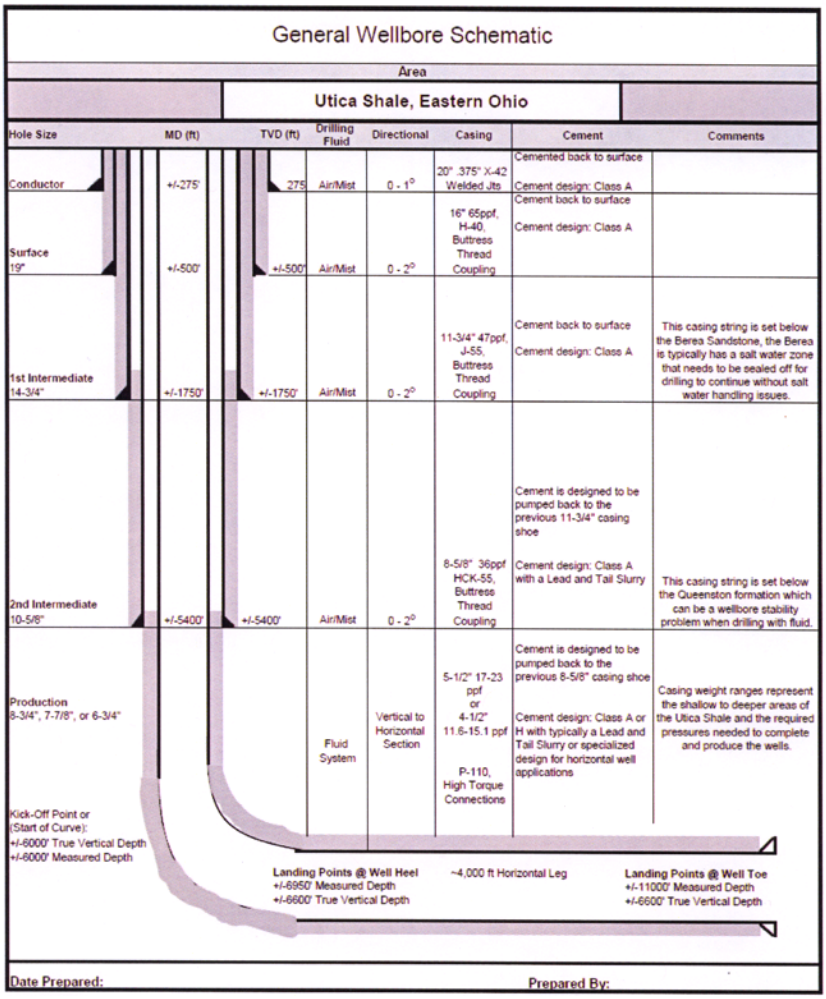
In another technical paper published by George E. King of Apache Corporation through the Society of Petroleum Engineers, King estimates, in a worst case scenario, that the odds of a hydraulic fracture treatment in a formation less than 2,000 ft deep penetrating a fault that extends back to the surface at 1 in 200,000. He estimates the chance of this happening in a stratum deeper than 2,000 feet as being zero.

The key to ensuring that there is no contamination of the ground water lies in proper well construction. Multiple strings of casing properly cemented back to the surface can and do eliminate the possibility of frac water from entering fresh water aquifers. Most, if not all, of the companies drilling wells in Ohio exceed Ohio regulations with regard to well construction and cementing practices. A typical well diagram is shown as Attachment 1 to this testimony. In the diagram, it can be seen that there are actually four strings of casing and two layers of cement protecting the fresh water aquifer. And with the depth of the wells at 6,000 to as much as 9,000 ft, the odds of an induced hydraulic fracture growing back to the surface are essentially zero.

Oil and gas companies, the Department of Natural Resources, the EPA and other related agencies must cooperate to ensure that well design, construction and cementing procedures ensure that the public water supply is protected. At the same time, the public must be informed of the actions taken by these groups to protect the water supply so that fear is not allowed to be spread by groups that believe America's energy shouldn't come from their backyard.

In the United States today we have an opportunity at hand to significantly lessen our dependence on foreign oil while growing our economy with good paying jobs. We can develop our vast oil and gas resources in the shale while simultaneously protecting the environment if all entities involved, both on the extraction side and the environmental side, work together and not in juxtaposition to each other.

Thank you again for giving me the opportunity to appear here today. I'll be happy to answer any questions you might have.




Mr. LAMBORN. OK. Thank you.
Ms. Hughes?

**STATEMENT OF CHRISTINE HUGHES, OWNER, VILLAGE BAKERY AND CAFE, DELLA ZONA RESTAURANT, CATALYST CAFE BAKERY**

Ms. HUGHES. Thank you. My name is Christine Hughes. My partner and I own three food businesses including Della Zona, which means from the region.

For ten years we have made food from locally grown ingredients to sell and feed to our staff of 25. I am concerned that shale drilling is moving into land surrounding the city because that is where our food is grown and that is where my farming friends make their living, from the land.

