BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

In the Matter of:

DOCKET NO. UNDOCKETED

NEW ISSUES IN HEDGING.
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PROCEEDINGS: WORKSHOP

COMMISSIONERS PARTICIPATING: CHAIRMAN ART GRAHAM
COMMISSIONER LISA POLAK EDGAR
COMMISSIONER RONALD A. BRISÉ
COMMISSIONER EDUARDO E. BALBIS
COMMISSIONER JULIE I. BROWN

DATE: Tuesday, October 4, 2011

TIME: Commenced at 3:19 p.m.
Concluded at 4:15 p.m.

PLACE: Betty Easley Conference Center
Hearing Room 148
4075 Esplanade Way
Tallahassee, Florida

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## A P P E A R A N C E S

**FLORIDA POWER & LIGHT COMPANY:**
JOHN T. BUTLER, ESQUIRE
GERARD J. YUPP

**GULF POWER COMPANY:**
RUSSELL A. BADDERS, ESQUIRE

**TAMPA ELECTRIC COMPANY:**
JAMES D. BEASLEY, ESQUIRE
J. BRENT CALDWELL

**PROGRESS ENERGY FLORIDA:**
DIANNE M. TRIPLETT, ESQUIRE
JOE MCCALLISTER

**FLORIDA INDUSTRIAL POWER USERS GROUP:**
VICKI GORDON KAUFMAN, ESQUIRE

**OFFICE OF PUBLIC COUNSEL:**
J. R. KELLY, PUBLIC COUNSEL

P R O C E E D I N G S

**CHAIRMAN GRAHAM:** Good afternoon, everyone. I am glad that you are all here. We are having a hedging workshop.

First of all, I need to apologize. I know there was mixed messages out there if the hedging workshop was going to start right after Agenda, if it was going to start at 3:00, or when it was going to start. That was 100% my fault. There was a disconnect in my office and I misunderstood. But I'm glad that you're all here and hopefully I didn't interrupt everybody's afternoon as a whole. But I do appreciate you bearing with us. Of course, I don't think it would have changed much anyway because Agenda went so long, but I was glad I was able to set most of you free so you could go do what you had to do and come back.

That being said, we're here to talk about items dealing with hedging, items that weren't dealt with back in '08 when this subject came up before and you guys had a workshop and you guys had a Commission order that came out. We want to talk about new information, any new information that you may have. I have in front of me a list of topics that were talked about last time. So if you start going down the path and you hear one of the Commissioners go "annnh," that means we're not talking about that. But I think it should be pretty straightforward. And hopefully we're going to, you know, find some new information that's out there. I mean, the more information, the better. And we'll probably be as informal as possible.

If I can get you guys to start on this end and introduce yourself so we have that for the record.

**MR. YUPP:** Good afternoon, Commissioners. My name is Gerry Yupp. I'm with Florida Power & Light.

**MR. BUTLER:** John Butler also with Florida Power & Light.

**MR. BADDERS:** Good afternoon. Russell Badders on behalf of Gulf Power Company.

**MR. BEASLEY:** James D. Beasley on behalf of Tampa Electric Company.

**MR. CALDWELL:** Brent Caldwell, Tampa Electric Company.

**MS. TRIPLETT:** Dianne Triplett, Progress Energy Florida.

**MR. McCALLISTER:** Joe McCallister, Progress Energy.

**CHAIRMAN GRAHAM:** Okay. Commissioners, did you have anything you guys wanted to say before we got started?

Commissioner Balbis.

**COMMISSIONER BALBIS:** Thank you. Since you admitted that it was your fault about this afternoon scheduling, then I must say it's probably my fault we're having this workshop. (Laughter.)

But -- and I mentioned in Internal Affairs that I do hate workshops, they tend to be not as productive as other venues, but I want to make sure that, you know, there's a couple of issues that we discuss and we try to keep it as on topic as possible. And I appreciate the Chairman's comments as to what we can discuss and can't discuss.

And my intent was, and hopefully I, I was clear in Internal Affairs, is really let's look at, you know, with the additional shale gas production, with, you know, any other changes that are out there, do we need to relook at how we're doing or what we're doing at this point and focus on that and, and then go from there, especially hearing from, from those that are dealing with this on a daily basis. So that's really what I wanted to accomplish here today, and I appreciate everyone's time.

**CHAIRMAN GRAHAM:** All right. Staff, is there anything we need to do before we start the presentation?

**MR. FRANKLIN:** I'll go ahead and just introduce. I'm Kenneth Franklin with Staff. Good afternoon.

As we've stated, this workshop is to discuss new information that may affect the hedging activities by the investor-owned utility companies. Today's topic for discussion include issues that affect natural gas price hedging since the issuance of Commission Order PSC-08-0667-PAA-EI on October 8th, 2008. These topics include but are not limited to areas such as development of shale gas, natural gas price volatility, current state of the economy, as you've mentioned. And Joe McCallister from Progress Energy Florida will be giving a joint IOU presentation on these topics.

**CHAIRMAN GRAHAM:** Thank you very much.

Joe.

**MR. McCALLISTER:** Good afternoon, Commissioners, Commission Staff, and other attendees. We do appreciate the opportunity today.

Really my goal, along with the other folks here, is really just to talk about some high level trends, and some of these slides we'll go to -- go through relatively quickly. So if we need to dive deeper, please stop us and we'll dive deeper.

So with that, just a quick summary. Previously LNG was forecasted to increase to meet U.S. gas demand. LNG is now forecasted to play a lesser role with forecasted shale production growth. Concerns with shale gas production related to potential adverse environmental and community impacts continue to be debated. Ongoing developments could impact costs and availability of shale gas.

In recent years, overall natural gas price levels have declined. It is impossible, however, to predict certain circumstances that may cause an increase in price and volatility.

The developments in the natural gas market do not warrant changes to the Commission's hedging policies and procedures that were established in 2008. The IOUs continue to implement their hedging programs consistent with those policies and procedures.

So one of the things we wanted to do first was really take a look a step back before talking about the current forecast for the U.S. natural gas supply. We thought it would be good and add some perspective to how much has transpired over the last several years.

This slide is a summary of the forecasted U.S. natural gas supply sources from the 2007 Annual Energy Outlook produced by the Energy Information Administration. The main point of this slide is that in 2007 the EIA projected increased liquified natural gas imports from other countries would offset declining domestic base and conventional production to meet growing U.S. natural gas demand. So what you can see in this slide is over time the amount of LNG, if you go out to forecast period of 2030, was going to be approximately 17% of our overall domestic supply, with the traditional conventional sources of supply declining over time and going from roughly 79% to roughly 62%.

Next slide. So with the projection that LNG imports from other countries would meet the growing U.S. natural gas demand, we also wanted to take a minute to review the location and size of the world's natural gas reserves.

As this slide illustrates, at the end of 2007 the majority of the world's natural gas reserves were held by the Middle East and Russia, which held approximately two-thirds of the total world reserves. Specifically the three countries of Russia, Iran, and Qatar held approximately 60% of the total global reserves. The next largest country behind those three countries is the U.S. at that time, which was roughly 3.4% of the global reserves.

So given that much of the global reserves are located in countries that do not need these large resources to meet their internal needs, increased shipments of LNG cargos (phonetic) are going to world markets such as the U.S., Europe, and Asia were planned.

So now with this slide we're still, now we're looking to the developments around the world in global liquefaction capacity. And just for frame of reference, that is when they take natural gas from the ground and liquefy it and put it on a ship to ship to other countries. So with that, we outlined there were significant reserves in other regions. So in order to move that gas, the growing world market countries invested in additional liquefaction capacity.

This slide illustrates the growth in global liquefaction capacity at two points in time: At the end of 2005 and at the end of 2010. The growth in liquefaction capacity increased from approximately 171.4 million metric tons per annum to 270.9 million metric tons per annum, which is an increase of 58% over this time period.

And just for frame of reference, that's about 22 Bcf a day of capacity to roughly 34 Bcf a day of capacity. In addition, as you can see from the slide, Qatar contributed the largest volume of capacity, and their output has increased 150% since 2005. Additionally, the global LNG fleet grew from three hundred -- from 195 ships to roughly 360 ships, with most of that being manufactured by South Korea.

So at the same time as world liquefaction capacity was increasing to meet forecasted global demands, investments to increase the capacity of existing and new U.S. LNG import and regasification facilities were made to support projected imports. As the slide illustrates, U.S. LNG import capability more than doubled, from approximately 4.5 Bcf a day in 2006 to approximately 11 Bcf a day in 2009. As of July 2011, U.S. LNG import capacity was approximately 17 Bcf a day. So as the slide illustrates, these facilities were built to support the long-term expectation that increased LNG imports were going to come from other countries to support the U.S. natural gas demand.

Let me just take a minute to kind of lay out this slide. This gets into some prices, comparing the Henry Hub price, which is the green line across the page, and the United Kingdom National Balancing Point. And these pricing points are important because flexible LNG that can go to different markets in the Atlantic Basin -- if it's flexible, it's going to go to the market of higher price. And as you can see, over time the European market became the market of choice for flexible Atlantic Basin destined LNG.

And to give you some perspective, the current price for 2012 for the United Kingdom National Balancing

Point is roughly $10.50. So as this, as these prices begin to move apart, shipments that were originally planned for the U.S. were now going to other parts of the world. At the same time you had U.S. shale production increasing.

So just in summary, in terms of the topic about looking back in time, LNG imports were projected to meet replacing declining base and conventional base production to meet growing U.S. natural gas demand. And the U.S. no longer needs as much LNG as previously forecasted due to higher priced global markets in Asia and Europe attracting that LNG and the U.S. production growth over that time period.

So now that we have reviewed supply trends looking back, we wanted to quickly review gas demand trends, potential gas demand drivers, and specifically shale gas developments looking forward.

This slide illustrates forecasted U.S. natural gas demand by sector. The natural gas demand sectors are residential, commercial, industrial, power generation, and natural gas vehicles, i.e. transportation. On a forecasted basis overall residential and commercial growth are expected to be relatively flat, given improvement in efficiencies. Some growth is expected in industrial uses, given lower natural gas prices and petrochemical opportunities as more natural gas liquids are produced from high liquid rich shale plays.

Clearly the largest growth expectation for the five- to ten-year time period is the power generation, which is being driven, being driven primarily by gas generation replacing coal due to tightening environmental regulations.

Next slide. Thank you. So with that, several factors could impact U.S. natural gas demand, and we have listed three potential strategic natural gas demand factors here that could impact the timing and our growth in U.S. natural gas demand and could over time put upward pressure on U.S. market prices.

The first we just discussed, possible accelerated coal retirements to gas switching related to an aging coal fleet; smaller coal plants; less efficient coal plants; EPA proposed regulations dealing with 316b, MACT, and the Cross State Air Pollution Rule, which are targeting reducing NOx, SOx, and hazardous air pollutants.

In addition, the LNG facilities that we showed you earlier are now looking for opportunities to use those facilities to not import LNG from other countries but actually refabricate them so that we can export some of our domestic supply to other world markets. Some examples of that are Freeport, Sabine Pass, and Lake Charles. They've all filed for Department of Energy approval, and those are all on the Gulf Coast. Those facilities today are relatively not utilized given the lack of product moving into the country. Cove Point on the east coast has also submitted an application to the Department of Energy in September. Over time it is believed that as we export LNG to other countries,it could narrow the gap between U.S. natural gas prices and higher rest-of-the-world prices, if they become a reality.

The last bullet point here is increased industrial demand. There are signs that in a lower gas price environment that industrial demand could pick up. In addition, as mentioned earlier, as more production of shale plays, particularly liquid rich shale plays, could increase the amount of liquids being processed by petrochemical plants, and therefore the products, producers of that process could be exported to other countries.

So in this slide what we're trying to show is really just a comparison of the 2007 EIA forecast, which we saw previously, and the 2011 EIA forecast. As you can see, there has been a significant change in the forecast over the last four years. Shale gas is now forecasted to grow substantially and become a significant portion of supply in the future. This is the same information, just another illustration, just to highlight a couple of things on this slide.

Same basis. You have the 2007 forecast from the Annual Energy Outlook and the 2011 forecast. As you can see there, LNG imports were once forecasted to be a significant piece of the domestic supply in 2030. That has now decreased from 17% to 1%. But clearly the largest gainer is the shale gas component that is going from roughly 9% in 2030 as forecasted in '07 to roughly 42% of domestic supply in 2030.

Next slide. You've probably seen this map before. This is the EIA map of the lower 48 state shale plays from May 2011. As you can see, there are many shale plays across the U.S., and many of these have been known about for some time. We're really going to focus on the current six major shale plays to talk about trends, and those are: The Barnett, which is in north central Texas; the Fayetteville, which is in northern Arkansas and eastern Oklahoma; Haynesville, which is in northern Louisiana and east Texas; the Marcellus, which spans across six states, including Ohio, Pennsylvania, New York, and Kentucky; the Eagle Ford in south central

Texas; and the Woodford in south central Oklahoma.

