Jobs, Energy Security, and the Economy:

The Role Natural Gas Will Play in America's Future

A Forum Hosted by

Congressman Lee Terry
Member of the House Energy and Commerce Committee

September 24, 2012
Omaha,NE

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Executive Summary

On September 24, 2012, Congressman Lee Terry hosted a natural gas forum in Omaha, Nebraska to discuss what role Congress should play in development of a long-term energy plan. Congressman Terry invited several experts representing business, government, agriculture, and trade associations to express their views and opinions on the role of natural gas as an energy source, feedstock, and export commodity. Various topics were discussed during the forum, including gas prices, taxes, infrastructure, regulations, and capacity.

Regulation of natural gas was the most common topic addressed during the forum. The Federal Energy Regulatory Commission (FERC) and the Environmental Protection Agency (EPA) are the main regulators of the natural gas industry. Throughout the forum, concerns were raised about the detrimental effect that FERC and EPA regulations could have on the natural gas industry. Dave McCurdy of the American Gas Association indicated that one of their biggest challenges is making sure that regulations do not impede on the availability and supply of natural gas. Bill Cooper of the Center for Liquefied Natural Gas agreed. "When the EPA gets involved, it adds a rigidity and a complexity that overlays what the states are already doing, and all it really does is just add more costs," said Cooper, "I think the role of Congress on private lands is to make sure the federal government does not intrude upon the state's abilities to regulate their own resources." It became apparent that most participants were not anti-regulation as much as anti-federal regulation when the states have been and continue to do an excellent job. However, not everyone in the industry believes all regulation is intrusive. Marguerite Mills of AEP and Michael McGowan of Metropolitan Utilities District believe that FERC is in a good position to regulate and promote coordination between the natural gas and electric industries.

In addition to regulation, access to federal land for drilling was another common topic discussed at the forum. Part of the problem may result from the complexity of obtaining permits. Currently, it takes 307 days to obtain a permit to drill on federal lands. That's up from 157 days in 2005 according to Daniel Simmons of the Institute for Energy Research. By comparison, it only takes 10 days to obtain a permit in North Dakota, 17 days in Ohio, and 27 days in Colorado. Additionally, it is believed that a 6 percent drop of natural gas production on federal lands is directly related to regulation.

Representatives of the electric industry expressed the view that natural gas is going to be the future choice for fuel generation. "The low natural gas prices from shale development is helping promote the use of natural gas in the electric generation industry, and also the peaking requirements that are needed to support the ever-increasing renewable resources," said Mills. Mills believes that there must be more coordination between the electric industry and natural gas industry. One potential solution that was offered to create better coordination was increased hourly nomination cycles that would help the electric industry align with the natural gas industry. W. Gary Gates of the Omaha Public Power District believes that natural gas will become a baseload fuel, but he currently sees problems in their capacity to buy natural gas from their local distribution company. Gates noted that wind, solar, and renewable energies are fuel substitutes, but not capacity substitutes. Some capacity issues were attributed to a lack of infrastructure. Curt Friesen of the Nebraska Corn Board noted that while there is an extensive pipeline network in his area, in many other areas there is not a pipeline network. However, there are 300,000 miles of interstate pipes and intrastate pipes. In fact, 2,100 miles of new intrastate pipe was built in 2011. Overall, the electric industry expressed the need for better coordination with the natural gas industry and increased natural gas capacity.

The transportation industry is another emerging natural gas market. The increased demand for natural gas vehicles is a direct result of the huge gap between the cost of natural gas and diesel. It is forecasted that in five years on an annual basis there will be about 25,000 additional trucks per year that are converted to natural gas. However, there is an $80,000 increase in cost for each natural gas trucking unit. Therefore, fleets that convert to natural gas must make significant savings through the price of natural gas. Dan England of the American Trucking Association believes that conversions to natural gas could be threatened if states jump onboard on taxing natural gas. Additionally, transportation fleets that run on natural gas are struggling with the lack of available infrastructure. Holly Alfano of the National Association of Truck Stop Operators said, "The truck stop industry is highly competitive and responsive to customer needs, so as customers continue to demand the infrastructure, our members will respond." Alfano acknowledges, however, that costs are out of reach for independent truck stops. She suggests that small business loan options and low interest loans could provide an increased incentive for developing natural gas infrastructure.

Agriculture is another market that heavily relies on natural gas. Similar to other industries, there is a desire for increased infrastructure to meet the needs of farmers. Additionally, the biggest concern expressed during the forum was the need for price stability. "Agriculture in the United States is going to have to step up and increase production, and to do that we need to know there's going to be stability in our energy markets," said Friesen. Steve Nelson of the Nebraska Farm Bureau agreed, saying, "We need to have a steady supply of all types of energy and at affordable prices."

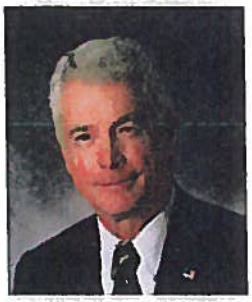
The natural gas forum did not provide a consensus on how to craft a long-term energy policy, but it did provide some of the key factors that concern the natural gas industries. Nearly everyone agreed that there is a need for upgraded natural gas infrastructure. Additionally, there was strong sentiment that keeping the price of natural gas low was essential to its further success and development. Many agreed that there should be more access to federal lands for drilling. However, there were mixed opinions from the experts on the amount of regulations that should be implemented to oversee the industry. The opinions of all the experts who participated in the natural gas forum are valued and appreciated. Those opinions are part of the building blocks toward the appropriate long-term energy policy for the United States.

Speaker Biographies

Marguerite C. Mills—*Vice President of Fuel Procurement at American Electric Power*

Marguerite Mills' career in energy has covered the logistics of fuel procurement and regulations in both the public and private sector. Her positions with Central & South West Corp. and SWEPCO include Director-Solid Fuels, Fuel Regulatory Coordinator, Manager-Fuel Accounting, along with being the Director of the Regulated Oil & Gas Administration. Currently she handles the procurement of natural gas and oil with AEP and is responsible for the development and use of alternative/renewable fuels, procurement of reagents and consumable products, and ash marketing. She has been working in the energy business since 1978.

Dave McCurdy—*President and CEO of the American Gas Association*

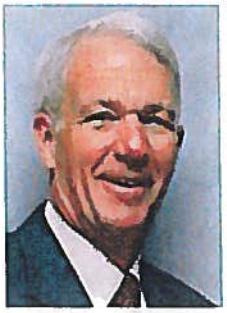


Dave McCurdy, before joining the private sector, served in the U.S. House of Representatives as a member of Congress from the Fourth District of Oklahoma for 14 years. Following his work in the House, Mr. McCurdy served as President and CEO for Electronic Industries Alliance (EIA) for eight years and in the same position for the Alliance of Automobile Manufacturers for four years. He joined the American Gas Association as President and CEO in February of 2012.

John Felmy—*Chief Economist of the American Petroleum Institute*

John Felmy, after receiving his Bachelors and Masters in Economics and a Ph.D. in Economics from the University of Maryland, has worked in energy, economic, and environmental analysis for 30 years. Currently, he is a member of several professional associations, including: the American Economics Association, the National Association for Business Economics, and the International Association for Energy Economics. At the American Petroleum Institute he does the economic, statistical, and policy analysis, which includes managing the production of the Institute's weekly and monthly petroleum statistics.

Gary Stauffer—*Chairman of the American Public Power Association Board of Directors and NMPP Energy Executive Director*



Gary Stauffer was recently elected as the Chairman of the American Public Power Association's board of directors for 2012-13, where he will represent 200 municipal member communities of NMPP Energy. Mr. Stauffer has worked with NMPP since 2003. He also serves on the APPA Blue Ribbon Climate Change Task Force and is President of Public Power Inc. board of directors.

Dan England—*Vice Chairman at the American Trucking Associations*

Dan England's knowledge of transportation services spans back to 1974 when he entered private law practice in insurance litigation and transportation. In 1977 he became in-house Legal Counsel at CR England. Promoted first to General Manager in 1982 and CEO in 1988, Mr. England's business experience in the trucking industry gives him the ability to cover a wide range of topics affecting this industry. He has served as a Chairman of the Truckload Carriers Association and President of the Utah Trucking Association. Currently he serves as a Vice Chairman of the American Trucking Associations.

Bill Cooper—*President, Center for Liquefied Natural Gas*

Bill Cooper is the president of the Center for Liquefied Natural Gas (CLNG), a trade association of LNG producers, shippers, terminal operators and developers, and energy trade associations. CLNG is a clearinghouse of educational and technical information. It also facilitates rational issue discussion and the development of public policies that support LNG as a part of the nation's energy portfolio.

Bill frequently speaks on energy and natural gas issues drawing from his three decades of experience in the industry, prior to CLNG serving as partner at Hunton & Williams LLP, and as counsel to the U.S. House Energy and Commerce Committee.

Gregory Harper—*Senior Vice President and Group President, CenterPoint Energy Pipelines*

Gregory Harper has established himself as a leader in the energy business. Beginning as an engineer for Texas Eastern Transmission Corp. he has served as Vice President for East Tennessee Natural Gas, Duke Energy's North American energy trading and merchant business, and President and CEO of Spectra Energy Partners, LP. A graduate of the University of Kentucky in mechanical engineering, Rice University, and Harvard Business School, Mr. Harper understands the business and mechanical aspects of the energy sector.

Lucian Pugliaresi—*President of Energy Policy Research Foundation, Inc.*

Lucian Pugliaresi has studied and written about the energy industry for over two decades, working in both the public and private sector. Mr. Pugliaresi has served on the National Security Council, in the Departments of State, Energy, and Interior, as well as the EPA. He has served on the Board of Trustees at PIRINC and later as President. Since 2007 he has been the President of EPRINC where he oversaw the transfer of the PIRINC from New York to Washington DC.

Ford West—*President of The Fertilizer Institute*

Ford West has been working with The Fertilizer Institute since 1979 when he was hired as the Director of Member Services. Working his way up as Assistant Vice President, Vice President of Member Services and Vice President of Government Relations, Mr. West has demonstrated his knowledge of fertilizer policy time and again. Mr. West has testified before Congress and his opinion is sought out and highly regarded by many people both in and out of the industry.

Daniel Simmons—*Director of Regulatory and State Affairs for the Institute for Energy Research*

Daniel Simmons' work in state affairs began when he served on the Legislative Staff for the Committee on Resources in the United States House of Representatives. He moved into the private sector as a Research Fellow at the Mercatus Center at George Mason University, where he analyzed proposed federal regulations and aided in the rulemaking process. He later became the Director of the Natural Resources Task Force at the American Legislative Exchange Council. As Director of Regulatory and State Affairs at IER he oversees energy research and outreach at the state level.

Jonathan Weisgall—*Vice President Legislative and Regulatory Affairs for MidAmerican Energy Company*

Jonathan Weisgall is Vice President for Legislative and Regulatory Affairs for MidAmerican Energy Holdings Company, a subsidiary of Berkshire Hathaway. He also serves as Chairman of the Board of Directors of the Center for Energy Efficiency and Renewable Technologies and Chairman of the Board of Directors of the Geothermal Energy Association. He is an Adjunct Professor of Law at Georgetown University Law Center, where he has taught a seminar on energy issues since 1990.

Michael W. McGowan—*Chairman of Metropolitan Utilities District*

Michael McGowan's 35 years of work for Northern Natural Gas Co. gives him a firm understanding of both the natural gas industry and how it relates to Omaha, Nebraska. Prior to working as the Executive at Northern he served as Vice-President of Regulatory Affairs for Transwestern Pipeline in Houston, TX. He brought his experience to the Metropolitan Utilities District Board of Directors in 2010.

Holly Alfano---*Vice President of Government Affairs, NATSO*

Holly Alfano has represented petroleum retailers for 20 years, first as a state association director with Louisiana Oil Marketers and Convenience Store Association; as vice president of the Petroleum Marketers Association of American, and currently as vice president of government affairs with NATSO, which represents America's travel plazas and truckstops.

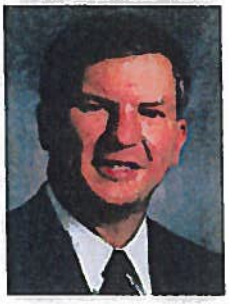
Curt Friesen—*4th Generation Nebraska Farmer, Member of the Nebraska Corn Board*

Curt Friesen is a 4th generation Nebraska farmer from Hamilton County. He has farmed for 35 years and raises white corn, yellow corn, and soybeans. Outside of farming he has worked on the Henderson City Council, the Advisory Committee to Senator Stuhr and Congressman Tom Osborn, the Governors Water Policy Task Force, and as Mayor of Henderson, among many other distinguished positions. He currently serves in the Henderson Chamber of Commerce, as Chairman of the Hamilton County Corn Growers Association, the Nebraska Corn Board, and the Public Policy Action Team of the National Corn Growers Association.

Steve Nelson---*President of the Nebraska Farm Bureau Federation*

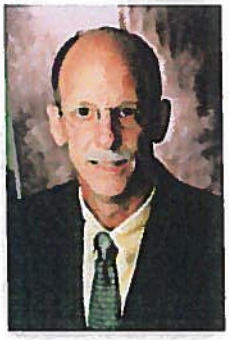
Steve Nelson has been working on the Nebraska Farm Bureau Federation since 1997, serving as first vice president since 2002. A graduate of the University of Nebraska College of Agriculture, Mr. Nelson has chaired the American Farm Bureau Federation's Feed Grains Advisory Committee, been appointed to the American Farm Bureau's Making American Agriculture Productive and Profitable Committee, and served on the State Legislative Policy Committee. He is currently a member of Kearney-Franklin County Corn Growers, the Nebraska Soybean Association, and the Nebraska Water Users Association.

W. Gary Gates—*President and CEO of Omaha Public Power District*



Gary Gates has 40 years of service with OPPD and has worked in all types of positions including Reactor Engineer, Supervisor, Executive Assistant to the President, and Division Manager. He became President and CEO of OPPD in January 2004. He has board affiliations that include the World Association of Nuclear Operators, Nuclear Energy Institute, Nuclear Electric Insurance Limited, among others.

Steve Eule—*Vice President for Climate and Technology, U.S. Chamber of Commerce*



Steve Eule's work in energy for the public sector began over a decade ago and includes titles such as Legislative Director for Rep. Nick Smith, Environmental Analyst for Gov. Christine Todd Whitman, Staff Director on the House Science Committee, and Director of the Office of Climate change Policy and Technology. Prior to his government work he was an Orkand Corporation Consultant to the energy Information Administration and at the Heritage Foundation. He was also the Assistant Editor of the book *Free Market Energy*.

Jeffrey Heng---*Division Controller for Nucor Steel Nebraska, Nucor Corporation*

Jeffrey Heng has over 20 years of manufacturing experience with the last 14 in the steel industry with Nucor. In his role as a controller for Nucor, he has had extensive experience with natural gas and electricity procurement. He has a BS in Business Administration with an emphasis in Accounting and Finance from Nebraska Wesleyan University and is a Certified Public Accountant in the State of Nebraska.

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Transcript Highlights

Mike Flood, *Speaker, Nebraska State Legislature*

- FERC regulations, as you know, do not allow the transporter of natural gas to spread the cost out to all of those payers or customers in a zone or rate area. FERC regulations narrow that cost in on the new business.
- I see a public/private partnership that will be required. I'm not saying that businesses needing more gas are unwilling to pay, but when the cost to transport the gas goes from, you know, $.25 to $1.08, there are other places in America where you can get natural gas.
- As a state, we passed a law last year that I sponsored that allows communities to go to the Public Service Commission with the support of an LDC and get a little extra money from rate payers to try and address issues
- And I think a natural gas infrastructure is absolutely necessary because it is going to be the energy of the future, and it's certainly priced right at this time, you know, for Nebraskans and for Nebraska companies

Marguerite Mills, *AEP*

- The low natural gas prices from shale development is helping promote the use of natural gas in the electric generation industry, and also the peaking requirements that are needed to support the ever-increasing renewable resources
- We feel that FERC is in a good position. It regulates both the natural gas industry and the electric industry, so it's in a good position to regulate and promote coordination between the industries.
- Focus is given to the interdependency of the two industries
- FERC would promote and endorse continuing to use the North American Energy Standards Board
- Big challenges for us is that the gas day and the power day are not synchronized
- If the industries could -- if there were more natural gas nomination cycles, and our preference would be hourly nomination cycles, that would help the electric industry align with the natural gas industry
- Consistency across the Regional Transmission Organizations
- If the timing would be coordinated so that we could work with the gas industry

Dave McCurdy, *American Gas Association*

- Working through organizations like ALEC and others to build awareness of this need to partner to get this availability to other Americans
- Interoperability. We have encouraged FERC to address that issue
- So the challenges are access, making sure we're there, making sure that the

regulations don't impede, making sure that the supply is available

- Fueling the future with this foundation fuel
- We are supportive, though, of the recent changes on fuel economy rules by the administration to provide credits for natural gas vehicles, which will incentivize manufactures, who I used to represent, to put in their long-term product mix natural gas vehicles, so that's a positive
- It's really critical that all of us look to finding solutions and stop just working to highlight problems
- Producers had to learn how to go in and gauge the community
- You have to have transparency
- Environmental Defense Fund, though, is working with Southwest Energy down in Texas on some of the emissions issues
- Is it's changing the equation so that there's a new foundation you can build on. Use natural gas and build on a renewable portfolio. Use natural gas and build on with some transportation
- There are infrastructure challenges this country has
- It's not that they're asking for money, but it's making sure there's access to capital, capital gains and tax dividend policies
- Any capital-intensive industry wants predictability and certainty
- So that's the role of government right now is providing some long-term leadership
- And how do you spread the burden of those long-term costs that we all face
- It's an issue of scale and issue of timing
- The states believe that they're going to run the show or dictate because Congress is not acting
- So it's incumbent on Congress to come up with an energy outline/guideline, and also what is our infrastructure going to look like, and then you're going to have to address these thorny issues of how do you pay for it

John Felmy, *American Petroleum Institute*

- 71 percent of petroleum goes to transportation
- 1 percent is electricity
- And I mention that because one thing that's also said constantly in Washington is, gee, we need solar, wind, and geothermal to reduce oil imports. How? We don't use oil. It's said over and over again, and it's just simply not true
- And so we're very interested in it, you know, because if we look at what we produce in terms of natural gas here, in terms of oil we produce here, and what we could import from Canada, along with biofuels, we can become 100 percent self-sufficient in a North American basis in as little as a dozen years

Gary Stauffer, *American Public Power Association*

- If you are to receive electricity in the United States or in its territories, there are 3150 ways to do that: 220 of those are investor-owned utilities, 930 are REAs or co-ops, and 2,000, or thereabouts, are public power entities
- Natural gas makes up about a quarter of all of the fuel that's used to generate electricity, and that is the fastest growing segment that's already been identified
- We need the ability to be uninterrupted. We need the ability to know within minutes of what our supply is. Long term, we need to know what the price is
- Anybody that's anti-carbon is pro blackout

Dan England, *American Trucking Association*

- LNG trucks
- The problem with this thing is there's an $80,000 increase in cost for that unit
- This just shows you that there is higher cost to operate an LNG unit because simply the intervals, oil change, fuel filter, coolant, and so forth
- Slower maintenance turnaround than diesel, and we've had some parts availability problems
- If we were running a 12-liter engine, which we will be converting to shortly, then it becomes much more feasible
- The forecast from some of the what we would consider experts are that in five years on an annual basis there will be about 25,000 additional trucks per year that are converted to natural gas
- We just don't have a good mechanism for funding highways
- Right now there's a huge gap, of course, between the cost of natural gas and diesel, but that will narrow up as the states jump onboard on taxing gas
- Leave it up to the market, you know

Bill Cooper, *Center for Liquefied Natural Gas*

- The United States has a well-developed policy on LNG exports. It's not often admitted, it's many times debated, but the policy is there and it has been well-developed over the years by the DOE
- The DOE regulates the commodity. FERC regulates the design, construction, and operation of the facility and the facility's impact on the environment
- There are regulatory mechanisms in place to prevent adverse consequences to the American public
- All applications for exports to non-free trade agreement countries are subject to a de facto processing moratorium

- So we have a very healthy regulatory framework that is not being used by the Department of Energy, has not been used since November, and we seem to be in an indefinite delay
- We don't need the federal government and, particularly, the EPA trying to regulate something that's already being regulated at the state level
- There may be a role for the Congress when you look at hydraulic fracturing on federal lands
- Maybe you adopt the state model in these particular areas instead of punting it to the states
- I think Congress has a role on federal lands. I think the role of Congress on private lands is to make sure the federal government does not intrude upon the state's abilities to regulate their own resources
- When the EPA gets involved, it adds a rigidity and a complexity that overlays what the states are already doing, and all it really does is just add more costs
- The ultimate effect is that we're going to drive those mid-level to small operators completely out of the industry

Gregory Harper, *CenterPoint Energy, INGAA*

- Interstate pipelines
- 300,000 miles of interstate pipes and intrastate pipes
- Several hundred thousand miles of gathering lines
- 16,000 miles of FERC certificated pipeline in a decade to build about 15,000 miles of that from 2000 to 2010
- And that trend hasn't slowed down. In 2011 FERC put out its market study report and 2100 miles of new intrastate pipe was built in 2011, so the trend continues
- To contract and build capacity is based on firm contractual commitments
- So we feel like the process that FERC has set up is pretty good
- Master limited partnerships
- So, basically, the regulations, the tax policies around pipeline infrastructure, it works
- So I think leaving the regulations where they are or promoting and educating how the regulations work for us is going to be the biggest obstacle we have

Lucian Pugliaresi, *Energy Policy Research Foundation*

- What does Texas, Pennsylvania, West Virginia, and North Dakota all have in common?
- No federal land
- We have nearly $30 billion of LNG-receiving capacity in the United States operating at 8 percent capacity.
- We are the most competitive petrochemical manufacturer in the world
- When you adjust it on a Btu basis, natural gas is a relatively low user of water

- I don't think that the states are demanding Congress get involved (Regarding Fracking)
- It really is a very local use. The geology tends to be very local, the water resources are very local, and it's unclear what value-added EPA would have
- The surge in new crude types that are not well matched to the refining configuration, the necessity to capture these natural gas liquids, the placement of new pipeline capacity, all of these things are going to put a huge regulatory burden
- You can't do a major modification on a refinery without going to NSPS. You can't do a new petrochemical facility without going through the regulatory process
- A long-term sharing of the price risk? It seems to me that that's a natural way to deal with that risk: For you as a utility and a producer to come together and say, okay, let's find a way to share this price risk, which is really the thing you're worried about.