We buy from over 30 local food producers. At least 70 jobs are directly affected by my business. Dozens more local food producers sell at the nationally renowned Atkins Farmers Market.

Our tourism bureau created Atkins 30-Mile Meal Project to increase local food use and promote tourism. The 147 partners include farms, restaurants and farmers markets. We are a national resource for regions seeking to develop and build their local food economy. Today we have laid the foundation for our sustainable economy by creating a resilient local food system, but this year shale drilling has been escorted onto our land against our will.

In Athens County several hundreds of oil and gas leases are under contract to be drilled. We have Class II injection wells, and the volume of fracking wastewater trucked in and injected under our land will increase exponentially. Awareness is growing here about the health effects of living near shale drilling. Last month the American Lung Association stated, "We believe there is a very real and unacceptable risk that the air emissions will make people sick and shorten the lives of those living in communities where the extraction will take place." The speed and forcefulness of shale development impels us to protect ourselves.

In Athens we have conducted extensive baseline water testing results. Our chapter of Ohio Ecological Food and Farming Association passed a resolution opposing horizontal fracking. Patriotic Ohioans are asking why landowners who don't want drilling are subject to it through eminent domain by multinational companies who sell our oil and gas to other countries. No one has done a study to find out the economic impact of devastating this local food economy, taking away the livelihood of the 70 people my business relies on and shutting down the small farms that serve hundreds of people connected in this way. We don't want to lose our jobs.

Three percent of the households in my county have signed leases that will allow drilling activity on half the land in our county. None of my suppliers have signed, but many are surrounded by land that is leased.

Ohio University and all other public land is also available to drill on including Wayne National Forest. Civic leaders spoke in opposition to shale drilling being permitted in the Wayne. The risk to our water supply, community health and local economy could not be supported. The drilling company that got Athens landowners to sign was dishonest with lessors telling them they do not use chemicals to frack. Shareholders of oil and gas companies are treated with more respect and honesty than the landowners are. Shareholders are required to be told the risks of drilling while the lessor is not.

The failure to oversee drilling on public land and the absence of punitive fines for violators give us no confidence that the farmers' health and environment will be protected. Local farmers tell me about their concerns. Integration Acres raises 50 milking goats on a 30-acre pasture. Their neighbor signed a lease for fracking and is eager to host a compressive station at the far end of his property.

Lynn Scott's third generation farmers are struck with grief that their neighbors have signed. More than one local lease signer has said, "If the drilling gets bad, I can take the money and move to Florida." The family next door will live with the effects. Angie

Starline tells us "I am not interested in feeding our customers food from a contaminated industrial zone." Their investment will be lost if they must abandon their land. "We do not want to lease our land for the Utica shale" says Neil Cherry, Cherry Orchards. His neighbors have leased. "How will we be able to pass our family farm onto our children?"

Neighbors are now pitted against each other each standing by his right to earn a living from his land.

I cannot imagine a better plan to rip apart a close community than this oil and gas rush. The jobs displaced by drilling are not accounted for, not even mentioned. Sustainable small scale farm businesses already supported by the people of Southeast Ohio and our success can be duplicated across the state and country to increase our security and reduce our need for fossil fuels.

In sustainable food producing regions, the largest buyers of local food have written that they will not purchase food from land surrounded by industrial production for oil and gas. What will happen to Ohio's farmers? Who will grow our food? These farmers I work with are practical visionaries who have built a strong food economy for 40 years.

I testify today to protect my friends and our livelihoods from being destroyed. Protecting farmland from fracking is vital for a productive economy now and after fossil fuels are history. Thank you.

[The prepared statement of Ms. Hughes follows:]

**Statement of Christine T. Hughes, Owner of Village Bakery, Della Zona, and Catalyst Café**

Distinguished members of the committee:

Thank you for convening this hearing on a topic that is of urgent concern to all Ohioans. I would like to present a business perspective in the hope that it may illustrate how shale development is currently impacting my business network in Athens, Ohio.

My name is Christine Hughes. My partner and I own 3 food businesses in Athens—Village Bakery, Catalyst Café, and Della Zona—which means "from the region" in Italian. We currently have 25 employees. We make food from locally grown ingredients to sell to our neighbors, to Athens visitors, and to feed our staff. I've been concerned for some time now about the shale drilling industry moving in to land surrounding the city, because that's where our food is grown, and that's where my farming friends make their living.

I want to briefly tell you about some of the people I've done business with for more than 10 years. Some of the checks I write over the course of the week are for:

High Bottom Farm eggs,
Laurel Valley Creamery cheese,
King Family Farm poultry,
Harmony Hollow Farm pork,
Sassafras Farm spinach,
Shagbark Seed and Mill corn,
Cherry and Shews Orchards fruit,
Cantrell honey,
Shade River Farm onions,
Rich Gardens garlic,
Green Edge Gardens lettuce,
Starline Organics flour,
Snowville Creamery milk,
Sticky Pete's maple syrup,
and several other local food producers. And this is in February.

These checks represent real local businesses, most with additional employees—the larger ones have 12–15 full time employees. At least 70 jobs are directly affected by my business.