We started the conversation today about shale gas, and I think this slide in some respects speaks for itself. Shale growth has been significant in recent years. As noted here, the estimated growth has been nearly 15 Bcf a day from 2005 to 2011. And for reference, 15 Bc -- 15 Bcf a day represents approximately 22% of the gross production.

In looking back, in 2001 shale gas represented only about 2% of the total U.S. natural gas production, but it really wasn't until the late, latter part of '08 and early '09 time period that potential shale gas became to be more widely recognized.

And just another factoid. Since 2008, the output from shale gas has increased approximately fourfold. So it's been quick, significant, and, as you can see there, the forecast calls for it continuing to grow.

In addition to talking about shale production, which is what the previous slide did, we also wanted to talk quickly about the estimated reserve base, which is the best estimates at any given point in time of the amount of reserves that are either technically proved or unproved in the ground. So not only has daily production from shale gas increased in recent years, the total estimated reserves of gas in the ground have increased due to further examination and understanding of the size and potential of shale gas formations.

So as the slide notes, U.S. reserves have increased from approximately 15 [sic] Tcf in 2000 to approximately 2,552 Tcf in 2011, which equates to an increase from about 65 years of supply to approximately 110 years of supply.

So another aspect of shale production that we wanted to talk about is the production efficiency of the drilling rigs that are actually drilling for, for natural gas. So just to quickly talk about what's on the slide, on the vertical axis there to the left, that is the rig count. The black line across the middle of the page is gross production, and then the colors across the page are the different types of drilling activities. So the blue represents horizontal, the red represents directional, the green represents vertical.

So the one reason we wanted to bring this to your, to your attention is the natural gas rig count for the purpose of this slide has, has decreased over time. It peaked in July 2000 -- if you recall, that's when natural gas prices were hitting record highs -- and then subsequently began to fall. But during that time period the amount of production was increasing. And this really gets into the horizontal drilling efficiencies of the horizontal drilling techniques that are able to access a larger reserve base with the same, the same well and bring forth more reserves per active drilling rig. So with that you can see even though the rig count has decreased, the productions went up. And, in addition, the amount of horizontal rigs that made up the percentage of active rigs went from approximately 10% in 2005 to approximately 70% in May 2011. So the percentage of the rigs actually drilling are now drilling the horizontal technique versus vertical or directional.

So what's the result of the shale gas development? Horizontal rigs have larger pay zones and can kick out in multiple directions and cover broader areas than traditional vertical drilling. Higher reserves and production rates per well results in lower per unit production costs. Technology advances have taken out the guesswork and increased recoverable natural gas reserves.

One of the other things about shale gas production is producers have contracted with pipelines to bring gas from production basins to market aggregation points, which is historically not what they've done. So the last few years they're signing long-term agreements to bring gas to more marketable points for, for their customers.

And some of the expansions in the southeast: Specifically the Southeast Supply Header, which brings gas, that accesses gas from the Barnett, Haynesville, and Fayetteville, brings it down into FGT and Gulfstream, which are the two primary delivery pipes into Florida; Boardwalk; Mid Continent Express; Gulf Crossing; and Transco Mobile Bay South.

So given the growth in shale gas in recent years and the forecasted growth of shale gas supply going forward, we wanted to outline some of the high level items of concern you may read about or hear about.

The growth in shale gas has brought questions about whether the current and future production can be done in an environmentally sound fashion that meets public trust. The public debate and concerns about the production of shale gas have grown as shale gas output has expanded. So with that, this was a report recently issued by the Secretary of Energy's Advisory Board Shale Gas Subcommittee, and it really identified four major areas of concern. The initial report came out in July of this year.

First is possible pollution of drinking water from chemicals using the fracturing fluid process; air pollution; community disruptions during shale gas production; and the cumulative adverse impacts that intensive shale production can have on communities and ecosystems.

In quickly reading the report, the subcommittee recommendations were focused on really making information about shale gas operations more accessible and transparent to the public. They also hope to create a shale gas industry operation organization on a national and regional basis committed to continuous improvement of best operating practices and sharing of information between industry, customers, and regulators.

And, lastly, they certainly are concerned with the immediate and longer term actions needed to reduce environmental and safety risks for shale gas operations. With that, if additional oversight and regulations are introduced with new and more stringent regulations, it could increase the producer's supply cost, which ultimately would be passed on to their consumers. And certainly over time, based on the moratoriums or other issues that may come up, it could impact shale gas production in certain areas.

So the last series of slides in today's presentation really are talking about natural gas price trends and volatility trends. And I'm certain you have seen at least some representation of this in some form or fashion from some source, but these, this is a plot of prompt month spot prices over time from 2003 through 2011. And what's clear is prices have went up and down and up and down over this time period, with certainly the last two or three years the price being down. You had the price increase that really started in '03 that trended up. Hurricane Katrina, you had a large price increase during that time period. During the 2008 period we had record prices in oil and in natural gas, followed by a global recession, a financial crisis, and the recognition that shale gas was becoming a larger and more real proposition.

This is the same information except this a plot of volatility trends. And as you can see from this plot, this is from 2004 to 2011, and in simple terms volatility is the relative rate at which the price of a commodity moves up and down over time. And it's, and it's calculated by calculating the standard deviation of a change in prices over a period of time. So with this, as you can see, the volatility has periods of being higher or lower. And while current volatility is lower, the current level is not dramatically different than the previous low points that we've seen in the past. So just like prices, volatility changes over time as well. It has periods of high and low volatility, and currently we're in a period of lower volatility.

And this slide really is a, is looking at the forward price curve and the trends in the forward price curve by the month and year. So what we did here is just plot the prices for 2012 through 2015 at different points in time. So in July 2008, you can see there that the price was somewhere for that time period between $10 and $12 on a forward curve basis. You can also see from that curve that the winter, you know, the, the humps, that's kind of the winter period, the flatter periods are the summer periods, so there was a price difference between winter time periods and summer time periods.

The yellow line is the same price curve taken at January 2009, and you can see then it fell to the $7 to $8 range. The next red line is a year later, January of 2010, and you can see it started to move down a little bit, still in the 6.50 to 7.50 price range. Later in that year, November of 2010, the green line, you can see that it fell down into the $5 to $6 range. And then in July of this year it still remained in that, in that range. So you can see that the price curve has shifted down a couple of times very dramatically over the last three years, and you can also see that the curve itself is flatter, the seasonal price differences aren't as wide as they used to be, and you can also see that the price stability appears to be somewhat stabilizing over the last nine months or so.

So to conclude the presentation, just some quick summary points. Spot gas prices and the forward prices have declined in recent years. Production growth from shale basins have changed the domestic natural gas supply picture. Based on price trends it appears that there is limited room for further price declines, such that greater volatility risk in the future could be price increases.

Although natural gas prices and volatility have declined, it is impossible to predict to what magnitude circumstances may change and an increase in price and volatility. Increased regulation of shale gas production could affect output and production costs over time. If LNG starts to be exported from the U.S. rather than imported, this could put additional upward price pressure on the U.S. market prices.

And, lastly, developments in the natural gas market do not warrant changes to the Commission's hedging policies and procedures that were established in 2008. And as we stand today, the IOUs continue to implement their hedging programs consistent with those policies and procedures.

So that concludes my, my presentation. Certainly at this point we welcome any questions or observations.

**CHAIRMAN GRAHAM:** Any questions on the presentation?

Commissioner Balbis.

**COMMISSIONER BALBIS:** Thank you, Mr. Chairman. And thank you for this presentation. It's very comprehensive and it's exactly what I was looking for.

You have on, I think, your third from the last slide on page 24 the volatility trends.

**MR. McCALLISTER:** Yes.

**COMMISSIONER BALBIS:** Do you have -- or have you plotted what the volatility has been with the gas prices using the hedging practices that are used for each utility or for your utility?

**MR. McCALLISTER:** We -- I think what -- and I won't speak for the other utilities. I'll speak for us. I think we did go through the exercise. I think we had a, a discovery question earlier this year where we plotted the hedged, unhedged fuel cost and the hedged fuel cost, and then calculated the standard deviation of both. I'm talking from memory here.

**COMMISSIONER BALBIS:** Right.

**MR. McCALLISTER:** We did that as part of that request. But we haven't done any specific analysis, per se, to, you know, to, to do this sort of comparison. We've obviously seen some of the plots that the Commission Staff has done I think a couple of times over the years. But the last thing I remember us doing specifically related to plotting the difference in the standard deviation of an unhedged fuel cost and a hedged fuel cost was the one we did earlier this year for, for the Staff based on a discovery request.

**COMMISSIONER BALBIS:** Okay. And, again, I understand that the purpose of this, of the hedging program is again to reduce the volatility and reduce the spikes, not outguess the market. So I think that's what was important to me is that what we're doing now and in the future, how will that impact volatility, what is the cost of doing that and with any new developments should that change?

The other thing I'd like to ask you, and if each of the utilities would respond, is that at a recent NARUC meeting, it was a Natural Gas Committee meeting, we had a presentation from some representatives from Colorado, I think it was the Colorado Commission and also one of the companies there, and they gave a presentation on a long-term contract that they entered into for natural gas. And the question is have, have you looked into that as a possibility, and what are your thoughts?

**MR. YUPP:** When you say long-term contract, it was long-term supply contract, I'm assuming?

**COMMISSIONER BALBIS:** Yes. It was, I believe it was a 20-year long-term supply contract that Colorado entered into.

**MR. YUPP:** Okay. I know from Florida Power & Light's standpoint we, we are looking at some, I guess I'll say different supply type strategies to, to help diversify our portfolio because we are so reliant on natural gas. And so part of that is in looking at, I'll say, different supply options from a pricing standpoint, whether it be indexed, fixed price or -- and then obviously we have hedging as, as part of this. But I know we are looking into one mechanism being production or contracts for production, so to speak. So, you know, buying directly from, from producers as a different mechanism to diversify our portfolio from a pricing standpoint. So I don't know really a lot of the details about it. But I do know, to answer your question, yes, we have -- or we are beginning to look at I believe something similar to what you're referring to.

**MR. BADDERS:** Gulf Power actually has looked at several contracts such as those long-term natural gas contracts, but we have not found them to be economical at this point. The economics just don't play out.

**MR. CALDWELL:** Yeah. At Tampa Electric we haven't looked at the 20-year type of supply contracts for natural gas, but we do try to maximize the places that we can access gas from all along the Gulf Coast, different regions of shale gas and LNG, so we have a reliable supply and access to liquid markets.

**MR. McCALLISTER:** Specifically with respect to hedging, I'll echo what Mr. Yupp said, is, you know, given our substantial gas usage, you know, we have looked at some financial, you know, different structures for financial transactions that probably go beyond our, our approved hedge program as it stands today, you know, whether it's three years out, four years out, five years out. So over the course of the last, I would say the last year we have started looking into some potential at least proposals and some ideas from more of the financial side of the arena in terms of locking in potential prices for maybe a little bit longer because we really don't have much hedge beyond a certain period of time. And given the structure of the curve and the fact that it's pretty flat and has come down so much, we thought now is probably as good a time as any to start looking at those sort of things.

**COMMISSIONER BALBIS:** Okay. Thank you. And I think you touched on my, my next question. Given that -- and I believe in your presentation you stated that you don't see any downward pressure on prices and only risk factors that would increase the prices. Are there any other changes or modifications to the current hedging practice that would further reduce volatility at this point where we are?

**MR. McCALLISTER:** I think one of the, one of the things that our policy is is we do take a little, a 36-month time period. I don't think we'd recommend any specific changes, you know, on the notion of a potential transaction in terms of doing something different. I guess the question from us would be what's the process if there was a potential transaction?

You know, one of the important things about looking at something maybe a little longer term is certainly both the person you're doing the transaction with and our company, we do want some certainty that when we do it, you know, it's deemed reasonable and prudent. So I think from that standpoint, you know, outside of our official plan I'm not, I don't think we'd suggest any major changes, no. But I also think if we have these other one off transactions, I guess that would be a point of further discussion that we'd want to have with the Staff and the Commission on how do you handle those sort of possibilities?

**COMMISSIONER BALBIS:** And I would pose the same question to the other utilities. We can go right to left now.

**MR. CALDWELL:** Yeah. At Tampa Electric our program is very systematic, very structured. We don't go out real far in the future, but we do extend it a couple of years. We don't see any need for any dramatic changes at this time.

**COMMISSIONER BALBIS:** Okay.

**MR. BADDERS:** For Gulf Power we do not propose any changes at this time. However, if a contract such as what we had discussed earlier, some of the longer term 20-year contracts became available, that would be something we'd bring to the Commission in the routine course if it was something that was economical.