Ford West, *Fertilizer Institute*

- We haven't built a new ammonia plant in the United States since 1967, but today, we have eight companies who have announced they're looking at a greenfield project to produce, build an ammonia plant
- We don't necessarily want to see the government get involved
- Subsidizing something

Daniel Simmons, *Institute for Energy Research*

- We have about a hundred years of natural gas
- It takes 307 days to get a permit to drill on federal lands. That's up from 157 days in 2005. Compare that to North Dakota where it takes 10 days, or in Ohio where it takes 17 days, or in Colorado where it takes 27 days
- From 2010 to 2011, natural gas production fell on federal lands by about 6 percent. It increased by 12 percent on private and state lands, and that's all due to regulation
- The problem when the federal government gets involved is that whole balancing that people go through gets haywire

Jonathan Weisgall, *MidAmerican Energy Company, EEI*

- There is no world price for natural gas unlike for oil
- Low natural gas prices can support fuel switching from coal to natural gas
- A $1 change in the price of natural gas has a $100 million net present value impact on that decision to switch to coal -- from coal to gas
- These lower gas prices are crowding out renewable energy development
- There is a need for greater coordination between the natural gas and electricity

markets, especially on the issue of reliability

- I don't think this is a congressional job. FERC does have the authority
- To encourage market rules and tariff changes just to better align the industry's mismatched scheduling practices to encourage greater operational coordination between pipelines and the transmission providers with respect to maintenance outage scheduling, emergency preparedness, information sharing
- Danger in Washington
- NGO activism over fracking, and EPA
- Public backlash from pipeline accidents
- What can you do about accelerating pipeline approvals and gas storage
- Certainty, predictability more than anything else and probably letting markets do what they can

Michael W. McGowan, *Metropolitan Utilities District*

- MUD is actually the fifth largest gas utility in the United States
- Since 1977, MUD has experienced a 47 percent reduction in the average usage of its customers in natural gas due to conservation and appliance efficiencies
- MUD is working hard to grow the CNG market, and this focus, our focus, is really on fleet dedication and usage. Besides MUD's own fleet, Happy Cab here in Omaha, a taxicab company, they have 40 CNG cabs that are dedicated to compressed natural gas
- Backlund Plumbing, a local pluming company here in Omaha, is converting its entire service van fleet to CNG
- We're also working on partnering with Werner Trucking on a test
- We are confident that this test will be a terrific success and spur more CNG conversions for the heavy duty trucks
- Business barriers
- Infrastructure is expensive and localized. The upfront cost of vehicles in conversions is expensive
- Only 88,000 Btus in a gallon of LNG versus 138,000 Btus in a gallon of diesel fuel
- If you just go on gallon per gallon, you're penalizing the development of LNG and CNG markets
- So any incentives should be targeted to the heavy-duty-use trucks.

Holly Alfano, *National Assoc. of Truck Stop Operators*

- The truck stop industry is highly competitive and responsive to customer needs, so as customers continue to demand the infrastructure, our members will respond.
- Pilot Flying J announced several months ago a partnership with Clean Energy to install 150 LNG fueling stations along the interstates creating this natural gas highway. Seventy of those locations will be online by the end of 2012 in 33 states, and the rest will be completed in 2013. TravelCenters of America

recently announced a partnership with Shell to build 200 LNG dispensers at 100 locations across the country
- Costs are out of reach for independent truck stops
- There is a need to educate state and local regulatory agencies, local fire marshals, state environmental agencies, and so on
- Perhaps small business loan options, low interest loans, something along that line is something that could be considered so that those players in the marketplace can also look to the future and make investments in this new technology
- The large players in our industry have found creative ways to do it through partnerships and that's the marketplace at work.

Curt Friesen, *Nebraska Corn Board*

- There's an extensive pipeline network in my area, but it is lacking in many other areas
- Agriculture is dependent on energy prices
- If natural gas is exported, so be it
- The biggest thing I think that we would like to see is stability
- Agriculture in the United States is going to have to step up and increase production, and to do that we need to know there's going to be stability in our energy markets

Steve Nelson, *Nebraska Farm Bureau*

- Corn production is feed production for livestock and livestock is food production
- We need to have a steady supply of all types of energy and at affordable prices

Jeff Heng, *NuCor*

- We are a direct user of natural gas in our reheat process of the steel in the rolling process, but we're also a large user of electricity because our mills are electric arc furnace mills
- We at NuCor are building a $750 million direct-reduced-iron facility near the Mississippi River in St. James Parish, Louisiana, and that is the direct result of the low cost of natural gas
- Without the fracking and the directional drilling, this facility would never have come to fruition here in the United States
- And what this does it allows us to stop buying pig iron from Brazil
- For Louisiana, that could possibly be 1500 jobs
- Our concern about regulatory barriers is not from our direct use but more so from the production side of it
- We would hope that if Congress would make it efficient and a predictable regulatory process to building this infrastructure

W. Gary Gates, *Omaha Public Power District*

- Natural gas is going to be our future choice for fuel for generation
- Will become baseload fuel
- We will not have the capacity to buy from MUD, and we're going to look at how to increase that capacity
- We're going to have some filtering issues as we get into the difference between dry, wet gas and what may be in the future
- Security issues
- The pumping piece for natural gas
- If you lose electricity, which could happen in a security issue, you may not be able to pump the natural gas
- And we're all building wind, we're all building solar, renewables, but that's a fuel substitute; it's not a capacity substitute

Steve Eule, *U.S. Chamber of Commerce*

- Shale gas is a game changer, but EPA regulation can also be a game changer, too
- The use of natural gas for transportation. We would urge the government not to pick winners and losers
- Energy independence doesn't mean energy autarchy
- Free trade is very important here
- Getting infrastructure to align with demand in scheduling, it's a huge issue and that's one the Congress needs to pay attention to
- We are not running out of resources; we are running out of access to resources
- I don't think it's a bridge fuel. I think it's potentially the superhighway
- Traditionally, industry loves one set of rules
- Localized aspects of the geology, I think industry would much prefer the states do this
- I think what's very, very effective is to bring up case examples of how the money, the revenue that's raised through shale gas, really benefits our communities.

Question & Answer Highlighted Statements:

Dave McCurdy, *American Gas Association*

- Producers had to learn how to go in and gauge the community
- You have to have transparency
- Environmental Defense Fund, though, is working with Southwest Energy down in Texas on some of the emissions issues
- It's changing the equation so that there's a new foundation you can build on.

Use natural gas and build on a renewable portfolio. Use natural gas and build on with some transportation

- There are infrastructure challenges this country has
- It's not that they're asking for money, but it's making sure there's access to capital, capital gains and tax dividend policies
- Any capital-intensive industry wants predictability and certainty
- So that's the role of government right now is providing some long-term leadership
- How do you spread the burden of those long-term costs that we all face
- It's an issue of scale and issue of timing
- The states believe that they're going to run the show or dictate because Congress is not acting
- So it's incumbent on Congress to come up with an energy outline/guideline, and also what is our infrastructure going to look like, and then you're going to have to address these thorny issues of how do you pay for it

Gary Stauffer, *American Public Power Association*

- Anybody that's anti-carbon is pro blackout

Dan England, *American Trucking Association*

- We just don't have a good mechanism for funding highways
- Right now there's a huge gap, of course, between the cost of natural gas and diesel, but that will narrow up as the states jump onboard on taxing gas
- Leave it up to the market, you know

Bill Cooper, *Center for Liquefied Natural Gas*

- We don't need the federal government and, particularly, the EPA trying to regulate something that's already being regulated at the state level
- Now, there may be a role for the Congress when you look at hydraulic fracturing on federal lands
- Maybe you adopt the state model in these particular areas instead of punting it to the states
- Congress has a role on federal lands. I think the role of Congress on private lands is to make sure the federal government does not intrude upon the state's abilities to regulate their own resources
- When the EPA gets involved, it adds a rigidity and a complexity that overlays what the states are already doing, and all it really does is just add more costs
- The ultimate effect is that we're going to drive those mid-level to small operators completely out of the industry

Lucian Pugliaresi, *Energy Policy Research Foundation*

- I don't think that the states -- do you think the states are demanding Congress get involved [In regards to Fracking]
- It really is a very local use. The geology tends to be very local, the water resources are very local, and it's unclear what value-added EPA would have
- The surge in new crude types that are not well matched to the refining configuration, the necessity to capture these natural gas liquids, the placement of new pipeline capacity, all of these things are going to put a huge regulatory burden
- You can't do a major modification on a refinery without going to NSPS. You can't do a new petrochemical facility without going through the regulatory process
- A long-term sharing of the price risk? It seems to me that that's a natural way to deal with that risk: For you as a utility and a producer to come together and say, okay, let's find a way to share this price risk, which is really the thing you're worried about

Daniel Simmons, *Institute for Energy Research*

- The problem when the federal government gets involved is that whole balancing that people go through gets haywire

Jonathan Weisgall, *MidAmerican Energy Company, EEI*

- What can you do about accelerating pipeline approvals and gas storage?
- Certainty, predictability more than anything else and probably letting markets do what they can

Michael W. McGowan, *Metropolitan Utilities District*

- Only 88,000 Btus in a gallon of LNG versus 138,000 Btus in a gallon of diesel fuel
- If you just go on gallon per gallon, you're penalizing the development of LNG and CNG markets

Holly Alfano, *National Assoc. of Truck Stop Operators*

- The large players in our industry have found creative ways to do it through partnerships and that's the marketplace at work

Steve Eule, *U.S. Chamber of Commerce*

- Traditionally, industry loves one set of rules
- Localized aspects of the geology, I think industry would much prefer the states do this I think what's very, very effective is to bring up case examples of how the money, the revenue that's raised through shale gas, really benefits our communities.

Opening Remarks for Natural Gas Forum
The Honorable Lee Terry

I want to welcome you all to my hometown of Omaha.

I appreciate Mike Flood joining us as well. I think it is important that we have representatives at all levels of the government be engaged on energy security. There are certain aspects of energy exploration that can and should be left to the states. Mike has been a leader and I hope he gets as much out of our conversation today as I do.

By way of house keeping, the plan today is to have a robust discussion. Each participant may speak up to 5 minutes. I do have a couple of requests to go a bit on the early side and I will oblige them. Once all the participants have spoken, I hope to have a free flowing discussion. I want you to be able to question one another. To keep things flowing, if you have a question or comment, just turn your name tent on its side and we will recognize you.

I want this to be a forum where we can say, we came together, we shared ideas and we have a good idea about a path forward regarding the use of natural gas to create jobs, build the economy and make our country more energy secure.

We plan to wrap up by 11:30 with a press availability at 11:45.

Anyone who has followed my career on the House Energy and Commerce Committee knows that I have had a consistent energy policy – make the United States Energy Independent from those regimes that do not like us and would cause us harm. I believe that natural gas will play a major role in this independence. I have appreciated Chairman Upton and Chairman Whitfield taking the time to have 28 hearings on energy policy and I plan to share the transcript from this event with them. I also appreciate my other fellow committee members who have taken this very seriously. Cory Gardner held a briefing on taxes. Tim Murphy set up briefings specifically on hydraulic fracturing. My focus has been using natural gas in the transportation area, but I wanted to have a full and robust discussion. I think we all know if you want to make policy in one area, it will have an affect on other areas as well.

Two weeks ago, the Subcommittee on Energy and Power held a hearing on Energy Independence. I think it is worth repeating what 2 of the witnesses at that hearing had to say:

> "Reaching North American energy independence is by no means a given. The Citi report stated, "The main obstacles to developing a North American oil surplus are political rather than geological or technological."

The obstacles are political. I believe that when we sit down and discuss issues, we can put on our policy hats and come up with solutions to move us forward.

> Similarly, Manhattan Institute Fellow Mark P. Mills wrote in his report:
>
> The underlying paradigms embedded in American energy policy and regulatory structures are anchored in the idea of shortages and import dependence. A complete

reversal in thinking is needed to orient North America around hydrocarbon abundance - and exports. In collaboration with Canada and Mexico, the United States could – and should –forge a broad pro-development, pro-export policy to realize the benefits of our hydrocarbon resources.

So the bottom line is that we are living in a new paradigm and we must have our discussions in that light.

My vision for energy independence has 3 simple parts:

1) The need to use our domestic resources
2) The need to make sure the legislative and regulatory system are a help and do not hinder production, and
3) Making sure the infrastructure is in place to move the resources to market.

Over the past year, multiple reports and commentaries from various sources have started to outline a trajectory towards what was once thought impossible, North America reaching energy independence within the decade. This commonly is defined as the net import of crude oil reaching zero, or theoretical oil self-sufficiency, and is to be achieved through significant increases in production coupled with expected declines in domestic demand.

What a wonderful group of participants. We are fortunate at to have some of the brightest minds and thought leaders in the industry. But the unique thing about this forum is that we are looking at natural gas from a variety of viewpoints. Not only are we looking at it as an input for manufacturing or as a source for electricity generation, but also new ways it can be used in the transportation sector. I appreciate that we have folks here who can speak to what resources we have, how they are currently using them, and how we might be able to use them in the future given the opportunity. I am also pleased that organizations that could not have a representative here took the time to share their thoughts and I will make sure that their comments are made part of the record.

American Chemistry Council Statement for the Record

U.S. Representative Lee Terry-sponsored Energy Forum

"Jobs, Energy and Security: The Role Natural Gas Will Play in America's Future"

September 24, 2012

Omaha, NE

The American Chemistry Council (ACC) is greatly appreciative of the invitation to attend the September 24th, 2012 national energy policy forum focused on natural gas and sponsored by U.S. Representative Lee Terry, and is pleased to provide written comments for the Record. Rep. Terry's leadership on helping foster a national energy policy and the promise of natural gas in a manufacturing renaissance is to be commended.

ACC represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing. The business of chemistry is a $760 billion enterprise and a key element of the nation's economy. It is one of the nation's largest exporters, accounting for ten cents out of every dollar in U.S. exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's critical infrastructure.

The chemistry industry is the foundation of U.S. manufacturing and the engine of our national economy. Chemistry creates the basic building blocks for countless products that Americans rely on every day, from the packaging that keeps our food fresher longer to building products that make our homes more energy efficient to materials such as high-tech composites that make our cars, planes, and electronics lighter, stronger and more fuel efficient. In fact, 96% of all manufactured goods made in the U.S.A. rely on chemistry.

In chemical manufacturing it all begins with natural gas. U.S. chemical manufacturers use ethane, a liquid found in natural gas, as their primary raw material, or "feedstock." Cell phones, computers, tires, footwear, automotive parts and carpeting all use chemistry, and all are made with ethane. That large supply of ethane is attracting strong investment interest from ACC member companies (see attached presentation).

Shale gas is a game changer for the chemistry industry. It holds the promise of a renaissance of chemical manufacturing in the United States and will dramatically improve our global competitiveness. With today's more abundant and affordable natural gas supplies, U.S. manufacturers have access to lower-cost ethane. We have a big advantage over foreign competitors who use a different process based on a raw material from crude oil, called naphtha.

With the global oil prices hovering around $100 a barrel and U.S. natural gas under $3 per million BTUs, America's chemistry industry is in a strong competitive position for the first time in years.

Natural Gas: The Benefits

A recent ACC study showed that an increase of *just 25 percent* in ethane supplies from shale gas could:

- Create 400,000 manufacturing jobs in the chemical and supplier industries and other dependent sectors.

- Produce more than $132 billion in U.S. economic output.

- Generate $4.4 billion in new annual tax revenues.

Capitalizing on abundant and affordable natural gas supplies, many U.S. chemical companies have already announced plans to create jobs by building new plants, restarting facilities or making new investments along America's industrial heartland. Natural gas production is growing in states like West Virginia, Ohio Pennsylvania and along the Gulf – producing billions in needed revenues for struggling economies.

Shale Gas: Our Policy Position

To maximize the economic potential of natural gas, we need policies and regulations that enable access to this immense natural gas supply, while keeping natural gas markets stable and protecting the environment. By promoting best practices and working closely with state regulators and policymakers, we can ensure that regulations and laws promote innovation, energy security and economic growth while encouraging responsible natural gas production.

- To maximize the national benefits of shale gas, government policies must avoid undue restrictions on the natural gas supply from shale deposits (eg: state bans).

- State oversight of hydraulic fracturing is appropriate since state governments have the knowledge to oversee the natural gas production process in their jurisdictions.

- The use of various products of chemistry in hydraulic fracturing must be transparent while protecting proprietary information.

In closing, we agree with those who say that US natural gas resource has given "the United States a huge opportunity to bring manufacturing back." In the chemical industry manufacturing

is already coming back. Fully delivering on the promise of shale gas means that the regulatory and financial environment to develop the resource – including the development of the necessary infrastructure – must not impose needless barriers. By making the most of shale gas, we can support new manufacturing capacity here in the United States, good high-paying jobs and economic growth and prosperity for years to come.

Many thanks to Rep. Terry for sponsoring and creating a forum for the American Chemistry Council to deliver our vital industrial manufacturing renaissance message of job creation, greater energy independence, and increased national security through the promise of natural gas.

STATEMENT FOR THE RECORD

Mark W. Oberle
Senior Vice President, Corporate Affairs
Celanese

As Senior Vice President, Corporate Affairs of Celanese Corporation (Celanese), I commend Mr. Terry for considering unique ways to use natural gas in transportation fuel. As you consider expanded use of natural gas as a transportation fuel, we want to make you aware of a new technology that could convert our abundant domestic supply of natural gas to ethanol for use as an inexpensive fuel additive to help meet existing EPA air quality standards. Because ethanol is already used as a fuel additive and the infrastructure to distribute ethanol currently exists, this technology would expedite the introduction of natural gas into transportation fuel. Our company is one of many exploring innovative ways such as this technology to use natural gas as a feedstock for alternative fuels.

Unlike many of the current alternative fuel technologies being used widely in the US, these technologies do not need government support in the form of subsidies or tax credits to be competitive. They do not require government loans or grants to provide funding to begin construction. They do not require either a massive makeover of the national fueling infrastructure or a retrofit of existing engine technology. They just need access to the market to help meet existing demand.

This technology represents American ingenuity and innovation at its best, and it makes use of our abundant available domestic resources.

Celanese is a leading global technology and specialty materials company that makes a broad range of products essential to everyday living. The company, headquartered in Dallas, Texas, employs 7,600 people across the globe – including 2,600 employees at 13 facilities in Illinois, Kentucky, Michigan, Minnesota, North Carolina, South Carolina, Texas and Virginia. Our products are essential building blocks in the conveniences and components that make up modern life – everything from cell phones and food ingredients to medical products, packaging and vehicle components.

In November 2010, Celanese announced that we had developed this advanced technology, branded TCX®, that converts basic hydrocarbons such as natural gas into ethanol. While the science behind this conversion is not new, Celanese was able to build upon its industry-leading expertise in acetyl chemistry to develop a process that is highly efficient and cost-competitive. Based on current economics, Celanese is capable of producing this fuel for between $1.50 and $2.00 per gallon which is cost competitive in the market.

While the announcement of this technology is exciting, its full potential is limited by laws and regulations governing the development, distribution and use of domestic alternative and renewable fuels. As you consider ways to increase the use of natural gas as a transportation fuel, we would ask that you undertake a comprehensive review of existing laws and regulations that

serve as a barrier to new and developing technologies that can promote the use of natural gas as a transportation fuel and reduce costs on consumers without burdening the government and without negatively impacting the environment.

When Congress updated the Renewable Fuel Standard (RFS) in the Energy Independence & Security Act of 2007, it significantly increased the mandate for blending of renewable fuels. In expanding the RFS, however, Congress did not account for predictable technological advancements in the alternative fuels market. Under the current framework, qualifying fuels must be produced from renewable biomass and must fit into one of a few narrow fuel categories. Celanese believes that if ethanol produced using a variety of feedstocks like natural gas were eligible to compete in the current fuels market, it could substantially improve energy security in the U.S. by diversifying ethanol production.

A primary mission of this Congress has been to establish safe and effective ways to generate new domestic sources of energy, and modification of existing policies that open doors to new technological advances should be a part of America's energy future. Congressional leadership is needed to spur innovation and ensure that viable alternative technologies can enter and compete in an open market.

We commend your ongoing efforts to address concerns about meeting the growing energy needs of our nation and finding ways to increase the use of natural gas as a component in the nation's portfolio of transportation fuel options. We believe that removing unnecessary barriers to the fuels market would facilitate development of a wider array of alternative fuel technologies, including natural gas-based ethanol as a clean and inexpensive additive that is effectively a drop-in fuel usable today.

We would be happy to answer any questions you might have regarding our particular technology or views on these issues.

Thank you for your consideration of this issue.

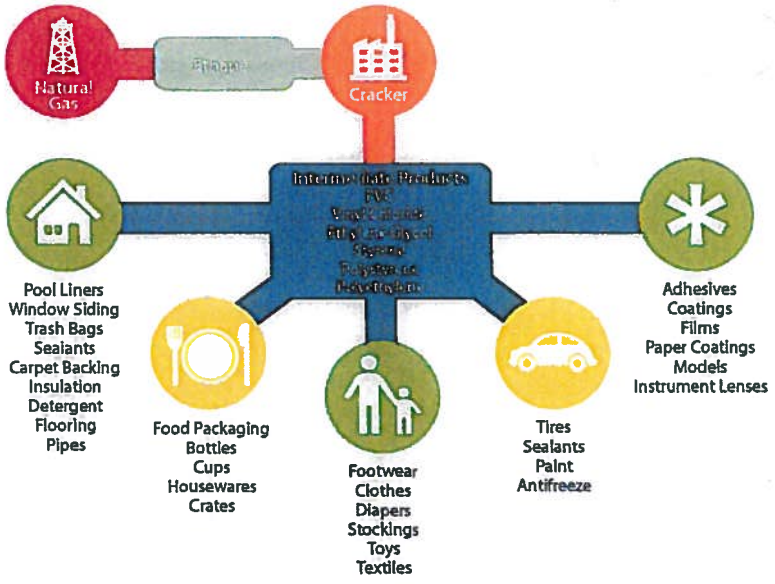
"Jobs, Energy and Security: The Role Natural Gas Will Play in America's Future"
Omaha, NE September 24, 2012

Industry- Transforming Natural Gas into Products

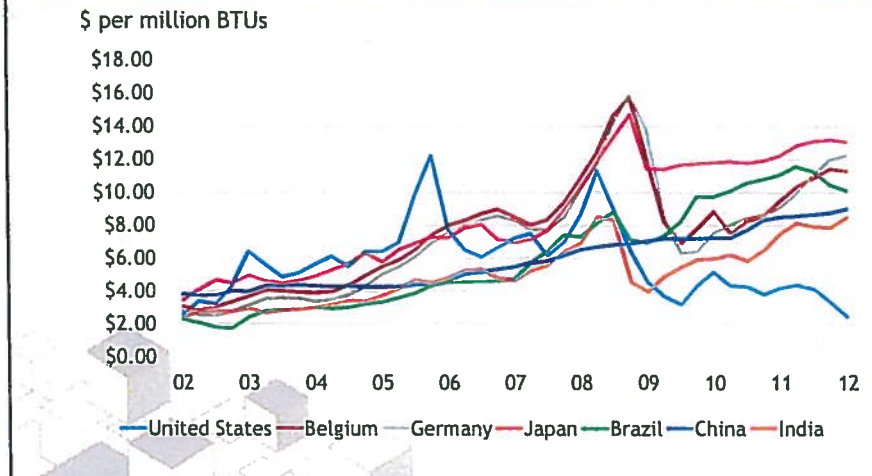
Dr. T.K. Swift
Chief Economist & Managing Director

American Chemistry Council

ETHYLENE CHAIN

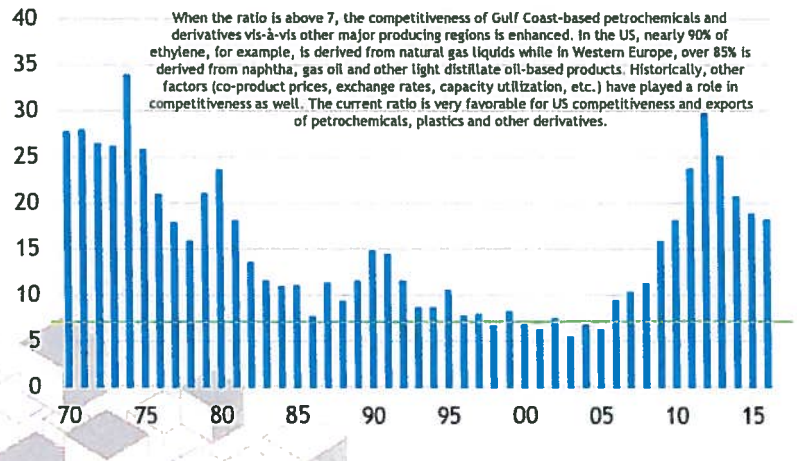


Global Natural Gas Price Trends

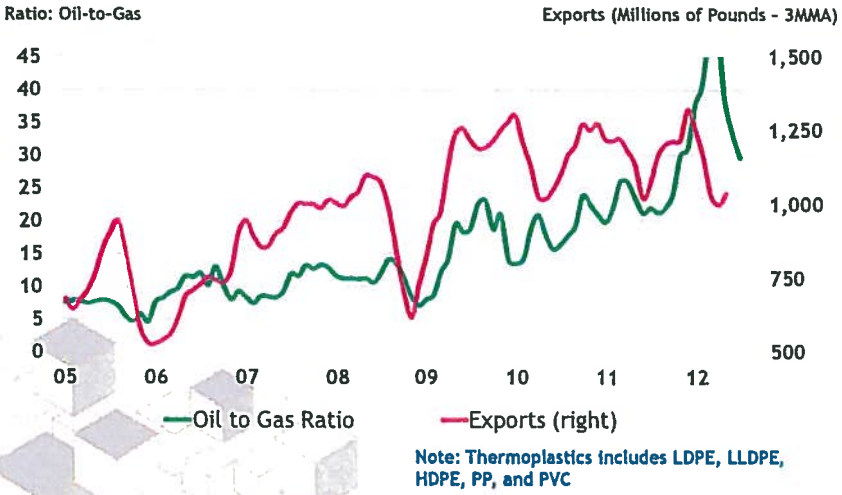


Source: EIA, Petrobas, IMF, World Bank, various national statistical agencies

Oil-to-Gas Ratio: A Proxy for US Gulf Coast Competitiveness



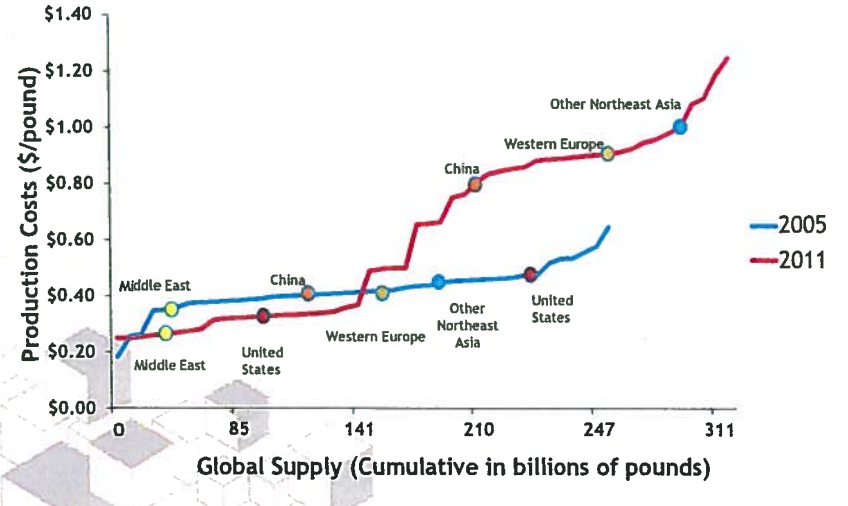
North American Thermoplastics Exports and Oil-to-Gas Ratio are Correlated



Note: Thermoplastics includes LDPE, LLDPE, HDPE, PP, and PVC

Global Ethylene Supply Curve

(Petrochemical Production Costs by Country/Region)



Implications of the North American Natural Gas Revolution

- Shale gas in the US is a game changer
- In 2000s, increasing domestic demand failed to keep up with stagnant domestic production and falling Canadian pipeline imports, and competition with Europe for LNG. The result being high and volatile natural gas prices.
- New gas supplies from shale eases constraints.
- Some policy makers see it as a bridge fuel to displace coal for electricity generation and oil for transportation
- Opportunity to reverse industrial "demand destruction" and create new opportunities for energy-intensive industries.
- Are we seeing a US manufacturing renaissance?