There are many dozens more local food producers at the thriving Athens Farmers Market, which is nationally known, and has a 2-year waiting list for vendors.

Some of our local producers have grown to be able to sell to Giant Eagle and Whole Foods, in larger cities including Columbus and Washington DC.

These farmers and producers raise food in a way that ensures that future generations will also be able to produce clean, healthy food. And they teach younger generations how to farm, and how to produce food for their families and communities.

Two years ago the Athens 30 Mile Meal Project began, to increase local food use and promote tourism around local food. This year there are 147 partners in the program (up 68% since August 2011) including farms, CSAs, eateries committed to local sourcing, specialty food producers, and farmers markets.

This year 30 MM will become a national resource for regions seeking to develop and build their local foods economies, promoting the region to travelers interested in experiencing our vibrant local foods experience, resulting in additional demand for hotel rooms, meals, as well as lodging tax revenues.

Together, we have laid the foundation for a sustainable economy by creating a resilient local food system. Resilient, unless, of course, a toxic, poorly regulated industry, funded by unprecedented international speculative investment is escorted into our land, against our will. Small-scale agriculture in Southeast Ohio is about to be terminated by a short-term energy "boom" that is being forced on citizens, 72 percent of whom, despite their hopefulness about economic benefits, want shale drilling stopped until further studies can be completed on it's potential impacts.

So far in Athens County there have been no wells drilled yet for this new kind of high volume, deep shale, slick water, horizontal fracturing, but several hundred oil and gas leases are under contract to be drilled, beginning this spring according to one drilling company. We do have 4 class 2 injection wells, 2 of which are actively receiving truckloads of waste water from frack jobs in PA, WV, and North of us in Ohio. One of these is just outside Athens City and close to the Hocking River. With the increase of shale drilling endorsed by our State and Federal governments, Ohio can expect to see the volume of fracking waste water trucked in and injected under our land to increase exponentially.

Awareness is growing here about the health effects of living near shale drilling operations. A statement last month from the American Lung Association regarding shale development in New York is one that should apply to Ohio as well. The statement reads in part: "We believe that there is a very real and unacceptable risk that the air emissions will make people sick and shorten the lives of those living in the communities where the extraction will take place." The speed and forcefulness of shale development has sparked a growing movement to prevent damage from drilling.

In Athens County, watershed scientists, landowners and dozens of volunteers are working together with an EPA certified lab to gather extensive baseline water testing results. Our local chapter of Ohio Ecological Food and Farming Association has unanimously passed a resolution opposing horizontal fracking because they "believe it is imperative to maintain and expand our local food economy that is energy efficient and ecologically responsible." Patriotic Ohioans are asking why local control has been stolen from us, and why landowners who don't want the drilling are subjected to it anyway through eminent domain—by multinational companies who are selling the oil and gas to other countries!

Ohioans want to work, and those who are working in our vibrant local food system don't want to lose our jobs. No one has done a study to find out the economic impact of devastating this local food economy: taking away the livelihood of the 70 people my business relies on and shutting down the small farms that serve hundreds of people connected in this web.

Shale drilling and the disposal of its waste products are an imminent threat to my livelihood and others who make a living from using our environment responsibly to feed ourselves. Three percent of the households in my county have signed leases that will allow drilling activity on over 50 percent of the land in our county. None of my suppliers have signed a lease, but many are surrounded by land that is leased. Ohio University and all other public land is also available to drill on, including Ohio's only federal forest land, which is Wayne National Forest. Civic leaders and officials, alerted by a citizen to the BLM auction at the last minute, spoke clearly in opposition to shale drilling being permitted in the Wayne, on public land, because of the risk to aquifers that supply the City of Athens. The "risk to our water supply, community health and local economy" from a practice that is "not strictly regulated and highly accountable" could not be supported by the Athens Wellhead Protection team.

The company that got all the local landowners to sign was dishonest with potential lessors, telling them they do not use chemicals to frack, and that they filter the

flowback water to put it back into the drinking supply. They offered tiny per-acre sums to naïve landowners though the value of the minerals was already in the thousands. Landowners who resisted signing were told by their neighbors that if they didn't sign, the company would drill under their property horizontally to extract minerals from them. Shareholders of oil and gas companies are treated with more respect and honesty than the landowners are—the shareholders are required to be told the risks of drilling, while the lessor is not.

Citizen concerns about safety and health have not been fully addressed by authorities. The failure to oversee drilling on public lands, and the absence of punitive fines for violators does not give me confidence that our farmers' health and environment will be protected from the industry's activities. In Ohio, regulations for well-siting and gas flaring for farming areas are weaker than for urban areas.

As the industry gets ready to move forward, many local farmers are trying to figure out what they will do. A handful of examples might give you an idea of their dilemma:

Integration Acres is run by a young family who raise 50 milking does for cheese-making on a 30 acre pasture. Their neighbor, a wealthy excavator with lots of acreage, has signed a lease for fracking and is eager to place the compressor station at the far end of his property, next to another neighbor who lives on a tiny strip of land in a dilapidated trailer.