**MR. YUPP:** And for Florida Power & Light, we're not recommending any, any changes right now to our, to our current hedging strategy. I mean, we feel that fits us best. We're fairly dependent on natural gas, and so hedging natural gas is an important part of, of, of our makeup from a portfolio standpoint. So no real recommended changes right now.

**COMMISSIONER BALBIS:** Okay. That's all the questions I have for the utilities.

I do have -- I did want to have a discussion from all the other parties, and I see Mr. Kelly in the back and a representative from FIPUG. And, again, at the Chairman's --

**CHAIRMAN GRAHAM:** You've got the floor.

**COMMISSIONER BALBIS:** So if you -- this is your opportunity to comment on, on the presentation and give us your feedback.

**CHAIRMAN GRAHAM:** Just a second.

Commissioner Edgar.

**COMMISSIONER EDGAR:** Thank you. And, Commissioner Balbis, if it would be all right with you, I know the Retail Federation representative is here as well, and also advocates on behalf of consumer groups. Could we extend the invitation?

**COMMISSIONER BALBIS:** Oh, absolutely. This is, this is everyone's opportunity to discuss this issue.

**MR. WRIGHT:** Thank you. I didn't have any comments.

**COMMISSIONER EDGAR:** All right. Thank you.

**CHAIRMAN GRAHAM:** Ms. Kaufman.

**MS. KAUFMAN:** Thank you, Mr. Chairman. Thank you, Commissioner Balbis and Commissioners.

I am Vicki Kaufman. I'm here on behalf of the Florida Industrial Power Users Group. And with me today is Mr. Patrick Paris from Publix. And as you know, we have taken an interest in the hedging activities of the utilities. And as opposed to what my utility colleagues have said, we do think perhaps some changes might be in order to the program.

And as you mentioned, Commissioner Balbis, I think the Commission's goal in hedging has been to decrease volatility so that, so that customers don't see the up and down prices of the market.

And our view of that is, is that while perhaps that might be appropriate for some customers, certainly customers that have a little more sophistication in the market, like some of the FIPUG members I think might prefer to take advantage of the decline in the market, and then of course they'd bear some risk on the other side. And I think that what we might suggest is a provision that would let those customers, if they chose to, opt out of these hedging programs. And I think in that way, to the extent they are -- I think the report you issued last week called them sort of an insurance policy against rising prices. To the extent that is necessary or you find it appropriate for some customers, I think some of the FIPUG members would like the opportunity to opt out of that and go with the market.

I know that we have seen in the past three years, as you all have already mentioned, when gas prices were low and the utilities were locked into some of these contracts, customers ended up paying more for hedging and it wasn't such a good deal for them. And of course, conversely, when the market is high and prices are locked in at a lower point there is a benefit to hedging. And so I think that to the extent you continue the hedging program, you might want to take a look at some other options, including what I've just suggested, the ability for customers who wish to to opt out of that and to rely on the market, I guess, for the ups and downs.

Commissioner Edgar, I'm sorry if you're looking at me puzzled.

**COMMISSIONER EDGAR:** Well, I was just trying to think of how that would work procedurally and what mechanism and what the additional, what the additional steps -- I don't want to use the word burden, but something, something like burden but not that word -- for the utilities operating in the program for our, from a regulatory perspective to make sure that the checks and balances are there appropriately. So I guess I wasn't doing the poker face like I should have been.

But I understand what you -- I think I understand what you're saying and a, a view where that could, could make sense for some customers. I'm just trying to think through a mechanism and how that would work. So as you're continuing to respond to Commissioner Balbis, if you have additional thoughts on that.

**MS. KAUFMAN:** I do have some thoughts on that, and certainly we would be willing and happy to work with the utilities in that regard. The utilities do not hedge all of their purchases. So I don't, you know, I'm not intending to speak for them, but I don't think it would be very burdensome for them to allow the opt out. And whether that would be with two different fuel factors, that might be a pretty -- again, I'm not speaking for them -- but a fairly simple way to do that. And we're certainly open to working with them to come up with whatever the least burdensome and most efficient mechanism might be to put that into place.

**MR. KELLY:** Thank you, Commissioners.

We've talked in my office about hedging, not to a great extent, but the last time we participated a few years ago when we developed -- when you developed and approved your, your hedging program you have in place. And basically I think in simplest terms it boils down to two things. One, what is the purpose of hedging? And as we've stated here today, the hedging program that was approved is to prevent or mitigate price volatility. And I think after you decide on that question, then what's the cost?

And we don't have any suggestions for changes today, but we think it's wise to look at the hedging gains and losses that are occurring from year to year. I know that the testimony a few years ago was that if you look at it over a long period of time, as Ms. Kaufman suggested, you're going to have years where you have some gains and you're going to have years when you have some losses. And supposedly over the long run, and I can't define long run, I don't think anybody at this table can, but over the long run it's supposed to balance out and, and be zero impact, if you will, to the ratepayer. But I know in the past few years it appears that there's been more hedging losses, if you want to look at it like that; however, your purpose was achieved, and that is you negated price volatility.

While we don't have any specific changes to suggest today, you know, whether or not you want to look at the purpose behind hedging today and decide that the costs are not achieving what you think are the benefits, then, you know, we will certainly engage and look in that with you.

That's -- I realize what I'm suggesting is a very hard picture to, to look at and interpret. But, you know, right now prices are low. The utilities' presentation just gave you some suggestions that might increase the prices. But if the prediction is the prices are going to stay relatively low or flat over the next few years, then I don't know. You might want to entertain reduced hedging or, or, or a different hedging. But I think as long -- again, I think the first question has to be answered, and that is what purpose are you trying to achieve? And I, I mean, I think that the purpose that was defined two years ago has been achieved, and that is the mitigation of the price volatility. But the cost I think is something that you can always look at and the impact it has on ratepayers.

**COMMISSIONER BALBIS:** Thank you, Mr. Kelly.

Mr. Chairman, I'd like to ask one other question for the utilities. And Mr. Kelly hit on the cost, but I'm more focused on not how the hedged price compares to the market price, but more on what the overhead cost is for implementing the program. There's been discussions in the past that it's insignificant or, you know, incremental or whatever it may be. But specifically for each utility, how much is spent on the overhead in implementing the program? Because I think that's the true cost. And then what is the volatility reduction we're getting for that? So, please.

**MR. McCALLISTER:** So you want an estimate of what our overhead cost is?

**COMMISSIONER BALBIS:** Yes.

**MR. McCALLISTER:** Yeah. I think the last estimate we did, Mr. Commissioner, was roughly $220,000. And that represents a small percentage of several people's times, whether it's credit professionals, whether it's the person executing the actual transactions, whether it's the accountant who is doing the bookings and payments with the counterparties. I think -- I do believe the last thing we provided was somewhere in that 200 -- subject to check, $220,000, but we can provide you a more specific number. I think that should be pretty close though.

**COMMISSIONER BALBIS:** Okay. Thank you.

**MR. CALDWELL:** I'm not certain exactly what the cost is. It's going to be comparable to Progress's because you need the same systems, departments, procedures, policies, but you also use a lot of the same procedures for paying for the gas, the physical gas, paying for your coal, checking credit on suppliers. So it's in about the same 200,000 order, $200,000, but I'm not sure exactly what it is.

**COMMISSIONER BALBIS:** Okay. Thank you.

**MR. BADDERS:** Subject to check, for Gulf Power it's approximately $100,000 a year.

**MR. YUPP:** And I believe for Florida Power & Light, when we first started our incremental hedging expenses pretty much from year to year were in the three to $500,000 per year range, which really incorporated systems as well as time for various individuals to implement the program. It's been in that range for the last, for the last several, several years, I guess, when we were recovering incremental expenses through the clause.

**COMMISSIONER BALBIS:** Okay. Thank you. I don't have any further questions for the utilities.

**CHAIRMAN GRAHAM:** Commissioner Brisé.

**COMMISSIONER BRISÉ:** Thank you, Mr. Chairman.

One question that I have for the utilities, as -- Ms. Kaufman from FIPUG brought up the idea of opting out. So if you were to opt out, say, that class of customers, the large industrial customers, what type of impact would that have, or potential impact that would have on the rest of the ratepayers if they were to be opted out of the hedging program? You can answer one by one, starting from the left.

**MR. YUPP:** I'm not sure I could answer that right now without taking a look at it. I think, back to what Commissioner Edgar says, I think the idea is, just thinking about it right now, seems a little bit complicated on how you could carve out a certain group of, or in this case an individual customer, and not -- and, again, it would have to be equitable across the board for, you know, customers that are still within the hedging program versus those that are without and, you know, fear of subsidization of one or the other. So I guess honestly I couldn't answer you right now. I just don't know how it would impact. You'd have to really think about the mechanics of how it would work and, and take a look at it from that perspective.

**MR. BUTLER:** Commissioner, John Butler.

One thing I would just add sort of emphasizing Mr. Yupp's point, it seemed the proposal was not for a rate class but is actually individual customers. And that would, I think, challenge the system that one would develop for how to, you know, have an appropriate factor applicable to individual customers. Maybe it would be something that would be optional for different rate classes, but we'd have a lot of concerns about getting it right so there isn't cross-subsidy.

And I guess, you know, the big picture level what it would end up doing is in effect increasing perhaps in a way that we hadn't intended the extent of hedging for the customers who were not opting out because you're basically concentrating the hedges that are placed on to a smaller volume of customers. It would be a lot of impacts probably anticipated and unanticipated that we'd want to work through before, you know, being very serious about something like that. Thank you.

**MR. BADDERS:** I don't have a lot to add to what Florida Power & Light just said. I agree with what they've said. I mean, I think the devil would be in the details just trying to figure out how you would do it. I think there would be fairly significant issues on subsidization between the classes. And I know this has come up before when we've talked about it. I do not know exactly all of the ins and outs of it. It's something we can look at.

**MR. CALDWELL:** Yeah. I certainly agree with what's been said. Some of the questions about what do you do with an existing hedge that has already been placed in the future? How much of that goes to a person that opts out? How much notice do you need to opt out? Can they switch back and forth every six months? A lot of details.

**MS. TRIPLETT:** And for Progress I'm not sure I can add much more. I was actually thinking about, you know, to be fair, would there need to be some sort of -- you know, you can't just jump on the bandwagon if it looks like there's losses and then, you know, jump off of it, I guess, jump off and then get back on if it looks like it's going to be beneficial. So there would have to be something, I would think, to make that equitable, in addition to the other comments that have been made.

**MS. KAUFMAN:** Chairman Graham, could I just make a comment about that? Or, I'm sorry, Commissioner Brisé.

I was just going to say that, you know, I agree there would be details to work through, and I just wanted to pledge to, to the utilities that we would be happy outside this forum today to sit down and talk to them about how we might go about this. It's not our intent to create any sort of a burden, but I think we might be able to work through it if we have those discussions.

**COMMISSIONER BROWN:** Thank you. And I wanted to hear from Staff on Ms. Kaufman's opt out suggestion, as well as whether Staff has any additional comments from the presentation.

**MR. WILLIS:** Commissioners, Marshall Willis. I'll just make one comment. My understanding of the way the company has purchased gas is they do it in bulk. They don't buy a gas supply for industrial customers versus commercial customers. So trying to opt out one single set of customers may be difficult when you're purchasing a bulk gas supply. So I'm not sure quite how that would work.

**MR. LESTER:** Pete Lester with Staff. I don't really have any additional questions to -- I mean, I guess I could ask one. On the problems with shale gas, they don't seem to have moved the price any. So it seems like a lot of what you've, what I've read at least on the various risks have not really had an affect on, on the ultimate gas price. So there doesn't seem to be a lot of risk so far in shale gas production.

**CHAIRMAN GRAHAM:** Just give the EPA time.

(Laughter.)

**COMMISSIONER BROWN:** And just a follow-up on that actually. Do any of the parties here know or the utilities here know or does Staff know if the DOE is intending to provide additional regulations on shale?

**MR. LESTER:** I don't know. Just reading various articles about the Safe Drinking Water Act and this, whether it's going to be statewide regulations versus local regulations, like in Pennsylvania they've gone through, I think they did that all statewide. I've just, I've heard a bunch of stories, but probably the companies are closer to that than I am.

**COMMISSIONER BROWN:** Anybody want to take a stab?

**MR. McCALLISTER:** Yeah. I don't know. The EPA I think recently, and this may have been a month or two ago, I remember reading it, is they did enact some additional proposed regulations on emissions on gas production. I don't recall the exact proposal, but I think it was a month or two or three ago. So there have, there have been recent, I think, proposals, and that one I think was specifically around emissions with shale, with shale gas production.