Shale Gas as a Manufacturing Game Changer

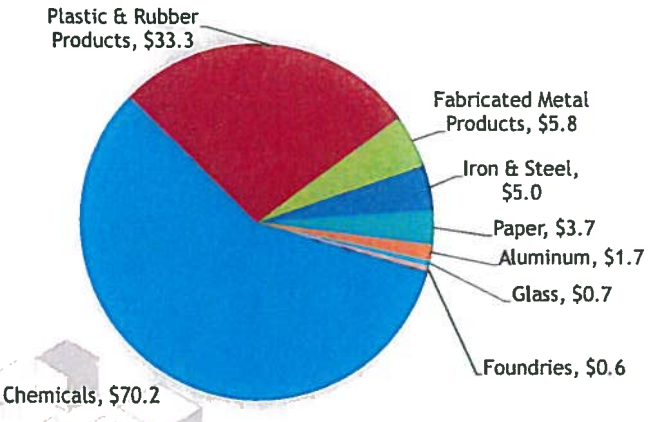
- Shale gas could also help revive American manufacturing and create hundreds of thousands of jobs, including some areas hardest hit by the recession, while strengthening national energy security.
- The new economics of shale gas create a competitive advantage for US manufacturers, which will lead to greater investment, job creation and industry (and economic) growth.
- Shale gas growth is helping to reduce natural gas prices and create a more stable supply for fuel and power - this will allow US manufacturers to become more competitive than producers in the rest of the world. It is reducing electricity costs.
- Should oil prices remain high, affordable natural gas will continue to provide US manufacturers with a competitive advantage over global competitors that use more expensive, oil-based feedstock and energy supplies.
- This oil and gas boom represents a positive shock to the US economy (much like the Internet), which should be able to capitalize on these developments. Long-term economic growth potential could be boosted by 0.3 to 1.0% per annum.

Shale Gas and Manufacturing Competitiveness

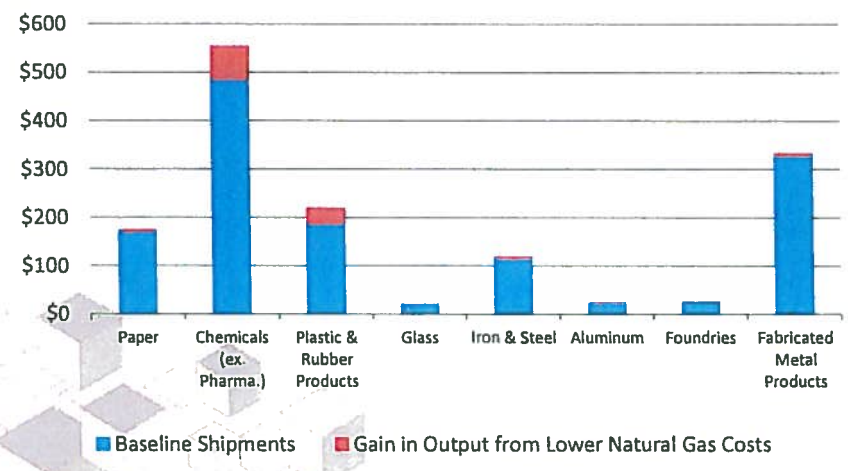
- In addition to feedstock, natural gas is a major cost component for eight gas-intensive manufacturing industries
- Lower input costs increases competitiveness and eventually output
- A March 2011 ACC report analyzed impact of a 25% increase in US petrochemicals supply
- A May 2012 ACC analysis considers the impact on eight gas-intensive (and trade-exposed) manufacturing industries:
  - Paper
  - Chemicals, excluding pharmaceuticals
  - Plastic and Rubber Products
  - Glass
  - Iron & Steel
  - Aluminum
  - Foundries
  - Fabricated Metal Products
- ACC used the IMPLAN model to estimate economic impact from increased manufacturing output and economic activity generated during the investment phase.
  - New industry output and jobs generated by increased chemistry investment ("direct impacts")
  - New production and jobs created in chemistry's supplier sectors ("indirect impacts")
  - Increase in output and jobs in broader U.S. economy as a result of spending by new employees ("induced impacts")
  - Also examined tax implications

Additional $121 Billion Output of Eight Gas-Intensive Manufacturing Industries from Shale Gas Advantage

In Billions of 2010 Dollars



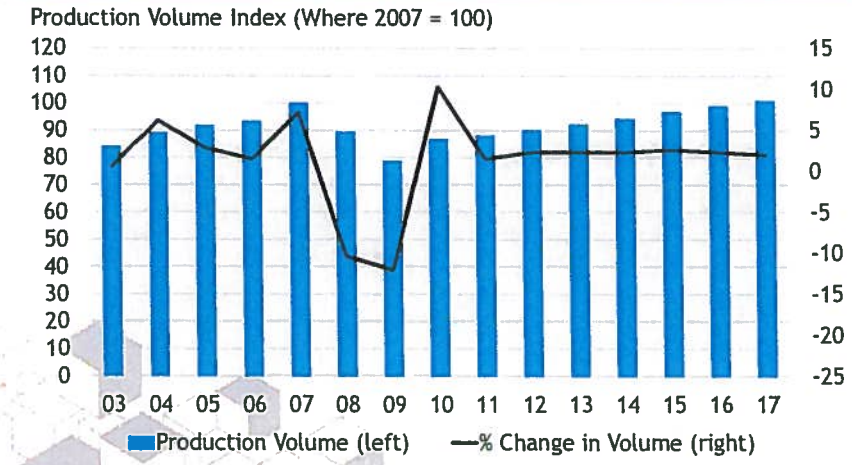
Incremental Supply-Side Gain in Shipments of Eight Gas-Intensive Manufacturing Industries



Results of the Analysis

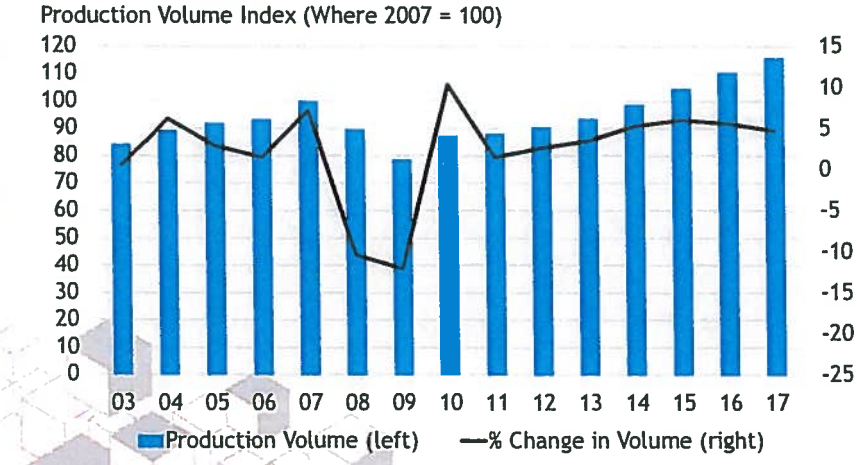
- Directly generate 200,000 new, high-paying jobs in these eight manufacturing industries
- Generate an additional 979,000 jobs in the supply chain and elsewhere in the economy through the indirect and induced economic effects of expanded production from these eight manufacturing industries, leading to a total 1.2 million jobs generated from the effects of expanded production
- Generate 1.1 million jobs in construction, capital goods manufacturing, in their supply chains and elsewhere in the economy over the course of the investment phase
- Generate $26.2 billion in annual federal, state, and local tax revenue from the growth in output
- Directly generate a $121.0 billion increase in the output of the paper, chemicals, plastic & rubber products, glass, iron & steel, aluminum, foundries, and fabricated metal products industries
- Directly generate a $72.0 billion in capital investment and construction activity by the eight industries to build and/or expand capacity, leading to a $207.6 billion one-time boost of economic activity

Current Outlook for Chemicals (excluding Pharmaceuticals)



Sources: Federal Reserve Board, ACC analysis

Outlook for Chemicals (excluding Pharmaceuticals) with Shale Gas Advantages



Sources: Federal Reserve Board, ACC analysis

Chemical Industry Projects

(as of August 2012)

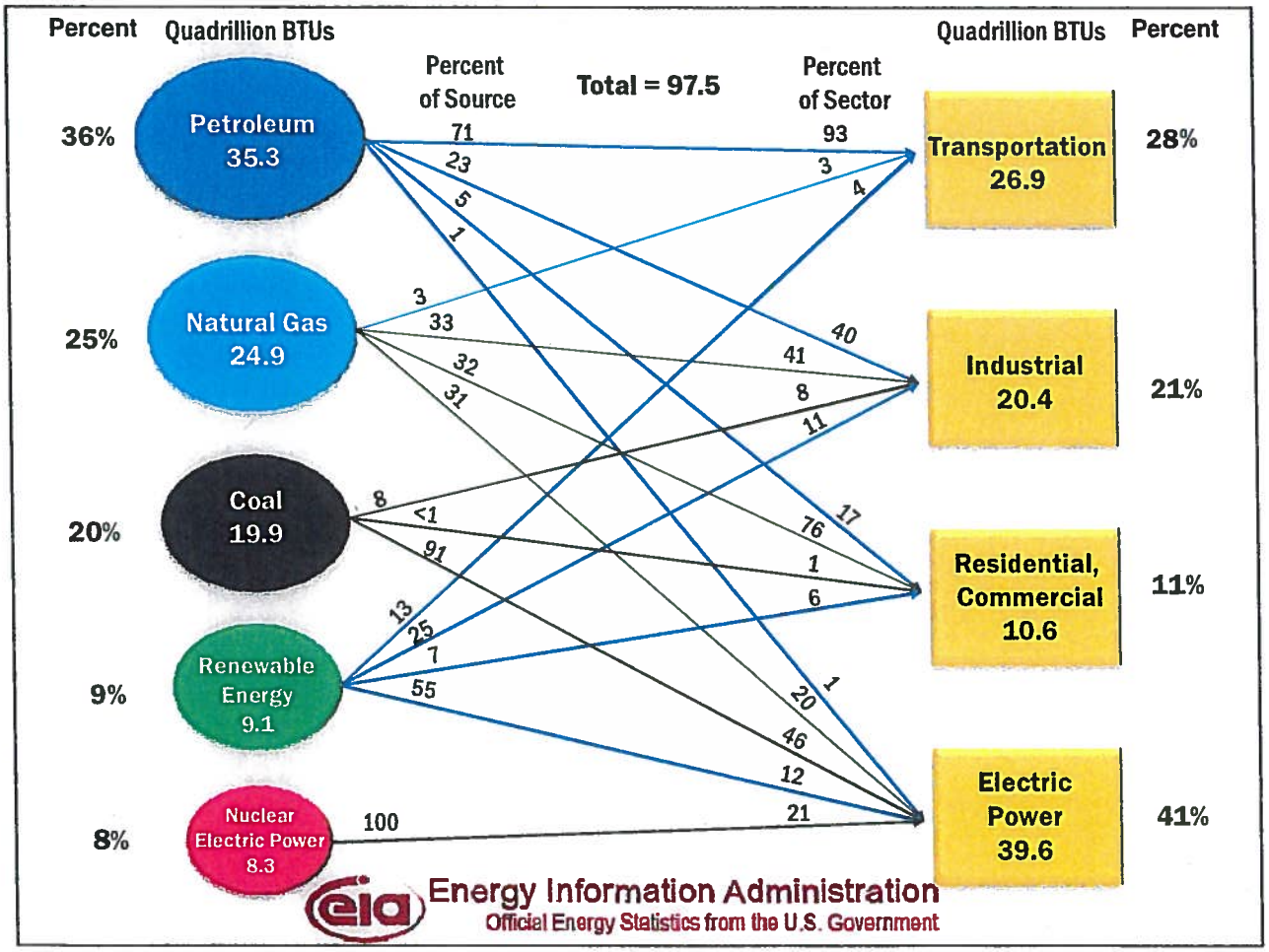
Aither Chemicals
Appalachians Resins
BASF
Bayer Material Science
Braskem
Celanese
Chevron Phillips
Dow Chemical
DuPont
Dyno Nobel
Eastman Chemical
Enterprise Products
ExxonMobil
Formosa Plastics
Honeywell Specialty Materials
Huntsman Chemical
Indorama Ventures
INEOS
Invista
Kuraray Americas
LANXESS
Lubrizol
LyondellBasell
Methanex
Mitsui Chemicals
Orascom Construction Industries
OxyChem
PCS Nitogen
Renetch
SABIC
Sasol
Shell Chemical
Westlake Chemical
Williams

Other Analyses

- **An analysis by Price Waterhouse Coopers for the National Association of Manufacturers found that US manufacturing companies could employ approximately one million more workers by 2025 due to benefits from affordable energy and demand for products used to extract natural gas.**
- **Citigroup released a study which examined the effects of the domestic energy supply revolution and found new production and associated activity will accelerate economic growth by 30-40 basis points. By 2020, the cumulative impact will boost real GDP by 2.0% to 3.3%, creating from 2.7 million to as high as 3.6 million net new jobs, and reduce (by 60%) the current account deficit to 2.4% of GDP.**
- **A recent Boston Consulting Group study uncovered a "tipping point" in cost-risk among seven key industries (computers and electronics, appliances and electrical equipment, machinery, furniture, fabricated metal products, plastic & rubber products, and transportation goods) and that as these industries "re-shore" to the USA, the USA will gain $80 billion to $120 billion in added annual output and two million to three million jobs.**

Conclusions

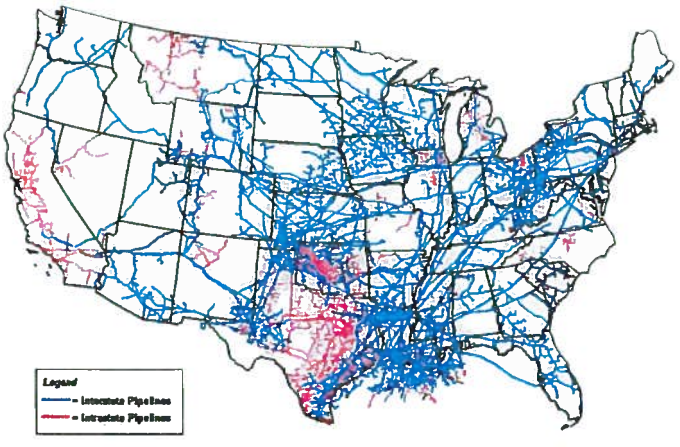
- Forecasters' approaches are demand-based; need to recognize supply-side
- Shale gas has been a game changer in US natural gas markets
- Leading to a manufacturing renaissance
- Shale gas has improved the competitiveness of the US manufacturing, especially chemicals
  - Boosting exports
  - Over 30 major chemical industry projects have been announced
  - Location of shale gas may foster new greenfield investment
  - Generating new business, jobs, and tax revenues
- With high value-added, manufacturing multiplier effects are high


Percent
Quadrillion BTUs
Percent of Source
Total = 97.5
Percent of Sector
Quadrillion BTUs
Percent
36%
Petroleum 35.3
25%
Natural Gas 24.9
20%
Coal 19.9
9%
Renewable Energy 9.1
8%
Nuclear Electric Power 8.3
71
23
5
1
3
33
32
31
8
<1
91
13
25
7
55
100
93
3
4
40
41
8
11
17
76
1
6
1
20
46
12
21
Transportation 26.9
28%
Industrial 20.4
21%
Residential, Commercial 10.6
11%
Electric Power 39.6
41%
Energy Information Administration
Official Energy Statistics from the U.S. Government

Natural Gas Forum
Omaha, Nebraska
September 24, 2012

C. Gregory Harper
Group President, Pipelines & Field Services
CenterPoint Energy, Inc.
Chair-elect, INGAA

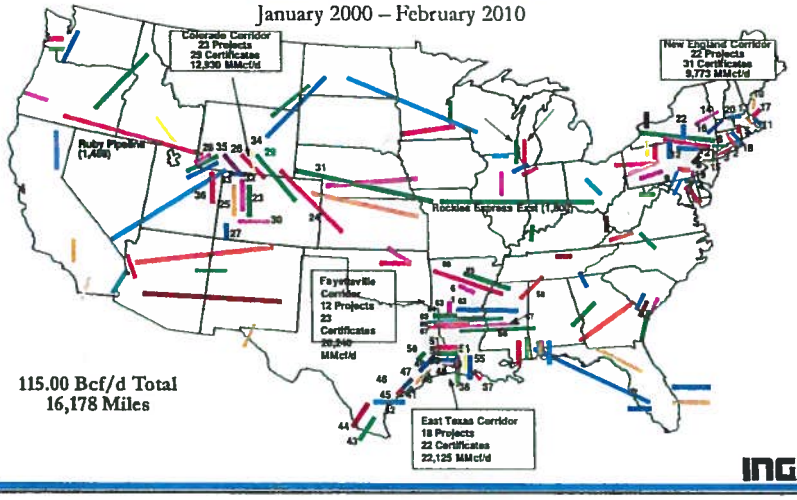
Pipelines make it possible



Source: Energy Information Administration, Office of Oil & Gas, Natural Gas Division, Gas Transportation Information System

Proven Track Record of Building Pipeline Infrastructure
16,000 Miles in 10 Years

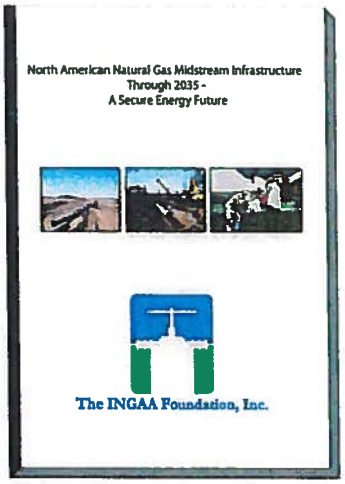
Major Pipeline Projects Certificated
January 2000 – February 2010



115.00 Bcf/d Total
16,178 Miles

INGAA

Infrastructure Needed



- The US and Canada will require midstream natural gas investment of $205.2 billion over next 25 years ($8.2 billion per year).
- New infrastructure will be required to move natural gas from regions where production is expected to grow and to areas where demand is expected to increase.
- Natural gas consumption expected to grow 1.6% per year
- Total natural gas use expected to rise to about 109 Bcfd

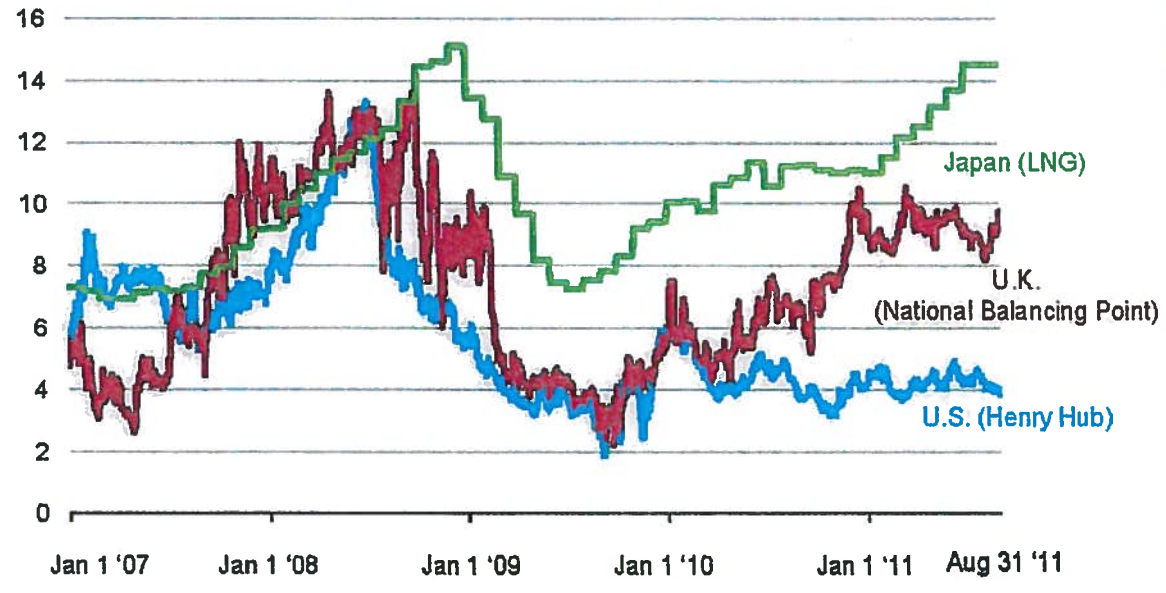
INGAA

What We Ask from Policymakers: First Do No Harm!

