EIA Energy Conferences & Presentations, April 7, 2009

Session 2: "What's Ahead for Natural Gas Markets?"

Mr. Harvey: This panel is about natural gas. You, depending upon your perspective, you might call it a dynamic industry, you might call it a volatile industry, kind of the way you want to look at it, but change is the big deal, and so in order to kind of deal with the fact that, I don't know, the last year or so, every week has sort of brought something new to the floor, we decided that we would not go with the traditional format for today's panel, so there are not going to be any slides other than that one, to kind of remind you of who all we are. Instead, we're going to have a conversation, and the idea was this. Typically when you put together a panel like this, you get them on the phone and you have conversations and you tease out themes and individuals get to have their chance for a particular theme, and we're not going to do any of that.

I'm going to spend about the first 15-20 minutes talking a little bit with each of my panelists to help introduce them to you and to give you a little sense of who they are and for them to get a chance to put a couple themes on the table and then when I'm through, I'm going to kind of step back and let them start talking and my goal is that that conversation, you know, you guys can listen in, but we're really going to be chatting for awhile here about what's going on, and to make that work it required doing what I actually think I did pretty well, which is finding people who are really, really interesting and really, really expert at particular perspectives in the marketplace, who don't necessarily know each other all that well, and then tried to kind of keep them apart as much as possible although I didn't do a very good job and I think you'll see in the course of the conversation, I'm not really going to control

much of anything in the process.

We may or may not get to questions at the end because we are a little bit tight on time, and hopefully we'll be generating a lot of our own questions up here and so who knows, maybe it'll work, maybe it won't, let me know afterwards. I'll be hanging around for the next day or so.

Now, to start, though, I did want to spend a little time with each individual and I think in order to introduce them, give you a little bit of a sense, we took the tent cards down because there frankly isn't room for tent cards, so you're going to have to kind of learn who we are and get to know each of us in the process of doing this. So let me start with Rick Smead. Now, I've known Rick for a long time. Rick was a stalwart in the pipeline world for a long time but moved on to Navigant and most recently has been doing a lot of work with the American Clean Skies Foundation and Rick, what's the American Clean Skies Foundation and what have you been doing with it?

Mr. Smead: The American Clean Skies Foundation, Steve, is a nonprofit research and educational foundation that was originally founded by Chesapeake Energy but, has a number of members, it's here in Washington. Denise Bode was the original CEO for quite a while, now she's moved on to be CEO of the American Wind Energy Association. American Clean Skies Foundation is dedicated to a variety of approaches to help the environment but centered first around what the role of natural gas should be.

Our role, I got involved with them last year when they needed a study to understand where we really stood now in terms of natural gas abundance because the, one of the big impediments to using natural gas in solving a lot of our national challenges given its benefits in terms of being low carbon, being clean, being

cheaper than oil, everything else, one of the big impediments was the perception that it was an exhausting resource, so it was running out. The proved reserves that get reported are only a couple of hundred trillion cubic feet which is maybe at most 10 years worth of production. The achievable or accessible resources, we knew were larger than that, but with the explosion in technological change that enabled things like especially gas shale development, a lot of models have missed that, a lot of models have missed this step change in technology in the industry and in the middle of the climate change debate on the Hill last year, the Lieberman Warner Boxer Bill, it became critical to get the message across that there was plenty of natural gas out there that could be developed and so we did a study, we have five weeks to do it, to assess the state of the North American natural gas industry and I think we made a pretty groundbreaking finding at the time that there was a very large recoverable resource base which now has found its way into just about everybody's thinking, but now we are in the much more difficult period of understanding how and when it can be developed, what some of the other issues are that can retard that, the interactional course with – I've heard about some kind of global economic meltdown or something that's sort of messed things up for a few people and - I think it was in the news – and so we're struggling with how that fits together, how the market works, and how this really, really impressive asset that we've got nationally can be used to address the same kinds of issues that every aspect of energy and environmental policy the Administration's trying to address.

So it's a little more complicated now and the challenge now is for the industry to have a really simple clean message that is credible to get out there and so that's kind of what we're working with and where American Clean Skids is focused.

Steve: Great, thanks. I'd like to go to Jim Simpson. Jim works for Bentek

Energy Consulting. We got to know him a couple of years ago in work that we did at the FERC (sp?). In fact, I see many of my former FERC colleagues out here who use Jim's stuff all the time. Jim, what in particular does Bentek do that's particularly interesting?

Mr. Simpson: Well, we do –

Steve: A lot of things, but in terms of gas and gas flows.

Mr. Simpson: In terms of gas – and I'm going to bias this a little bit up front. We love natural gas. We deal with natural gas, we don't love coal to the extent I can get away with coal or, you know, have natural gas [quotaed] out that's – we're gas folks. I run the analytical side so I'm kind of the geek in the closet, you know, they feed me pizzas underneath the door and don't let me out a whole lot but – I got a couple chuckles. A few people in the audience know.

Steve: These are people that know Jim well, I guess. Do we have the mic on for Jim here?

Mr. Simpson: Is that better? Can you hear that?

Steve: There we go.

Mr. Simpson: Okay, sorry about that. So we do a lot of very interesting things –

Steve: They just lost you again.

Mr. Simpson: They did?

Steve: Yeah, I don't know what the –

Mr. Simpson: Here, maybe that helped.

Steve: No, no.

Mr. Simpson: It's on. I promise it's on.

Speaker: It just went off, we lost him.

Speaker: It's on.

Mr. Simpson: It's on.

Steve: There we go, you're on again.

Mr. Simpson: I just pulled it out here, sorry. So yeah, I don't get out much. Those of you who don't believe me, that – so we provide – is that – there, I'll just use this one. Thank you, Steve. Okay, so we provide, for the third time, we provide real time natural gas supply and demand data, so Econ-101, what's supply doing today, what's demand doing today, we also do modeling out. We're very short term modelers, short term to us is a year or two years out, and not much further than that because quite frankly you're just, I mean, you're spitting in the wind. So it's anybody guess at this point.

Steve: So I guess one of the questions I have is what are you all seeing for the next year? Where do you see the trends that are emerging from the flows right now?

Mr. Simpson: Steve, if it's okay, I'd like to ask the audience a question. So can everybody hear me in the back? Alright. How many folks in here think that $4.00 gas – so Henry Hub right now forward, so say summer, is trading just a hair over $4.00, so I'm just going to say $4.00 as just a wide, kind of general statement, how many folks in the audience think $4.00 is just a bleep now or it's a long term, you know, we have a long term $4.00 market? So long term $4.00 market, let me see your hands. Okay, good. $4.00 is just here momentarily. It's a flash in the pan and we're going to go back to $8.00-$10.00, okay, good. It's – good, so it kind of gets the audience set up a little bit.

Speaker: Yeah, there's a lot of room between 4 and 10.

Mr. Simpson: Yeah, a lot of room between 4 and 10, there is, so let's say

$4.00 to $6.00 out in kind of a forward market. Okay, well that's good. We got a good piece there. Now, Rick, I've got one thing I'll disagree with you on from the start on the Clean Skies. We've got about 200 clients and I'm not here to advertise, but we do really good work, but we've got about a third that are financial institutions so hedge funds, large banks, we've got a third that producer, midstream communities, so large producers to mid tier to very small midstream services companies to large midstream services companies and then we've got a third end users, kind of LDCs, government types, folks that are interested in end use. And I do a lot of customer meetings so I go and physically sit down with customers and it's the third on the demand side, the $4.00 to $6.00 mark is a very – sometimes I think I'm the first one in there that says boy, we're really long supply and that the price where we are now isn't, you know, is a sustainable price for awhile. In other words, don't be afraid of gas, use it. It's here to stay, so – thanks, Steve.