**CHAIRMAN GRAHAM:** Commissioner Balbis.

**COMMISSIONER BALBIS:** Thank you, Mr. Chairman.

If I may offer, last week I did moderate a panel at the Natural Gas Conference where one of the presenters had a, had a good presentation that discussed, I believe, the four ongoing studies right now that either the EPA or other agencies are, are conducting. And I have copies of all those presentations. I'll distribute it around to those that were not there. But I think it has a pretty good summary of what's ongoing with that.

And back to the discussion on opting in or opting out, I do like the idea of FIPUG and others, you know, meeting with the utilities and coming up with if there's something fair or equitable that you can bring back to us or to Staff.

One of the things that might be possible, which I'm just thinking out loud, is that, you know, I understand there's only a certain percentage of the natural gas purchases that are hedged. And so one way to do it is the portion that is purchased through the hedging process and the portion that isn't, you could differentiate it that way. But, again, I'll leave it to you that do it on a daily basis, but I do like the idea of them working together and talking about different, different options.

**CHAIRMAN GRAHAM:** All right. Parting comments. Leave well enough alone?

**MR. BUTLER:** That would be a fair summary.

(Laughter.)

**CHAIRMAN GRAHAM:** I do want to thank you all for participating. And once again, I apologize for the disconnect earlier and keeping you guys around most of the day. And if anything comes up, any last-minute thoughts or if you want to expand upon some of the questions or answers you gave, please feel free to do so. And that all being said, we're adjourned.

(Proceeding adjourned at 4:15 p.m.)

STATE OF FLORIDA )
: CERTIFICATE OF REPORTER
COUNTY OF LEON )

I, LINDA BOLES, RPR, CRR, Official Commission Reporter, do hereby certify that the foregoing proceeding was heard at the time and place herein stated.

IT IS FURTHER CERTIFIED that I stenographically reported the said proceedings; that the same has been transcribed under my direct supervision; and that this transcript constitutes a true transcription of my notes of said proceedings.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorneys or counsel connected with the action, nor am I financially interested in the action.

DATED THIS 7th day of October, 2011.

Linda Boles

LINDA BOLES, RPR, CRR
FPSC Official Commission Reporter
(850) 413-6734

# Florida Public Service Commission
# Informal Workshop
# Joint IOU Presentation

October 4, 2011

Parties/Staff Handout Presentation
event date 10 / 4 / 11
Docket No. Undocketed

Progress Energy

## Summary

- Previously, LNG was forecasted to increase to meet future U.S. gas demand. LNG is now forecasted to play a lesser role with forecasted shale production growth.

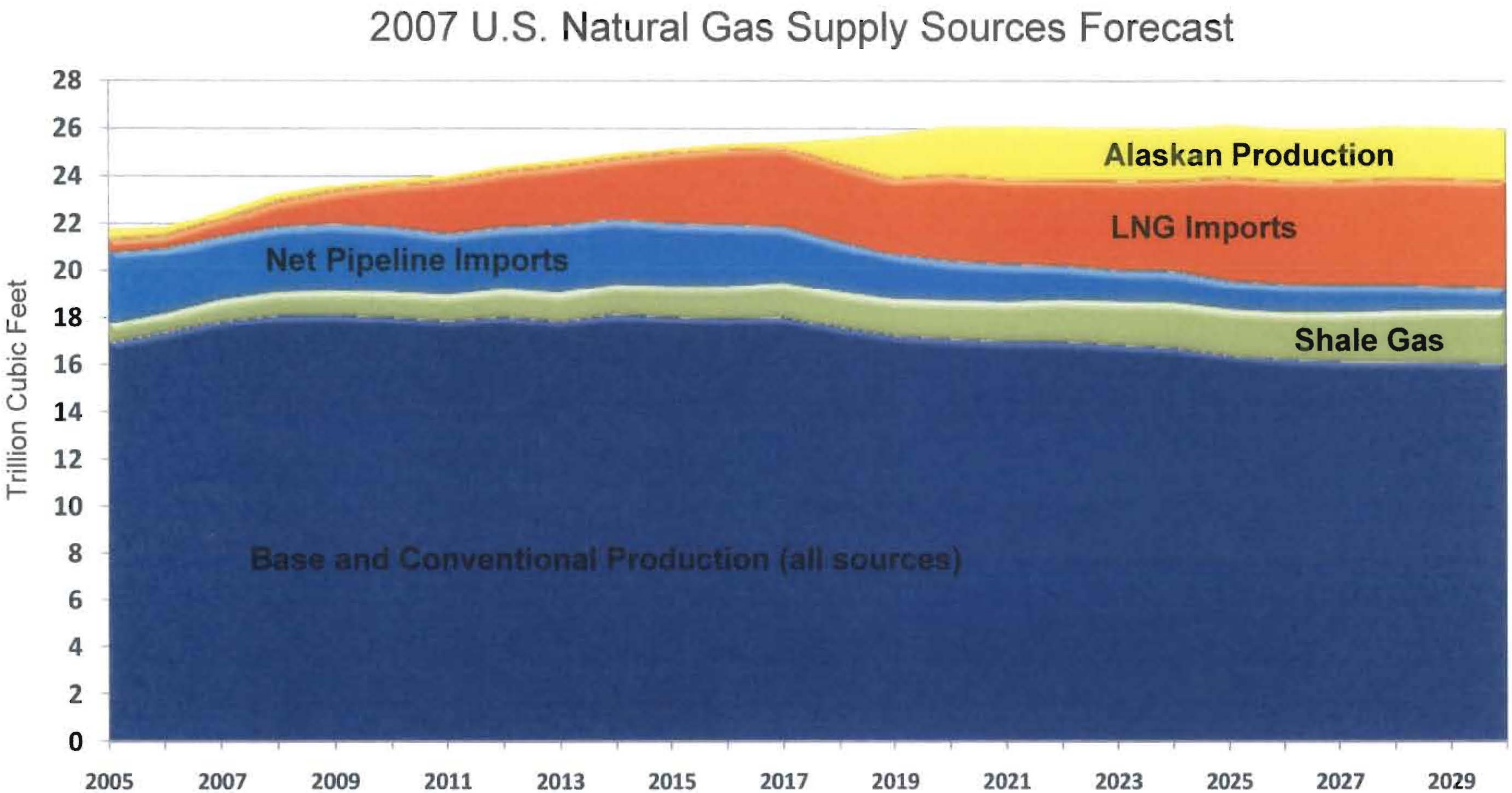
- Concerns with shale gas production related to potential adverse environmental and community impacts continue to be debated. On-going developments could impact costs and availability of shale gas.

- In recent years, overall natural gas price levels have declined. It is impossible, however, to predict future circumstances that may cause an increase in price and volatility.

- The developments in the natural gas market do not warrant changes to the Commission's hedging policies and procedures that were established in 2008. The IOUs continue to implement their hedging programs consistent with those policies and procedures.

# Supply Trends – Looking Back

# U.S. Supply Trends…Looking Back




EIA projects increased LNG imports would offset declining base and conventional production to meet growing U.S. natural gas demand



Source: U.S. Department of Energy, 2007 Annual Energy Outlook

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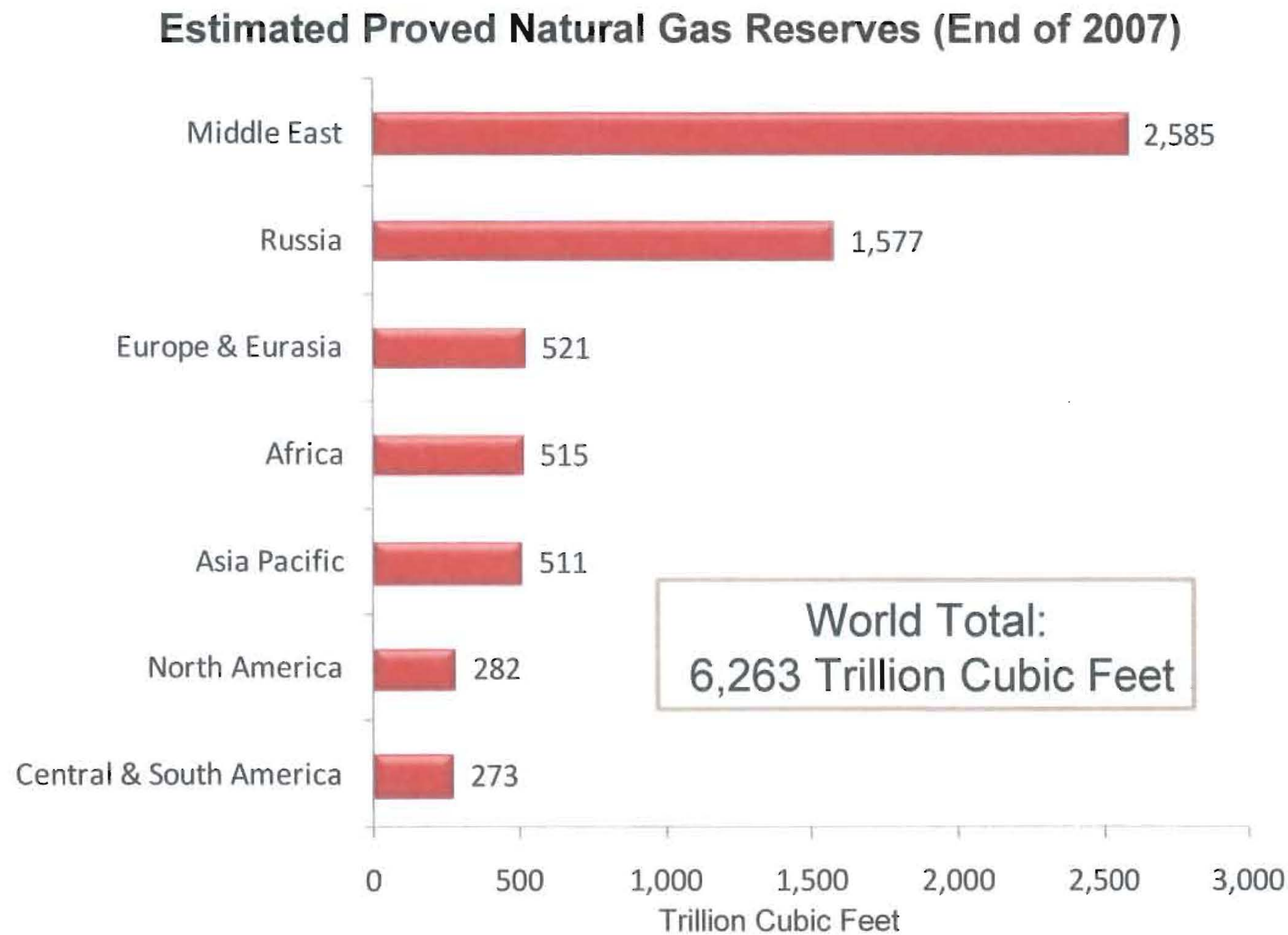
## Supply Trends...Looking Back