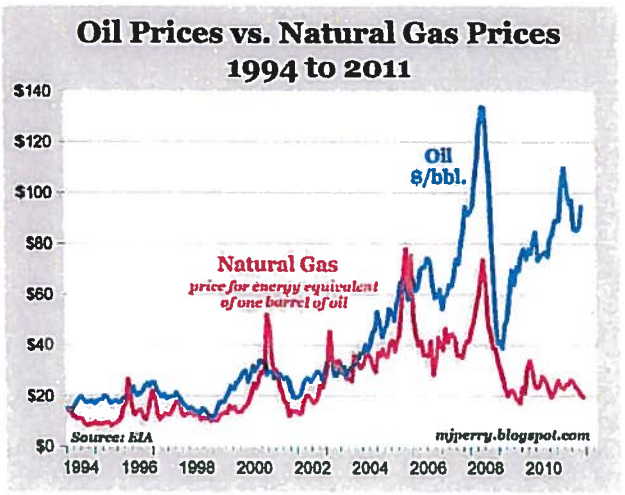
- Pipeline approval, permitting and siting process is not perfect, but as you can see from the previous slide, it does work.
- FERC economic regulation is consistent and predictable, and therefore helps in attracting investors to our industry.
- The ability to use Master Limited Partnerships also helps with capital formation for these capital-intensive projects.
- The current regulatory and tax environmental for natural gas transmission pipelines is a success story; Congress should avoid trying to fix what isn't broken.

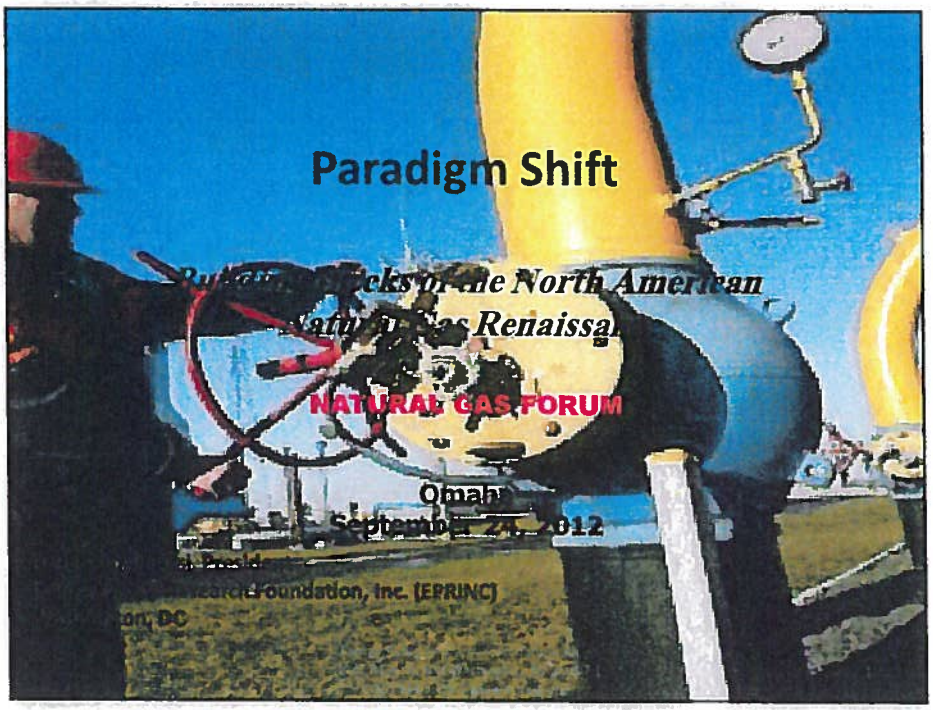
INGAA

Natural gas prices in the U.S., U.K., and Japan show divergence



Source: EIA, taken from Bloomberg

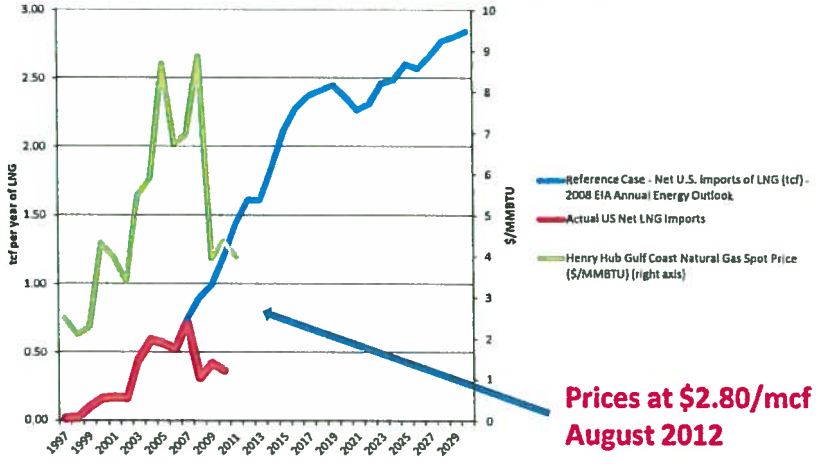

Oil Prices vs. Natural Gas Prices
1994 to 2011
$140
$120
$100
$80
$60
$40
$20
$0
Oil
$/bbl.
Natural Gas
price for energy equivalent
of one barrel of oil
Source: EIA
mjperry.blogspot.com
1994
1996
1998
2000
2002
2004
2006
2008
2010



EPRINC

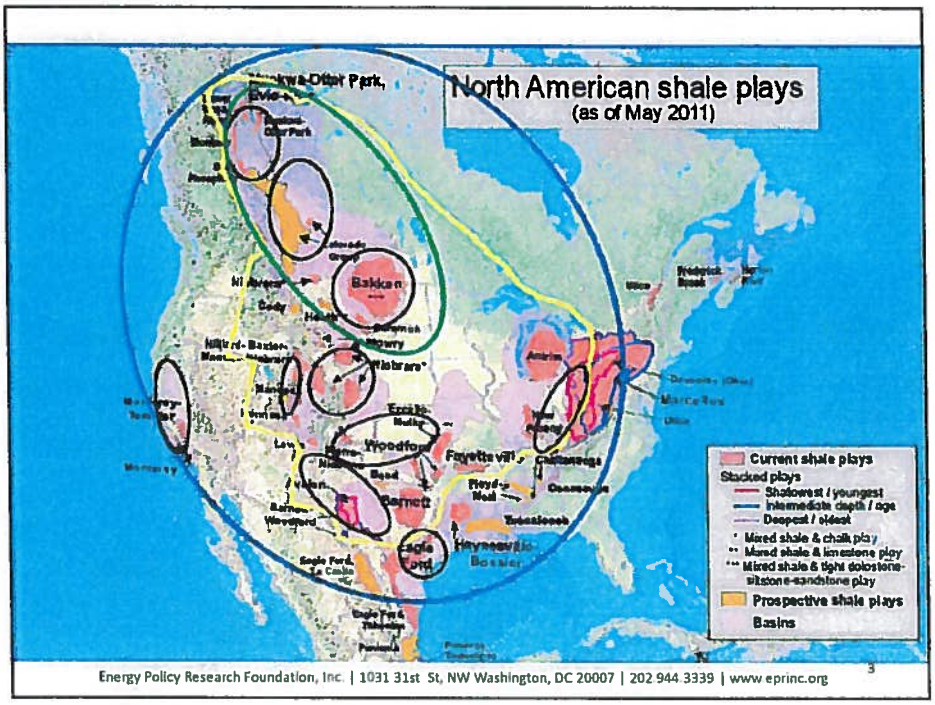
Projected Imports of LNG vs. Actual

(or why forecasters should have humility)



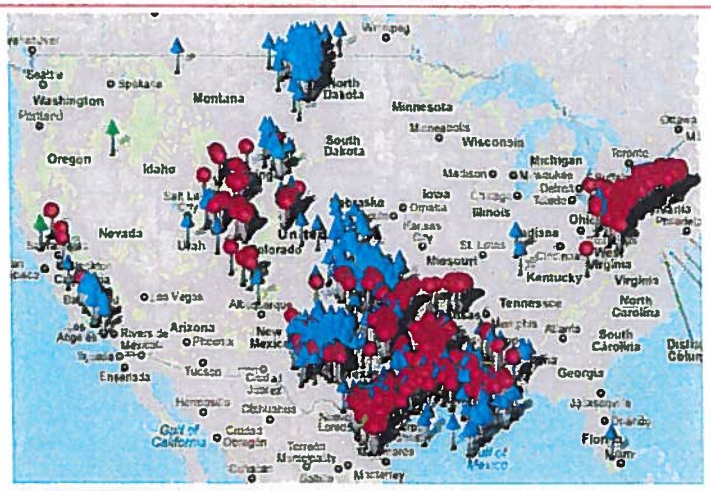
Prices at $2.80/mcf August 2012

Source : EIA data and forecasts



EPRINC

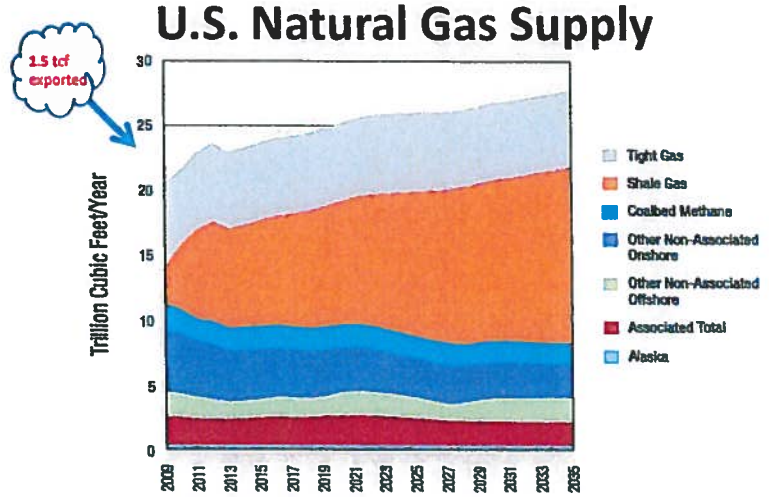
Rig Count and Permits



Source: Photo Baker Hughes Interactive Rig Count Jan 25, 2012

EPRINC

U.S. Natural Gas Supply

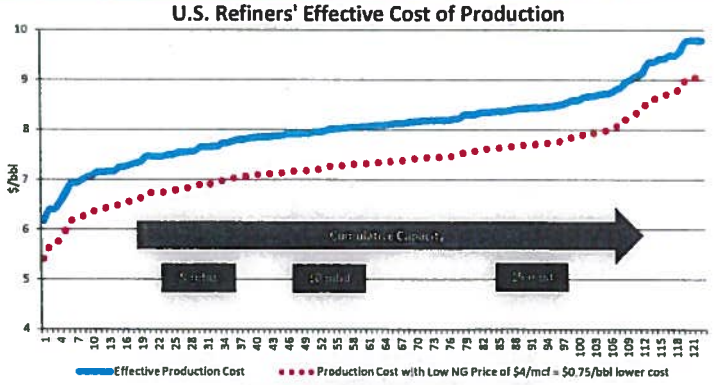


Source: EIA, 2011 Energy Outlook

EPRINC

Low Cost Natural Gas Lowers Production Costs

U.S. Refiners' Effective Cost of Production



Refinery # (most complex on left, least complex on right)
<<<—Higher CAPEX/OPEX, generally large, but better yields, feedstock flexibility
Lower CAPEX/OPEX, generally smaller, but worse yields, less flexibility —>>>

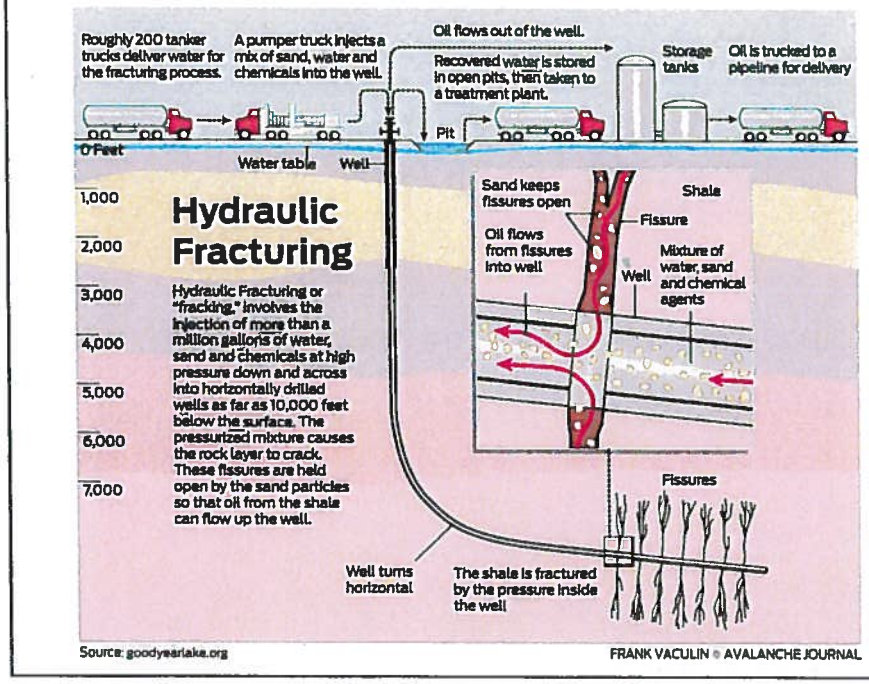
Effective Production Cost takes into account a refinery's ability to use heavy crude feedstocks (complexity), product slate (yields) and operating costs (OPEX)

Source : OGJ Data for 2009, EPRINC Calculations

EPRINC

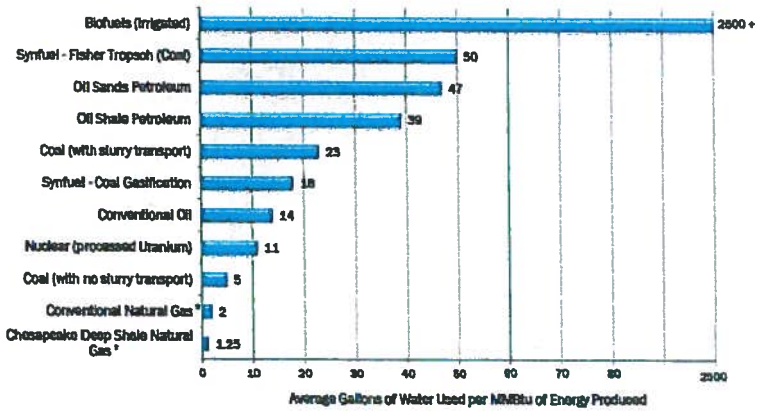
Petrochemical Cost Curve , By Country 2010

Source: American Chemistry Council



EPRINC

Water Used to Produce Energy



Source: U.S. DOE, Chesapeake

JOBS, ENERGY SECURITY, AND THE ECONOMY:

The Role Natural Gas Will Play in America's Future

Hosted by Congressman Lee Terry

Monday, September 24, 2012

Forum Panelists:

Marguerite Mills, AEP

Dave McCurdy, American Gas Association

John Felmy, American Petroleum Institute

Gary Stauffer, American Public Power Association

Dan England, American Trucking Association

Bill Cooper, Center for Liquefied Natural Gas

Gregory Harper, CenterPoint Energy, INGAA

Lucian Pugliaresi, Energy Policy Research Foundation

Ford West, Fertilizer Institute

Daniel Simmons, Institute for Energy Research

Jonathan Weisgall, MidAmerican Energy Company, EEI

Michael W. McGowan, Metropolitan Utilities District

Holly Alfano, National Assoc. of Truck Stop Operators

Curt Friesen, Nebraska Corn Board

Steve Nelson, Nebraska Farm Bureau

Jeff Heng, NuCor

W. Gary Gates, Omaha Public Power District

Steve Eule, U.S. Chamber of Commerce

Monday, September 24, 2012, 9:01 a.m.

CONGRESSMAN TERRY: All right. We'll start off here. The way it's going to go is I'm going to make a couple of comments, like maybe 20 to 30 minutes, use up all of your time, and then Mike Flood, our speaker of our legislature, who has been very involved on the energy and natural gas issues, will give a quick statement. And then I think Gary and somebody else is going to have to leave, get on a jet plane out of here. Very few people like leaving Omaha, so it's strange that Gary will be getting on a plane, but --

MR. GATES: I don't like to do it, but I've got to get back.

CONGRESSMAN TERRY: The first rule is if you want coffee, get up and get it, even when we're speaking. No problems there.

But I do want to thank all of you for being here, coming to the great city of Omaha. And some of you already have given me positive feedback about our town. It is a great town and too bad -- if any of you have got time, we can get you down to the zoo. We have one of the best zoos in the nation, as well.

There's no College World Series to attend, so you'd just see an empty stadium, but you probably drove past that anyway.

Now, what my goal here today is, simply, to have a robust discussion on the future of natural gas. I have been an advocate of a long-term energy plan and policy, and, frankly, natural gas has been called a game changer and seems to be exactly that, a game changer. And so I want to hear from each of you. We've got producers, we've got users, we've got industry. We've got a nice eclectic mix of people who are stakeholders in the future of natural gas, and so it's our opportunity to hear from your perspective the future as you see for natural gas.

And we'll go in order, other than a couple of speakers that will be called out

of order because of impact on their times; and then at 11:30, we will wrap it up, have a press conference I think over at Rick's Boatyard.

So with that -- this is also building on what we've been doing in our Energy & Commerce Committee in our 28 hearings on energy; and this is more specifically honed in on natural gas, and this will be added to all of the testimony that we've received from all of those 28 hearings.

So what I would like to do is just go ahead and open it up with Mike Flood, our speaker of the Nebraska Legislature, for his comments.

SENATOR FLOOD: Thank you very much, Congressman Terry. Thanks for including me in as a part of this effort.

His leadership on energy policies, specifically our little issue with the TransCanada pipeline, which you might have heard about, has been solid and consistent in support of finding new energy sources for America and for Nebraska.

And I want to talk about natural gas. I'm so pleased this is happening because I live in a town that's served at the end of a Kinder Morgan line in Norfolk, Nebraska. Norfolk is about two hours north and west of here.

And a couple of years ago, in 2007, we recruited a business to come to Norfolk, and they process soy protein and soybeans and organic soybeans from across the Midwest. They were set to hire 200-plus people in my hometown of about 25,000 people.

And we called the gas company. They wanted 4,000 firm decatherm a day. We called our LDC. At the time it was Aquila, it's now Black Hills; and they contacted Kinder Morgan, who transports the gas to northeast Nebraska.

Kinder Morgan advised we didn't have enough capacity in the line. We lost the prospect. And from that point on, the word went out: Norfolk was out of natural gas.

We're served with about 28,000 MMBtu a day. We have about 8 percent

capacity. We could probably lure another big-box store to our community, but anybody needing firm, uninterruptible natural gas service is not going to find our community attractive.

Last year in 2011, a very cold winter in Nebraska, businesses like Lindsay Manufacturing in Lindsay, Nebraska, south of Norfolk--they employ hundreds of people, make irrigation systems--Tyson Foods in Madison, a pork plant; Milk Specialties in Norfolk, a company owned by an out-of-state operator, were shut down 11 times during 2011 because they, number one, contracted for interruptible gas, but, two, we're at such capacity limits in our area of Nebraska that in those cold, cold days, we just didn't have the capacity.

And as I've traveled around the state, they have this problem in York, they have it in Gibbon, North Platte; and two weeks ago I was in Blair, Nebraska, at the Cargill ethanol operation there in Blair, a very large user, and they advised that they have capacity issues, as well, impacting Blair and Washington County. This is a state-wide problem.

Nebraska is served by two carriers, essentially, in terms of transporting the gas: Northern Natural on our eastern border, and then Kinder Morgan with a spiderweb coming along the Platte River valley now being transferred in ownership to Tallgrass. That's a company, not a comment on vegetation.

But the challenge for us is -- when we wanted that extra gas in my hometown, we contacted several marketers. We certainly contacted Kinder Morgan. And FERC regulations, as you know, do not allow the transporter of natural gas to spread the cost out to all of those payers or customers in a zone or rate area. FERC regulations narrow that cost in on the new business.

So we went back to our business prospect, and at the time it was about $12 million to loop the line between Albion, Nebraska, and Madison, Nebraska, to provide

more capacity. And when you're starting a new business and your cost of transportation goes anywhere from $.22 to $1.08, we priced ourselves right out of 200 jobs. And in 20 years, left unfixed, left unattended, this problem is going to create big issues for rural Nebraska. It's going to create issues in Blair, it's going to create issues in Omaha and across Nebraska.

So the challenge for us as a state moving forward is to address it. You know, 25 years ago North Carolina had the same problem, and they were running natural gas to only four of their counties. Today they've got a good natural gas infrastructure.

I see a public/private partnership that will be required. I'm not saying that businesses needing more gas are unwilling to pay, but when the cost to transport the gas goes from, you know, $.25 to $1.08, there are other places in America where you can get natural gas.

And when I heard that Congressman Terry was interested in this issue, I thought we have a champion here on the federal level that can address this because it's federally regulated.

As a state, we passed a law last year that I sponsored that allows communities to go to the Public Service Commission with the support of an LDC and get a little extra money from rate payers to try and address issues. But that option is only probably worth anywhere from 5 to 6 million at any given year. It's a short-term stopgap that would maybe help Gibbon, Nebraska, but it's not going to solve the infrastructure problems.

To get an additional 10,000 decatherm a day into Norfolk, the latest estimate from Kinder Morgan was $49 million, and that's a big number and that's a hurdle we have to cross. And I think a natural gas infrastructure is absolutely necessary because it is going to be the energy of the future, and it's certainly priced right at this time, you

know, for Nebraskans and for Nebraska companies.

So thank you and we're on board.

CONGRESSMAN TERRY: Mike, I appreciate all of our words.

And before we call on Gary, two things I want to point out. There's no press in the room. The press is off campus at 11:30, so I want to encourage a free flow, put it as passionate as you want to. It's not going to show up in any papers. And limit yourself to five minutes because we are really blessed to have a lot of good people here today to give their spiel.

We're not going to be really militant about that, but just be cognizant. There's no gavel here to gavel you down.

But, Gary, thank you very much. Gary is the CEO, president, grand poobah, of the Omaha Public Power District that has a nice eclectic mix of generation from, hopefully, nuclear again come January --

MR. GATES: Yup.

CONGRESSMAN TERRY: -- natural gas peaking, coal, and maybe something else, wind.

MR. GATES: A long way.

CONGRESSMAN TERRY: So, Gary, thank you for being here.

MR. GATES: Thank you, Congressman. I'll speak up.

I lost my voice cheering at the football game Saturday. It was closer than we like to see in Nebraska. It had a lot of effort into that.

CONGRESSMAN TERRY: For those of you who don't know, we won 73 to 7.

MR. GATES: So I would like to just kick it off. I think as a consumer--maybe we've got the consumers on this end of the table--but natural gas is going to be our

future choice for fuel for generation, in addition to building up a renewable portfolio.

We do use natural gas, as the Congressman said, in our peaking stations. We continue to do that, but natural gas, in our projections, will become baseload fuel, become baseload in our gas turbines; we'll probably convert those to a combined cycle. We convert some of coal units to burn natural gas, mainly to meet the regulations we're facing, particularly on some of the emissions, but it's the carbon picture overall.

We will not have the capacity to buy from MUD, and we're going to look at how to increase that capacity.

In addition, just a couple of points to note as far as electricity use and natural gas to make electricity. It's not only the quantity for us but it's the quality of that natural gas, because we're not just putting it in boilers, like Cargill was that Senator Flood mentioned. We've got to put them through a very complex machine, a turbine, a gas turbine; and so we need high quality gas going in there. We're going to have some filtering issues as we get into the difference between dry, wet gas and what may be in the future. So we're looking toward what we need to do there.