Steve: I'm sure we're going to come back to some of those themes here and in just a little bit, but why don't we keep moving. Brian Jeffries, you are the Executive Director of the Wyoming Gas Pipeline Authority, close. What is that? What does that mean?

Mr. Jeffries: Well, first of all, is mine working?

Speaker: I can hear you.

Mr. Jeffries: In Wyoming, depending on prices, but in a typical year 50% of the state revenues come from taxes and royalties on natural gas and crude oil and related products. Outside of Alaska, there's probably no state that is more in tune with energy economics and its dynamic to state revenues. Wyoming has long appreciated where its money gets made, that's why we have no state income tax, we have no food tax, and if you can graduate from a Wyoming high school with a 2.5

GPA and a reasonable ACT score we'll give you 50% off at the university for four years. If you can graduate with a 3.5 with a good ACT score we'll give you a full ride for four years and that's not for the first 100 applicants, it's for everybody that meets that task. That's what energy taxes and revenues (unintelligible) can do for you.

For those of you who follow the prices in the Rockies and Wyoming and in other western states we suffer from wide differentials on occasion. We've had cases where the price differential of Wyoming Gas to Henry Hub is – the difference is wider than the absolute price. The State of Wyoming figured out 20 years ago that its interests and producers' interests are aligned for higher prices. We export 93% of the gas produced in the state so the state decided it needed to overtly try to develop infrastructure to get the gas out of the state, get better prices, drive state revenues, so they created the Pipeline Authority to do all it could including financing if necessary, to get pipelines built, to get the product out of the state. Like I say, with 93% of the gas exported while we might raise the price of gas in Wyoming for a residential customer – you know, if you raise the price of gas in Wyoming a dollar on an annualized basis, the residential homeowner will pay another hundred dollars a year. That same residence is a family of four, that same $1.00 annualized price increase translates to $1600 in incremental state tax revenues, so if you believe that on the 16 to 1 ratio as a homeowner you're better off and you can accept that, then this is a good trade. If you can't accept that, you should talk to your state legislature.

Steve: Now, Brian, you've been in the industry for about 3 decades now, roughly. You've seen a lot of cycles, cycles matter to you in the job that you're in. What's different about this one?

Mr. Jeffries: Well, the first – the first cycle I saw –

Steve: Here we go, we'll send mine over here.

Mr. Jeffries: You know, the first cycle I saw was sort of the gas (unintelligible) of the early '80s which had the real discontinuity of – we were choking down take or pay gas, trying to flow all the $7.00 gas we could while shutting in all the 25 cent section 104 gas we could to balance the system, so thank God we don't have price controls screwing up the system anymore and having those sort of bizarre signals. You know, the second downturn I've seen in prices was in, say, the late '90s, just sort of a generalized downturn in prices. You didn't have this development of new supplies. What makes this one seem different than the other two is you've got a downturn in price and it looks to me like we're going into a period of excess supply and long gas supplies which I think most of the panelists agree and part of the audience agrees, so this one's a little bit different that prices are low and you can make a real case for them to be sustained low.

Steve: Alright, our next panelist is Christie Tezak and the number one question I've gotten this morning is Christie, what is she doing now? And I've told everybody, there's several of you out here – we'll find out now. Christie, what are you doing now?

Ms. Tezak: Well, I went skiing a lot in March. For those of you who don't know me, I was employed technically until March 7th for Stanford Group Company which was the parent of a group here in Washington D.C. that follows policy research for institutional investors, helping them understand how legislation, regulation and policy impact publicly traded equities, and we were part of the infamous now Stanford Group Company that included a cricket loving CEO and a possible Ponzi scheme, so it's been a little bit busy lately and the great news is that fortunately having not participated in that side of the business prospects are actually pretty bright. When you look at everything that's going on here in Washington in

spite of the economy I've actually been sifting through job offers between ski lifts, so I've been up to that and I hope to have news shortly, so watch this space, dedicated fans, those of you who are whining that there's nothing in your inbox, it's coming, okay, so just hang in there, and so that's what I've been up to.

Steve: Very good, but we know that you've been keeping up with what's going on in the Administration and the Hill and what are you seeing with regard to natural gas?

Ms. Tezak: Well, I think that what, you know, I've been talking to folks about even, you know, since the grand separation, is you know, what is this going to mean for natural gas and what is it going to mean for coal, particularly how it's – when it flows through the electric generation portfolio, and I think that there's a lot of schizophrenia in terms of trends that are driving natural gas. On one side you can look at, you know, forecasts for the deployment of renewables, and they wind up displacing natural gas which then causes people to sort of scratch their heads and say but wait a minute, there's less emissions, less carbon, less everything, why is that happening? And then you have the possibility of an administration that has people in that were very pro-gas during the Clinton Administration. Carol Browner was certainly an advocate for shutting down a lot of coal capacity in favor of natural gas fired plants when it was two bucks. And so –

Steve: Ignore it, ignore it.

Ms. Tezak: - and so you know, that seems to be – you know, so those people are back in this Administration, but then again we start talking about things like well, are we going to start regulating hydraulic fracturing under the Safe Drinking Water Act? And what is that going to mean for the availability of supply and do we have the supply that we think is there if we're going to start running it all through

EPA. So what I'm seeing a lot of is schizophrenia back and forth in terms of the trends that people are trying to wrestle with. I think we're going to get some clarity in terms of at least an initial sense of where the, where Congress is going, in terms of the Waxman Markey Bill. The question folks have been talking about this week is, is that really their starting point or do they want to go left from here, you know, did they start with U.S. Cap and they'd really like to get back to the 100% auction approach, would they really like to have a separate efficiency standard? Or have they already sent the signal that it's going to be moderate and that they want to do something that's a little more palatable and actually within shouting distance of 60 votes in the Senate? So, in these, you know, couple of tenuous weeks we'll see what shakes out.

Steve: See what happens. Our last panelist, John Strom. I met John a decade and a half ago, something like that, when he worked with Tejas Power, putting together high deliverability storage projects in the U.S. He went on to be a principal at Haddington Ventures. What is Haddington Ventures, John?

Mr. Strom: Haddington is a private equity manager. We manage institutional funds, we have several hundred million dollars under management, and we invest in companies or projects or management teams, either on the acquisition side or on the development side. On the development side we do a lot of infrastructure development which includes a lot of natural gas storage, high deliverability gas storage across various parts of the U.S. and more recently been spending a lot of time and thought on the energy storage side of the equation, bulk energy storage as contrasted to distributed technologies, so I was really heartened to hear Christie's remarks there because when I hear the word schizophrenia it translates into uncertainty which translates into commercial value ultimately for gas storage or

energy storage, either one.

Steve: So we've heard Christie's sort of review, we heard from the secretary this morning. I was sitting next to John when we were listening to the secretary, and he was paying a great deal of attention. What do these D.C. initiatives looks like from the investor perspective, particularly in these kind of innovative projects?