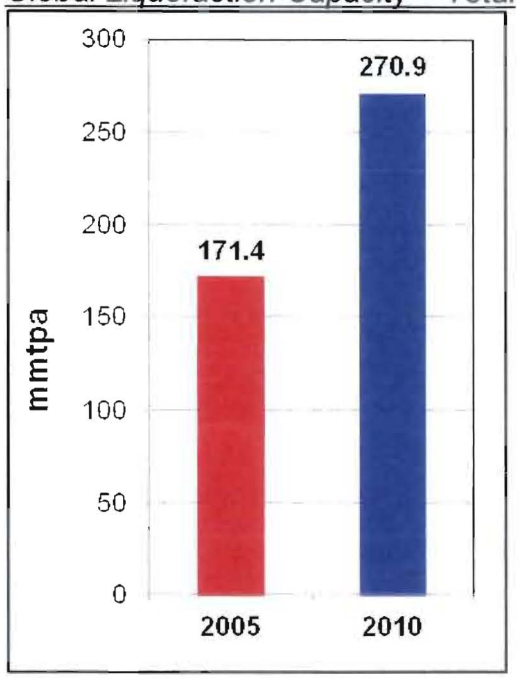

Middle East and Russia have world's largest natural gas reserves

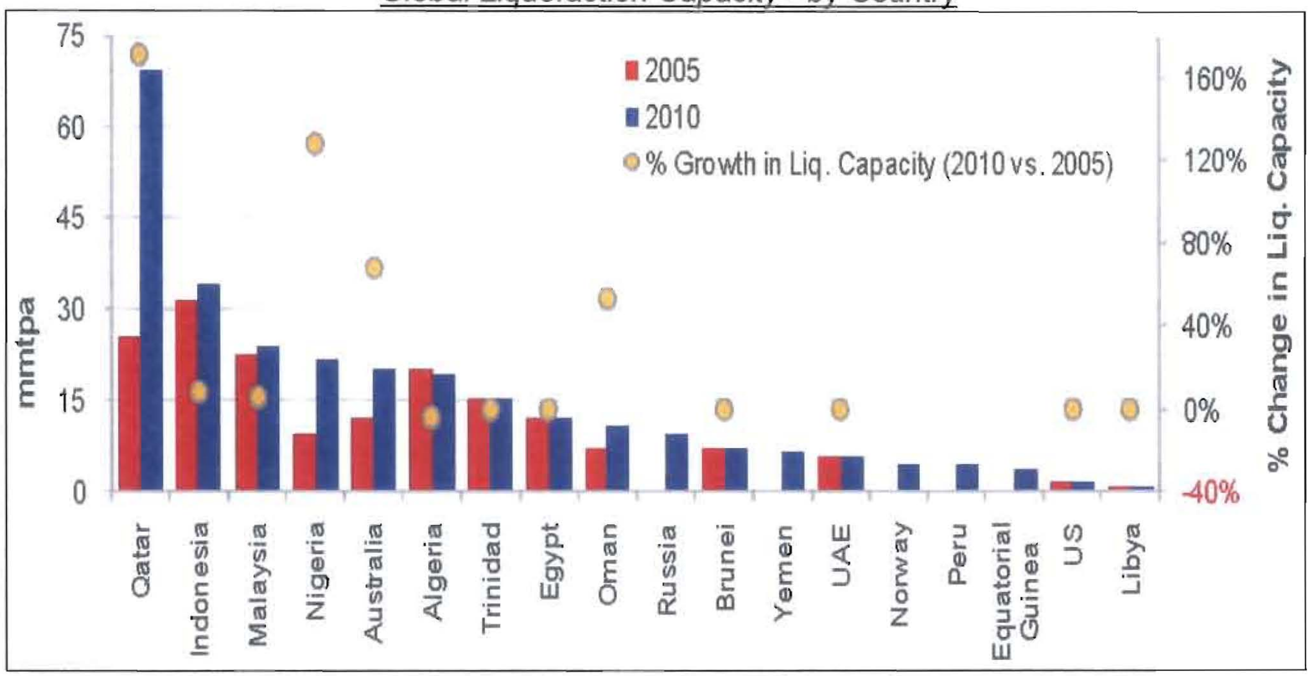


Source: *BP Statistical Review of World Energy June 2008*

# Global Supply Trends..Looking Back

## Global Liquefaction Capacity (2005 and 2010)




Global LNG liquefaction capacity increased ~58% from 2005 to 2010
Growth in the last five years has been in the Middle East, notably Qatar
LNG carrier fleet grew to 360 ships from 195 ships from 2005 to 2010



*Source:* IGU World LNG Report -2010

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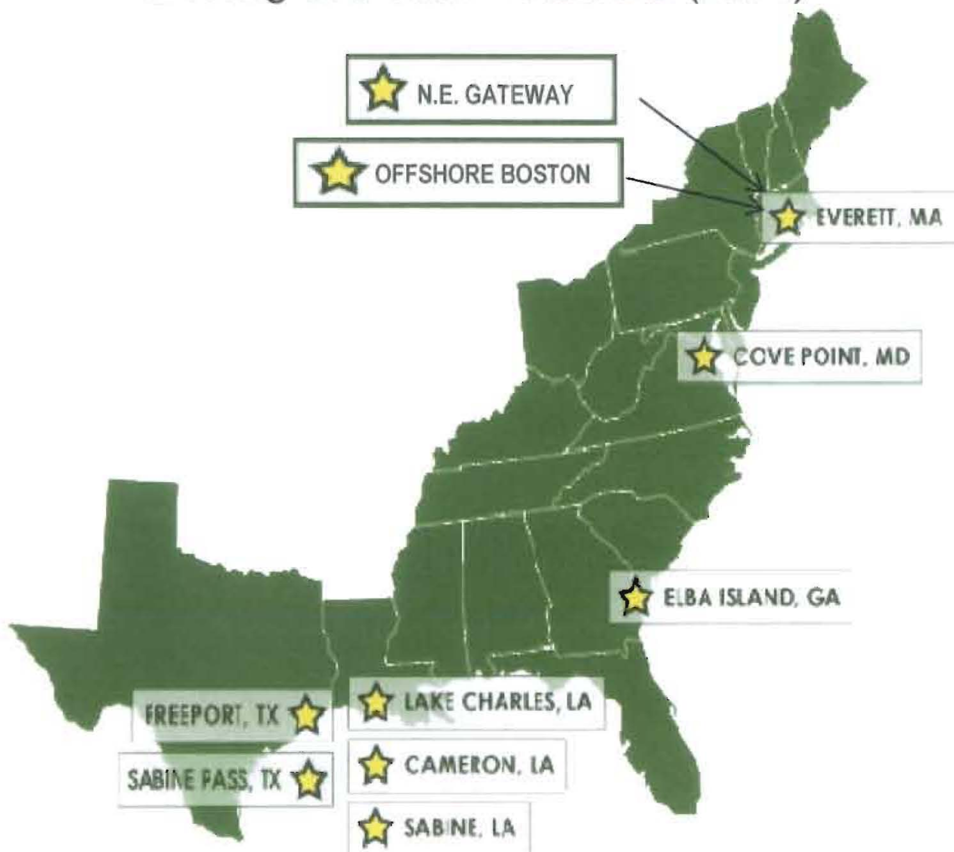
# U.S. Supply Trends…Looking Back

| LNG Terminals | 2006 Capacity (Bcf/d) | 2009 Capacity* (Bcf/d) | 2011 Capacity** (Bcf/d) |
|---|---|---|---|
| Everett, MA | 0.7 | 1.04 | 1.04 |
| Cove Point, MD | 0.75 | 1.8 | 1.8 |
| Elba Island, GA | 0.8 | 1.2 | 1.6 |
| Lake Charles, LA | 1.8 | 2.1 | 2.1 |
| Gulf Gateway | 0.5 | | Retired in 2011 |
| Northeast Gateway | | 0.8 | 0.8 |
| Freeport, TX | | 1.5 | 1.5 |
| Sabine, LA | | 2.6 | 4.0 |
| Cameron, LA | | | 1.8 |
| Offshore Boston | | | 0.4 |
| Sabine Pass, TX | | | 2.0 |
| TOTAL | 4.55 | 11.04 | 17.04 |

Existing U.S. LNG Terminals (2011)




LNG import facilities increased to meet projected imports to support U.S. natural gas demand

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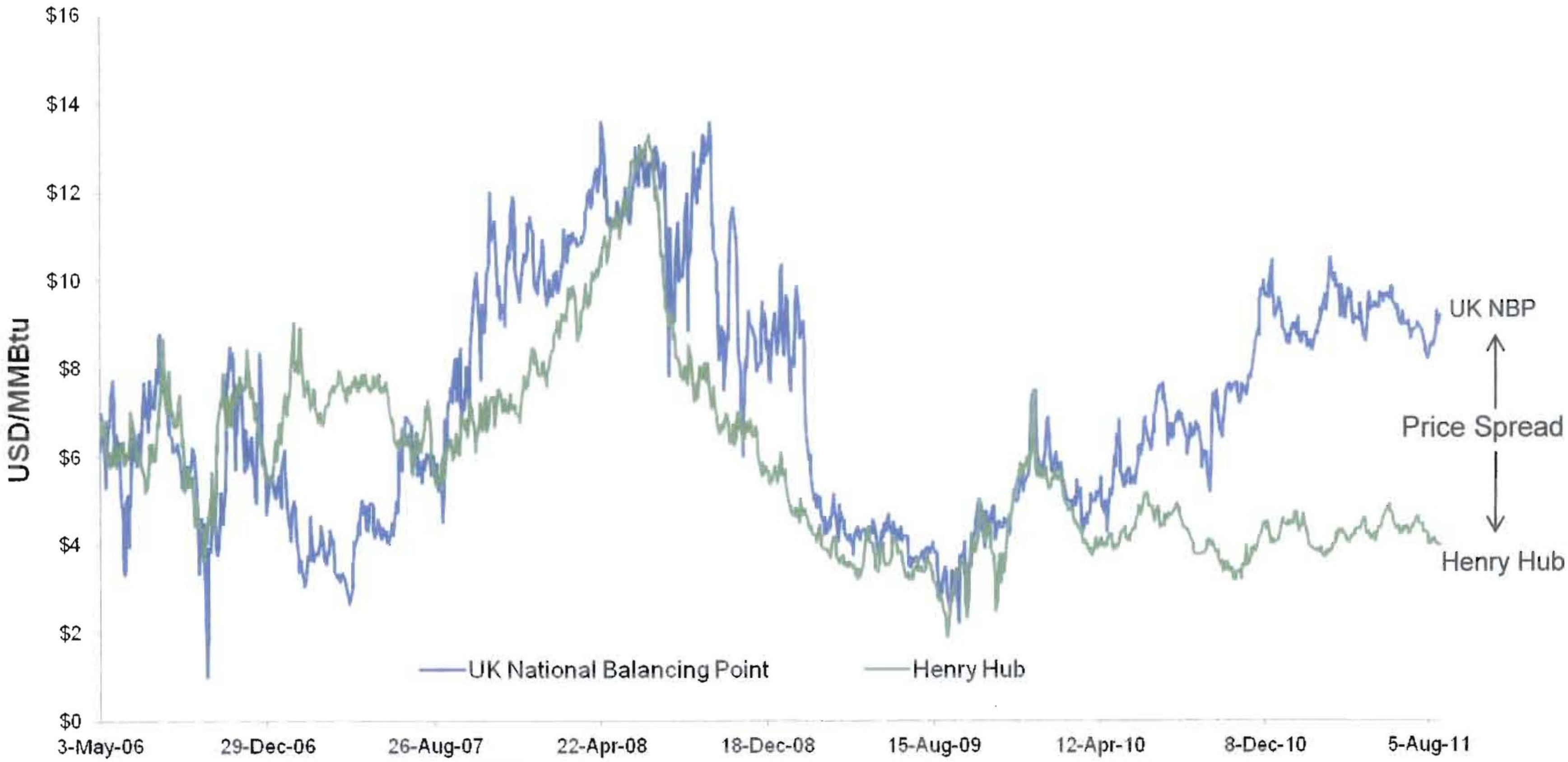
Source: www.ferc.gov; *2009 Capacity as of Feb. 6, 2009; **2011 Capacity as of July 6, 2011

# U.S. Supply Trends…Looking Back




Over time:

European market became the market of choice for Atlantic Basin destined LNG

U.S. shale production increasing during this time period



Source: *JPMorgan*

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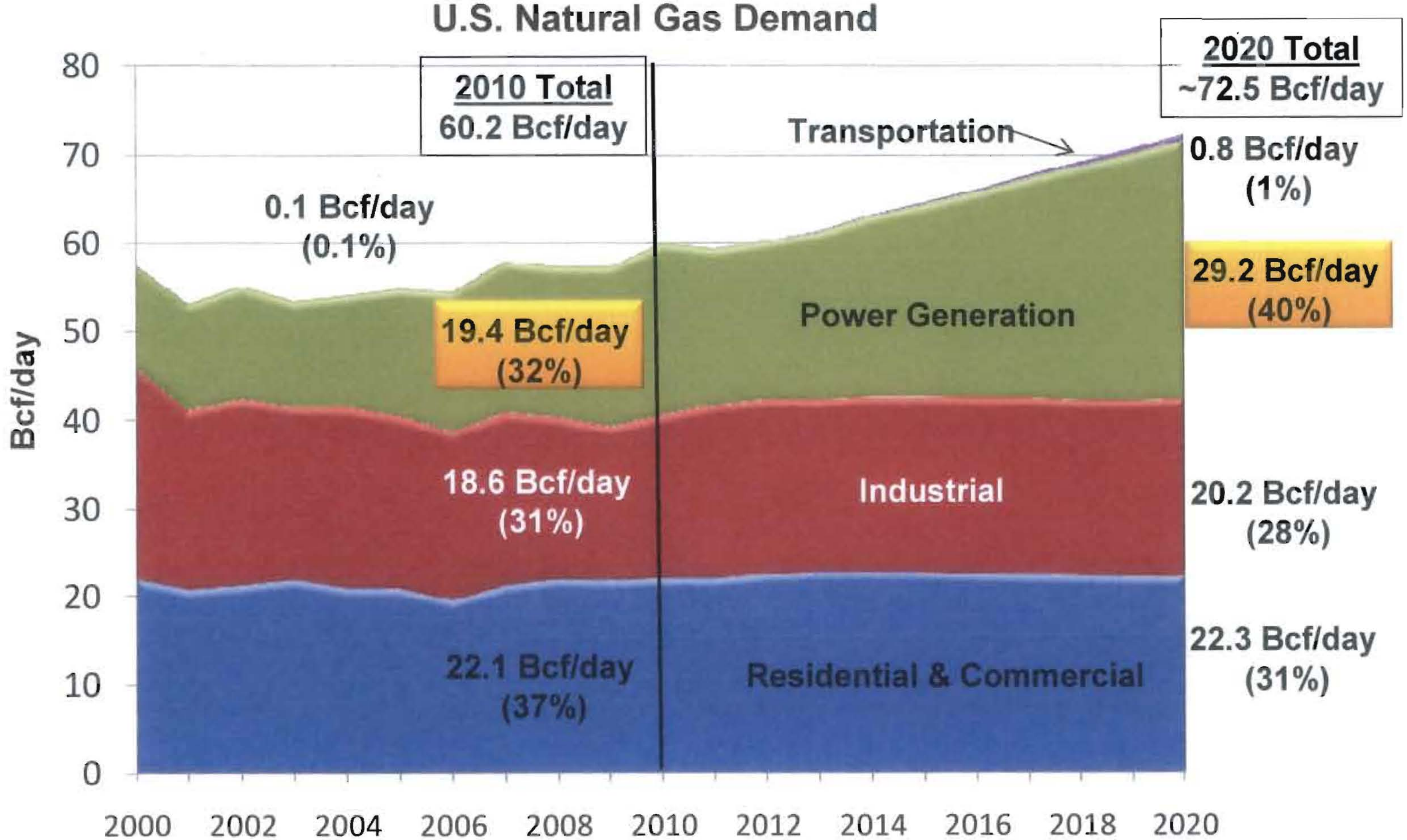
## Supply Trends…Looking Back in Summary