> "We do not want to lease our land for the Utica Shale," says Neil Cherry of Cherry Orchards, whose neighbors have leased to drillers. "How will we be able to pass our family farm to our children? What should we do now to protect our family and our land?"

Kale and Melanie Linscott, a young, hardworking couple who grow organic vegetables on land that's been in the Linscott family for generations, are struck with grief that their neighbors who own land but do not farm have signed. More than one local lease signer has said, "if the drilling gets bad, I can take the money and move to Florida." That leaves the family next door to live with the effects of drilling.

Angie Starline, of Starline Organics, whose farm is adjacent to the Hocking River, and next to an active class II injection well receiving frack waste water, tells us, "I am not interested in feeding our customers food from a contaminated industrial zone." She and her husband have invested a lot in their farm, money that they will not be able to recoup if they must abandon their land.

Neighbors, even relatives, who have peacefully coexisted for years are now pitted against each other, each standing by his right to earn a living from his land. I cannot imagine a better plan to rip apart a close community than this oil and gas rush, as it is affects our farmers and customers.

This is a massive transfer of wealth—the wealth of our air, our land, our water, our infrastructure of interdependent small businesses. All these are being sacrificed, not for the good of our country, not for the well being of the people, but to ensure the profit of a few multinational corporations. Every citizen prefers clean air to breathe and clean water to drink. And most of us want jobs that preserve the highest health and environmental standards for all. We need Local, State, and National leaders who have both the will and the authority to uphold these standards.

No, this is not about reducing our dependence on foreign oil, creating permanent jobs, or making ourselves safe. The climate change denialists are hand in hand with politicians who tell us wars in the Middle East are not about oil, and then in the next breath that extracting that last drop of oil from under our land will keep us from war, make us independent, and keep our energy costs low. The jobs displaced by drilling are not accounted for, not even mentioned in the promise of Ohio's fossil-fuel-funded future.

If you, our elected representatives, are truly interested in securing long-term jobs and energy supplies for the future of our country, then please put these several facts on the same page for a minute: Deep shale hydraulic fracturing in the U.S. could provide our energy for up to 100 years. According to research out this month from National Oceanic and Atmospheric Administration, methane leaking from fracking gas fields is far greater (from 2.3–7.7%) than previously reported (1.6%). Methane contributes to increased temperatures on Earth—that includes our country, by the way. The International Energy Agency's latest report projects that 2017 will be the year we surpass the level of global warming safety. 2017—five years from today, at current levels of fossil fuel use. At the end of 2011, the U.S. Department of Energy reported that levels of greenhouse gasses are higher than the worst-case scenario anticipated just four years ago.

From what science and reality are showing us, our whole planet will be cooked long before that century of shale fuel can be used up. So, yes, fracking can fuel our future—as long as we don't mind measuring our future in seasons rather than in decades.

For jobs that can last more than a decade, that can help us rebuild our economy, sustainable small-scale farming, smart building and retrofitting, low-impact tourism and renewable energy are all worthy of your support. These are the businesses that already support the people of Southeast Ohio, and their success can be duplicated across the country, increasing our security by lessening our need for fossil fuels.

Where fracking has threatened to move in, in other sustainable food-producing regions such as New York, the largest buyers of local food have written statements that they will not purchase food from land surrounded by industrial production of oil and gas. What will happen to Ohio's farmers? Who will grow our food?

These people I describe, with businesses they give their lives to, are practical visionaries who have built a sustainable food system over the last 40 years, with the knowledge that fossil fuels would not last forever. I will do everything in my power to protect my friends and our livelihoods from being destroyed. What will you do to help us? If we do not protect our farmland from fracking, we will eliminate the very infrastructure that can survive and the very teachers that will help us all learn to thrive after this brief era of fossil fuel burning is history.

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Mr. LAMBORN. OK. Thank you.

Mr. Johnson?

**STATEMENT OF NATHAN JOHNSON, STAFF ATTORNEY, BUCKEYE FOREST COUNCIL**

Mr. NATHAN JOHNSON. Chairman Lamborn, Mr. Johnson and Mr. Thompson, thank you and good morning.

My name is Nathan Johnson. I am a staff attorney for the Buckeye Forest Council. We are a 501(c)(3) public interest group. The Buckeye Forest Council is a membership-based grassroots organization dedicated to protecting Ohio's native forests and their inhabitants. I am here today to remark on the need for adequate analysis of deep shale development of Ohio's public lands and for adequate health and environmental safety standards regarding the same.

Ohioans want jobs, but we want healthy families and a clean environment, too. There is nothing incompatible about jobs and adequate protection. Unfortunately though we do not have adequate protection at this time in Ohio. Ohio currently lacks adequate health and safety standards to protect the public and their land from potential water, soil and air pollution generated by a rapidly growing shale industry in the state.