Mr. Strom: Well, the – as the secretary mentioned today for combination of the energy security and current account deficit and greenhouse gas, roll them all together, and the initiative that's on the renewable side, in particular on the growth in wind energy across the U.S., as Christie mentioned, having that sort of flow through the electric portfolios, again, that from the policy side, that's driving a lot of our interest in focusing on bulk energy storage as an investment theme because we think it will be a huge ultimate beneficiary of the implementations of those policies, particularly on the wind side. You know, for the first time ever the electric utility, electric industry is going to have to address and plan around the separation of energy from capacity and you really have to think carefully about that concept. Those things have always been in one place previously. The capacity and the energy came out of a single resource. Now we're talking about having that energy come from a variable source, separate and distinct from the source of the power capacity and that clearly has implications both from an infrastructure standpoint as well as from a natural gas standpoint, the supply itself.

Steve: So we're done with the introductions. Who wants to start? I've heard several themes pop up here and I've seen several points where people twitched – so go ahead, Rick.

Mr. Smead: I want to ask the audience a question along the lines of the agenda, but is there anybody here who has ever been an unappreciated staffer

when your boss had it wrong and you had it right? Okay. Think back to Working Girl, Melanie Griffith in Working Girl. That's natural gas today. We've got this incredible asset, it's clean, it's 60% less carbon than coal, at $4.00 it's the equivalent of $24.00 a barrel oil, it's domestic, it's secure and the only thing we have to do is ask for it and we don't. I mean, first there's the market demand. Ask for it, to burn it, but then there's the kind of societal request, do we want to support it, do we want to be working collaborative on issues like water, well, the hydraulic fracturing water issues, issues like infrastructure construction, and certainly taxation, or do we want that to be a battle line kind of thing with the government against the industry and so it is very frustrating, you know, and Christie mentioned how many pro-gas people were now in the Obama Administration. When we rolled out our study last summer, the introductory speech was made by Rahm Emmanuel, and so you know, you look at this and you say well, President Obama and the campaign is the one who got it right, distinguishing natural gas from oil as a resource. He always included it as part of his overall inventory of solutions to our problems and now we've seen it just sort of drop off the map in terms of policy most of the time. Anywhere that it does show up it gets rolled together with oil. So we talk about being long on gas, yeah, long gas, I like that, traders say stuff like that. There is a lot more gas supply right now than there is demand, no question about it. The industry grew so fast over the last three or four years that supply completely overran demand by 5 bcf a day before the economic collapse and, you know, from 2005 to 2008 we added more deliverability than the total energy content of all the oil we imported from Saudi Arabia and that's just from domestic onshore resources, so in 2005 you had 2 hurricanes that took out the offshore system and prices tripled. In 2008, 2 hurricanes took out the offshore system and prices went down. So that's how healthy this industry is right now, but

now it's a market. The market's got to pull, it's there, there's enough gas to do an awful lot of really good stuff, and that's what frustrates me is we could stand higher prices and have it still work very well, and yet if the prices stay low, sooner or later people stop drilling the stuff.

Steve: Jim, you're seeing low prices no matter what, really.

Mr. Simpson: Yeah, I mean, the – does this work now? Is this one better, in the back? You're nodding yes or no? Well, can you hear me if I just yell, does that work? I'm not a particularly quiet person. Steve, we see – the $4.00 to $6.00 mark is here for a year, 18 months, and I mean, I should say range, because $4.00 to $6.00 could be here for 5 years. The infrastructure that –

Speaker: I agree.

Mr. Simpson: - Rick's alluding to, that the recent prices went down when the hurricanes came in this summer is the – just, I don't know any other way to say it than just crap load of money that the industry spent on new infrastructure, getting gas from basins, Texas, Northeast Texas, Eastern Oklahoma, Arkansas, getting that -deliverability, getting the gas to market, so pipes that were built – well, 45 years ago, or help me out some of you guys that are a little more senior – but - (laughter) – very old –

Speaker: Why did you look this way?

Mr. Simpson: - and they were built to take gas out of the Gulf of Mexico. Well, in the last 18 months, and it's still going on, the last 18 months and the next year, we've been building a pipe infrastructure and storage infrastructure so that 2 hurricanes come through in '08 and prices fall.

Speaker: Yeah.

Mr. Simpson: Well, what's that mean, and back to what John said, kind of

his opening remarks, or actually the question Steve asked, how do you – what's the industry do – how do you respond to that if you're not certain about things going forward? You amortize your projects over 5 years because you don't know that over 20 that you're a viable option? I mean what's the – I mean, that's kind of what, you know, we see, is how do you do that? We spent billions of dollars. Now are we going to spend billions of dollars more to get –

Steve: But in a response like that, do you need government policy?

Mr. Simpson: No. Free market seem to sort of solve it. Prices got to $14.00 this summer and producers at 14 bucks, they went absolutely nuts and even in the Rockies where you're kind of pipeline capacity constrained, you're still at $6.00, $7.00, $8.00 pricing even when Henry Hub's $13.00, $14.00 which is good for producers.

Speaker: I talked a little bit about that, though, that the – you know, the $14.00 prices last summer, as we were doing our survey of producers, when we did our study it included reaching out to survey 114 producers that accounted for 90% of the production in North America, and we asked them about price, you know, we said how much do you need? They said, you work for Aubrey McClendon, right? And we said well, sort of indirectly, and they said well, we're not going to tell you anything. So then we said, okay, well, where are the break points, you know, as prices come down, because they're going to come down, where do you start triaging, really worrying about which prospects and at which point do you just stop doing it? And the range of price – some guys were just posturing but basically $6.00 to $7.00 was where pretty much everybody settled out most of the time, and yet the overwhelming message we heard was that price stability was so much more important than price level. Fourteen bucks it goes to four bucks doesn't do anybody

any good in financial markets, or vice versa.

Speaker: When you say $6.00 to $7.00, were you suggesting that was their 5 year or 10 year price deck they had investment decisions on?

Speaker: Yeah, that a stable price in the $6.00 to $7.00 price range over 5 or 10 years – and you know, you'd say, do you mean in real dollars, do you mean in constant dollars, in nominal dollars, they'd say what? And so you know, and we were not trying to do anything comprehensive on price but just to get an indication, and it's pretty clear, a lot of things are changing. In the Haynesville Play, Northern Louisiana, which is by some measures – it may be bigger than Prudhoe Bay, it may be the largest gas field in North America, and it's under Shreveport, in Haynesville just pure technologically driven improvements in productivity in the wells is causing the price they can be produced at to not be 7 bucks but to be maybe 4 or 5 bucks. It just – it's so sensitive to that, how much gas do you get out of the well even though the wells are expensive, so we're in a range that could work if they're pretty sure it'll stay there.

Speaker: Well, I'm pretty sure you can count on natural gas prices not being stable.

Speaker: Oh yeah, yeah, except that because demand isn't stable and because we don't have a balance, one of the things that is really encouraging about shale development is that once it settles down – now it's more like a manufacturing business. They know where the resource is, there's no geological risk, they know it's there, it's just a question of do you – can you make a capital investment against a future price and have it pay off the same way you would if you were manufacturing something, and so now for the first time the industry can ramp up and ramp down in fairly small increments to match the market in much shorter time frames and it used

to be – we used to be on this huge yo-yo of tremendous over-supply or tremendous under-supply and they were always three years out of phase.

Speaker: The ability to pull back on the throttle or accelerate the throttle is –

Speaker: Yeah, yeah.

Speaker: - is much more attuned to the price cycle –

Speaker: Yeah, yeah, and it's a much healthier market now, once we get through the current turmoil and things settle down a little bit, you know.

Speaker: Steve, you brought up, you know, regulatory policy or Administration policy. You used the word manufacturing when you talked about stability so if we are going into this situation where we have ample gas supplies –

Steve: Yeah.