- LNG imports were projected to replace declining base and conventional base production to meet growing U.S. natural gas demand.
- U.S. no longer needs as much LNG as previously forecasted due to:
  - Higher priced global gas markets in Asia and Europe
  - U.S. production growth

# Demand Growth & Shale Gas Developments

# U.S. Demand Trends – Projected Growth in Generation Sector

U.S. Natural Gas Demand




Power generation is projected to be the driver for gas demand growth



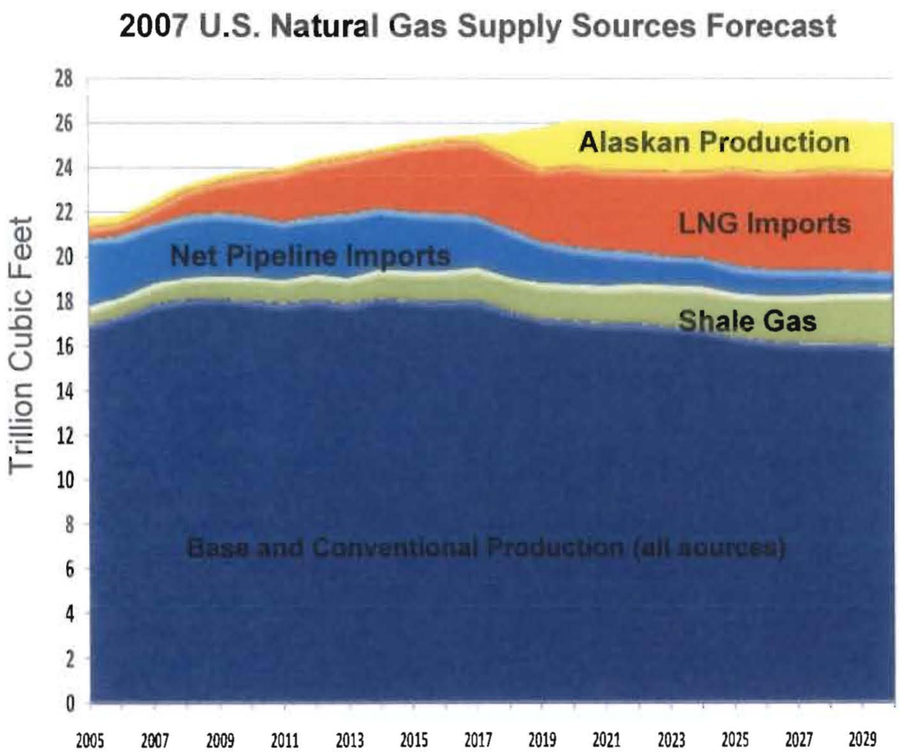
*Source: El Paso*

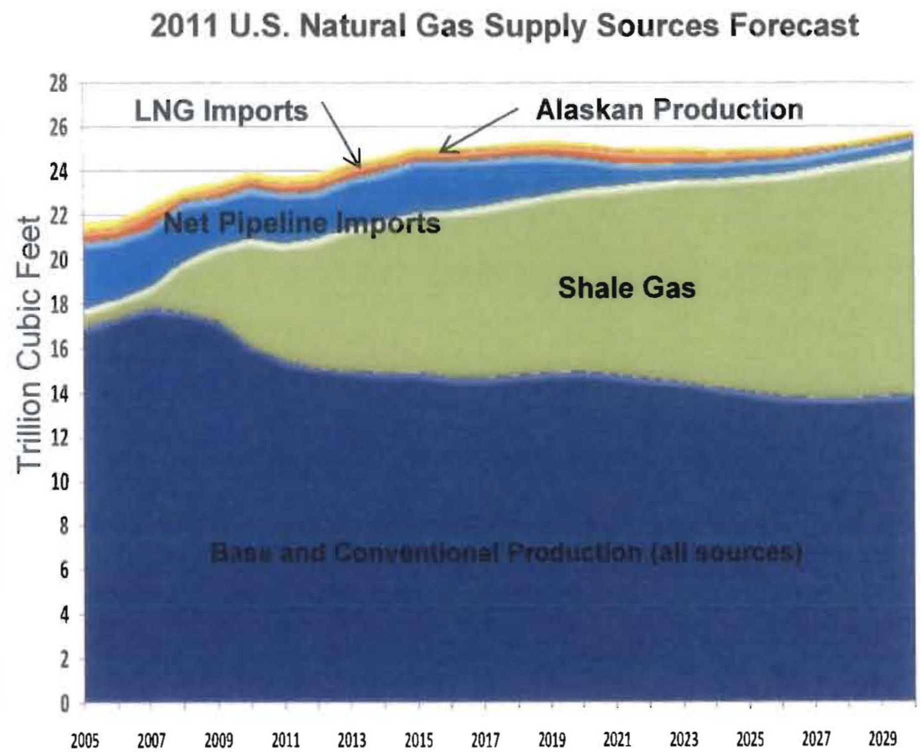
## U.S. Demand Trends – Potential Strategic Natural Gas Demand Factors

- Possible Accelerated Coal Retirements to Gas Switching
  - Aging coal fleet
  - EPA proposed regulations; Clean Water Act 316b, MACT, CSAPR
- LNG liquefaction projects looking for capabilities to export domestic U.S. gas
  - Freeport, Sabine Pass, and Lake Charles have received DOE approval
  - Cove Point submitted application to DOE in September
  - Could narrow the gap between U.S. natural gas prices and higher rest-of-world prices if exports become a reality
- Increased Industrial Demand

These factors could put upward pressure on U.S. market prices over time

# Supply Trends...Looking Forward




EIA projects shale gas will offset declining base and conventional production and meet growing U.S. natural gas demand

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*Source: U.S. Department of Energy, 2007 & 2011 Annual Energy Outlooks*

# Supply Trends

## Comparison of U.S. Dept. of Energy, EIA Annual Energy Outlook – 2007 vs. 2011

| Average Production Bcf/Day (%) | Annual Energy Outlook 2007 | |
|---|---|---|
| | 2011 | 2030 |
| Base Production | 49.0 (74%) | 44.0 (62%) |
| **Shale Gas** | 3.0 (5%) | 6.3 **(9%)** |
| Net Pipeline Imports | 7.1 (11%) | 2.5 (4%) |
| LNG Imports | 6.2 (9%) | 12.4 **(17%)** |
| Alaskan Production | 0.7 (1%) | 5.9 (8%) |
| **Total Bcf/day** | **65.9** | **71.2** |

| Average Production Bcf/day (%) | Annual Energy Outlook 2011 | |
|---|---|---|
| | 2011 | 2030 |
| Base Production | 42.4 (65%) | 38.1 (54%) |
| **Shale Gas** | 14.3 (22%) | 30.0 **(42%)** |
| Net Pipeline Imports | 6.3 (10%) | 1.8 (2%) |
| LNG Imports | 1.2 (2%) | 0.4 **(1%)** |
| Alaskan Production | 1.0 (1%0 | 0.6 (1%) |
| **Total Bcf/day** | **65.2** | **70.8** |

Shift in forecasted sources of U.S. supply given shale production growth



*Source: U.S. Department of Energy, 2007 & 2011 Annual Energy Outlooks*

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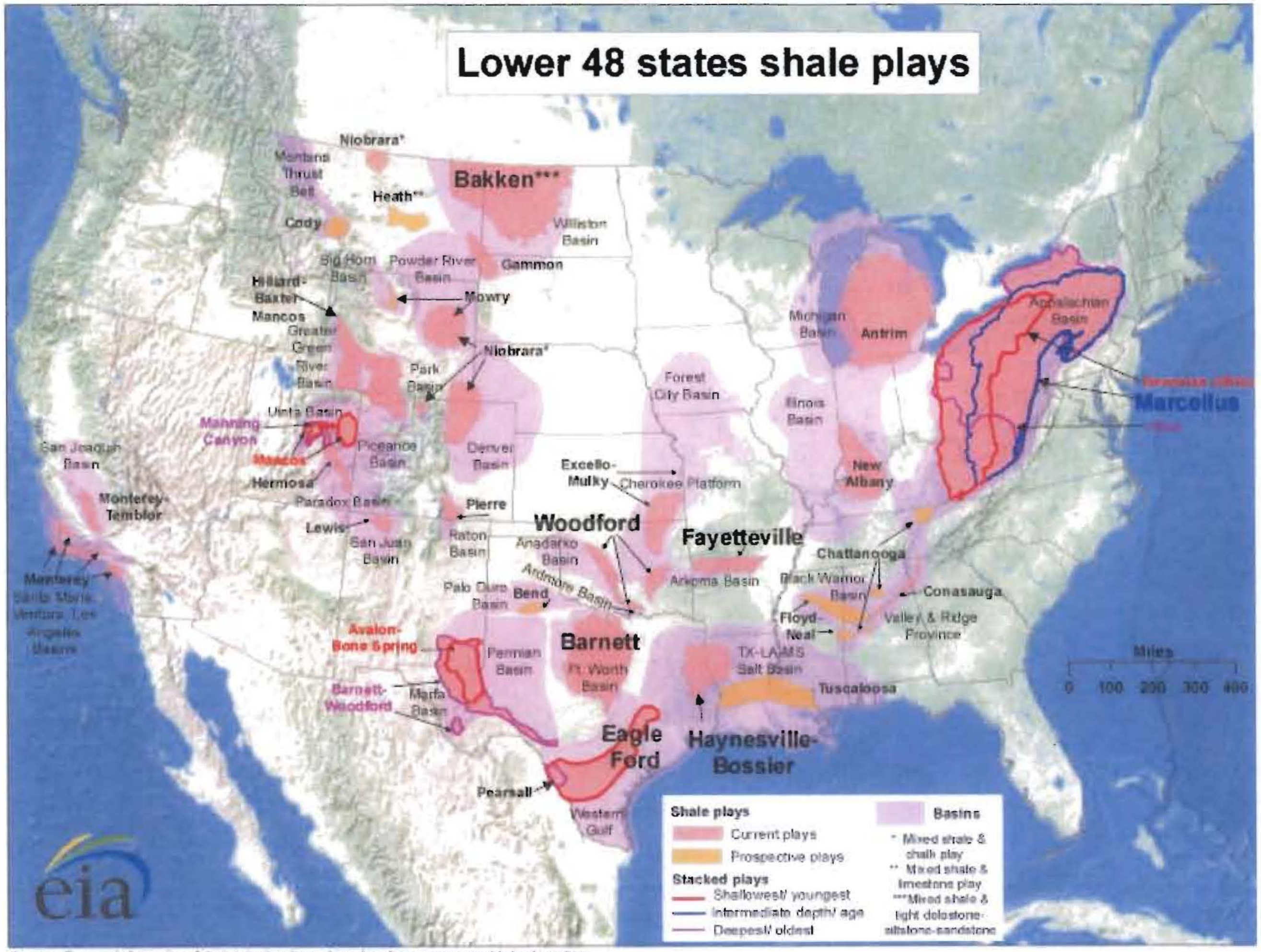
## Shale Gas Developments – Location of Shale Gas