Some of the issues we're worried about on natural gas as a fuel source are security issues as far as a point source. If somebody steps on our pipeline, if something doesn't work, we're out of fuel. We don't have a way to store a lot of fuel in the natural gas sense. We don't have a 90-day coal pile sitting there or a two-year reactor core. If we're out of gas, the generation stops.

Also, the pumping piece for natural gas, we've seen a lot of shift to using electric pumps to pump it, as opposed to burning natural gas to pump it, which was a former method. So even if you lose electricity, which could happen in a security issue, you may not be able to pump the natural gas. It could be a building issue.

It seems to be the next carbon target for us, as well, going forward, even

though it's about half the emissions of coal. We anticipate there will be a lot of interest in that going forward, as well.

The prices are just such a discussion point. We just went through two ratings for our bonds, which we just sold last week. Both Moody's and S&P were trying to really push on what our forward curves were, which all of you, I know, were looking at, what that could be, but it's a real uncertain future for us, making those 10-, 15-year capital decisions is increasingly hard with a gas price that looks good but will become volatile and for what reason will it become volatile.

So the rating agencies are really pushing us. It's a negative part of your rating now if you're over 50 percent coal and negative if you're moving too much natural gas, so that was an interesting exercise for us to go through.

The other -- you know, the question we always get asked: Is natural gas the best use for electricity or is it better to seed stock for many other things that natural gas is used for? Are we the appropriate ones to be using it?

And if you look across the country, the movement to natural gas by electric utilities, we're going to clearly be a big consumer going forward. That's the only thing that's going to be built. Any of the CEOs I've talked to around the country--I'm going to a meeting with most of those CEOs tomorrow--it's natural gas. And we're all building wind, we're all building solar, renewables, but that's a fuel substitute; it's not a capacity substitute, baseload units, and we're all going to be moving to gas. We're going to be sucking up a lot of the inventory going forward.

I think the Congressman has done a great job over his career to try to make sure our regulations make sense with regard to the emissions piece. We need to keep focus of that, in our opinion, going forward.

But the price curves going forward are key, what are we going to do, make

sure we've got good security there from the gas supply, but that's where we're headed is to use natural gas as a mean for our electric generation. And then how do we balance all of this going forward financially with capital decisions we've got to make.

Those are the key issues facing us.

CONGRESSMAN TERRY: Okay. Thank you, Gary.

Spencer, will you do me a favor. It was kind of hard to hear Gary this far away from him. See if that mic cord will reach.

And Greg Harper also has an issue. Where is he?

MR. HARPER: Here.

CONGRESSMAN TERRY: There you are. I appreciate you being here.

MR. HARPER: Thank you, Congressman, for the invite. It's good to be here and good to be here with the eclectic audience.

I'm Greg Harper, group president of CenterPoint Energy, and I'm also the incoming chair of the Interstate Natural Gas Association of America, which represents interstate pipelines.

Well, we've heard about the shale revolution, shale gas revolution, obviously the electric generation markets are growing and are going to grow.

Without pipelines -- you know, the benefits of natural gas, which is a cleaner fuel, we've been creating a lot of jobs around the country because of the natural gas boom, and encouraging natural gas customers to actually move back to the states and move businesses back to the U.S. We need those pipelines to connect those new supplies to those new growth markets.

We have a very -- you can see from the web of the pipes on the picture up there, there are about 300,000 miles of interstate pipes and intrastate pipes. Interstate pipelines make up about 215,000 miles of infrastructure. Those are your large-diameter,

high-pressure pipelines that connect supply and produce agreements to the market regions.

This doesn't count all of the gathering lines, that there's probably, you know, several hundred thousand miles of gathering lines that take gas from wellheads to supply hubs.

We also are backed by 400 natural gas storage fields, about 3.9 trillion cubic feet of stored working gas, and those are in both market areas and supply areas. And we now have high deliverability salt storage primary in the Gulf Coast areas.

Over the past decade, from 2000 to 2010, a pretty good record of actually getting pipe in the ground where it's needed. I'm sorry about your deal in Nebraska because it's really unfortunate because I think, like it said on the record here, 16,000 miles of FERC certificated pipeline in a decade to build about 15,000 miles of that from 2000 to 2010.

And that trend hasn't slowed down. In 2011 FERC put out its market study report and 2100 miles of new intrastate pipe was built in 2011, so the trend continues.

And basically, you know, if the market signals it, it does take firm contracts. That's how the FERC has set up our ability to contract and build capacity is based on firm contractual commitments.

We're seeing that as we do have more discussions with electric generators, we're getting them to understand how pipeline capacity works. We've been doing this for a hundred years with LDCs, local distribution companies, and meeting their peak needs, and the model does work; it's a good model. Price signals have to come to us and the contracts need to be firm to get the firm capacity.

The INGAA Foundation, which is an affiliate organization to INGAA--it's made up of our contractors and vendors and service-oriented companies--they issued a

study last year based on the growing shale production as well as the market needs over the next 25 years. They estimate that about $205 billion of infrastructure is going to be needed in the next 25 years to meet a 1.6 percent growth in natural gas consumption in that period. That takes natural gas consumption up in that period to 109 billion cubic feet per day.

So we feel like the process that FERC has set up is pretty good. It's not perfect, the way we site pipelines and get them contracted and permitted. It's a good working model, though. It's proven itself out. The economic regulation is consistent and predictable to us. We can attract capital to our business, as a matter of fact, the use of master limited partnerships. CenterPoint doesn't have master limited partnerships, but I actually ran one at Spectra Energy. It's a great form to attract capital and a good financing tool to the industry.

So, basically, the regulations, the tax policies around pipeline infrastructure, it works. It's not broken, so we don't need much fixing to it. So I think leaving the regulations where they are or promoting and educating how the regulations work for us is going to be the biggest obstacle we have.

That's it, Congressman.

CONGRESSMAN TERRY: Well, thank you. I appreciate the presentation.

And next, we'll stick in order, Marguerite Mills, the president of the fuel procurement at American Electric Power. So thank you for being here.

MS. MILLS: Well, on behalf of American Electric Power, I would like to thank you, Congressman Terry, for the opportunity and for the interest that the House Energy & Commerce Committee has in helping promote natural gas as a resource for the future and helping the electric utility industry navigate through that future.

The natural gas and the electric utility industries both serve a critical need

for health and safety and for energy security for the United States.

And as Mr. Gates alluded -- commented, it is expected to grow in the natural -- the more electric energy is predicted to be sourced from natural gas in the future, and, in fact, by 2035, I've seen that the estimate is as much as 50 percent of the gas demand will be from electric generation.

The interdependency of the two industries is increasing and that is being brought about by the new suite of EPA regulations that's forcing us to retire some coal units. The low natural gas prices from shale development is helping promote the use of natural gas in the electric generation industry, and also the peaking requirements that are needed to support the ever-increasing renewable resources.

We feel that FERC is in a good position. It regulates both the natural gas industry and the electric industry, so it's in a good position to regulate and promote coordination between the industries.

For AEP, in 2010, our use of natural gas has increased 40 percent over what we used in 2009, and that trend is continuing. In 2011, we used 24 percent more than we used in 2010; and today, year to date for August, we've already used 40 percent more than we did in 2011, so it's continuing to increase.

And all of our future generation is going to probably be combined cycle natural gas. So we think it's timely that focus is given to the interdependency of the two industries.

There are some challenges and what we recommend is that FERC would promote and endorse continuing to use the North American Energy Standards Board. It's a forum where both the gas and electric industries work together to help develop business standards and to work through the issues and the challenges that both industries face.

One of the big challenges for us is that the gas day and the power day are

not synchronized, and I understand that that would create some problems because the gas industry needs to plan their systems the day ahead, so one of the things that AEP is promoting or recommending is that if the industries could -- if there were more natural gas nomination cycles, and our preference would be hourly nomination cycles, that would help the electric industry align with the natural gas industry.

We also believe that if there were a consistency across the Regional Transmission Organizations so that the timing of the bid awards were consistent across all regions for the regional transmission awards so that the power generators would know when they're going to run at the -- you know, if the timing would be coordinated so that we could work with the gas industry.

And along with the comment earlier about security, we believe that there's a need for recognition in the event of emergency conditions, such as extreme winter weather or hurricane-type events, that the industries would each recognize each other as a human needs customer, that that would help ensure the reliability of both the gas pipeline system and the electric generation system and help facilitate the restoration of any service disruptions during those periods.

Thank you very much.

CONGRESSMAN TERRY: Thank you.

And, Dave, I appreciate you being here. Good to see you again, former member.

MR. McCURDY: Thank you, Congressman. It's good to be here, it's good to be in Nebraska. As Gary said he lost his voice rooting for the Cornhuskers, I lost my voice yelling at the Sooners on television as they --

It is good to be here and just a quick -- we're all here because of our respect for Congressman Terry, and I've been at the American Gas Association for about a

year and a half and previously was at the Alliance of Automobile Manufacturers, and Congressman Terry played a real key role there in helping us get to a viable fuel economy standard that saves energy and provides energy security and provides consumers with more efficient vehicles, and he did play a critical role.

I'm here because it's not just the fortune of good timing, but when we talk about natural gas, it's the right time, the right place in our future, and any conversation about natural gas is really a conversation about the future of our economy in this country.

And, Speaker Flood, I understand your concern and took a lot of notes because to make sure that this foundation fuel is available, that Americans have access to this clean, domestic, abundant and affordable, and we think the price stability, we hope, is the new norm because of this American technology that's unleashed this bounty.

As a golfer -- I was in a recent international forum and trying to explain how the U.S. has a second chance here, and I said, as golfers, really we've got a mulligan; we really do have a second chance to maybe get it right.

Unfortunately, we've failed to have an energy policy in this country for the past 40 years. Different administrations, regardless of party, different Congresses, have all decried dependence on foreign oil and, yet, unable to do anything about it. We have a chance now to do something about it.

Unfortunately, you're coming at a convergence of some really tough trends: You have rising deficits, a government unable to probably play in the role that it did previously. So the question is how do we get the market forces, you know, aligned and to use the policies to support this.

Also, when the Speaker is talking about capacity and availability and access, this is a challenge because the federal government is not going to provide those huge incentives to expand, and hopefully they'll keep regulation at a minimum so it doesn't

impede expansion, but this is where states and local communities have to work with the industry.

As Greg said, we have 2.4 million miles of pipeline in this country, which is the envy of the world; no other country even comes close to this. In addition to 300,000 interstate lines, we have 2.1 million of the distribution. And we spend about $7 billion a year as an industry, and my members are the 200-plus LDCs around the country that provide natural gas to heat your homes and businesses and, we think, expand into transportation, and there's tremendous opportunities, CHP, microgrids, a lot of consumer options and potential here, but it's making sure we have that access.

So one of our primary efforts right now is working through organizations like ALEC and others to build awareness of this need to partner to get this availability to other Americans, because it would be a crying shame that we would have this domestic fuel and not make it available.

Just one of the -- so that's one of challenges, but it's one of our top.

Marguerite mentioned interoperability. We have encouraged FERC to address that issue, and they have these regional meetings and conversations going now. And it's one that we proactively advance and we think has to be addressed.

But one of the -- so the challenges are access, making sure we're there, making sure that the regulations don't impede, making sure that the supply is available. And we don't see Congress being the threat to the supply through restrictions on hydraulic fracturing, which is the American technology that's changing the world, but we do think at the local level that is an ongoing struggle, because there's uncertainty and there's fear and we have to make sure we have the right data and that we're engaging communities in that conversation to ensure their safety.

The second is -- and our top priority is pipeline safety. Again, we make

huge investments in that; pipeline integrity is critical, again. There are models, though, and you mentioned North Carolina, Speaker. Also Georgia is one.

In this case, they -- there's a number of innovative rate approaches, and our foundation just is releasing this week a study on models of rate approaches, both in transportation but also looking at models for expansion. So this is part of the future; what we call it is fueling the future with this foundation fuel. So we're addressing this. Would be glad to reach out and work with you all.

Just one quick point. The other area that we see real opportunities is in transportation. And even though Congress was unable to come to consensus, despite pretty broad bipartisan support in the House, less in the Senate, on the Pickens plan, and we didn't lobby for it, but we certainly saw some opportunities there.

We are supportive, though, of the recent changes on fuel economy rules by the administration to provide credits for natural gas vehicles, which will incentivize manufactures, who I used to represent, to put in their long-term product mix natural gas vehicles, so that's a positive.

We're working with the trucking industry. We have an opportunity, I think, to revisit the heavy duty rule on fuel economy and maybe to look at some credits there.

But I think the economic -- I think the marketplace is moving in the right direction. And we've had this classic chicken-and-the-egg problem: You know, if you don't have fueling stations, you can't get the vehicles; if you don't have the vehicles, why justify the fueling costs.

But many of our members are spinning off commercial units, many are doing it through rate structures in various states, to provide the infrastructure there. And it's been growing about 11 percent a year. We think that's going to accelerate. They're not waiting for government, they're not waiting for some nirvana to happen before they make

those investments. So we see that move in the right direction, and we hear very positive things from the industry, as well.

So this is a tremendous opportunity. Bill Cooper talked about exports. We don't see that as a major concern about price stability, but, again, something we're going to watch.

My last comment is having served where Lee did -- actually, I served it when I think it actually worked. I'm not sure it's working terribly well right now, and Lee would say that.

CONGRESSMAN TERRY: No argument.

MR. McCURDY: Yeah. It's really critical that all of us look to finding solutions and stop just working to highlight problems, as a country, and we do it on a bipartisan or nonpartisan basis.

This is an opportunity as a country we have that we've just not had before, and we think this foundation is something that really can be built in a very positive way.

And, by the way, both -- we have strong support both sides of the aisle, and this is the time to take advantage of that. And, Lee, we hope you earn a position to help pull that consensus together and move forward.

CONGRESSMAN TERRY: Well, this will help, so I appreciate that.

And I do want to point out. If we didn't mingle enough before our meeting, but on the transportation side, that's why we have the truckers association and the truck --

MS. ALFANO: Rest stops.

CONGRESSMAN TERRY: -- stops and rest stops on the infrastructure side. That's why we wanted this eclectic group.

Now we have John Felmy from the API, and he is their chief economist, and looking forward to your testimony, thoughts.

MR. FELMY: Thank you, Congressman. This is an important event, and I appreciate the opportunity to be here.

I'm an economist, but don't be afraid. I'll try not to torture you all.

We are really at a crossroads in terms of energy right now, and as was mentioned, we have an opportunity to go forward to make wise choices to really do something we never dreamed of, you know, going back to the days of Nixon with energy independence. We really can, because of technology, or we can repeat the mistakes of the past, and that's the challenge we face.

In Washington, unfortunately, there's too much discussion of myth about energy versus reality of energy. There's too many things that are said over and over again that have no basis in fact. Or if they do have a basis in fact, they're not the whole point of the issue.

And I'll just use as an example, the President constantly says that we only have 2 percent of the world's reserves so we can't drill our way out of it. Well, that is strictly true. We do have 2 percent of the reserves, the stuff we already found, but what we're talking about is stuff we haven't found, whether it be oil and gas. And so while it's a technically true statement, it's not the point.

And so what I thought I would do is lay out the reality of energy and what really the roles are.

Now, this is our energy economy. It's very complex, but if you want to do anything in energy, you have to stick to some identities.

Now, on the left-hand side is where we get our energy. You can see the percentages there: 25 percent from natural gas; 20 coal; 9 renewables of which only about 1 percent, a little over 1 to 2 percent, is solar, wind, and geothermal that everybody talks about; and then, of course, nuclear is 8.

And down the right-hand side is how it's used in the sense of transportation uses 28 percent, industrial 21, residential/commercial 11, and 41 electric power.

And the lines that go between them are how those individual flows move. So, for example, at the top 71 percent of petroleum goes to transportation, 23 goes to industry, 5 residential/commercial, primarily heating oil, and only 1 percent is electricity. We don't generate a lot of power with oil anymore; we used to but not anymore.

And I mention that because one thing that's also said constantly in Washington is, gee, we need solar, wind, and geothermal to reduce oil imports. How? We don't use oil. It's said over and over again, and it's just simply not true.

So if you look at any one of those charts, and so we'll focus on natural gas, 3 percent goes to transportation, and that, of course, can expand. It's the infrastructure and the chicken-and-egg problem and so on. And then roughly a third, a third, a third goes to industry, a lot of chemicals operations, residential/commercial use of fuel, and finally electric power. And so those things can all change in terms of the amounts and in terms of the shares.

And then if you look carefully on the whole rest of the chart, you can see what the real reality is. And so whatever you propose going forward, there's some identities that have to hold.

The first is all of the circles on the left have to add to 100 percent, the rectangles have to add to 100 percent, and each of the lines that come out of the squares or the rectangles or circles have to add to 100 percent. If they don't, whatever you're proposing is either disingenuous or delusional, but it is certainly dangerous. And that's the challenge we face going forward in terms of our energy policy.

So, yes, natural gas is an opportunity. We represent all aspects of the petroleum industry, as the American Petroleum Institute, but we also represent gas

producers. We're not in the distribution companies or the pipelines and so on, but we represent procedures because when you produce oil, you get a lot of gas with it in terms of associated gas.

And so we're very interested in it, you know, because if we look at what we produce in terms of natural gas here, in terms of oil we produce here, and what we could import from Canada, along with biofuels, we can become 100 percent self-sufficient in a North American basis in as little as a dozen years. And that means jobs, it means energy security, it means national security.

And we've got to come to the terms -- I know here in Nebraska the issue of the TransCanada line, but that oil is going to be produced. The environmentalists think that stopping the Keystone XL pipeline is going to stop oil sands development. Well, wait a minute. How much are the oil sands worth to Canada? I would say roughly, odd terms, about $14 trillion. What's the GDP of Canada? 1.4. The notion that they wouldn't produce something that's ten times their GDP is just silly.

It's going to be produced. It's going to go somewhere, and if you really are an environmentalist and you want the lowest possible emissions, it should come here, because shipping costs are lower, processing costs are lower, use costs in terms of emissions, all of those things. And so it's going to be produced and it should come here.

We have the ability between what we can produce here and what we can -- to really change the whole situation for the United States. And we should do it. We should move forward environmentally responsibly, but we have the technology, to paraphrase Lee Majors from many years ago, we can do it. And that's been the story. Technology has advanced in 150 years in the industry and we can continue on that.

So I want to thank you very much for your time.

CONGRESSMAN TERRY: Thank you.

Gary Stauffer, the chairman of the APPA board of directors, and NMPP Energy executive director, and he has, for such a young guy, a very long history in the natural gas and electric industries.

MR. STAUFFER: Thank you, Congressman Terry, and, Speaker Flood, thank you for attending, and, of course, to my colleagues.

This is not a room full of rookies. I don't know what I can add that hasn't been said, either by my colleague Gary or Greg or my friends from AEP, but let me just talk about some of the numbers that we may take for granted.

If you are to receive electricity in the United States or in its territories, there are 3150 ways to do that: 220 of those are investor-owned utilities, 930 are REAs or co-ops, and 2,000, or thereabouts, are public power entities; and American Public Power represents those 2,000 utilities.

Now, the benchmark effort of public power has three benchmarks: The first is reliability, the second is affordability, and the third is local control.

We don't believe in mandates. We are not FERC or state mandated. However, what's occurred -- and I have to step back and just point out an obvious statement. The generation transmission and distribution of electricity is the most complex system human beings have ever created. It is very, very difficult to maintain reliability and affordability; it's a complex balance.

And I think what I would like to address today is an issue we see in the generation of electricity and that is that natural gas makes up about a quarter of all of the fuel that's used to generate electricity, and that is the fastest growing segment that's already been identified.

But when it comes -- and this gas has always been used for peaking, which is the top of your order in your generation profile, intermediate generation, but natural gas

has never had a robust role in baseload generation.

Now, baseload generation is defined to meet that annual seasonality and daily cyclical need. So what you do is you pick out the meat in that process and you try to run your baseload plants at 100 percent or as close as possible. That's why nuclear and fossil fuels play that role.

Increasingly, to meet the EPA requirements, we will have to rely on natural gas for baseload generation. That is a very, very difficult task to do. As Gary alluded, we need the ability to be uninterrupted. We need the ability to know within minutes of what our supply is. Long term, we need to know what the price is.

And if you're to replace -- there's about 881,000 megawatts of generation in the United States. If you are to replace the bulk of the baseload generation at scale with natural gas, we're going to have to radically change the infrastructure, the storage, the pipelines, and the way we contract and then deal with each other as we approach this challenge.

Now, fortunately, we've already at American Public Power started that dialogue with our cohorts in the pipeline industry and the producers. And as my colleague from AEP talked about, we need to do things as granular as how do we dispatch, how do we talk to each other, how do we coordinate this. So this is complex, it's difficult.

The thing I would ask is that the Congressman continue his efforts to put together a rational discussion. We don't need mandates and soundbites that make our job more difficult than it already is today. We need to come together as non-rookies in this field and figure out the best, most reliable way that we can affordably produce electricity in the United States.

And, by the way, the only thing economists agree on worldwide is the more reliable your electric system, the more stable and wealthier your society. So we have a

challenge ahead of us, we can do it.

Thank you for being invited today.

CONGRESSMAN TERRY: Thank you.

And now a representative from the ATA, the vice chairman, and, Dan, I appreciate you being here.

MR. ENGLAND: No. Thank you. With some trepidation, about a year ago they made me chairman of ATA --

CONGRESSMAN TERRY: Oh, yeah.

MR. ENGLAND: -- and with some joy, I become past chairman here in about two weeks.

CONGRESSMAN TERRY: Fantastic.

MR. ENGLAND: Anyway, I'm very pleased to be here.

Just very briefly about our company, we are a family-owned business, started in 1920. We run now about 5,000 trucks across the U.S. We have between 8- and 9,000 employees and independent contractors. Most significant points there.

Those are just some of our business units but let's move on from there.

Okay. This is our involvement with natural gas. We are currently running five day-cabs in southern California. These are Kenworth T800 Westport 15-liter engines, and we are -- these are LNG trucks. And we've been running them for about a year.

We use them in a dedicated application, which is -- it's actually for Coca Cola running between Las Vegas and -- Los Angeles and Las Vegas. We run about 500 miles per day per tractor. This is a picture of just one of the units that we run there. It's a 250-mile length of haul looped freight operation.

The problem with this thing is there's an $80,000 increase in cost for that

unit. The truck, if you were to buy a diesel, just a diesel truck to do that, for that kind of truck, which is a day-cab without the sleeper and so forth, that truck would probably cost us about $110,000. So you can see there's a significant markup.

It's a full lease arrangement. We have LNG fueling stations in southern California and then also in Las Vegas with Clean Energy.

The fueling, this is just some of our experience. I mean, we're talking about granular; we're getting to the weeds here, to some degree where the rubber meets the road, literally, on what we're doing with fueling. It has similar -- with the LNG application, it is very similar timing to the fueling of a diesel truck. We have to wear face shields and gloves, but that's not a big deal; they just carry them in the truck. They've been trained; it's not a problem. You know, the problem, of course, has been in trying to turn this into an across-the-nation application, which is what we do in our company. We don't have the infrastructure yet to really accomplish that in long-haul applications.

Just some of the details. At the time this slide was prepared, which was a couple months ago, we had run about 235,000 miles. We had used about 36,000 diesel-equivalent gallons of LNG. And one of the reasons why this hasn't worked out well for us is these engines have three kinds of liquids on them: They have diesel, they have LNG, and then they also have the DEF, the diesel exhaust fluid that allows these engines to run clean.

Okay. Very briefly, this just shows you that there is higher cost to operate an LNG unit because simply the intervals, oil change, fuel filter, coolant, and so forth; it just -- at the present time, it's more expensive to run an LNG engine.

Okay. Maintenance, slower maintenance turnaround than diesel, and we've had some parts availability problems. You know, we have a great need to stay in service to get a payback on this whole thing because the payback comes in -- you know, as we

run the truck and we burn either the diesel or the LNG, obviously the payback comes in using more of the LNG.