Speaker: - in a lot of different places, you know, states will fight over building an automobile plant in their state versus someone else's state. Do you see any states, speaking for states other than Wyoming, that are looking at this as an opportunity to say well, why don't we make this a more attractive place to bring on supply, you know – let's be Pennsylvania, let's come up with stable water quality standards, fracturing rules, tax issues, do you guys see any states stepping out saying let's make this a more favorable place so that they drill here first, they bring their jobs here first, we're talking about stimulus packages and incentives. Why is natural gas not viewed as an attractive industry to bring to your state, or at least that's the perception I have, compared to a very limited number of states I can name?

Speaker: Well, in Louisiana we say come on down shop. But yeah, the farther north you go the harder that's going to be to do. It's –

Ms. Tezak: Heck, in New England you can't even cite windmills, so –

Speaker: Yeah.

Ms. Tezak: - you know, it's, I think a lot of it has to do with the assumption that how states relate to energy, you know, if you go to the Gulf Coast or if you go to a producing state out west, energy is part of the psyche, the ups, the downs, the fact it's not the same thing everyday. It's part of the overall economy. Energy is an add-on in a lot of different states, particularly I think in the northeast. It's this stuff that should be there when you flip the switch and it should be cheap and it should, you know, it should have these characteristics for emissions and it should have all this other stuff, and to actually confront, you know, having the fuel in front of you is difficult in those political environments and the only thing that's actually changed it is like you said, when they start to think about it as an economic issue. The progress that's been made on Cape Wind for example, offshore Boston, you know, off of Massachusetts is because the politicians started to realize that if they do an ambitious renewable portfolio standard, the money's going to go to Canada. And they said, well, wait a minute, maybe we should rethink about keeping that money at home, so I think that what you may see is some change, not a C Change, because I think that a lot of the regions will retain a certain bias, and the producing states will continue to be producing states and the ones that assume energy falls from heaven will continue to do so –

Speaker: Yeah –

Ms. Tezak: - but I think that that's what – but you are seeing some shift around the edges with the economic development issue, the stimulus issue, that sort of thing. Can we, should we be using some way to elicit that stuff and bring it here, but I think it'll fall short of actual material production. I mean, as opposed to Pennsylvania which has been progressive in working on the frac rules, New York is

leading the charge to regulate them under the Safe Drinking Water Act, so, and these folks, you know, sit across, you know, one border from each other.

Speaker: Yeah.

Ms. Tezak: But their approaches are very different.

Speaker: Very, very true, and I think one – there may be a domino effect, too, that if you think about Marsalis (sp?), and this isn't positive for the Rockies, but if you think about Marsalis in Western Pennsylvania, Western New York and West Virginia, the thing about Marsalis that's pretty cool, of course, is that it is close to the market. It's huge, it's gotten so much enthusiasm that people started calling it Marsalis dot com, but the – what could easily happen would be with tremendous development in Haynesville and continued development in Barnett and so forth in the south coming up the traditional pipeline routes, you'll keep seeing in New York City the same thing we've seen every winter because of infrastructure constraints, was $70.00 prices suddenly blowing out because of pipeline constraints, so all of a sudden as it starts sinking into their head that there's this gigantic resource right there at the terminus of all these pipes, including Rockies Express, all of a sudden it may look real attractive to start developing Marsalis for the market.

And then of course the other issue – where Pennsylvania has been very constructive and responsive is that they realize that coal mining jobs can turn into shale development jobs and you don't have to go down as deep in the ground and you don't get black lung. And so, you know, they do have a coal based energy psyche about all of this.

Speaker: And yet, what, 4, 5, 6 months ago the New York Times came out with an editorial saying you must not drill the shales, you must not frac the shales, because our water supply's unfiltered, it's all coming this way. How serious are

those issues, I mean, are they regional as well? I mean, Fort Worth –

Speaker: Yeah –

Speaker: Fort Worth's beginning to see some water issues too.

Speaker: They're regional, but the thing is, there are a bunch of complexities to it. The first one is that coalbed methane development, one of the other unconventional sources, did have a lot of water issues, does have a lot of water issues because they're very shallow wells. They're drilled with water wells a lot of times, and so they're very shallow, there's a lot of chance of interaction with the aquifer with the water table. Shale development is happening a mile to two miles below the aquifer. You drill through it but everything's cased off with multiple layers and cemented and all this so there's no interaction between the vertical part of the pipe and the aquifer and then the horizontal – when you drill these horizontal wells, you drill down 11,000 feet and turn right, which I still can't wrap my mind around, but they go down there and they turn the thing and they go about a half a mile horizontally through the formation, then they punch holes in the pipe, then they use high pressure water with stuff in it to pry the porosity apart a little bit, it's not huge, it's a lot of water, but it's not going very far, and then that's what allows the gas to flow. When the gas flows, a bunch of that water, about a third of the water comes back and sometimes it has things like benzene that are down in the natural geological structure, so you've got to be very careful handling the water going in because it's got things in it to help it do the fracturing. Some oil field service companies, at least one, has said that that's a trade secret and it doesn't seem to work that well to inject millions of gallons of something into the ground and tell EPA that it's none of their business what's in it. But - it sounded a little off, but there's that, but then coming out you've got to be very careful how you handle it.

So another issue is simply both going in and coming out surface tankage and transportation of this stuff that can be hazardous, but that's no different than moving any other hazardous liquid around and it's well established and there are best practices to follow, so it's gotten a lot of press and a lot of attention and a lot of concern, in particular in Marsalis, one of the areas where the play extends is actually under the Manhattan aqua firm and so the president of the Borough of Manhattan proposed legislation to ban any drilling there and so it's very sensitive, and I mean there's nothing like water issues to just get people stirred up beyond belief. We had that out at CIG when we had out water company that got people shot at so it's very sensitive but it's something the industry is working through. I see it as more of a cost and timing issue than a, it's never going to happen, issue.

Speaker: Let me – sort of a related question, because the issues come up about the folks in the northeast who just want it there and then the folks in the south. Jim, you guys looked at pipeline infrastructure a lot and you've come up with some interpretation of what's gone on in terms of the investment of pipeline infrastructure, what that's done to supply into the northeast. What observations do you have about that?

Mr. Simpson: Well, the biggest one, and maybe I got this to work here, the biggest observation, Steve is that, like the Rockies where the pipes are full, the pipes coming out of Louisiana, Northeast Texas, Alabama, Mississippi, everything going up to the northeast, particularly this winter, it's full, it's already full, so back to New York having a $70 price, it's either drill in my back yard or build infrastructure, get somebody to build infrastructure and invest in it to get more gas delivered to New York City. But yeah, the pipes are running full and it's production, it's Haynesville and Forth Worth, and yeah, everybody's – I call it just, you know, pick

your favorite shale play, with the exception of Marsalis and it's going in the pipes and moving to the northeast.

Speaker: You know, one element we haven't introduced yet but I'm certainly mindful of it, is the significant infrastructure bill that's been on the LNG Regasification side now or by the end of this year will have several more bcf a day of import capacity. The common thinking a year or two ago given worldwide natural gas prices was it was going to be difficult for the U.S. to attract incremental and/or base load LNG cargos to the United States given higher prices elsewhere. That landscape has changed dramatically over the course of the past 6 or 8 months, just on account of the worldwide demand issues and I'm curious, Jim, what thinking Bentek has done on this and it obviously feeds back in to the whatever sort of near term price forecast you may be thinking about from the E&P side.