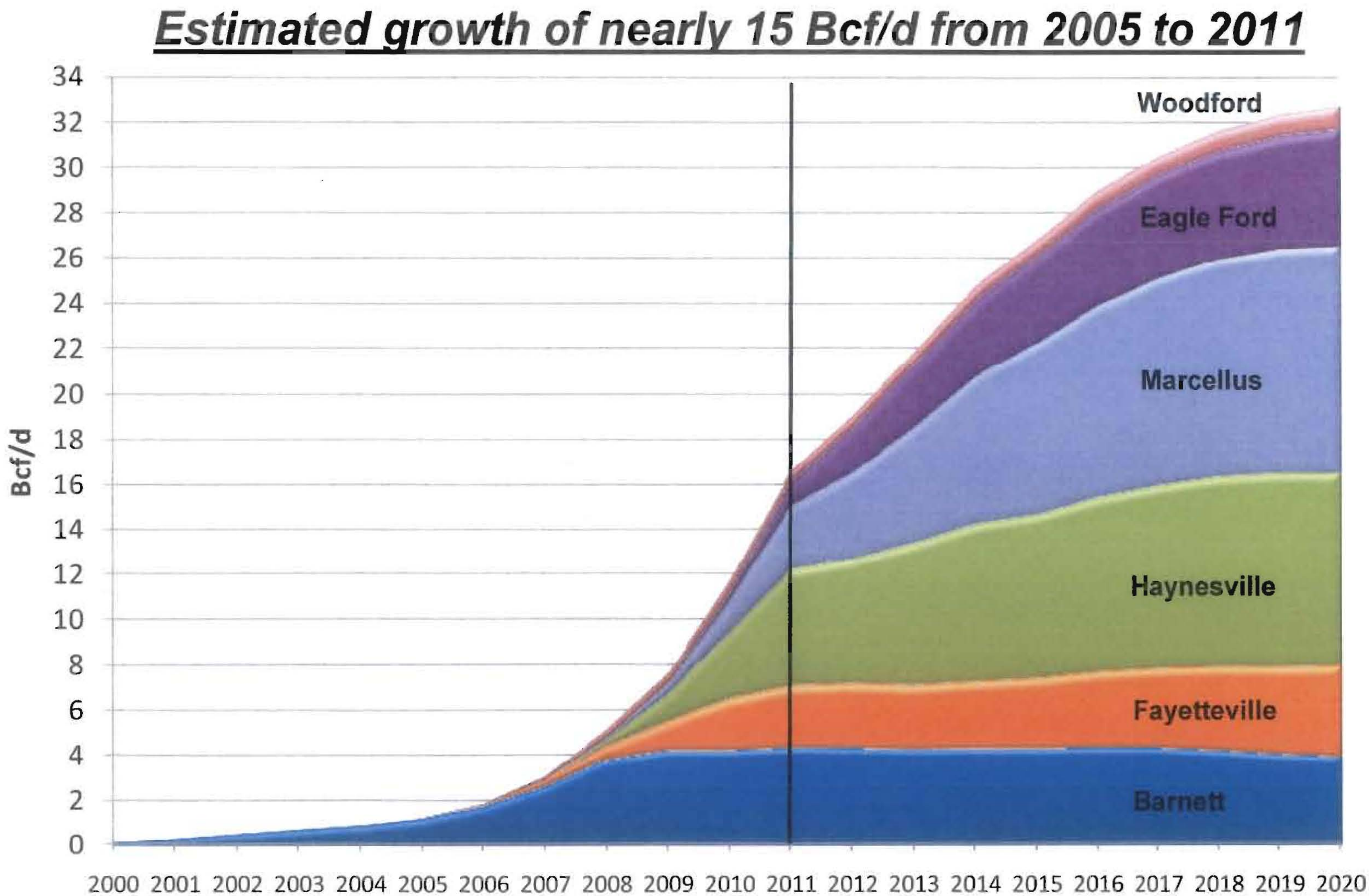



Source: Energy Information Administration based on data from various published studies.
Updated: May 9, 2011

Current
Major Shale Plays:

- Barnett
- Fayetteville
- Haynesville
- Marcellus
- Eagle Ford
- Woodford

# Shale Gas Developments – Estimated Growth by Basin






Source: Wood Mackenzie

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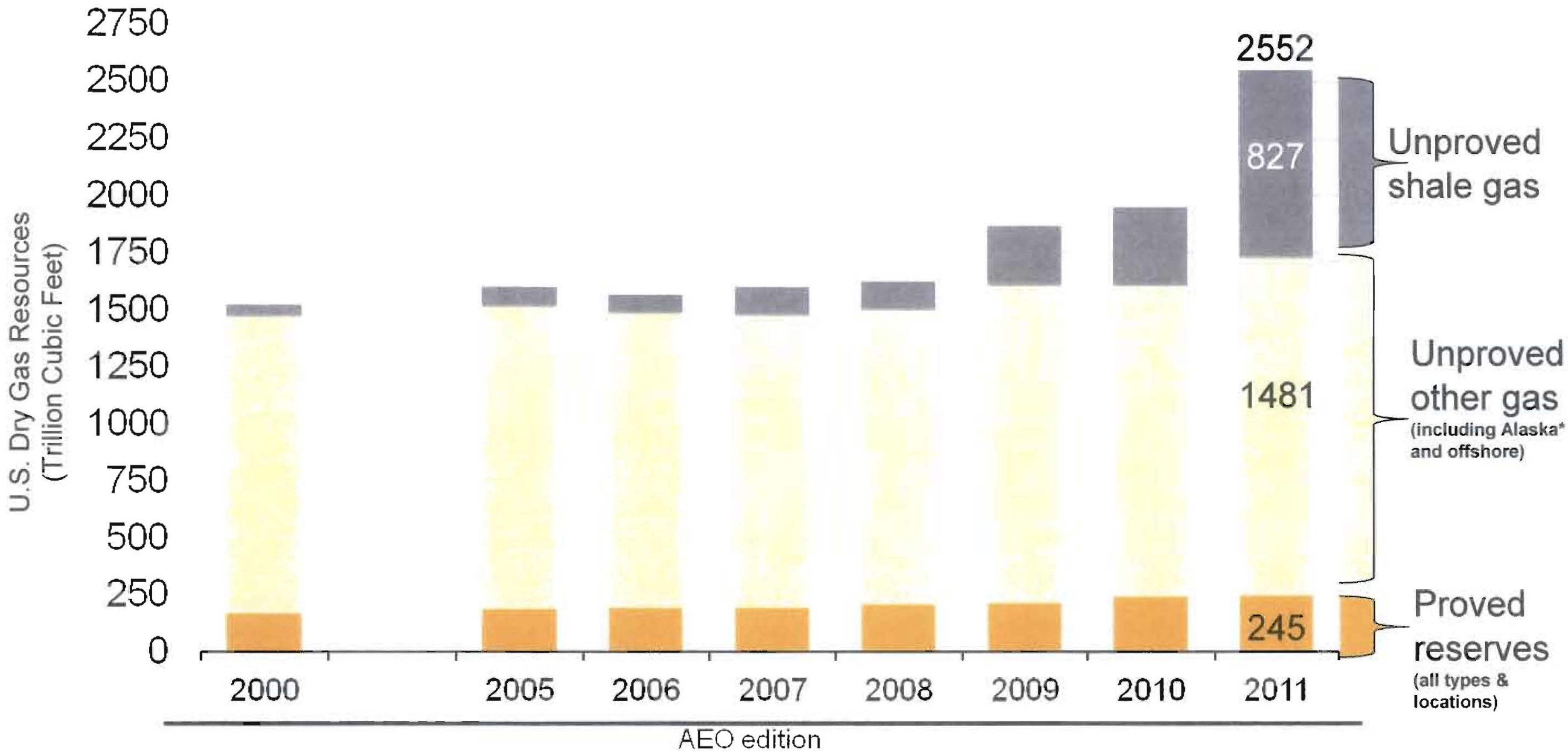
## Shale Gas Developments – Estimated Reserve Growth




U.S. reserves have increased from ~1,500 Tcf in 2000 to ~2,552 Tcf in 2011
Equates to an increase from ~65 years of supply to ~110 years of supply

* **Alaska resource estimates prior to *AEO2009* reflect resources from the North Slope that were not included in previously published documentation**



*Source: EIA, Annual Energy Outlook 2011*

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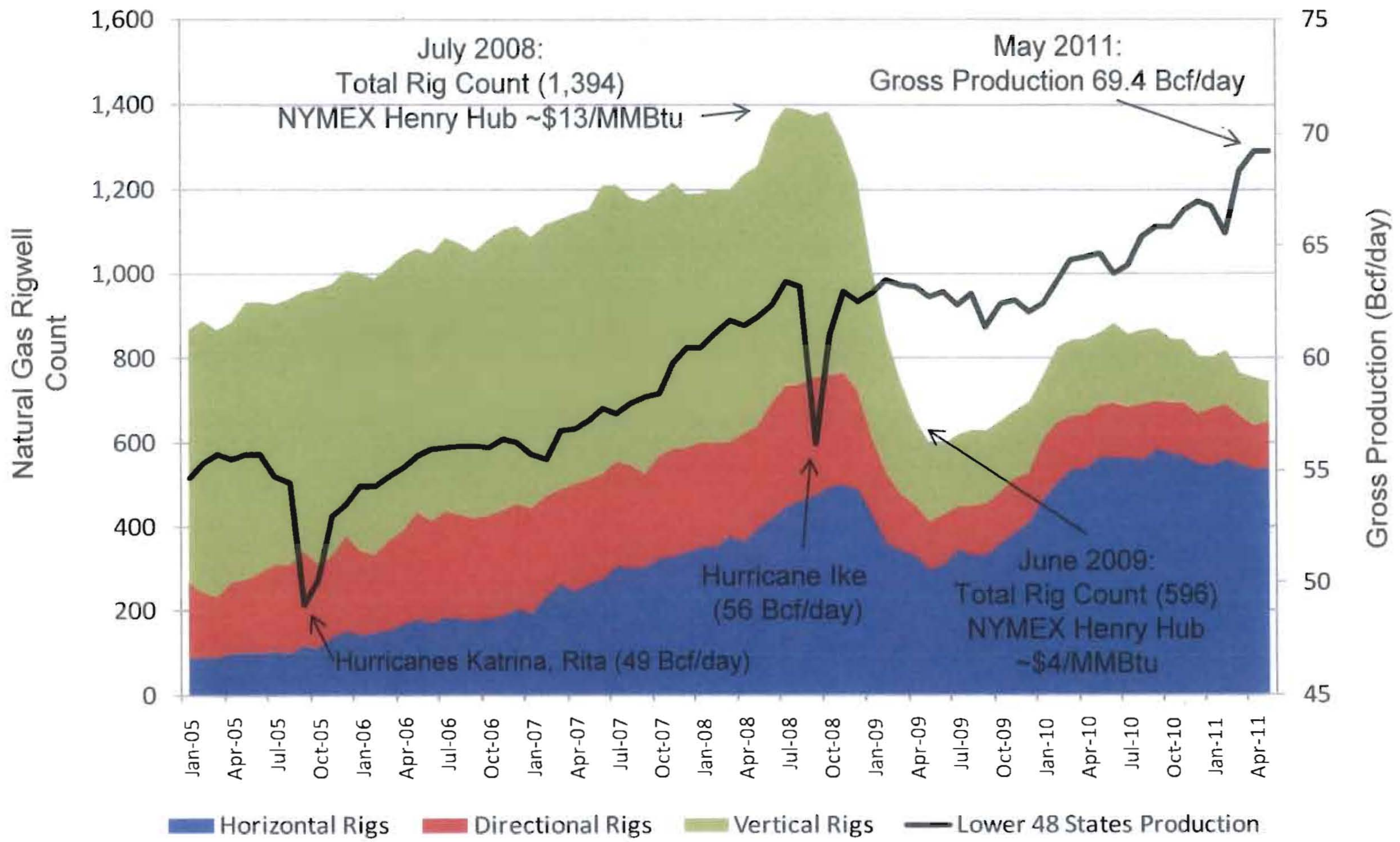
# Shale Gas Developments – Production Efficiency and Gas Rig Count




Total production has increased while the rigwell count has decreased
The percentage of horizontal rigs of total grew from ~10% in Jan 2005 to ~70% in May 2011

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Source: Smith International, EIA 914 Production Report

## Shale Gas Development - What's the Result?

- Horizontal rigs have larger "pay zones", can "kick out" in multiple directions and cover broader areas than vertical drilling.
- Higher reserves and production rates per well results in lower per unit production costs.
- Technological advances have taken out the "guess work" and increased recoverable natural gas resources.
- Producers have contracted with pipelines to bring gas from production basins to market aggregation points.
- Pipeline expansions have brought shale gas to market.
  - Southeast Supply Header
  - Boardwalk
  - Mid Continent Express
  - Gulf Crossing
  - Transco Mobile Bay South