We have seen some notable improvements on the maintenance side in the last couple of months as we've gotten more accustomed to running these types of engines. Maintenance results, gosh, we've had some engine breakdowns, LNG fuel breakdowns, having to deal with fuel leaks and sensor malfunctions. Again, this is getting pretty granular here, but this is the experience we're having right now; and one of the trucks has had the bulk of the breakdowns.

This is a grid that really, you know, brings it home in terms of the kind of incentive that we have to have to move forward. If you look at the red line, that's the 15-liter engine that we're currently running. In order for that to be economically feasible, the cost of diesel has to be at 4.85 a gallon, and, obviously, we're not at that point yet, so we are not -- you know, we're not getting any return on this investment, and it's a function of the high cost at a $80,000 conversion factor.

If we were running a 12-liter engine, which we will be converting to shortly, then it becomes much more feasible. And I think, you know, as time goes on, just simply the cost of all of this is going to come down.

And I just conclude by saying that we see natural gas as a big part of our future. I think it's one of those, we're in the evolution of this concept, at least in transportation. As infrastructure increases, as the cost of the conversion comes down, I think we'll see it -- the forecast from some of the what we would consider experts are that in five years on an annual basis there will be about 25,000 additional trucks per year that are converted to natural gas. But we have a comparison in China right now. They're converting 55,000 units per month right now, and they're looking to take that, China, to over 100,000 in five years from now.

The final thing is we are now -- we've received a grant from the State of Utah where we're running two CNG trucks, and we're just getting started with that, so by way of comparison we're looking at that. But we'll pass by this final thing here.

Thank you for the time.

CONGRESSMAN TERRY: Hey, you're great. Thank you very much.

Bill Cooper, you're up next, and for those that don't know, he's with the Center for Liquified Natural Gas.

MR. COOPER: Well, Congressman, thank you for the opportunity to come here.

When I used to work for the committee staff, they would never let me put anything in writing. I guess they felt like I had to walk back from it if I got out on a limb. When I started working for CLNG, they made me put everything in writing so I wouldn't get out on a limb. So, I don't know, there might be a common theme running through there so I think I'm glad there's no press here today.

I'm assuming that we all have a basic knowledge of the immense supply of natural gas that's available. And I will also be willing to discuss the merits of LNG exports in a Q&A, but my focus this morning is really going to be on policy and the DOE process.

The United States has a well-developed policy on LNG exports. It's not often admitted, it's many times debated, but the policy is there and it has been well-developed over the years by the DOE.

Under the statutory authority the Natural Gas Act, the DOE and Federal Energy Regulatory Commission have primary jurisdiction over LNG exports. The DOE regulates the commodity. FERC regulates the design, construction, and operation of the facility and the facility's impact on the environment. My comments are going to focus on the DOE permitting process.

And it's really clear, the policy of the United States Government, based on the Natural Gas Act and the decisions of the Department of Energy, is, "Promote competition in the marketplace by allowing commercial parties to freely negotiate their own trade arrangements, provided that the gas is competitively priced, all the while minimizing regulatory impediments to a freely operating market."

The DOE has repeatedly emphasized that as its policy beginning in the days of Kenai LNG facilities some 30 years ago to the Sabine Pass authorization here within the past year.

There are regulatory mechanisms in place to prevent adverse consequences to the American public. DOE will ensure that the gas is competitively priced whether it's leaving the country or whether it's coming in in the form of imports, and the Natural Gas Act provides for authorizations made by the DOE to be revisited under certain circumstances.

Now, the current state of play. All applications for exports to non-free trade agreement countries are subject to a de facto processing moratorium. In November of 2011, the DOE announced that it would commission two studies to assist it in making the determinations required by Section 3 of the Natural Gas Act.

The first study was a price impact study released by the Energy Information Administration in January of 2012. The second study was a macro-economic study being conducted by a still unnamed third-party contractor, which was due to be publicly released in the spring of this year. Subsequently, the release date was delayed until the end of summer, and now the release date has been postponed to the end of this year. So we have a very healthy regulatory framework that is not being used by the Department of Energy, has not been used since November, and we seem to be in an indefinite delay.

Under the authority of the Natural Gas Act, the DOE's policy guidelines,

and its previous decisions, DOE has a robust regulatory framework in place to promote competition in the marketplace, minimize regulatory impediments to a freely operating market, and protect the domestic need for natural gas. CLNG would like to see DOE expeditiously make these determinations on the pending applications in order to provide regulatory certainty to a framework that's worked well in the past and continue to do so in the future.

Thank you for the opportunity for coming.

CONGRESSMAN TERRY: Very good.

And, Greg, thanks for passing the microphone. You don't get to go twice.

MR. HARPER: Okay.

CONGRESSMAN TERRY: Lucian, I appreciate you being here.

MR. PUGLIARESI: Sure.

CONGRESSMAN TERRY: You're president of the Energy Policy Research Foundation.

MR. PUGLIARESI: So, first, let me thank you, Congressman Terry --

CONGRESSMAN TERRY: Thank you.

MR. EULE: -- and Senator Flood.

I've had the opportunity to testify before your committee many times, and it's been always a pleasure.

Also, just to a quick note of correction. They have me listed as part of the Chamber of Commerce. We think it's a great organization, and I wish they would send me some money, but we are not members of the -- we are not affiliated with the Chamber.

In the short time we have here, I think maybe we could look a little bit about the supply side. In 2007, 2008, in testimony before the Congressman's committee, both EIA and the U.S. Geological Survey stated that it didn't matter how much land we

leased, it didn't matter what we did, that we are going to be importing large volumes of natural gas and the price was going to go way up.

Now, the really unique thing we need to understand about the shale gas revolution -- and I'm just going to ask you a simple question. What does Texas, Pennsylvania, West Virginia, and North Dakota all have in common?

CONGRESSMAN TERRY: Shale oil.

MR. PUGLIARESI: No federal land.

MR. PUGLIARESI: The unique feature of the shale gas revolution is that ideas could communicate quickly. Some guy in West Texas has an idea how to approach the geology, he can send a landman to Pennsylvania and in two days they can make a deal, you get the local regulatory approvals and move forward.

The remarkable thing about the shale gas revolution is it is the exact opposite of use it or lose it. It was all leased. It was just not held by oil companies. It was held by private individuals. But we always say, that if the shale gas revolution had taken place on federal land, we would still be waiting for Secretary Salazar to hold the first lease sale. So keep that in mind when you see these big fights over should we open up more land for development, should we open up Alaska. We don't know where the oil and gas is until we explore for it, until the ideas to look for it are allowed as much openness and freedom as possible.

And this is a remarkable chart you see because not only did the government believe that we were going to import large volumes of gas, so did the private sector. We have nearly $30 billion of LNG-receiving capacity in the United States operating at 8 percent capacity.

Now, the difference between that and Solyndra is that the stock holders of the companies are taking the hit, not the taxpayers.

Okay, next slide. All I want to say about this is we have a lot of natural gas and a lot of shale, and the applications of natural gas are migrating quickly to the liquids production.

Next slide. This is very interesting. This is from the HPDI data. It shows you the story I just told you. You can take a look. It's no magic that the rigs are not appearing on federal land. They're not appearing on federal land because the opportunities to drill and explore there are quite limited. The blue, by the way, is the oil, and the red is the gas.

One thing to keep in mind, people concerned about the supply of natural gas, nearly 40 percent of the natural gas that we're going to see in the U.S. market is going to be the result of the development and the production of oil. It's associated gas. We have to find markets and outlets for it to grab that valuable resource.

This just shows you EIA's forecast. We have a much larger one than this, but the progress in continuing advancement in natural gas supply in this country is virtually unlimited.

This is an interesting slide, specifically for the truckers. We think -- you know, 70 to 80 percent of the operating costs of a U.S. refiner is refinery fuel, but we now have the cheapest refinery fuel in the world. So we are going to become a dominant export platform, not only to serve -- not only for the U.S. market, but we're going to win the battle of the Atlantic Basin. In other words, the U.S. is going to have these export platforms, petrochemicals, refined petroleum products. We have a little wrinkle in ours. I don't think we want to talk about the renewable fuel standard here today.

CONGRESSMAN TERRY: Please, no. Our Farm Bureau friends would appreciate that.

MR. PUGLIARESI: We do have a serious problem. We do have a serious

problem, because as we proceed through higher volumes of the RFS, the cost of exporting refined petroleum products, diesel, gasoline, to foreign markets is going to be substantially less than to produce those products for the domestic market. It's something we're going to have to deal with at some time.

Next slide. This is 2010. You can see that the United States in production of propylene, petrochemicals is competitive with the Middle East. Actually, are prices are lower than that now. We are the most competitive petrochemical manufacturer in the world. It's a huge transformational opportunity for the United States.

Next slide. I'll skip this one. We'll go to the end here.

The other thing is you hear a lot of complaints about the use of water in hydraulic fracturing but take a look at this. This is from data from the Department of Energy and Chesapeake. As you can see, when you adjust it on a Btu basis, natural gas is a relatively low user of water. And it's important that we compare apples to apples, and so all -- the only sort of lesson I want to leave you with is that the technology that brought us the gas is now migrating to the liquids. It's going to be transformational for the country, but we're going to need the right policies to capture those benefits, and we have enormous capacity not to capture those benefits if we don't think it through properly. I'll leave it there.

CONGRESSMAN TERRY: That includes the fracking?

MR. PUGLIARESI: That includes the fracking, exactly.

I'll leave it there. Thank you.

CONGRESSMAN TERRY: I appreciate that.

Next is our good friends from the ag industry and Fertilizer Institute, Ford West, and I asked him the question a week ago or two weeks ago when he was here for a conference, and back now, but fertilizer has a great reliance on natural gas and we lost a lot

of our industry when it was high, so I want to hear if we're going to get them back. Ford, you're up.

MR. WEST: Thank you, Congressman. I appreciate the opportunity to be here.

I'm going to be talking about the nitrogen fertilizer industry. Fertilizer is a nitrogen phosphate, potash. But I'm going to talk about the nitrogen industry because we use the Haber-Bosch process to produce ammonia, and we take hydrogen from the natural gas, and the nitrogen from the air and make ammonia.

It takes about 33 MMBtus of gas to produce a ton of ammonia. We produce about 10 million tons. We still are importing about 11 million tons. In 2010, we thought we used about 5.5 percent of all industrial gas in fertilizer and about 1.5 percent of all gas consumed to make nitrogen.

Now, to talk about our industry, one of the things you've got to understand, that we're not just producing ammonia. We are producing protein because half of the world's food supply is tied to the use of fertilizer, and so with our nitrogen we're just replacing the nitrogen and the protein that's pulled out of the ground when we are producing food crops. And that is certainly -- food security is a big issue around the world, and so we are producing protein.

That's why Carl Bosch and Fritz Haber won the Nobel Prize. Their scientific discovery has been called one of the great scientific discoveries of the 20th Century, and it has certainly helped us meet our demand for food as we go to 9 billion people.

It's a game changer for us, this natural gas. From '98 to 2008, we shut down half of our nitrogen production in the United States. I think we have about 29 plants, ammonia plants, producing today. And so for us, we haven't built a new ammonia plant in

the United States since 1967, but today, we have eight companies who have announced they're looking at a greenfield project to produce, build an ammonia plant. Now, to locate a plant, you've got to look at where it's at on the river system, do you have a rail, not only that do you have natural gas, and those type of things.

We have two plants that have been announced that they are going to go forth. An Egyptian company is building one in Iowa, and CHS, a farm cooperative out of Minnesota, is teamed up in North Dakota to build a new ammonia plant. It takes about three years; once you get your permits and everything, it takes about three years and probably about a billion dollar investment to bring that plant on-stream.

If you look down the road, our concerns, given this new game-changing environment we're in, is what are we going to do with the electricity going mainly to natural gas? You know, you brought up how much of the baseload are we going to start using, what are we going to do in transportation with the T. Boone Pickens plan, exports. We're kind of free traders, you know. If the environment calls for that, great. We don't necessarily want to see the government get involved --

MR. COOPER: We don't either.

MR. WEST: -- subsidizing something, okay.

But, you know, it's been a game changer for our industry. Lou, you made a great point about this being on private lands. Looks like the states are trying to deal with some of the issues that have come up, you know, startup issues, wastewater, water, all of those issues. I don't know what EPA and the Department of Interior is going to do on federal lands.

CONGRESSMAN TERRY: Neither do they.

MR. WEST: I understand that.

So those are our issues, but it has been a game changer for our industry, and

it's brought a lot of excitement back to producing nitrogen and protein in the United States.

And I thank you for the opportunity.

CONGRESSMAN TERRY: Great, Ford. Thank you very much.

SENATOR FLOOD: I'd just add, before we go on, I unfortunately have to leave early this morning because of something else, but as a state legislator, I'm interested, especially in talking to Mr. Harper and Mr. McCurdy, about what can states do to make sure the infrastructure is there.

You mentioned Georgia. I looked at their law and I'm interested in that, but I think that, you know, we want natural gas, we want you here, we want to deliver it to customers that are creating jobs.

So with that, thank you, Congressman.

CONGRESSMAN TERRY: Before you go, ask Ford how we get one of those other six that have not announced a new place. You know, we have rail and a river.

SENATOR FLOOD: Have you ever been to Norfolk before?

MR. WEST: As a matter of fact, yes, I have.

One of the -- you have got to talk to Governor Branstad because he's offered a lot of incentives, because the Iowa plant is an Egyptian company and they were fighting between whether to locate that plant in Iowa or in Illinois, and I think the Governor gave them enough incentives to come to Iowa.

CONGRESSMAN TERRY: All right.

SENATOR FLOOD: Let us know what it takes.

MR. WEST: Some say he gave too much, but, anyway, that's where they're going to build.

CONGRESSMAN TERRY: Well, it is an art.

MR. WEST: It is interesting for me to go to an international meeting and

have, like, Pakistanis come and say we're interested in looking at United States, because if you look around the world and you're looking for a whole natural gas product and a stable government, right now the place to look is the United States.

CONGRESSMAN TERRY: Yeah, I hear. That's a great point.

Dan Simmons, Director of Regulatory and State Affairs for the Institute of Energy Research, and thank you for being here.

MR. SIMMONS: Well, thank you, Congressman. Thanks for the opportunity.

One thing that we haven't addressed yet is how many years of natural gas do we have. We have a current -- at the current rate of use, which is a problem, because, as we have all talked about, we are dramatically increasing our rate of use of natural gas, we have about a hundred years of natural gas.

And what has changed recently, though, is the technologies, as we know, with hydraulic fracturing, with directional drilling; those technologies have increased the amount of natural gas that is available.

In 2002 -- and dramatically so. I mean, here's an example of just how dramatically hydraulic fracturing and directional drilling have changed our access to resources. In 2002 the USGS went and looked at the Marcellus shale to see how much natural gas could be extracted from the Marcellus.

At the time they found that about -- they thought there were about 2 trillion cubic feet of natural gas in the Marcellus shale that could be extracted. They went back last year and they found that 84 Tcf of natural gas could be extracted from the Marcellus shale.

So over the course of nine years, the amount of natural gas that is extractable increased by 42 times. So with technology it gives us access to vast amounts

of natural gas, as we've been talking about.

And if we were -- I mean, if you were to go back a few decades and tell people that we're extracting natural gas out of shale, which is, obviously, rock, I mean, that's science fiction. Today's science fiction we look at something like methane hydrates, methane trapped in ice on the ocean floor, frequently, under tundra. We know there's an increasable amount of methane hydrates and it's science fiction to extract those methane hydrates, but, you know, that is what we're using today is yesterday's science fiction.

And to put that in context, there could be 320,000 trillion cubic feet of natural gas in methane hydrates, which is literally enough for thousands of years of natural gas.

So one question -- and this is something that Lucian talked about, which is what are some of the impediments and why is this happening. And here is some additional numbers.

It takes 307 days to get a permit to drill on federal lands. That's up from 157 days in 2005. Compare that to North Dakota where it takes 10 days, or in Ohio where it takes 17 days, or in Colorado where it takes 27 days. And that's just for the permit to drill. That doesn't include the leasing, that doesn't include the rest of the process that you have to go through. That is from the time that an operator submits a permit, they're waiting 327 days on average.

So the federal government is a major impediment and thank goodness there are such large shale resources on all of these private lands and all of the state lands because that is what is driving this energy revolution. It has nothing to do with the federal government. In fact, the federal government has been an impediment.

From 2010 to 2011, natural gas production fell on federal lands by about 6 percent. It increased by 12 percent on private and state lands, and that's all due to

regulation.

And one concern that I have is -- well, we've seen environmental groups go after coal and they have done so successfully. You know, for years the Sierra Club talked about, you know, moving beyond coal, and they said, well, natural gas could be like -- it could be a bridge fuel. Well, that's when natural gas was above $10 per million Btus. Today it's less than 3. So what are they today? They say we need to get beyond natural gas. That's not a joke. And that is one of my concerns.

I mean, if EPA has concerns about coal because of its greenhouse gas emissions, but, yet, their models -- I mean, the whole point about greenhouse gas emissions is global warming, right? But if their models don't show an impact on the temperature, then what's the point? The point is really to attack coal. And they can use the same -- because there's no benefits of these regulations in terms of -- you know, there's air pollution benefits, surely, but their number one method of attack is greenhouse gas emissions, and if there's no benefits in climate change because of reducing coal because of -- coal use increased I believe -- I could be wrong, it might only be 30 percent over the past decade worldwide, even as U.S. coal demand is increasing. The world is using coal. Europe is actually going to use a lot more coal because carbon permits are cheap. So it's something to -- it's something to think about, that that is -- that's a real concern for the future.

I think that the future for natural gas is incredibly bright, but only if the federal government doesn't get in the way.

CONGRESSMAN TERRY: Thank you, Dan.

Now a good friend of all of ours here in the Omaha Metro area, since MidAmerican Energy has operations just across the river and an eclectic mix of natural gas -- not only use natural gas in electrical generation, but Northern Natural Gas is a good

Omaha company, and Jon Weisgall is their main point person and spokesperson, at least to me.

MR. WEISGALL: Thank you, Congressman.

I've got two slides I want to show. And, by the way, I'm going to kind of wear a utility hat, not the pipeline hat. I think Dave did a great job on the pipeline issue.

Two quick slides here. On the first one, and you've got it in your booklets, this shows natural gas prices: The U.S. price in blue; UK in red; Japan, Asia in green. Only goes up to last August, but those prices haven't changed very much.

What are the takeaways there? Number one, look at that price volatility: Up in the U.S. up to $13 down to, as we know, below 2, and worldwide, as well.

A second takeaway, look where we are today. There is no world price for natural gas unlike for oil. I want to come back to these points, by the way.

Point three, you can see that U.S. low price in a nutshell. That shows that huge economic growth, that huge economic advantage we have with the U.S. economy.

And, lastly, and Bill Cooper touched on this, if you're a producer and you see the green line and you see the blue line, you sure would like to sell to that green line. You can see why domestic producers want to export.

The next slide simply shows natural gas prices versus oil prices going back about 18 years or so. Look how closely -- and the red is natural gas simply converted to prices per oil, in other words in per barrel. Look how closely those prices track until you see the shale revolution. And what you're looking at in the last couple of years is you're looking at U.S. versus world. So with that background, let me put on that utility hat.

The electricity industry, we're undergoing huge changes. We will be seeing anywhere from 20,000 to 60,000 megawatts of coal plants coming offline in the next four or five years, and the potential impact on reliability is serious and certainly natural gas fits

in.

What you heard from putting that hat on and taking that little rectangle, that lower, right rectangle from John Felmy, but as Gary Gates said, low natural gas prices can support fuel switching from coal to natural gas. And we're going to see that.

Those low prices are making it very challenging to justify putting in the emissions controls under the new EPA regulations. We were planning in one of our Wyoming coal plants to put in the emission controls, and looking at the price of natural gas, we have decided to convert that coal plant, a 330-megawatt plant, to natural gas.

These types of investments are very sensitive to natural gas price projections, so we're making huge investment decisions that are going to be judged -- there are regulators down the road, with the benefit of hindsight, but we're betting on the relative stability of natural gas prices, unlike the volatility that you saw in the slide, maybe certainly not at this $2 to $3 range, but maybe 4 to 5.

To give you, Congressman, the sense of the magnitude, a $1 change in the price of natural gas has a $100 million net present value impact on that decision to switch to coal -- from coal to gas.

And the challenges, of course, on fuel switching, you need the supply, you need the storage capacity. I'll add that a natural gas plant, unlike a coal plant, can serve much better as a peaker and it can very effectively complement renewable energy.

Second point, just an observation, these low natural gas prices are undermining new investments in renewables and nuclear and in related transmission.

We were talking earlier, Congressman, about what can you do, what can Congress do to promote more use of natural gas. Natural gas is eating the lunch of nuclear, eating the lunch of coal, and eating the lunch of renewables today. Quite frankly, as these lower gas prices are crowding out renewable energy development, we're

rethinking some of our transmission issues to access renewables.

CONGRESSMAN TERRY: How?

MR. WEISGALL: So it's an issue.

To take one example, we're building about 2,000 miles in the Utah/Wyoming area to access wind. Looking at it today, you could just as easily build natural gas plants. So it's an issue that's out there.

Point three, following up, and Marguerite and Dave McCurdy made these points, but with this growing reliance on gas as an electric source, electric generation source, there is a need for greater coordination between the natural gas and electricity markets, especially on the issue of reliability.

I don't think this is a congressional job. FERC does have the authority. It's got the tools to ensure that each region assesses its reliability alternatives and ensures that adequate infrastructure is developed. We've called on FERC, just like you heard from Marguerite and Dave, to encourage market rules and tariff changes just to better align the industry's mismatched scheduling practices to encourage greater operational coordination between pipelines and the transmission providers with respect to maintenance outage scheduling, emergency preparedness, information sharing.

We've called on FERC. FERC is going to have to accelerate, despite what we've heard from Greg. There will be -- and FERC does a very good job of permitting. There may be a need to accelerate those permitting timelines for new projects or for storage facilities in regions that may be facing projected capacity constraints.

And above all else, we've said to FERC this is not a one-size-fits-all issue as you go through these issues. The gas/electric dependency issues are really regional specific.

Two more points. Picking up on Dan, danger in Washington. The danger,

is gas going to become the coal of tomorrow? And with this trifecta of NGO activism over fracking, and EPA that we know about, which will continue if President Obama is reelected, and I guess a third part of that trifecta is the public backlash from pipeline accidents, the San Bruno accident that killed eight people and destroyed 50-some homes. Very serious.

Dan, let me give you a couple of quotations from the Sierra Club, because you're absolutely right. The Sierra Club worked very closely with the natural gas industry until recently and now it's beyond coal, it's beyond oil, and it's beyond natural gas.

Quote, Switching from one dirty fossil fuel to another only creates a new set of problems. That's the Sierra Club's new director, Michael Brune.

As we push to retire coal plants, we're going to work to make sure we're not simultaneously switching to natural gas infrastructure and we're going to be preventing new gas plants from being built wherever we can.

So that activism is out there, and I think the industry knows this issue, and certainly greater self-regulation, greater work on fracking is critical.

The last point, should we prohibit exports of natural gas? You know, if we were talking here about should we prohibit exports of John Deere tractors or Boeing jets, we wouldn't be having a conversation. It's obvious. It's great -- or cars. I mean, it's U.S. jobs. It reduces our overseas debt.

But some of your colleagues are calling for limits or a time out, if you will; and their arguments, I dismiss them, but they're going to be out there as issues.

Exporting natural gas will increase U.S. domestic prices. We've got that world price for oil. Why should there be a world price for natural gas? We have such an advantage. Approving LNG terminals is going to mean exporting our manufacturing jobs. Let's use that competitive advantage.

So it's out there, it's an issue, and you've got to be aware of it.

Thanks very much.