Mr. Simpson: From a standpoint of LNG, and we believe the U.S. is going to be the market maker or the price maker for the world as opposed to the price taker, and it was even a year ago. We were going to be the price taker. LNG was going to come here and you know, we needed to increase over the years to 10% and 15% of our supply and we kind of disagree with that now. The way the market is priced and just the forward curve, the market's kind of in a way saying the same thing. Come July and August of this year, it's price, we're about flat with the U.K. price, so it's saying we're indifferent as in LNG but whether we go to the U.S. or we go to Britain, but past that European prices are still higher, so from a standpoint of LNG showing up here in a $5.00 market with pipes already being full going out of Louisiana, if I dump supply in there into Louisiana, do the extent too that this winter – it was a decent winter as far as temperatures go, it was cooler up here and you know in the northeast, but we didn't use a whole lot of storage and those pipes – and when I

mean we didn't use a whole lot of storage, I mean, Louisiana, Texas and the producing regions of the country, we were much higher than we normally are this time of year.

So it was flowing gas, it was incremental production, a slight bit of demand decrease in the southeastern states that sent more gas north. So from an LNG standpoint, any incremental LNG that we get into the U.S. we're either going to fill storage up really, really quickly this year or it's going to continue to keep the pipes full to the northeast, and that would be – even Cove (sp?) Point deliveries affect Henry Huff. If I'm getting gas at Hope Point in Maryland then that's less gas Transco may need to move from Mississippi, you know, South Texas, South Louisiana, into, you know, into the northeast.

Speaker: Yeah, and we've expected it to be a summer market even when there was a big price disparity because nobody else had any storage. As you say, the big change that's happened is that worldwide demand collapsed at the same time that a lot of new LNG liquefaction trains are coming on. The end result of that can be, in the short it can be a lot of LNG being available but basically we don't have to buy it, so it has to compete, and there's nothing wrong – just like what Bill Nordhaus was saying, absolutely nothing wrong with being interactive with the world markets as long as you're not captive to them, as long as somebody can't just suddenly cut you off and cause a big problem for you, but the world demand is so volatile and sensitive that if – the scenario I keep thinking through is you've got China that's been building –they were building a 500 megawatt coal plant per week for a very long time, they – during the Olympics had to turn off all their industry because of air quality. What if China woke up tomorrow and said we don't care what it costs, we're going to switch everything to natural gas? What if they did? And all of

a sudden you've got a huge, huge sink in the world market, you're back to oil based pricing for LNG, which is 6 times the natural gas price so it's – at that point you're back to where we just don't need it unless it's a dump sale and a short term discontinuity.

I know when – I did a lot of work with Qatar Petroleum and one their lines that I really loved was that you know, by the time we sail past Gibraltar we've passed 14 LNG receiving terminals that all pay more than you do. So tell me again why I should sail across the Atlantic Ocean into hurricane alley? And so you tell them again and they say, oh okay.

Speaker: I think they're understanding the wisdom of the comment now, though.

Speaker: Yeah, oh yeah. Yeah.

Speaker: So for the last 20 years, I've been offering my coworkers a bet and I've given then two to one odds, that Alaska natural gas wouldn't be flowing in 10 years from the date of the bet. If we're talking $4 and $6 –

Speaker: I think you're in the money, you're still in the money. You're still in the money.

Speaker: I guess the –

Speaker: Well –

Speaker: - would be if you all took the bet I should stop offering –

Speaker: Yeah, yeah, well –

Speaker: Because it sounds like, you know, with the $4 transit costs for Alaskan natural gas that it just keeps rolling off to the future.

Speaker: It's going to flow, you betcha. The – I have questions where it's going to go. I have a lot of trouble building a $40 billion pipeline to bring coal to New

Castle, you know, and it's always been considered unpatriotic to talk about exporting much of it, but you've got to wonder whether it doesn't make more sense to have relatively more LNG coming out of Alaska and that be the cutting edge for the U.S. as an exporting market if there is such a market, or what you do. It's – they are moving forward pretty hard to get domestic use.

Speaker: Well, if they quit building coal plants in China –

Speaker: Yeah.

Speaker: - the probability of exporting natural gas via LNG to China increases dramatically.

Speaker: Quite a bit, quite a bit, yeah, yeah.

Speaker: So yesterday I was looking at the NYMEX prices in preparation for today and May 2009, and yesterday's sold at 3.75 and January 2009 settled at about 5.80, so up to you $6.00, and so the question that I had is can we imagine any circumstances that would create a price path that actually looked like that?

Speaker: You mean when prices are realized?

Speaker: Yeah.

Speaker: I think you can more easily imagine a scenario where that spread actually versus cash versus realized prompt winner is wider than that.

Speaker: Yeah, okay.

Speaker: Yeah.

Speaker: So how would you do that? I mean –

Speaker: How would that happen?

Speaker: It struck me that prices increasing uniformly from May until January to that degree has some assumptions about the market that don't sound consistent to me with the conversation for the last 45 minutes, so I guess the question is, how –

what would it take, what would have to happen in the world for prices to actually look like, in theory, what the futures market is telling – it's certainly telling me I could insure myself again –

Speaker: Some are LNG volumes, even on an incremental or spot basis, coming into various regasification terminals in the U.S., prompting depressing nearby summer prices and that's not a consistent thing. It may happen for several months in the summer, early fall, -

Speaker: Right.

Speaker: - while worldwide prices are depressed and then as the balance of the countries return to northern hemisphere winters, those cargos go less to the U.S., are pulled out of the U.S. fly basin and end up going to other worldwide markets while U.S. wintertime prices rise and that spread generally, or that scenario would be generally reflective of your forward observation.

Speaker: I guess, let me put it a little differently, though. I can see 3.75, I mean, right now storage is close to as high as it's ever been at this time of the year –

Speaker: Right.

Speaker: - according to my guys that tell me this every week, and so 3.75 when you're coming into the summer that heavy is pretty good. We've seen drilling really drop, but we still are seeing pretty healthy production and in fact, we're still seeing the Gulf coming back on a little bit from the hurricanes last year, and we're in the middle of an economic slowdown. So how – what would it take – I'm assuming the only way to get there is no LNG comes into the United States in 2009. What would it take to see that march upward? I mean, it would have to see some kind of increase in consumption you would think, or some kind of decrease in production, and are those things that we think are on the table this year?

Speaker: I don't know what the market's assuming but the thing – Keith Raddy (sp?) at Questar likes to quote this all the time, that we have more gas fired power generation capacity in the United States than coal fired. We've got something like 392,000 megawatts of coal fired – I mean gas fired –

Speaker: Capacity basis.

Speaker: - on a capacity basis, but it operates at a 25% load factor and as Keith has pointed out, if it just moved to a 35% load factor, that would burn up the whole 5 bcf a day supply overhang, so there's probably – I know among our clients there is an assumption that no matter what the Feds do, state by state, carbon's getting cranked down one way or another, different things are happening state by state to try to shift away from high carbon fuels or apply a cost to it. It tells me the market's making some implicit assumption there's going to be some shift in generation load because there's no other demand source of that size that can move that fast. Moving toward vehicle fuel will help longer term, but it's not going to happen that quickly at all, so that's probably – sounds like that's what they're assuming, either that or it's just what they always did.