# Shale Gas Concerns

## Shale Gas Concerns

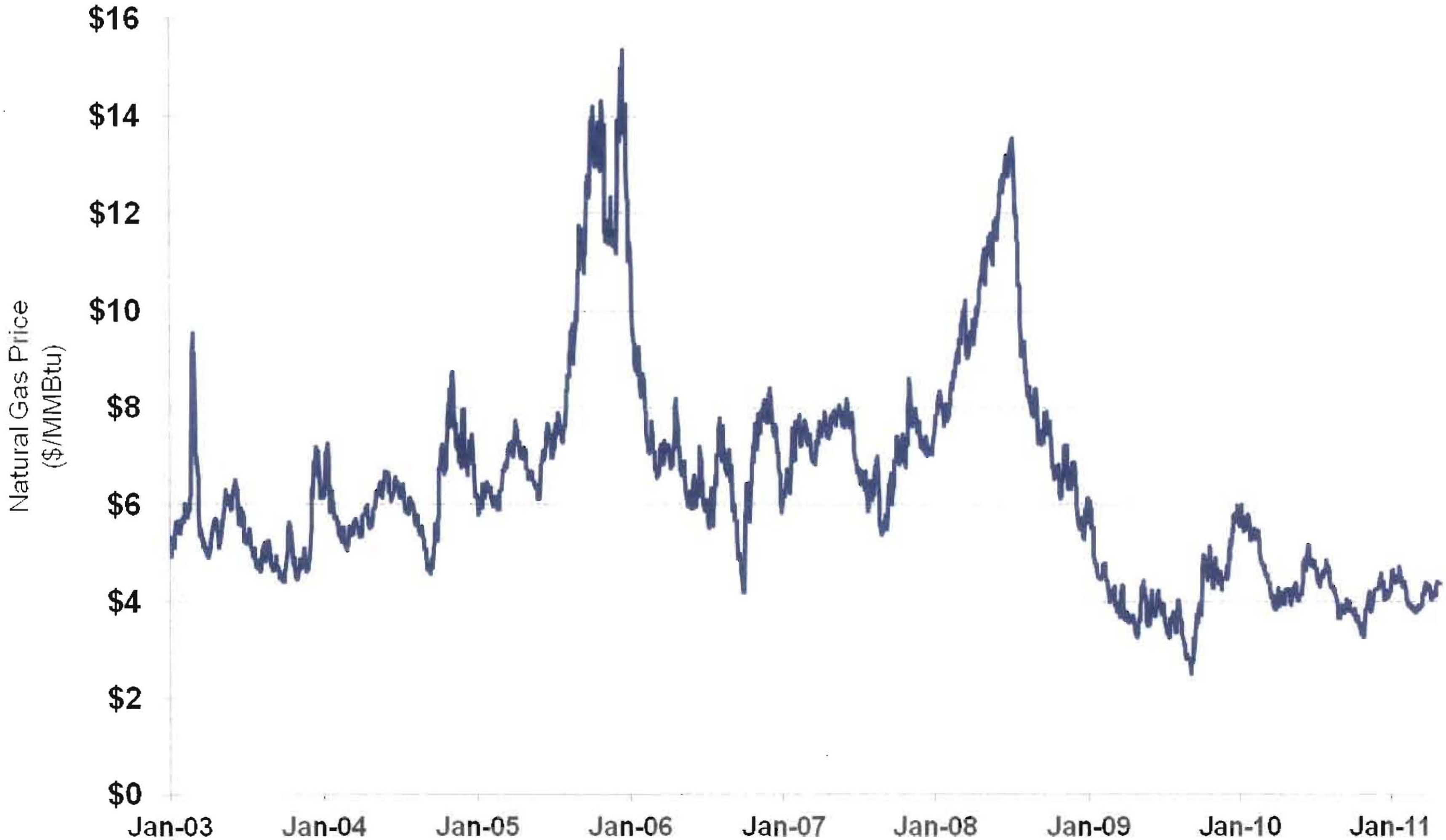
- Secretary of Energy Advisory Board Shale Gas Subcommittee released initial report that identified four major areas of concern:
  - Possible pollution of drinking water from chemicals used in fracturing fluids
  - Air Pollution
  - Community disruption during shale gas production
  - Cumulative adverse impacts that intensive shale production can have on communities and ecosystems
- If additional oversight and regulations are introduced with new or more stringent regulations it could:
  - Increase supply costs
  - Impact shale gas production and growth



Source: U.S. D.O.E. , Secretary of Energy Advisory Board, Shale Gas Production Subcommittee 90-Day Report

# Natural Gas Price and Volatility Trends

# History of Natural Gas Spot Price Trends 2003 through 2011



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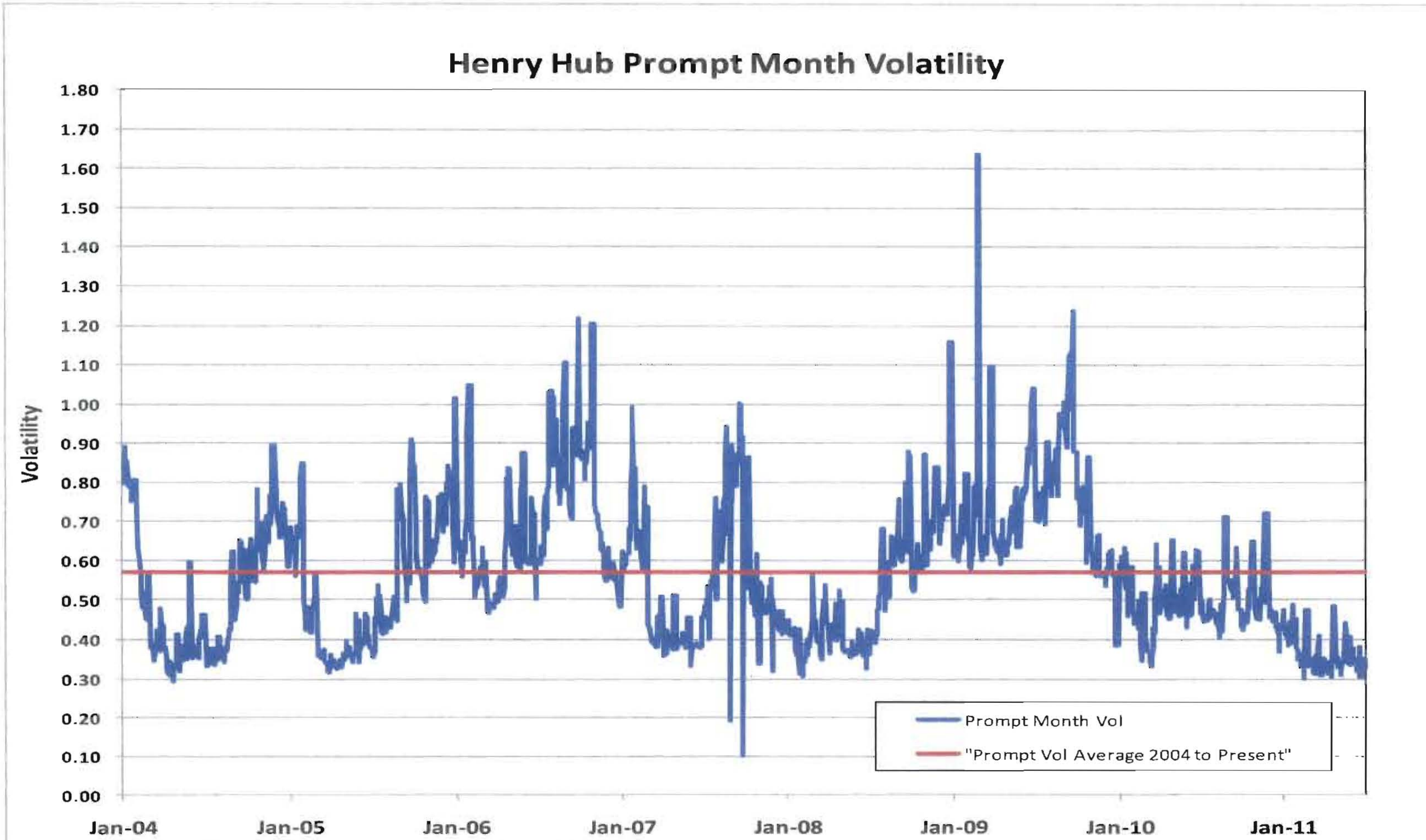
# Henry Hub Prompt Month Volatility Trends 2004 through 2011




While volatility is lower, current level is not dramatically different than previous low points



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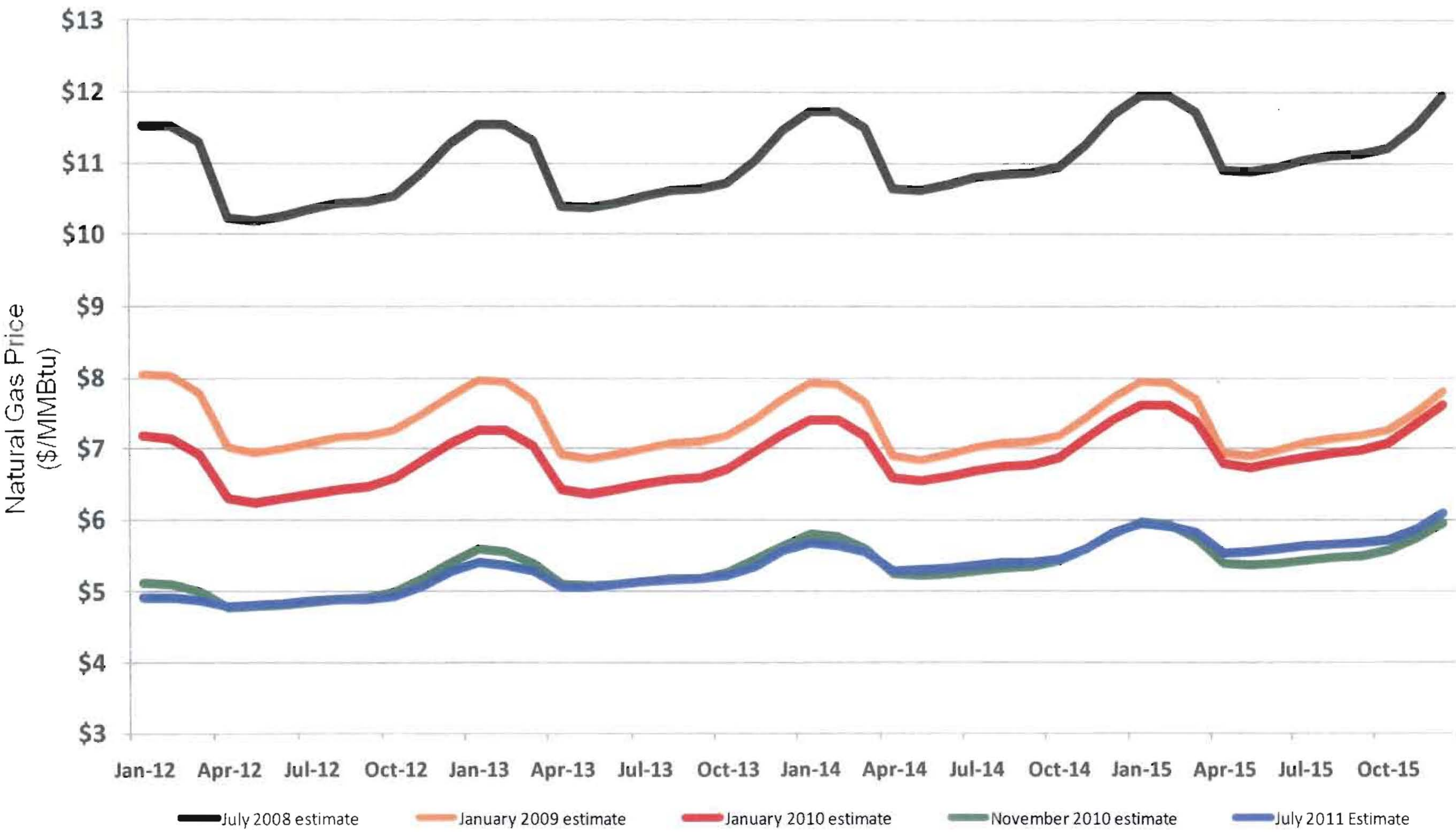
# Long Term Forward Natural Gas Price Trends By Month/Year



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## Summary Points

- Spot gas prices and the forward prices have declined in recent years.
- Production growth from shale basins have changed the domestic natural gas supply picture.
- Based on price trends it appears that there is limited room for further price declines, such that the greater volatility risk in the future is of price increases.
- Although natural gas prices and volatility have declined, it is impossible to predict when or to what magnitude circumstances may cause an increase in price and volatility.
- Increased regulation of shale gas production could affect output and/or production costs.
- If LNG starts to be exported from the U.S. rather than imported, this could put upward price pressure on U.S. market prices.
- Developments in the natural gas market do not warrant changes to the Commission's hedging policies and procedures that were established in 2008.
- The IOUs continue to implement their hedging programs consistent with those policies and procedures.