For example, Ohio law does not require any predrilling water testing or water monitoring of monitor wells in rural areas prior to drilling. Ohio law allows shale gas drilling sites to store toxic wastewater in open pits with no fencing. These pits attract and kill wildlife including large numbers of bats and birds. In fact, in 2010 one of these open air storage pit leaked and spilled 1.5 million gallons of toxic oil and gas wastewater onto land in Ohio. Nothing in Ohio law prevents the burial of contaminated drill cuttings on site. Ohio law allows highly toxic oil and gas field waste to be spread on community roads for dust and ice control.

Ohio is seventh in the Nation in population, but a mere 47th in public land available per capita. The Wayne National Forest, of which large portions are located in Athens County, is Ohio's only national forest. This past October the Buckeye Forest Council formally protested the Bureau of Land Management's proposed lease sale of 3,302 acres in the Wayne National Forest for oil and gas drilling. Joining us in the protest of the sale were the Athens City Council, Athens City Government, Athens County commissioners,

Ohio University, the Burr Oak Regional Water District, several other organizations and many local residents. A copy of BFC's formal protest has been submitted to the Subcommittee.

From Buckeye Forest Council's perspective, the reasons for a formal protest were simple. Some of the flaws in Ohio's regulatory structure have already been noted. Moreover, the Forest Service and the BLM would have violated Federal law had the sale proceeded. Federal law requires that both Forest Service and BLM rely upon up-to-date environmental impact analyses prior to proceeding with an oil and gas lease sale on Forest Service land. However, neither the Forest Service nor BLM had given any consideration to the potential impacts that high volume horizontal hydraulic shale development could have on the land.

In fact, in 2006, the forest plan which was relied upon by the Forest Service and BLM specifically mentioned that hydraulic directional drilling was not considered economical at the time. So none of the environmental analyses had actually considered it certainly up until this point. The need for updated analysis was, therefore, plainly necessary, as shale drilling comes with a much larger footprint than conventional forms of oil and gas extraction; larger drilling pads, considerably more truck traffic and exponentially more fresh water use and wastewater generation. The significance of these new developments require an environmental impact statement.

Subsequent to the submission of protest, the Forest Service recognized that high volume horizontal shale development had never been considered or analyzed for the Wayne. Forest Service withdrew the consent it had given BLM to proceed with the sale based on that fact. The Forest Service is currently undertaking review of new information, as was stated earlier today, relating to the positive and negative impacts of shale development in the Wayne.

The need for compliance with Federal law and the weaknesses of Ohio state law necessitated the lease sale cancellation. However, improving Ohio's oil and gas safety standards should be low hanging fruit for the Ohio general assembly. Jobs and adequate safety standards are not mutually exclusive. Improved safety and environmental requirements will be easily absorbed by the industry and in many cases should save the industry significant sums of money.

One thing that U.S. Congress should consider is the Federal Resource Conservation Recovery Act or RCRA. As I mentioned earlier, Ohio does allow fracking or oil and gas wastewater brine to be sprayed on local roads, and as many of us know, the wastewater can be highly toxic. But were Congress to decide to, I guess, close the exemption for oil and gas drilling in RCRA, which would basically classify brines as hazardous waste, then we would be talking about Class I injection wells for disposal instead of Class II. We would have better monitoring, and we would no longer have any brine spraying on our roads. Thank you.

[The prepared statement of Mr. Johnson follows:]

**Statement of Nathan Johnson, Staff Attorney, Buckeye Forest Council**

Chairman Lamborn, Ranking Member Holt, and Members of the Subcommittee, thank you and good morning.

My name is Nathan Johnson. I am the staff attorney for the Buckeye Forest Council, a 501(c)(3) public interest organization. I speak on behalf of Buckeye Forest

Council today. The Buckeye Forest Council (BFC) is a membership-based, grassroots organization dedicated to protecting Ohio's native forests and their inhabitants. We seek to instill in Ohioans a sense of personal connection to and responsibility for Ohio's native forests and to challenge the exploitation of land, wildlife and people.

I am here today to remark on the need for adequate analysis of deep shale development on Ohio's public lands and for adequate health and environmental safety standards regarding the same. Ohioans want jobs, but we want healthy families and a clean environment, too. There is nothing incompatible about jobs and adequate protection.

However, Ohio currently lacks adequate health and safety standards to protect the public and our land from the potential water, soil, and air pollution generated by a rapidly growing shale industry in the state. For example, Ohio law does not require any pre-drilling water testing or water monitoring requirements in rural areas. Ohio law allows shale gas drilling sites to store toxic wastewater in open pits with no fencing. These pits attract and kill wildlife, including large numbers of bats and birds. Nothing in Ohio law prevents the burial of contaminated drill cuttings on site, and Ohio law allows highly toxic oil and gas field waste to be spread on community roads for dust and ice control.

Ohio is 7th in the nation in population, but a mere 47th in public lands available per capita. The Wayne National Forest, of which large portions are located in Athens County, is Ohio's only national forest. This past October, BFC formally protested the Bureau of Land Management's proposed lease sale of 3,302 acres of the Wayne National Forest for oil and gas drilling. Joining us in protest of the sale were Athens City Council, Athens City Government, Athens County Commissioners, Ohio University, the Burr Oak Regional Water District, and several concerned organizations and local residents. A copy of BFC's formal protest has been submitted to the Subcommittee.