Ms. Tezak: Well, it's not just carbon too. We have that, you know, the new EPA has to deal with the remand of the Cleaner Interstate Rule and there's nobody I've ever talked to in town who thinks that Carol Browner's going to encourage Lisa Jackson to have a less restrictive standard than what the Bush Administration had, so if you make the assumption that, you know, there might be a possibility of taking off the table the technical feasibility of upgrading some smaller coal plants, then you start building into you know, one of bullish trends on gas, especially while the price is cheap. I mean, they could not be more serendipitous, frankly, for the Obama Administration from an air quality perspective, then to have gas be at these levels

versus at 6 to 8 bucks, because you know, down here in the, you know, in the $4 to $5 range, if you're looking at more restrictive air pollution control standards coming down, then you start saying well, I don't even have to know what carbon is, but if (unintelligible) really cranked down and if I'm not really going to have the ability to generate surplus emissions and monetize them, then I'm just going to shut stuff down, and then that starts to speak to whether or not you get, you know, a bullish bias towards gas generation versus coal.

Speaker: Yeah, yeah, that makes sense.

Ms. Tezak: You know, and that's going to come sooner than carbon, is my guess.

Speaker: Jim, have you seen any, I don't know, real coal gas competition?

Mr. Simpson: Well, power burns up about 600,000 a day, this year versus last year. So there's some real switching. It's not major but there is some real switching going on. I do a lot, again, I do a lot of just talking to clients and at these gas levels going into this summer we expect on marginal days that, say in California when I can meet my demand, I'm going to burn more natural gas. We've seen it. In February, Southern California actually exported power up to the Pacific Northwest, so that's a very rare event. Normally, California is bringing as much power in, not as they can, but often times they're bringing power in, it's very rare that they would export power because their supplied essentially, the Rex pipeline that really comes out of Cheyenne, so it comes out of Wyoming, so Brian's turf, hits the mid-continent of the U.S. and it's an extra bcf plus of Rockies gas that's getting squeezed out to California, and they're not over-supplied, they're in a very nicely supplied situation this whole – actually starting last summer, they've been a very nicely supplied situation, so they're actually exporting power, so we do see some demand up a little

bit because of power. On the flip side we do see demand down too, in residential commercial areas, you know, it's down about 6% year over year, the res comm side.

Speaker: Yeah, yeah.

Speaker: You know, I think longer term for gas and renewables push, if renewables along with a balancing fuel would be – intermittency of when – but that's driving coal off the ground, then that drives more gas (unintelligible) for two reasons. You know, coming out of the west where there's a lot of wind resources there's a lack of power line access to move the wind power out of there.

Speaker: Right.

Speaker: Wind farms run about 33% load factor and if you're building new power lines with a 33% load factor, you're effective grades get unrealistic very fast.

Speaker: And that's high quality wind resource.

Speaker: Yeah, it's high – it's typical high quality – so you've got to fill it in with something and so, you know –

Ms. Tezak: Absolutely not. Oh, you cannot send any non-renewable molecules down – electrons down that long. No -

Speaker: - electrons, excuse me –

Ms. Tezak: They're ugly.

Speaker: (Unintelligible). But in addition to the trying to build the load factor up to the power line, you know, the intermittency is real Xcel, the utility out in Colorado, the utility that's in the Denver front range, they have 775 megawatts of wind power on their system. Their maximum one hour drop in generation, one hour to the next was 67% and that's diversified wind resources across the state of Colorado, so that's a load pickup you've got to make in one hour and gas is really the only way you can do that. Their maximum one hour increase was 93%, so you

know, you have issues that go to gas storage to back up this kind of intermittency but also loading power lines to make the rates make sense and gas is the only generation source that seems to fill in the gap.

Speaker: We're doing an experiment in intermittent resources here so I don't know if you all heard all that, but –

Ms. Tezak: Well, the question that you have when you're looking at the electric side and you're talking about backing up intermittent resources, the you know, we've got this new national fashion of now we're going to have a national superhighway for transmission, and you know, if – you know, my personal hope is that we use some of the private capital that my clients have that would like to build some of these lines instead of Federal dollars, and use the Federal dollars for something else like maybe CCS or something else that really needs the help like bringing down that solar line that Mr. Rowe (sp?) has on his chart. But one of the things that they talk about very frequently when you've got like the joint planning folks with PJM in the Midwest ISO is that they're talking about building so much transmission to lower the need for having to rely on natural gas, you know, as the only balancing mechanism for wind, that they want to build out a transmission system that is more robust and leave the balancing actually more in the hands of the grid operator and less on the need to fire up incremental gas and –

Speaker: But what resources – that's an interesting description you made, the obvious question to me is what resources, then, are used to provide the balancing for the variable energy resource of more wind? Because all -transmission can move that power but it moves it from here to somewhere else and there still has to be a balancing element of some sort, whether it be on the load side or on the generation side or both, to adapt to the variable nature of the new wind, so my

question is, in that scenario what is that? It's got to be something.

Ms. Tezak: It's efficiency and it's demand response.

Speaker: Well, it's also actually – no, but if you have – the more robust a transmission system you have, the more you can use diversity –

Ms. Tezak: The existing –

Speaker: If it ain't blown here it's going to blow there.

Ms. Tezak: Yeah.

Speaker: And so you can start mixing and matching the sources.

Ms. Tezak: It's actually wind on wind is actually the theory, is that you would actually, if you aggregate enough –

Speaker: That is the theory.

Ms. Tezak: - intermittent resources, that they would not eliminate the need for some sort of backup dispatchable power, but they would great – you know, it would contribute to reducing the necessity of building every single generator that the system operator would ideally like to have at his disposal.

Speaker: That sounds a little bit, though, like 95% of the time the aggregate resources will be fine, the other 5% we don't know what's going to happen.

Speaker: Yeah, you still need insurance policies, you still need to plug the gaps, and then you also hear – I know Chairman Wellinghoff at the FERC is very enthusiastic about all of the – well, be it giant fly wheels, be it pumped storage, all the different ways of storing the energy. I kind of picture these gigantic fly wheels out in the desert. Turns out that they cause coriolois acceleration of something and throw the earth's rotation out of whack, but the – you know –

Speaker: That science fiction novel –

Speaker: Yeah, yeah, well – if they're going to pump all that C02 under

ground we're going to have our own unbalanced planet problem but there are different ways – I guess all of the above got overworked during the campaign but the idea is you've got to mix intelligently, mix and match all these different pieces. Natural gas has got to be an important part of that and yet the gas industry has the problem. We talked about storage, that if what you've got in the natural gas industry is a very intermittent load, you've got pipeline problems, you've got production problems, you've got - even storage needs a little notice to come on – so it's – making it all work properly takes a lot of intelligent conversation.

Speaker: So to follow up and broaden that a little bit, John, you've thought about storage of energy probably more than any of us here, and you think about it to make money eventually, right?

Mr. Smead: Well, think about it from a – it's –

Speaker: - broadly in energy – I mean – because obviously that's what we're –

Mr. Smead: And whether it's on the gas side or on the power side –

Speaker: Right.

Mr. Smead: - in either event where you have a lot of variables both on the supply side as well as on the demand side that bring changes on a daily or in the case of power even smaller time frame than that, that creates the need, as many of the changes we're talking about here unfold, for more infrastructure that's specifically created or new mousetraps, because we're doing some things new or contemplating doing a lot of things new from a public policy perspective and those new changes to energy policy – gas side, power side, become converged and reinforce one another but they do create the need for different infrastructure than we've historically had and it's those – because of those things, those create

investment opportunities that our firm is intrigued with. We've got a history on the natural gas side and there are many, many lessons that have been learned from 15 or 20 years of natural gas regulatory physical, a whole bunch of infrastructure issues that impact investment decisions that have a fair amount of application over onto the electric side as we contemplate the growth of renewables and the impact of infrastructure there.