MR. WEISGALL: By the way, one other thing I would say, Dan, you talked about that supply. When I teach at Georgetown, I go through and do a class on natural gas. I've been adjusting every year the supply of natural gas. But don't remember that -- don't forget, Congress in its wisdom back in the '70s said, well, that's because the natural gas regulated interstate shipments but not intrastate and intrastate prices were higher so there was an artificial shortage, and Congress in its wisdom banned the use of natural gas for power plants after 1990. It repealed it, but, you know, be cautious.

CONGRESSMAN TERRY: Will do.

And now Mike McGowan is the chairman of the MUD, Metropolitan Utilities District, that is our natural gas supplier. And like many areas of the country, for a homeowner, we heat -- 99 percent, I think it is, of our homes are heated by natural gas. And they've been a leader in exploring and maybe pushing natural gas as a transportation fuel, so, Mike.

MR. McGOWAN: Thank you, Congressman.

MUD, as the Congressman said, is a local distribution company. MUD is actually the fifth largest gas utility in the United States. We serve currently 600,000-plus customers here in the Omaha and surrounding areas. And we receive our gas from Northern Natural Gas Company, a very fine interstate company. I happened to have worked for them for 35 years, but anyway.

Since 1977, MUD has experienced a 47 percent reduction in the average usage of its customers in natural gas due to conservation and appliance efficiencies. We have a limited market, a defined market with limited growth. So we've got to find a way to offset the loss of that market.

MUD is committed to growing the CNG vehicle market. Our September-posted price for compressed natural gas as a fuel is $1.73 per gallon. MUD's fleet currently has 100 CNG vehicles dedicated to CNG, and by the end of 2013 we will have 150 vehicles in our fleet committed to CNG and that will represent 50 percent of our total fleet.

MUD will dispense 182,000 gallons of CNG this coming November, and at that point, we will have surpassed a total dispensing of 1 million gallons since we put our service stations into service.

The 2012 CNG usage will reduce carbon dioxide by 449 tons, displace 4,300 barrels of oil and it represents the annual usage of 320 residential homes.

MUD is working hard to grow the CNG market, and this focus, our focus, is really on fleet dedication and usage. Besides MUD's own fleet, Happy Cab here in Omaha, a taxicab company, they have 40 CNG cabs that are dedicated to compressed natural gas. They're high mileage, 48,000 miles per year at taxi averages, and it's 2,400 gallons equivalent of CNG for each taxi.

Backlund Plumbing, a local pluming company here in Omaha, is converting its entire service van fleet to CNG. In 2013, early 2013, all 23 of their service vans will be dedicated to CNG usage.

We're also working on partnering with Werner Trucking on a test. Werner Trucking, as you know, a big company that has 7300 trucks, 23,000 trailers. This partnership with them, they have dedicated two trucks totally to compressed natural gas. They're using a new Cummins Westport CNG engine with a larger displacement that offers more power and makes CNG a viable option for more heavy duty vehicles. Each of those two trucks is traveling a thousand miles a day and uses 40,000 diesel equivalence per year. We are confident that this test will be a terrific success and spur more CNG conversions

for the heavy duty trucks.

We also signed a deal just recently with T. Boone Pickens' company Clean Energy to use some of the LNG that we have available here in Omaha. Omaha -- we have a 12-million-gallon LNG tank here in Omaha that we use. It was initially built as a peak-shaving unit for the coal to stay in the winter. Last winter we did not use it one day. So that tank of LNG is sitting there unutilized. T. Boone Pickens and Clean Energy and the contract, they're building an offloading facility. We're going to sell our LNG to them on a year-around basis. They're going to take it in their tankers to the interstate pipeline system and fill up their distribution stations with the LNG so that the cross-country trailers can go down the interstate and have more access to LNG.

We'll be able to use that LNG year around. It's still dedicated on the coldest day to our customers if we need it, but we're going to transfer that to a year-around source of revenues and help grow the LNG market for over-the-road tankers.

The CNG market is truly getting traction. There are some current business barriers, though, as we all know and we've talked about it. The infrastructure is expensive and localized. The upfront cost of vehicles in conversions is expensive. If there's going to be any financial incentives, they need to be properly focused. They should be targeted to heavy duty trucks. The incremental cost for two trucks is equal to the incremental cost for 40 taxicabs, and you get a lot more usage of the CNG through those trucks than you do taxies. So any incentives should be targeted to the heavy-duty-use trucks.

MUD's president, Doug Clark, couldn't be here today. He currently serves as chairman of the board of Natural Gas Vehicles in America, and he is working hard with that national organization to efficiently and effectively grow the CNG market.

Natural gas is abundant, efficient, environmentally friendly, and already has an extensive and efficient distribution system in place. We all need to work hard to use

that system, and the compressed natural gas market for vehicles and LNG for vehicles is an ideal source to help us wean ourselves of the use of oil and dependency.

Thank you for your time, Congressman, and we do appreciate your support in working with CNG as a vehicle choice.

CONGRESSMAN TERRY: All right.

MR. McGOWAN: Thank you.

CONGRESSMAN TERRY: Thank you, Mike.

And now Holly Alfano. As we mentioned earlier, she's with the National Association of Truck Stop Owners, and I appreciate you being here.

MS. ALFANO: Thank you.

Good morning. I'm having a little voice problem, too, and it wasn't because of yelling over the Redskins. Fortunately, I was on a plane when they were playing yesterday.

NATSO is the trade association that represents highway travel plazas and truck stops. We represent both the large and the small, Pilot Flying J, Love's, TravelCenters of America, but also some small, independent operators. Here in Nebraska, Sapp Brothers is one that comes to mind as an excellent smaller operator.

NATSO members sell fuel to the trucking industry and to consumer vehicles along our nation's highways. About 90 percent of the diesel fuel sold for highway use is sold by truck stops and travel plazas.

Our members tell us that natural gas is the number one topic of conversation with their fleet customers. Probably the reason for that is because of all of the so-called alternative fuels, natural gas is the first that has the potential to really succeed in the marketplace over time and to eventually gain market share.

And there's some key reasons why we think this has potential for success.

One is the economics. While it's costly to invest in retrofitting trucks and in new trucks, it's a cost that over time will be recouped, you know, as investments go, on a reasonably quick timeline.

Another is it's a stable, secure source of domestic supply, and that's very important to our members.

Finally, price, that's a key factor. In the trucking industry, fuel is the second highest cost of operation next to labor, and I'm sure Mr. England can expand on that, but for freight haulers, natural gas is an attractive alternative.

For our members, the stability is very important. Back in 2008 when diesel fuel went up to $4 a gallon, it did stretch their credit lines, and stable and secure all play into that.

The truck stop industry is highly competitive and responsive to customer needs, so as customers continue to demand the infrastructure, our members will respond.

Today, we're seeing -- you know, up until now, the market has really been focused on port drayage trucks and other regional distribution trucks and vehicles, city bus fleets, that return to the same location each night to fuel. But today we're looking at the first natural gas highway.

Major investments and partnerships in the natural gas industry are coming online this year and in 2013. Pilot Flying J announced several months ago a partnership with Clean Energy to install 150 LNG fueling stations along the interstates creating this natural gas highway. Seventy of those locations will be online by the end of 2012 in 33 states, and the rest will be completed in 2013. TravelCenters of America recently announced a partnership with Shell to build 200 LNG dispensers at 100 locations across the country. And Love's Travel Centers has unveiled both CNG and LNG stations in regional locations for the last year or so.

So these are the big three. Who's missing?

So far most of the infrastructure has been rolled out by the larger players. Natural gas fuel infrastructure can cost up to $2.5 million, and I'm talking about the LNG infrastructure at a truck stop while many of our larger members have partnered with the natural gas industry to make those installations.

For now those deals have been limited to the large corporate truck stop interests. Costs are out of reach for independent truck stops. And the large corporate interests in the natural gas industry have not shown a lot of interest yet in the independents. Obviously, in the beginning, it's easiest for focus on the larger players in the marketplace, but those large players only represent about a third of the total marketplace of truck stops.

As far as other impediments, other than cost, there is a need to educate state and local regulatory agencies, local fire marshals, state environmental agencies, and so on. It's not unusual for any new technology, but this is something that needs to be addressed. A fire marshal or a local environmental state agency can slow down a project as long as a year if they get bogged down in a regulatory issue that they're not very familiar with.

As more fleets invest in natural gas vehicles, you'll see the number of natural gas dispensers continue to increase as well, but for smaller independent truck stops, access to capital will continue to be the major impediment to those investments.

A lot of people raise the issue of tax incentives or tax credits, that type of thing. That is certainly an option, although we know the reality of those types of initiatives on Capitol Hill. Perhaps small business loan options, low interest loans, something along that line is something that could be considered so that those players in the marketplace can also look to the future and make investments in this new technology.

CONGRESSMAN TERRY: Thank you very much.

And now we have the honor of Curt Friesen, who is a heavy user of natural

gas as a corn grower, and he's on the Corn Board here in Nebraska and about every other ag-related committee that we can appoint him to. Appreciate you being here.

MR. FRIESEN: Thank you, Congressman Terry, for holding these meetings because energy policy is extremely important to agriculture.

As many of you know, agriculture has probably been the brightest spot in the U.S. economy, and for sure it's been in Nebraska's economy. And we're extremely dependent upon energy costs as a whole. Whether we talk natural gas being used for fertilizer production or for electricity, either way we are a consumer of all of the above. We would, I guess, like to see coal not be vilified quite so much because there's a use for every type of fuel and it should be used for what it suits best for production.

In corn production, especially, we're dependent upon nitrogen fertilizer, like 80 percent of the cost of nitrogen is in natural gas costs, so anything that impacts that price will have a direct economic impact on me as a producer.

And like it was alluded to earlier, we import 11 million-and-some tons of anhydrous ammonia for fertilizer into this country, and we would really like to see more plants built so that we have a more reliable supply of fertilizer.

Most of our production in corn, fortunately, is not irrigated, but like in Nebraska here, 70 percent of it probably is irrigated. In my area we do use natural gas for running stationary power units for pumping water.

There's an extensive pipeline network in my area, but it is lacking in many other areas. There's been some expansion in grain drying facilities where they're short of natural gas and so pipeline capacity could easily be increased.

As you know -- like in Nebraska, I'll give the most examples, but this basically fits nationwide, also. The corn industry, as we know it, has been the bright spot in Nebraska, but it fits everywhere. With ethanol production, we have achieved some

good usage there and we've created a renewable fuel that we feel is sustainable. The ethanol industry also uses some natural gas, and I do realize there's some shortage of pipeline issues there, too. But most of the corn production that goes into ethanol is not irrigated, so, I mean, it's kind of a -- you can use those figures if you want to use on water consumption, but they don't really hold true as a whole.

Since agriculture -- I mean, we are dependent on energy prices. Whether it's in our production or in manufacturing of our equipment we use, we are the end user and it's hard to pass along those costs. We are not a price dictator when we sell our goods, also. We depend on the free market and so, therefore, I guess, I would have to agree that if natural gas is exported, so be it. It goes to the price where it better fit it and we believe in free trade. I won't argue with that fact at all.

Some of the things, I guess, that I would say that Congress could do something about is basically even EPA emissions on -- the requirement on our stationary engines. They've increased the cost of a stationary engine by $3,000 to $4,000 just by the clean air requirement of a natural gas power unit, emissions equipment, so people are ultimately switching to natural gas or electricity.

Well, either way, it's going to impact; whether electricity is generated by natural gas, we're still going to be consuming natural gas. So it does have a huge impact on any kind of tax policy you form.

The biggest thing I think that we would like to see is stability, and that's not what we've had. And when I look at the ethanol industry in particular, the federal government has created some nice incentives to get that industry started. It grew at a phenomenal rate, and then now there's political pressure to jerk the rug out from under it. And so I would encourage you to be careful when they create incentives to do something, that it's long-term action you're looking for and not short-term political issues that

somehow undermine that plan down the road.

CONGRESSMAN TERRY: It would be nice --

MR. FRIESEN: It would be.

CONGRESSMAN TERRY: -- for a change.

MR. FRIESEN: And we feel our industry is growing. When you look at the demand for world need for the food and fibers, it's projected to grow 70 percent by 2050, and if we're going to do that, agriculture in the United States is going to have to step up and increase production, and to do that we need to know there's going to be stability in our energy markets and that's probably --

CONGRESSMAN TERRY: Yeah.

MR. FRIESEN: -- going to be the biggest impact that's going to have on our production.

CONGRESSMAN TERRY: I appreciate it.

MR. FRIESEN: Thank you.

CONGRESSMAN TERRY: And then Steve Nelson with the Farm Bureau. I appreciate you being here.

MR. NELSON: Thank you, Congressman.

MR. NELSON: Congressman, first of all, I want to thank you for bringing this together. I've had the fortune to be on the Farm Bureau board for about 15 years and travel to Washington, D.C. a number of times, and probably talked about energy policy at some point in those discussions every time that I've been there. So the need--and it's been mentioned by others--to have not only a long-term energy policy but an energy policy is extremely important, and I appreciate your willingness to do this very much.

Just quickly, I am a full-time farmer, as well as being president of Nebraska Farm Bureau, and farm with my son in South Central Nebraska. We raise

irrigated corn, soybeans, and hybrid seed corn. We use natural gas for fertilizer, which Mr. West talked about and described how that all comes together, and I'm not going to talk about that. We also use natural gas for irrigation. In fact, it was the first fuel source that we used for irrigation even before I was born in the early '50s and it provided a very low-cost energy source at that time. And then we also use natural gas for crop drying, as well.

I'm not going to repeat a number of the things that have been said. Mr. Friesen covered a lot of the things that relate to agriculture and Nebraska agriculture very well.

I just would reiterate the importance of the use of fertilizer to Nebraska and to corn production, but corn production is feed production for livestock and livestock is food production. So we need to remember that this is a very important industry that we're in, and we need to have a steady supply of all types of energy and at affordable prices.

So, again, I thank you, Congressman, and look forward to answering any questions that might come up in the discussion. Thank you.

CONGRESSMAN TERRY: Thank you very much, Steve.

Jeff Heng from Norfolk. We've heard a lot from Norfolk today, but you operate a large metal recycling, NuCor, which is a country -- are you guys international?

MR. HENG: We are, yes, yes.

CONGRESSMAN TERRY: So, again, a heavy consumer of natural gas.

MR. HENG: Yes, we are.

NuCor is a manufacturer of steel and steel products with over 20,000 teammates. Norfolk is actually the home to four different NuCor divisions, one of them being a steel mill and that's the mill I'm at.

And we are a direct user of natural gas in our reheat process of the steel in the rolling process, but we're also a large user of electricity because our mills are electric

arc furnace mills, so we are one of NPPD's largest industrial users of electricity so we have that indirect relationship with natural gas.

We are -- the domestic natural gas production, the increase in the few short years, has been great for manufacturing as it has allowed new manufacturing facilities to be built and jobs to be brought back to the United States.

And, for example, we at NuCor are building a $750 million direct-reduced-iron facility near the Mississippi River in St. James Parish, Louisiana, and that is the direct result of the low cost of natural gas.

This facility will use iron ore and natural gas to produce an iron substitute which our sheet and our plate mills will use in their melting process to make steel.

So without the fracking and the directional drilling, this facility would never have come to fruition here in the United States. And what this does it allows us to stop buying pig iron from Brazil and bringing it to the United States and produce it domestically.

And the plan for this facility, this is just the first phase so this is most likely the first of a possible three phases, so, as you can see, we are -- we believe in the United States and the American people and so we have a direct interest in increasing jobs here. So for Louisiana, that could possibly be 1500 jobs. Right now we are projecting for this first phase about 400 jobs. So, as you see, natural gas to us is very important.

And our concern about regulatory barriers is not from our direct use but more so from the production side of it. We feel that the process should be such that, yes, you need to take into consideration the environment and human health, but there are factions out there that are against frac drilling and want to stop it at no cost.

So that is our concern, that we will not -- we will put regulatory barriers in place that are not geared towards the environment or the protection of health but just to

stop fracking. And I guess our message is, you know, do not create the unnecessary barriers or regulatory barriers to the development of natural gas. Let the technological innovations continue, let the jobs continue to be brought back into the United States and created here.

As Senator Flood indicated, you know, we need to look ahead and build our infrastructure, especially in Nebraska where we are at the end of the pipeline. We have enough firm capacity on the pipeline to do what we do now, but we can't expand because there is no additional capacity. And Senator Flood has done a great job in trying to bring the local businesses together to see what we can do.

So we would hope that if Congress would make it efficient and a predictable regulatory process to building this infrastructure. And our hope is that we can continue to count on you, Congressman, and count on Senator Flood, for your support in what we are trying to do on the U.S. manufacturing side of it all and bring the jobs back home.

I thank you for letting us be here today.

CONGRESSMAN TERRY: Thank you, Jeff. We appreciate you being here.

And last is our friend from the U.S. Chamber, and I appreciate, Steve, that you came down today or flew in last night.

MR. EULE: I did indeed. It is a pleasure to be here.

I thought I would touch on some issues. I wouldn't be bringing up anything new, but I thought maybe I would give a little bit of a different perspective on some of the issues.

First of all, I would say you have a packet here, Shale Works for US. The U.S. Chamber is very involved in promoting shale gas use.

One of the things you want to do is go into the communities in West Virginia and Pennsylvania and Ohio and let the folks know the value of shale gas to their communities. It's not just about the oil and gas industry, it's about the dry cleaning industry, it's about the hospitality industries, it's about grocers and the value that shale gas can bring to those types of activities.

Let me go over some of the -- I've been listening now for a couple of hours. Let me go over a few things that I think are very important.

Shale gas is a game changer, but EPA regulation can also be a game changer, too. When the President of the United States issues an executive order to streamline federal regulation of shale gas and it lists 13 agencies, well, that really only passes streamlining in Washington, D.C. In the rest of the country, that's steamrolling, so I think we have to watch out for our EPA regulations.

Transportation, the use of natural gas for transportation. We would urge the government not to pick winners and losers; it doesn't do a very good job of it, for one thing, and we don't know what technologies are going to be the ones that are finally successful. Is it going to be compressed natural gas? Is it going to be gas liquids? Is it going to be gas methanol? Is it going to be natural-gas-powered fuel cells? We don't know, and so we shouldn't be putting the federal government's fingers on the scale to emphasize one technology. Let the marketplace sort this thing out.

I think we also have to look at the natural gas revolution in broader terms and consider what's going on with oil production and with coal. I mean, we've talked about exports. I think the exports of natural gas are going to advance slowly. I don't think it will be that big of an issue, and I don't think we'll see a big price increase, but let's face it, there's not a whole lot of incentive to continue to produce natural gas when it's only selling for $2.50, right? There's going to need to be an outlet for that.

And as we think about what we want to do about natural gas exports, the same issues are coming up with oil and the same issues are coming up with coal, whether we are going to be able to export coal. We can dig it up now. We're not burning as much in U.S. power plants. Asia and Europe would love to get more of our coal and there's a move afoot to prevent exports of coal.

The same thing with export of refined products from oil coming down from Canada through the Keystone Pipeline, what's going to happen there.

So I think this whole issue of export of natural gas plays into those issues as well and something you should be aware of. And I think we have to remember that energy independence doesn't mean energy autarchy. All right? So I think free trade is very important here.

Getting infrastructure to align with demand in scheduling, it's a huge issue and that's one the Congress needs to pay attention to.

Siting and permitting, we agree that FERC is doing a reasonably good job with siting and permitting pipelines. We would love to see FERC have the same authority to site transmission lines, to be perfectly honest with you.

The issue of federal land, that was brought up earlier. This is a huge issue. We are not running out of resources; we are running out of access to resources, and we need to keep that in mind.

Finally, shale gas -- or natural gas has been called the bridge fuel. I don't think it's a bridge fuel. I think it's potentially the superhighway.

And with that, I will leave it.

CONGRESSMAN TERRY: I like the way you said that.

So keeping on this theme, I think, the issue of what's the government's role here, Congress's role, so the first question that I have out here to start the discussion for

about the next 25 minutes -- not necessarily on that question, but that's all of the time we have for just discussion.

But in regard to fracking, does Congress need to get involved? That's the first part. And I think the second question is, do we resolve the fracking issue with legislation or if Congress needs to be involved at all? Is it just simply to clarify the role of the EPA versus the states?

Who wants to go?

Okay. Next question.

MR. PUGLIARESI: Here's the interesting thing. I don't think that the states -- do you think the states are demanding Congress get involved? I mean, a lot of the states have a long and good, you know, effective tradition for regulating. It really is a very local use. The geology tends to be very local, the water resources are very local, and it's unclear what value-added EPA would have.

In terms of expectations in the industry, people are quite suspicious of the EPA. They don't see it as a force necessarily -- they see it as having lots of ulterior motives, but at the local level, you could argue that New York is a mess, but the mess in New York is causing turmoil there that I think will actually sort that problem out. So it's unclear to me what the industry --

CONGRESSMAN TERRY: Dan.

MR. SIMMONS: I was actually going to say that Bill should speak because in 2005--well, actually, before that--Bill was instrumental in putting the part of the -- anyway, I'll let Bill talk.

CONGRESSMAN TERRY: Yeah, that's --

MR. EULE: Just quick I'll say, traditionally, industry loves one set of rules, but I think in the case of fracking, because of all of the localized aspects of the geology, I

think industry would much prefer the states do this.

CONGRESSMAN TERRY: Bill.

MR. COOPER: And I agree, I think the federal hook tends to be the Safe Drinking Water Act, and where they try to pigeonhole that is the underground injection control program, which is a permanent depository, a permanent place to put wastewater forever, and that's not the purpose of hydraulic fracturing. Yeah, we do lose some in the process, but eventually we get the vast percentage of it back; and given the geology and the topography and hydrology of the various areas, the states are better suited to do this. We don't need the federal government and, particularly, the EPA trying to regulate something that's already being regulated at the state level. They just need to stay out of it.

Now, there may be a role for the Congress when you look at hydraulic fracturing on federal lands. Obviously, it's not something I think that the Congress ought to default to the Department of Interior to develop regulations as they see fit based upon a desire to overregulate and crush the industry. I think Congress has a vital role in that respect. If there's any other role outside of the federal lands --

CONGRESSMAN TERRY: So say the federal lands have to follow the states, that particular state, so if it's in Wyoming or Utah, they would have to go by that state's rules and regs on fracking, correct?

MR. COOPER: Obviously, that is a viable option, but certainly if the federal government owns the property, the federal government can set the regulations.

The thing is, as we've heard today, that it needs to be such that we can actually access those resources and develop it. Maybe you adopt the state model in these particular areas instead of punting it to the states, because then what you're going to hear from the states is we don't have the money --

CONGRESSMAN TERRY: Yeah.

MR. COOPER: -- or whatever. But certainly I think Congress has a role on federal lands. I think the role of Congress on private lands is to make sure the federal government does not intrude upon the state's abilities to regulate their own resources.

CONGRESSMAN TERRY: Good point.

Dave.

MR. McCURDY: Well, I agree with the comments here, and in order for there to be some consistency -- in fact, when we developed the national rule on fuel economy, that was because we had a potential of 13 different state types of regulations. In the manufacturing world, that was impossible, but when you talk about energy extraction, because of the local nature of that, we don't believe -- we think the states have the proper role.

I will say it doesn't have to become a partisan issue. This is an area where business and producers have learned, as well. This is only about a ten-year phenomena. I mean, we've been doing fracking, you know, from the oil and gas side for years, but not the directional drilling, so states are having to learn, as well.

And we as industry also have to learn. And I will tell you producers had to learn how to go in and gauge the community. They just can't roll in and say trust us, because there were legitimate issues, and so you have to have transparency, so states like Texas and elsewhere are calling for disclosure of fluids, et cetera.

So there's a way to do this, but I don't think that the federal government is the answer. I think this is going to be a local action and, quite frankly, the challenge, the real challenge, is not going to be in D.C. The real challenge is going to be in the neighborhoods. It's going to be working with those communities and citizens to overcome this fear factor through appropriate information and education and listening.

And a lot of the early concerns were about roads and dust and noise and just

the physical intrusion in areas, unlike my own home state, or Nebraska, where, you know, we kind of enjoyed seeing those rigs out there. But if it's in your back yard, there's a different kind of local geography involved.