From BFC's perspective, the reasons for the protest were simple. Some of the flaws in Ohio's regulatory structure have already been noted. Moreover, the Forest Service and the BLM would have violated federal law had the sale proceeded. Federal law requires that both Forest Service and BLM rely upon up-to-date environmental impact analyses prior to proceeding with an oil and gas lease sale on Forest Service land. However, neither Forest Service nor BLM had given any consideration to the potential impacts that high volume horizontal hydraulic shale development could have on the Wayne. In fact, the 2006 environmental review documents that Forest Service and BLM relied upon as justification for the proposed sale expressly stated that horizontal drilling was not considered because it was deemed economically infeasible for the Wayne at the time. The need for updated analysis was therefore plainly necessary, as shale drilling comes with a much larger footprint than conventional forms of oil and gas extraction: larger drilling pads, considerably more truck traffic, and exponentially more freshwater use and wastewater generation, etc.

Subsequent to the submission of protests, the Forest Service recognized that high volume horizontal shale development had never been considered or analyzed for the Wayne. Forest Service withdrew the consent it had given to BLM to proceed with the sale based on that fact. The Forest Service is currently undertaking a review of new information relating to the potential positive and negative impacts of shale development on the Wayne.

The need for compliance with federal law and the weaknesses of Ohio state law necessitated the lease sale cancellation. However, improving Ohio's oil and gas safety standards should be low-hanging fruit for the Ohio General Assembly. Jobs and adequate safety standards are not mutually exclusive. Improved safety and environmental requirements would be easily absorbed by the industry, and in many cases should save the industry significant sums of money.

Lastly, some additional context regarding shale industry jobs potential in Ohio is warranted. While the shale industry is likely to generate new jobs for Ohio, the jobs figures projected by industry are grossly inflated. Industry commonly touts some 200,000 new Ohio jobs. However, Ohio State University researchers recently found that such figures are deeply flawed, and that a figure close to 20,000 total new jobs (both directly and indirectly created) is far more likely. Moreover, the 20,000 jobs figure does not take into account potential losses the tourism sector—a much larger employer than oil and gas—may incur as a result of oil and gas development.

Thank you.

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Mr. LAMBORN. OK. Thank you all for being here. I am going to hand the gavel to Representative Thompson.

Mr. THOMPSON. [Presiding.] Thank you, Chairman. I will take the liberty of starting my 5 minutes. I think we will be doing one less round of questioning.

Dr. Chase, it is very nice to meet you. You unfortunately support my theory in Pennsylvania that we export our best and our brightest. It is very nice to meet you. I have some questions for you.

One of the claims I hear is that nobody has really looked at the impact of horizontal drilling. Is that true? If it is not, who has looked at the impact of environmental drilling on the environment and on people?

Dr. CHASE. A lot of people have looked at it. We have been using horizontal drilling offshore in the Gulf of Mexico for almost 50 years. We have fixed platforms out there and usually put a template on the ocean floor. We have to drill down and then outward to exploit the reservoirs we have out there because you can't move those fixed platforms around very easily.

On shore horizontal drilling started down in the Barnett Shale in Texas about ten years ago, and it was only after drilling a lot of vertical wells in very narrow short spacings, similar to the way we have drilled wells in Ohio here for the last hundred years, that companies discovered that by drilling down and out horizontally, they can actually minimize the impact on the environment.

Here in Ohio I was struck by some of the comments by Ms. Hughes here. Over in the Athens area, which I am very familiar with, you just drive along the highway and you see small wells in the fields because they have been drilled for the last 50 years, especially since 1985, on 20-acre and 40-acre spacings. That means that every 20 acres or every 40 acres, we have put in a pad. We have set casing, and we have producing wells.

With the advent with horizontal drilling, we are able to take a 640-acre tract, which is the equivalent of a whole township, and put one small pad in the center of that 4 to 5 acres versus 2 to 3 acres every 40 acres. So we are replacing 16 well sites with one well site. And we can drill six horizontal wells from that well site that exploit the entire amount of acreage. There is much, much less road traffic. The roads are centralized. Pipelines are centralized. Overall, it is very beneficial to the environment.

Studies have been done on that down in Texas. Out in Arkansas they have similar development going on in the Fayetteville shale, and down in the Eagle Ford shale down in Texas they are going through the same process now. So it is effective.

Mr. THOMPSON. Thank you.

Mr. Looman, I am making an assumption that this part of Ohio is similar to the part of Pennsylvania I represent, that our number one export has been our young people. I take that as a yes. That is unfortunate.

Has natural gas opportunity made or will it make a difference in stopping the loss high school graduates?

Mr. LOOMAN. I think it certainly has that opportunity. As Congressman Johnson mentioned earlier, the ABC News story that proclaimed us as the next boom town, the story is a little premature, but what that led to was a huge amount of calls coming into our office and the county Chamber of Commerce office from young people who had moved away and desperately want to come

back and were asking about the opportunities that this industry will bring in order for them to come back.