Speaker: You know, I hadn't thought about it until just now. We struggled mightily at FERC with trying to think about rate structures for high deliverability storage kind of projects that would fit a market context. Did we make progress there, or I mean –

Speaker: Well, I think FERC on the – going back to the natural gas side and the history there, I think FERC made, painful as it was, and slow that it seemed at the time looking back on it, in hindsight what FERC did there, I think was, from public policy standpoint was a job well done and a great service because they made transparent, both through wellhead deregulation and equally importantly, the unbundling of the interstate pipeline business to separate storage from transmission from commodity supply, they allowed price signals to be sent clearly that valued each of those constituent components individually and without those price signals in the case of natural gas, you would not have had the 15 years plus of increased growth and natural gas storage that we've experienced in the United States that has been very helpful to meeting the load and doing so in an economic way, you wouldn't have had those price signals and that industry wouldn't have been launched, so hats off to FERC.

Speaker: Today, though, as you look at different new technologies for storage purposes that may be electrical, they may be – I mean, lots of options – is

the rate infrastructure there to permit those things to happen in the kind of context we've got today of market based prices or is there more work to be done there?

Speaker: There's more – definitely on the electric side, on power side, more work to be done there and it's, in some areas of the country there's more work to be done than other areas of the country because some parts of the country have functioning RTOs with granularity and prices down the ancillary services which is very helpful market signals to have for bulk energy storage. In other parts of the country they have less of that, and so you end up having to rely more on what I'll call demand pull, whether it be incentives looking forward for transmission providers to incorporate energy storage services into their tariffs, for FERC to encourage that through policy incentive rates, to have market base rates be applicable to bulk energy storage facilities that sell services to transmission, all of those things I think are issues to be dealt with on the power side and will likely be more complex in power than they were in gas because of the combination of states and the Federal Government, the regulatory overlap there on the power side.

Speaker: And I think (unintelligible) works so well for gas is that you have certificate authority in the (unintelligible) interstate projects and when and if you get that for electric power transmission, that's a critical step to making all this work, because you can discuss rate designs but if you still have ten year uncertainty windows as to when you're going to get to build the power line, your rate discussions get all balled up in timing uncertainty so if you move to the ability for FERC to be the sole place to go for a multi-state project, I think that's one of the biggest impacts you have on bringing the electric grid into the sort of rapid deployment of expansion that I think you have in the gas grid. When you need the pipe built it gets – the price signals come through and things get built reasonably quickly.

Speaker: Is that even on the screen, Christie?

Ms. Tezak: Oh, God, yes.

Speaker: In a good way or a bad way? I can just – I can see the blood on the walls on that one.

Ms. Tezak: Well, it's interesting. I mean, there has been some shifts. You know, I would have told you six months ago that you know, I couldn't see, you know, substantial changes to FERC jurisdiction on transmission actually taking place. I'd say now there seems to be a greater appetite for it, but kind of like a lot of things we haven't quite gotten to the point where we're voting on it yet, so I'm thinking a lot of the handicap and still a little squeamish. You know, personally I think Congress should raise their hand and say – swear they will first do no harm to the transmission system. You look at what you've seen actually what the western governors do in terms of transmission collaboratives, to talk about moving solar power from the desert north and prolific wind at night back down south and doing these regional loops at high plains and some other stuff where you've actually got collaboration and they've worked through some of these thornier issues and I look at Senator Reed's Bill, for example, that says well, we're going to give FERC all this authority for siting renewables. Well, is that going to actually be a process that's going to work faster than these Governors working together? I don't know. They've started patterning in the west, they've started patterning, you know, the opportunity to invest in electric transmission the way you guys have already done on the pipeline side. And they took that model and said hey, if it was working for pipes as a state authority, let's talk about doing it there and not only is it Wyoming, it's Colorado, it's New Mexico doing the same thing, so can we – if we can take what they're doing collaboratively out there and build on it, then I think it's really positive. If we're going to have some sort

of, you know, 80,000 stakeholder process, you know, then I worry that we're actually going to slow things down. I mean, FERC has moved so dramatically in how it changed its approach towards transmission build and who has to – not so much who pays for it, the generator still pays for it, but you've got, you know, grid operators and grid companies being able to front that instead of forcing the project developer to raise the Cap X (sp?) for it on the front end so short of it being free, which is now, what they want now, there's been so much going on, we're even talking about anchor shippers now in electric transmission. We've had a, you know, a declaratory order go that way, so I think that transmission is going to be very substantively discussed in the context of an energy bill on the Senate side as well as the climate change/renewable/whatever else they add to it bill on the House side. But yeah, it's there and Mr. Nelson's ready to give FERC authority not only for, you know, high voltage lines, but feeder lines, and I imagine that's going to go well.

Speaker: Yeah.

Speaker: I have another question but it does occur to me that, you know, we've been asking questions of the crowd and we might want to give them the chance so I'm going to ask another question but there are two microphones in the room, so if anybody would like to toss one into the mix here in just a minute go ahead and do it.

My question's going to be this. Alright, say that I didn't work for the Department of Energy, so that it would be legal to ask this question really. If I were taking what's left of my portfolio and looking at putting it into natural gas, should I be looking at unconventional drilling plays, should I be looking at infrastructure, mid sort of term infrastructure, should I be looking at consumption technologies? Where, given this mix of market effects and uncertainty creating opportunities and policy –

what's the sweet spot in this?

Speaker: As Kramer would say, when you gonna need the money?

Speaker: Okay.

Speaker: Because in terms of time frame, the next 5 to 10 years, I really, really strongly believe that independent gas producers and midstream infrastructure developers, the guys that build the shorter pipes and the storage projects are both tremendous. They have tremendously depressed stocks right now that are far below what their natural value will be.

Speaker: I mean, I will say, and you made this point earlier, Rick, you know, I went, about a year ago, went out on a drilling rig, not necessarily one of you buddies in American Clean Skies, and I actually for a very brief – not terribly ugly period in my earlier career, ran a small E&P company that was owned by a New Jersey utility so, not a good combination, in Oklahoma - not usually good – I recognized very little of the technology I saw at play. It was a completely new world, and I was told that if I had gone a year before I would have felt exactly the same way, that things were so incredibly different, and I guess to me – and you had made this point earlier, I just don't want to lose it – the E&P part of the gas business has gone through a technological revolution here just in the last couple of years that leaves us kind of scratching our heads in terms of what is the marginal cost, you know, what does it take to add supply?

Speaker: And what's coming next?

Speaker: Right.

Speaker: What are the next technological innovations that can push the price down, increase the amount of gas in place that can be recovered, yeah.

Speaker: And that's where it's unclear to me and I'm not sure it's clearer now

after we've talked, but you know, that does look like an opportunity for green policies.

Speaker: Yeah – um-hmm.

Speaker: And is that, I mean, I guess, is that well recognized or is that not?

Speaker: No, and that's the industry's problem is getting it properly recognized and getting the focused recognition of this asset, what it could mean to this country if just – basically just a strategic resource of historic proportion is it could be there and so the question, when do all the stocks recover – the when is the hard part, the whether – I don't think there's a lot of doubt.

Speaker: So does anybody have a faster payback on anything or –

Speaker: I just – I'm going to make a comment to his historic proportions – when I went to work in the industry somebody who had learned that I had taken the job with the pipeline company in 1979 said I was making a mistake, they pointed out that 2.2 year reserve life index of the pipeline was normal at the time, cautioned that at 3 years we would be out of gas and I'd be out of a job. You know, the resource number just doesn't seem to decline. It just continues to grow, whether it's, you know, if price is the driver, but technology's been a driver, you know –

Speaker: Yeah.