The key is that there are 32 states now producing shale gas. That's going to change the political map. It's no longer producing states versus consuming states. Even New York, I think economics wins out over time. It may be a local decision, but one that we have to gear up to and help people understand what the true value and benefits of this resource are going to be.

CONGRESSMAN TERRY: Dave, you mentioned -- you have to get out into -- even into the neighborhoods to start educating. Have we lost that war already, I mean, with the movies that have been put out by the Sierra Club of lighting your faucet on fire in Pennsylvania? Have they already convinced the public that the states can't do it correctly?

MR. McCURDY: It's an ongoing discussion and it will be. Those tactics were used early and Hollywood has a way of taking, you know, a soundbite or an image -- and that image was actually a false image and that was created. It's overcoming the falsehoods.

In these discussions--and it's not because of my political background, it's the third trade association I've worked--I always find it works better when industry is more united, we have a common message, but then we reach across and bring stakeholders into the conversation. And it's true that Sierra Club is out there on the extreme. Environmental Defense Fund, though, is working with Southwest Energy down in Texas on some of the emissions issues. They're working on water quality. So it's a question of getting baseline data.

The tactics that are used are similar to the kind of political tactics that we

face in the country today. We can't just assume it's done. But I've been at AGA for 18 months and I think we've actually turned the momentum a bit among thought leaders. There was a recent op-ed by Michael Bloomberg, the mayor of New York City, calling for, you know, hydraulic fracturing, the benefits of natural gas. He did it with George Mitchell, the founder of this.

So I think we're winning on that battle, but just as you do that, these others aren't going to give up.

CONGRESSMAN TERRY: No, they're not.

MR. McCURDY: And that's why you have -- when you're walking neighborhoods or anywhere else in the community, I don't care what the neighborhood is, you have to help people understand what the facts are.

CONGRESSMAN TERRY: Now, Steve, with the Chamber, you guys are experts or have expertise in communications. How do we do it?

MR. EULE: Well, we're going through community by community and letting people know the value of shale gas.

I think what's very, very effective is to bring up case examples of how the money, the revenue that's raised through shale gas, really benefits our communities.

We've talked to people who the school didn't have a physical education program because it didn't hire the teaches and instructors and now, because of shale gas, the local governments have the money and now these schools have PE programs.

We've talked to communities where the fire departments didn't have a truck and now they have a brand-new fire truck, and it's all because of shale gas.

So what we're trying to do when going into these communities is personalize it and show them how this isn't just benefiting the oil and gas industry. You know, you always hear about big oil and pretty soon we're going to be hearing about big

gas, but this doesn't just benefit big oil and big gas. It benefits these local communities in ways that they can appreciate. And once you get these stories out there, people start to nod their heads and go, yeah, yeah, this really is a benefit to us.

So we're in West Virginia doing this. We're in Ohio, Pennsylvania. We're in New York. We're moving out west. We're going to start up a campaign in Colorado, and, who knows, maybe we'll start one in Nebraska.

MR. COOPER: Just one last point on that and I'll be quiet on fracking.

CONGRESSMAN TERRY: Yes, Bill.

MR. COOPER: My experience in the field in the drilling industry is that when the EPA gets involved, it adds a rigidity and a complexity that overlays what the states are already doing, and all it really does is just add more costs; it doesn't go to making sure that your casing program is any more sound than it was before or your capture of your wastewater or anything of that nature.

And the ultimate effect is that we're going to drive those mid-level to small operators completely out of the industry because we add complexity, because we add rigidity coming from Washington, D.C., and it's costs that can't be recouped and it's costs that don't make it environmentally benign. And I think that's a danger that we have to worry about.

CONGRESSMAN TERRY: Appreciate that.

MR. SIMMONS: And one quick comment. You know, I don't believe a lot of the -- as in the -- you know, the basic facts of the safety of hydraulic fracturing is that we've used it for 60 years, it has been used in more than 1.2 million wells, and there isn't one confirmed case of groundwater contamination.

Now, that doesn't mean that oil and gas drilling is perfect. There have been issues with casings, for example, in some places, but the safety record of hydraulic

fracturing has been very, very safe.

So it's just important to make sure the people know that, because in the areas where there will be hydraulic fracturing, people want it. I mean, they want the jobs. They understand that and, you know, due to efforts of the Chamber and Energy In Depth and other corporations that are out there, they've done a good job in those communities. It's other places where people won't have the jobs if they don't like it.

CONGRESSMAN TERRY: Well, don't give up the microphone yet, because in your presentation, you talked about supply and demand. I want to kind of couch it in slightly different terms, in the sense that natural gas is the solution to everything now.

The war on coal is being pushed down because everyone is going to go -- electrical generation is going to go to natural gas. High gasoline prices and diesel prices are cured because we're going to go towards LNG, CNG in transportation. And we have people that are talking about companies exporting, using the Terry-Green, Gene Green, LNG import streamlining permitting to now use it for exporting, which is a much better problem to have than importing, in my mind.

So how can it be the answer to everything? Aren't we going to run into supply and price problems?

MR. SIMMONS: Well, I'm a little bit concerned about it being the answer to everything. I think that that's where coal definitely has an important role in electricity generation, that, you know, petroleum has a very important role in transportation, because what -- but, I mean, this is all -- it really comes to balancing the economy, and really we can't -- I mean, nobody can do that, no one person can do that, and it just has to do with price signals in the market so that each individual person is out there making those decisions for themselves about what makes sense, you know, today or tomorrow or in the

future, so that it works out.

Because the problem is that optimization problem that you're talking about, about natural gas being the solution to everything, it really might be the solution to everything. I mean, if there is -- if we are producing, you know, vast -- if we vastly increased the amount of natural gas that we produced, maybe it will be the solution to everything, but what matters is for people to be able to decide for themselves what fuel makes sense.

I mean, does it really make sense to spend the $80,000 to convert the heavy trucks to natural gas? I don't know, maybe. But unless England makes those decisions themselves -- I mean, that's the problem when the federal government gets involved is that whole balancing that people go through gets haywire.

MR. McCURDY: Just one thing. It's not -- this is not 0 percent gain and it's about growing the economy, and we're going to have alternative sources and we're going to have renewables; they're built in, the states have done it. It's a smart, balanced approach. We need other fuels. We need nuclear. We need those.

The natural gas industry is not calling for it to be the answer to everything. What we're saying is it's changing the equation so that there's a new foundation you can build on. Use natural gas and build on a renewable portfolio. Use natural gas and build on with some transportation. But don't pick winners and losers.

And I'll be the last to talk about ethanol policy or agriculture policy and those things, but we find out over time, when Washington tries to put its thumb on the scale, and if your policy is not in line with economic reality, it doesn't work, it's not sustainable.

So what is a sustainable approach for this country from an economic standpoint, an energy security standpoint, and an environmental standpoint, and we think

that because of American ingenuity and technology, we have a new opportunity.

So what we do have as a challenge -- what's the role of the federal government, was your original question. The federal government helps -- you know, beyond preserving the peace and defense and our national security, there are infrastructure challenges this country has, whether it's interstate highways, whether it's a natural gas infrastructure, an oil infrastructure, or pipeline infrastructure. It's not that they're asking for money, but it's making sure there's access to capital, capital gains and tax dividend policies, very critical for an investor-owned industry like ours.

CONGRESSMAN TERRY: Just for the record, though, does that mean they want higher capital gains rates, like the President wants, or do you want to keep them down?

MR. McCURDY: We want -- well, of course we want -- the industry, any capital-intensive industry wants predictability and certainty.

CONGRESSMAN TERRY: Yeah.

MR. McCURDY: Now, the rate itself may not be the most important factor, but you want parity between capital gains and dividends and you want a differential between the ordinary tax rates, income tax rates, or even corporate rates. That would be the preference.

You figure out the rates. All we're asking for is some -- but don't do it after you've gone off the fiscal cliff, please. You know, prevent this stuff from happening. So that's the role of government right now is providing some long-term leadership. And infrastructure is one of those areas you could actually look, working with states and local communities, and how do you spread the burden of those long-term costs that we all face.

CONGRESSMAN TERRY: Gary.

MR. STAUFFER: You asked a question, can natural gas do it all, and I

want to just talk about -- the answer is no, natural gas can't do it all. And let me give you, just from an electric perspective, the scale I'm talking about.

In baseload generation, essentially our nation has relied on hydroelectric generation. We've dammed every major watershed in North America, and we no longer have the capability to build very large-scale hydroelectric projects.

With what happened at Three Mile Island in the former Soviet Union, recently Fukushima, Fort Calhoun here, nuclear is in question. Germany has shut it down entirely. Japan is discussing it. To build it -- there's two nuclear plants under construction for baseload generation in United States, and it's questionable, with today's natural gas prices, if any more will be built.

And then you start to talk about scale, can natural gas really impact baseload generation, and I'll use Omaha as an example. It's nice to have MUD here. They mentioned they were the fifth largest natural gas public utility in the United States. I think their peak send out on the coldest day is around 70 million cubic feet of natural gas a day.

To build a 300 megawatt baseload power plant, they would have to more than double that send out from this area. Now, a 300 megawatt plant is very, very small.

So the answer is, in the future, natural gas isn't going to do it all. It will be in the mix, but we cannot throw out coal. There is no way we can throw out coal. Anybody that's anti-carbon is pro blackout.

Now, until the EPA, until we as a society sober up to a degree and understand that -- we don't have the technology to capture carbon and store it. There is no commercial scale available as everybody is aware. We need to explain to folks on a rational basis that natural gas is helpful, it's a great thing, but we need a full plate for reliability and -- a full plate of baseload generation for reliability in the electric industry.

CONGRESSMAN TERRY: I appreciate it.

Yeah, Lou.

MR. PUGLIARESI: First, let me just sort of make a pitch on why we ought to let relative prices determine how we allocate fuels.

If the long-run price of oil is $20 less than whatever your forecast period is, it's 100 instead of 120, or 80 instead of 100, it's a present value savings to the national economy is a trillion dollars. It's huge. So allowing relative prices to get these developed to move to the marketplace is really important.

Second, on the gas stuff, gas exports, I've talked to the American Chemistry Council. I think people should not be too nervous about this. It takes time to develop LNG export capacity and it costs a lot to take gas from here and send it to the Pacific Rim. We actually think the Pacific Rim prices are coming down anyway so that it's going to -- it's a naturally self-regulating thing.

But, finally -- here is something I think Congress needs to worry about. If you look at the transformation that's taking place in the national economy now, the surge in new crude types that are not well matched to the refining configuration, the necessity to capture these natural gas liquids, the placement of new pipeline capacity, all of these things are going to put a huge regulatory burden. And if we don't figure this out -- because you can't do a major modification on a refinery without going to NSPS. You can't do a new petrochemical facility without going through the regulatory process.

And it's not like the past where we had a few hundred thousand barrels a day. We think -- the United States itself can hit -- from our field-by-field work, this is not a sophisticated economic model, but we can go to 10 million barrels a day by 2020, 2022.

But we're going to push that crude and that gas back in the ground because it all has to go somewhere and be processed. And the existing regulatory programs of EPA

is not going to let us produce that, and that is a real issue we ought to start thinking intelligently how we fix.

CONGRESSMAN TERRY: Dan.

MR. ENGLAND: Just one point, obviously specifically to transportation, I want to throw out here is right now we only see one state -- of course we're only operating right now in two states, and that's California, Nevada, but California has already imposed a $.20 per equivalent gallon tax on the use of natural gas.

Now, this is -- the same thing is going to be happening all around the country. And you can understand why they're doing it is because the infrastructure in this country is in bad shape and without -- I hate to say this here, but without the will in Congress to move forward and increase the user tax, user fees, in other words gas and fuel tax, and there's such public sentiment and beyond to tolling, we just don't have a good mechanism for funding highways. And so it's going to happen and that will change the dynamics in transportation.

Right now there's a huge gap, of course, between the cost of natural gas and diesel, but that will narrow up as the states jump onboard on taxing gas.

CONGRESSMAN TERRY: That's a really good point.

Jon.

MR. WEISGALL: From the utility perspective and picking up on some of Gary's points, in most of our states our regulators tell us to build at low cost. Quite frankly, wind has been low cost. We've put $6 billion into wind in Iowa and Wyoming and Oregon and Washington. Now, it's been low cost because the thumb has been on the scale; there's been a production tax credit. Without the production tax credit, that delta goes away. As a utility, we'll be building natural gas and we'll be looking more to energy efficiency. That's one point.

The other point, you know, part of our greatness as a country is that unbelievable diversity we have in fuel sources. Look at France so reliant on nuclear or some Scandinavian countries so reliant on hydro. We're quite lucky.

I think that the market will answer your question about, you know, can natural gas do it all, because at some point -- as I said earlier, we're seeing maybe for a decade or more, maybe a $4 to $5 price range. That's competitive. At some point small modular reactors may become competitive as we overcome some of the nuclear issues. At some point with energy storage, wind and solar may become closer to baseload and not be intermittent.

So I don't think there's a good answer. I'm not sure I would be -- it's a long-term question. It is something to be concerned about, but, ultimately, that's where free markets make a whole lot of sense, because if there is more and more demand and that demand does match the supply, those graphs that I showed earlier will come closer, and as prices go up, other choices will be made. But that's the way markets work, that's the way they should work, and there will be a greater impetus to get more supply anyway.

MR. McGOWAN: Can I just say --

CONGRESSMAN TERRY: Yeah.

MR. McGOWAN: One thing to follow up on Dan's comment on taxing issues, products are taxed on liquid gallon basis, and if you look at it, there's only 88,000 Btus in a gallon of LNG versus 138,000 Btus in a gallon of diesel fuel. That means LNG is being taxed at an equivalent rate of 1.7 times that of diesel. So, I mean, when you're looking at taxes, you've got to look at what you're taxing.

CONGRESSMAN TERRY: So do you go to a Btu rate?

MR. McGOWAN: That would be a fair option, but if you just go on gallon per gallon, you're penalizing the development of LNG and CNG markets.

CONGRESSMAN TERRY: Marguerite.

MS. MILLS: I just want to echo the comments that have been made, that AEP, likewise, totally agrees and supports that diversity has value, and gas is part of the solution, but we need to continue to include coal and nuclear.

And I liked your analogy about a full plate. I mean, you've got to have your proteins and your vegetables and your carbohydrates, and it takes it all to get a balanced portfolio to ensure reliability and affordability.

Thank you.

CONGRESSMAN TERRY: Well, we've heard a lot about FERC's role in this, and I want to take away some of what I'm receiving here, is that FERC should have a role and that there's a certain level of trust with FERC. I haven't heard that with the EPA, though. I divert.

So what are the specific areas that -- you suggested that Congress needs to work with FERC, maybe get ahead of the curve a little bit, which would certainly be a new concept for Congress, but what are some of the specifics that if we call the FERC folks up, what should we talk to them about? What would be the specifics of that conversation?

MR. WEISGALL: One suggestion here. First of all, FERC has done a nice job of holding a number of forums in the last month around the country about the natural gas and electric industry. There have been about, I think, five regional forums. They have been kind of useful. Some have said it is a solution in search of a problem, but I think that regionally there are issues, especially take the Northeast, for example.

I think one question I would have for them is, look, as we are seeing increasing supplies of natural gas, as we see a lot of fuel switching to natural gas, as we see potential congestion, what can you do about accelerating pipeline approvals and gas storage? That would being one question.

Not to say that FERC -- I mean, FERC does a good job on pipeline approval, much better than on electric transmission, as Steve alluded to, which has its own problems because it's never been federalized. But there is still more that FERC could do if we're moving that quickly, and there are regions that are pinched, so that would be one question.

CONGRESSMAN TERRY: Anybody else?

Well, then, for the last question I have, it is more specific to transportation. I've been a proponent of using more natural gas in transportation specifically to bring diversity into fuels, because if we're going to quit buying transportation fuel, oil, from countries that are hostile to us, we need to diversify our own fuel mix. So that was one of the reasons I asked you the first question about can we do this all? We've got that part answered. But Dan mentioned the 80,000. I've heard 60,000. Regardless, for a trucking company, that's a big nut to cover, especially when you only have them around for a few years before you put them into the secondary market anyway.

So we already had the T. Boone Pickens bill that Sully put in that became a -- how do I say this and be nice? But it became fodder for some conservatives to fight those that went on the bill. I got criticism in my primary for being on that bill, and the whole concept is you're subsidizing it, you're altering the free market.

So my question to you, Dan and Holly, if we're not going to incentivize the infrastructure to be put in or you to purchase a natural gas off-the-manufacturing-line heavy truck, now, is there a free market way or how do we in Congress act if we can't incentivize something but, yet, we know we need this for our security? I guess, how do we get you to buy a truck and pay an extra 80,000?

MR. ENGLAND: Leave it up to the market, you know. It will happen.

I think as more competition enters it, as the number of units go up, the costs

are going to come down. I think it's going to -- I think it's going to happen.

I have concerns about this tax issue on the other sides, but as far as how viable it is to be able to buy that equipment and to operate it and operate it with a margin to incentivize it, I think the market will take us there. I really do.

CONGRESSMAN TERRY: Okay. Holly, do you feel the market will take you there?

MS. ALFANO: Yeah, I agree. I mean, the reality is these tax credits are getting harder and harder to pass on Capitol Hill. A lot of people see them as subsidies and people talk about the hand on the scale and all of that earlier.

There is an issue -- I mean, the large players in our industry have found creative ways to do it through partnerships and that's the marketplace at work.

I think the smaller players, as the costs go down, and assuming that the regulations aren't too onerous, they will eventually find a way to do it. It is -- you know, their major issue is access to capital and loans and that type of thing. Credit is still tight for small businesses, so I don't know if there's small business loans, you know, if that would be an option, I mentioned briefly, but that's something that should be out there and considered for investments such as this that really do push out a secure, you know, reliable form of energy. And as the trucking industry, it's truly a chicken or the egg, because as the demand increases --

CONGRESSMAN TERRY: And I haven't figured out which one of you is the chicken and which is the egg.

MR. McCURDY: Well, the infrastructure says, where are the vehicles? So, you know, there's not enough interstate traffic right now, if you're only running five and the one up here, Werner, or whatever it's called, is running two. I mean, those are pilot programs.

CONGRESSMAN TERRY: Right.

MR. McCURDY: It's an issue of scale and issue of timing. So what T. Boone was trying to do -- and you were not wrong in supporting from an energy security standpoint some acceleration of an alternative and viable, but on the transportation side, alternative fuel vehicles are less than 2 percent of the total vehicle fleet today. Fossil fuels and oil is going to be in that transportation mix for a long time.

However, here's where Congress, I think, has to help --

CONGRESSMAN TERRY: All right.

MR. McCURDY: -- and you don't have to pass a law and you don't have to change a regulation, but can you help provide guidance in your conversation and your hearings and discussion and that's a bit more coordination with the states.

It is going to be -- the states believe that they're going to run the show or dictate because Congress is not acting, and we saw that on fuel economy, et cetera, but they're going to do it on tax policy and they're going to do it on infrastructure policy. So it's incumbent on Congress to come up with an energy outline/guideline, and also what is our infrastructure going to look like, and then you're going to have to address these thorny issues of how do you pay for it, because if it's inconsistency in paying, it's only going to block it.

CONGRESSMAN TERRY: Yeah.

MR. McCURDY: What you need is some consistent guideline across the country that says we're going to dedicate a certain amount for -- I mean, if you can do tolling, why can't you do, you know, part of the gas fee -- you called it a fee, a tax. I'm not afraid of a gas tax, actually. You have more variability in the price of gasoline on the corner market than you do if you add a $.05 gas tax, my gosh, and, yet, we get all wrapped around the axle in this country because of that.

At some point you're going to have to rise above the phony politics and say, okay, what are our policies, where are our priorities. And for us to be competitive and dissolve that competition in productivity, you have to improve efficiency, but you also have to have consistent policy.

CONGRESSMAN TERRY: Yeah, Curt.

MR. FRIESEN: Well, when you look at the difficulty that the ethanol industry has had in getting their product into the infrastructure that's currently in place, it isn't even a huge change for fueling stations to switch to ethanol, yet we've run into a regulatory nightmare, basically, and we're using current infrastructure. The costs seem fairly excessive for a small station owner to do.

So when you're talking about an investment like this, it's either going to take trust in the government that it's going to be a long-term policy and not a flash in the pan, because it's going to be difficult, I believe, to get it to go there without the market demanding it. And you can try to push it as hard as you want, but the market in the end will determine that.

In the 1970s, I remember when propane was extremely cheap compared to gas prices. There were conversion kits out there by every company you can think of to convert pickups and cars to propane --

CONGRESSMAN TERRY: Yeah.

MR. FRIESEN: -- and they came on the market as fast as you could build them.

CONGRESSMAN TERRY: And went out with the pet rock.

MR. FRIESEN: Yup.

MR. WEISGALL: In that regard, I can think of five ways you can fuel the transportation: You can use electricity, petroleum, ethanol, natural gas, fuel cells. We've

looked at them all.

The first automobiles, by the way, were electric. Henry Ford was -- nobody wanted to crank those things up. It was the electric car.

So you do have to look and each one requires its own infrastructure. There's some overlap, but it's not easy.

Again, I think what you're hearing is certainty, predictability more than anything else and probably letting markets do what they can, but that's not my --

MR. PUGLIARESI: Let me ask you a question. Clearly the producers are worried about the price of natural gas and the utility sector is sort of worried. Have you seen any opportunities for the producers and the utilities to do a longer term? We had a lot of problems in the past, but sort of a long-term sharing of the price risk? It seems to me that that's a natural way to deal with that risk: For you as a utility and a producer to come together and say, okay, let's find a way to share this price risk, which is really the thing you're worried about.

MR. WEISGALL: Fascinating question. One of the pluses of renewables -- let's take geothermal, which is actually a baseload. A geothermal power plant today can offer a 30-year contract to a utility at a fixed price. As a utility, we've got fixed price on coal. Not too many fixed price on natural gas. Now, that's beginning to happen. I think Xcel has some contracts. That is what's needed and that would definitely reduce that volatility.

We're delighted with the supply, but we do look at that graph and we look at that volatility. And imagine gasoline going from $2 a gallon to $14, you would be a little scared. And when you're buying in at, maybe, 4 or 5 and hoping that your regulators approve that, you don't know, so that is one answer.

MR. McCURDY: But that's a statement. There's some PUCs and local,

they're the ones who are saying don't enter into long-term contracts because of costs, but they're also the ones saying, oh, you need the safety. But the argument right now is when else are you going to make the investment? You make the investment when prices are as low as they possibly can be --

CONGRESSMAN TERRY: Sure.

MR. McCURDY: -- in our foreseeable provided at a stable price.

MR. WEISGALL: That's what we're doing.

MR. McCURDY: This is the time when the country needs to make those investments, and don't get wrapped around the axle, but where you need to help coordinate is this conversation with NARUC and these organizations, with these utility commissioners, so that they, too, can harmonize a bit, look at these innovative rate approaches, look at innovation that you can highlight, actually look at what the speaker had said. Let's look at other states that are doing it right, how can we use that model and replicate it to see if we can incent these investments.

CONGRESSMAN TERRY: Well, this is the level of discussion I was hoping for. What I was hoping for, too, was more time, but I don't have that. So at 11:30 we're scheduled to adjourn and it's 11:32 and a half.

So I want to thank everyone for all of your efforts to come here, be a part of this great discussion. I think this was very, very helpful in finding a pathway forward for our Energy & Commerce Committee in the 113th.

So thank you very much for your participation.

I want to thank MUD. We've got -- are you still on the board?

MR. DOYLE: Senior vice president.

CONGRESSMAN TERRY: Yes, senior vice president, Mark Doyle. He and I used to play on the same baseball team back when we both could run. So I want to

thank MUD for helping out today and last night's reception.

So thank you very much, and I'll see you soon.

(11:35 a.m. – Adjournment.)

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