So I think the answer to your question, there is a strong possibility that can happen.

Mr. THOMPSON. Are you seeing opportunities with business, both service or manufacturing, that are not directly related to the natural gas industry?

Mr. LOOMAN. Yes. The supply chain is huge for us. Industries in town or businesses in town that are involved in some sort of opportunity that may be able to link to that industry, as Mr. Heller was talking about his type of business, we have seen that already happen here where local businesses are starting to gain large amounts of revenue from these companies.

Mr. THOMPSON. Our hotels and restaurants are just——

Mr. LOOMAN. I want to thank you for inviting Mr. Heller, too, because I think we have a new prospect for Jefferson County.

Mr. THOMPSON. Mr. Heller, with that said, you talked about 120 employees directly attributable to natural gas energy development. Do road builders use the equipment sold by your members?

Mr. HELLER. Yes.

Mr. THOMPSON. Are you aware of any increase in road construction or improvements using this equipment in areas producing natural gas?

Mr. HELLER. Yes. The energy companies that own the sites or are developing the sites are actually improving the roads for truck traffic that they create. And if there is any damage to the road, I am sure you have seen it yourself being from Pennsylvania also, the roads are left in better condition when they are done than before they came in. So it is been a real benefit to the local communities in northern Pennsylvania where I travel.

Mr. THOMPSON. Thank you.

Mr. Chairman?

Mr. LAMBORN. [Presiding.] Thank you.

Mr. Johnson?

Mr. JOHNSON OF OHIO. Thank you, Mr. Chairman.

Dr. Chase, in your testimony you talk about the high demand for your graduates that is being experienced right now because of the development of the Marcellus and the Utica. How much on the average do these recent graduates make per year with these new opportunities?

Dr. CHASE. Average salary this year is about $95,000 with signing bonuses of $10,000 to $15,000 a year on top of that.

Mr. JOHNSON OF OHIO. Those young people aren't going out of state, are they?

Dr. CHASE. Well, actually still most of my students are leaving.

Mr. JOHNSON OF OHIO. Are they?

Dr. CHASE. Yes. I think the Utica, impact of the Utica has not hit home here yet. I have quite a few students that have gone to work in the Marcellus, but by far and away, my students go south to the Gulf of Mexico, to the Rockies, to California.

Mr. JOHNSON OF OHIO. All the more reason why we need to see this opportunity to keep these young people at home. Have you experienced an uptick in prospective students applying to your de-

partment, and do you have any plans to expand your undergraduate program?

Dr. CHASE. Yes. We have had a significant uptick. So far this year we have had probably close to 200 applications for admission. We expanded our incoming class from 75 students to 90 students this year. But already we have had 75 acceptances. So we are looking at there is room for just 15 more students. And 155 actually have been accepted to Marietta College. So we are almost at capacity now.

Mr. JOHNSON OF OHIO. You have testified as an expert, so to speak, on several panels that I have witnessed. Do you feel that the State of Ohio is doing a good job regulating hydraulic fracturing and do you think a one size fits all approach that is being advocated by the EPA is valid?

Dr. CHASE. I am against the Federal Government taking over these operations. I think that the Ohio EPA and our Department of Natural Resources have been working very well, together. I think that Senate Bill 165 that was put in place several years ago has done more to ensure the protection of our environment and our groundwater than any piece of legislation that I have seen in the neighboring states. I would say Pennsylvania, Mr. Thompson's state, West Virginia, it would be wise if they considered adopting the same kind of plans that we have here.

I can tell you also that I talk with a lot of the companies that are drilling wells here in this state, and they don't only just meet the requirements that we have set forth in Ohio law and regulations. Their goal is to exceed them. The last thing that they want is something to happen like we saw happen in the Gulf of Mexico, which of course, that was a well construction failure issue also.

So well construction is the key to successfully doing all of this. It is the key to making sure that hydraulic fracturing is safe. There is a lot of education that has to go on. It is the public and the corporations that have to step up and contribute to that education.

Mr. JOHNSON OF OHIO. Thank you, Dr. Chase. You add a great deal of credibility to the analysis we are doing, and I appreciate your testimony here today.

Mr. Looman, in your testimony you alluded to the struggles that this area has seen, the steel industry leaving, manufacturing leaving. Can you talk about the hope that the people of Jefferson County now are sensing because of the oil and gas development going on right here and that is expected to come in the future?

Mr. LOOMAN. Well, there is obviously great excitement. I think it is also a sense of we are ready for it, where is it. When, again, the ABC News story came out, we all thought it was here. It is not here yet. It is getting here, and it is coming slowly. But I think there is a huge amount of excitement, not just the first wave, the first wave being petroleum, but then what comes next.

You talked earlier about the cracker facility, should that go anywhere in this area. That is going to lead to so many opportunities for us going forward. So I think there is a huge amount of excitement about what is coming now and what is coming in the future and how we can take advantage of it, particularly from a job creation standpoint.