Speaker: - it's not going away.

Speaker: Yeah, yeah. Alright, we have a couple questions. Back to the – please go to a microphone if you want to ask one, or if you want to toss one in.

Speaker: Okay. I'm Terry Vishquinoff (sp?) with Credit (unintelligible) and I have a couple questions that I think maybe you've touched upon but this notion of this change that we have, you mentioned the 2.2 years of cover, and in this marketplace looking at the slowdown in drilling that's occurred for a couple of

reasons, the price signal, the inability to use credit and to kind of extend these producers, we're seeing a dramatic slowdown. The slowdown might, in my own estimation, might be around from the 58 bcf a day of dry production down lower than 50 a day. Now, if you take a look at our demand side of the picture, that could mean 15 bcf a day of imports that will be required, LNG imports, and it might be okay this year, maybe next year, but it's those years after, given the fact that you have not very much of those long term LNG contracts, under longer term contracts with the U.S. so my concern is really kind of this inflow and outflow and how we're changing out the dependency of imports, and also just some real bulk numbers on what we think U.S. domestic production looks like for next year.

Speaker: Well, you know, U.S. domestic production has gone so far beyond the demand market at this point that it is still just in the process of trying to back off and stabilize. What we've got is very simply – well, while sure, a lot of producers had credit driven constraints on their capital investment and that kind of thing, ultimately the primary driver was simply – had a bunch of guys that developed a bunch of gas and the market didn't need that much gas, so they stopped drilling more until it needs it. They're ready, they've got the leases, they know where the gas is, they've got the drilling contractors who are willing to do stuff for a small percentage of what they used to charge, they just have to have the demand to meet so that the ability of the industry to respond up and down to that demand is enormous and is more vital – it has more vitality than it's ever had, so I'm very skeptical as to, even if U.S. production drops back to levels that are below demand at some point, I'm very skeptical about there being any inability to catch back up really quickly. We've got something in excess of 2,000 tcf of recoverable resource in the lower 48 versus 250 tcf that proved, and they know where it is, they can go get it,

they just have to have a reason to go get it.

Speaker: Rick, and I think the point is 20% of U.S. production currently comes from those companies that fall outside of the top 100 producers. Many of those companies are over extended and at risk. There might be, you know, I foresee there could be a problem, you know, going through large company acquisitions. There's not always this fact that you can take those assets and make them as viable as they were sort of yesterday.

Speaker: I disagree, and in fact, the – one of the transitions that we are seeing happening already is the sequence we went through in the Rockies of the independents being the pointy end that found the hard stuff, then the majors coming behind them with the deep capital to develop it, we're already seeing that happening with Exxon-Mobile, Shell, BP, moving into the shale plays.

Speaker: Let's go over to this one.

Speaker: Can you react to the emergence of the G-3 or a gas cartel? Is it a policy issue, and in the long term, can – how can the U.S. insulate itself, can you suggest how to confront the power of the G-3 or the troika?

Speaker: That's easy. Roll your own. The – first off, the G3 - Qatar, Russia and Iran, don't – they can't really control the world price of LNG at all. It's driven by oil pricing, it's driven by gas markets, it's nothing like what happened when OPEC was originally started. It's more of a coordination of – they've set up technology and developmental policies but regardless of that whether they had power or not, having a domestic capability to simply supply our own market when we need to is the way you respond to that which we haven't had in oil for many decades.

Speaker: Let's do two more quick questions. Sorry, I know a lot of you are lined up, and then I'm going to ask if anybody has some last thoughts up here. Yes,

sir?

Speaker: Hey, Evan Schwartz from DC Energy. So, we've seen the incredible development in shale gas technology in the United States. It seems like that hasn't spread internationally to the same degree yet. Are we going to see that spread happen soon, where do you think it will spread, and what do you think the implications will be?

Speaker: Well, I can't imagine geologically we have a lock on shale, so it would be reasonable to assume that this technology is going to get exported and, you know, countries like China – I know nothing of the geology of China but given the size of the country it would strike me that there's a reasonable prospect for shale development there and elsewhere so you know, it's a game changing sort of thing. I think we're on the –

Speaker: My understanding is that they have started some study groups to look at shales in Europe.

Speaker: Yeah.

Speaker: And they're planning on, I don't know, they have like a 10 year plan or something –

Speaker: Yeah.

Speaker: - to try to just go out and start inventorying them, so they're way behind us I think.

Speaker: But there's – yeah, the fundamental difference, the resource they don't have is the U.S. independent gas industry because these guys didn't study stuff, they went out and drilled it, and so what we're seeing – we're seeing partnerships, for instance, Chesapeake and Statoil are partnered and Marsalis, and things like that where we're starting to see some international flavor to those

partnership where some of our technology and just initiative may be starting to spread into the other countries.

Speaker: Alright, last quick question.

Speaker: Yeah. Thank you. I am (unintelligible) with Customized Energy Solutions. I have a question for John because I'm also involved in a number of studies focusing on energy storage but before that I quickly wanted to address one of the comments, Steve, you made, about is FERC and other regulatory agencies doing enough and what can be done in terms of evaluating energy storage. I think one critical issue which energy storage is now with the electricity market is there is definitively a much more transparent price signal which can be used for evaluating energy storage projects but most of the energy storage projects particularly when we are looking at range from the super tech (sp?) to bulk energy storage, cross the traditional boundaries between generation, distribution and (unintelligible) assets so there are certain issues where some of the benefits cannot be monetized through the current market structure and that's something which can be addressed by FERC in future. John, one question I have for you is I know you have been looking into various (unintelligible) energy storage projects and the economics of these projects is quite closely tied with the prices of natural gas, particularly because in electricity markets (unintelligible) prices closely follow natural gas prices, so with the current short term outlook on the reduced gas prices of $4 to $6 or even in near term future a simple forecast which talk about at least for next 5 year U.S. gas prices being considerably lower than world gas prices. Do you see that as a problem for investment in large scale composition energy storage projects?

Mr. Strom: It does have an impact but – I'll make a couple of comments. There are several buckets of value in a bulk energy storage facility, one is the peak,

off-peak spread which you reference which is impact on average due to lower gas price particularly in markets where natural gas sets the marginal price during the peak hours. Another element of energy storage which is a very common commercial metric over on the natural gas storage side, though, has to do with the volatility, so if you're looking at average peak to off-peak that's one very rough cut of the energy storage value but the real story has to do with the extrinsic value associated with the optionality looking forward, cash prices versus prompt prices, very – can't go into detail but that's a very common asset valuation technique on the natural gas storage side, so it's – it has an impact but not near as great an impact as you might otherwise think if you were looking at averages between peak and off-peak.

Secondly, getting to your comments on transparency of pricing, several markets, PJM, MISO, ERCOT, have some – for longer periods of time, some much more recently, increasingly been pricing ever shorter term products in the ancillary service markets, spinning regulation, those types of things, and that is a very – to the extent you have price transparency – can be a very, very important part of the revenue line, and historically, because of the lack of pricing in many of those things, has not been transparent, so what we're finding is in those markets where that transparency is increasing, particularly where you're having new wind developed, variable energy resources in western MISO, ERCOT, prime examples of that, you're seeing those ancillary values increase very significantly.

Speaker: Thank you.

Speaker: I agree with that.

Speaker: I think we're going to need to go. Any urgent last thoughts or have we kind of done it in for the day? Thank you very – oh, do I have one? Sorry, sorry.

Thank you very much. We'll see you at 1:45.

[END]