Mr. JOHNSON OF OHIO. Thank you very much.

Mr. Chairman, I am almost out of time here, but I am going to close out my questioning by again thanking these panel members for coming and reasserting two things that I said earlier, one, making sure that these opportunities are coming to Ohioans and that Ohioans are the ones getting the work and the opportunities, and as Dr. Chase said, that our young people are able to stay here at home and also that our landowners are protected, that they are not required to give up their rights. And I would like to know what those things are actually happening.

So please reach out and contact my office. We want to know. Again, I am not a no-regulation person, but I think where public safety, public health and national security are a concern, valid concern, we need common sense regulations, but our regulations need to be based on fact and scientific analysis, not on scare tactics.

With that, I yield.

Mr. LAMBORN. OK. Thank you. Mr. Heller, you said that you sell heavy equipment in Pennsylvania and New York?

Mr. HELLER. Correct.

Mr. LAMBORN. Have you noticed a difference in the volume of business in those two states? Because I think in New York for the last year or two, they have been under a statewide moratorium on hydraulic fracturing.

Mr. HELLER. Well, we are waiting poised and ready for them to decide to start drilling up there. Yes. Most of the revenue from my company is coming from Pennsylvania as are the job opportunities. We are sort of treading water in New York hoping that opportunity avails up there also.

Mr. LAMBORN. When a company comes in and invests in a half a million dollar piece of equipment, what kind of spin-offs—you already referred some to this, but I would like to bring this out just a little bit more—what kind of spin-offs does that have in terms of jobs that are created either in your company or in associated companies?

Mr. HELLER. Let us look at the level above and below me. First off, we are buying the cranes which are built in Shady Grove, Pennsylvania. It is predominantly the machine that is being used in the fracking site. That plant has increased by a hundred percent employment over the last two years, because they were on their heels at the end of '08.

The manufacturer has had to ramp up to produce these machines. Specifically we are talking about the cranes that you referenced. My customer that then buys it employs multiple people to run that machine. You have safety people. You have oil riggers. You have operators, maintenance people, et cetera. One example of a customer that bought cranes from us, he has taken his employment from 100 to 230 in a two-year period as he has added these cranes. You can see the levels above and below me are just a multiplication of our results.

Mr. LAMBORN. Thank you.

Mr. Chase, I would like to ask you a couple of questions on water. First of all, is water similar around the country, either what it looks like or where it is found, from state to state where you can expect Washington to have one size fits all and makes sense, or are there tremendous differences between states?

Dr. CHASE. There are differences in water. When I talk to my students about water and natural gas, it is like your hand and fingerprints. Everybody's fingerprint is different, and everybody's water has a little different fingerprint. I think it is especially important, as we heard from two members here, that when people take out a lease, when they lease with an oil and gas company, they can do a lot on their own, especially if they work as an association, to ensure that their water is tested prior to any operations that start in an area.

Mr. LAMBORN. There is not anything to prevent someone from testing the water beforehand?

Dr. CHASE. No. There is nothing to prevent it. In fact, they should make the companies test it, pay to have it tested by an independent source. Then after the drilling is done, it should be tested again. Then it should be tested again a year or two later. But the water in Pennsylvania might be a little different than the water in Ohio, for example, and it is going to be mineral content. You can have methane in water sometimes.

The first natural gas well ever drilled in the United States, believe it or not, was drilled in 1821 in Fredonia, New York and it dug by hand to a depth of 27 feet. There was natural gas in the rock at a depth of 27 feet. Just up the river from Marietta, there is an area called Burning Springs Anticline, who was named Burning Springs by the Indians because of natural gas seeps coming out of the swamps.

Colonel Drake, someone mentioned Drake's well up in Titusville, Pennsylvania, drilled in 1859, was drilled to a depth of 69 feet.

Mr. LAMBORN. Water disposal, what can or should be done? For instance, what is done in Ohio? Because I have heard concerns about farmland being contaminated by the improper distribution of toxic water so-called.

Is it toxic, number one? And what should be done with water after it is used in a well to be responsible?

Dr. CHASE. Ohio has very strict laws that the Department of Natural Resources administers with regard to what we do with frack water or drilling fluids after we are done with them. As someone mentioned, it has to be disposed of in Class II disposal wells. It can't be dumped into a stream, a creek. It cannot be disposed of on country roads unless a township has permitted that.

There are very strict regulations on that. Our disposal wells are constructed to minimize—not minimize—but to avoid any possible contact with surface groundwaters by virtue of the casing and the cement that we have in the borehole protecting the groundwater. So in my mind, it is not an issue. We have a very safe system here in Ohio.

Mr. LAMBORN. All right. Well, I want to thank each member of the panel for being here, for your testimony and for answering questions. If we have any additional questions that we submit to you in writing, we would ask that you respond to those as well.

If there is no further business, without objection, the Committee stands adjourned. Thank you all for being here.

[Whereupon, at 11:51 a.m., the Subcommittee was adjourned.]

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