# NATTY GAS

## Advantage 1 - Economy

#### The status quo bias toward incremental pricing has caused it to become more economical for natural gas to be flared causing supply shortages.

Tye and Garcia 07 Copyright (c) 2007 Federal Energy Bar Association¶ Energy Law Journal¶ 2007¶ 28 Energy L. J. 1¶ LENGTH: 22979 words¶ ARTICLE: WHO PAYS, WHO BENEFITS, AND ADEQUATE INVESTMENT IN NATURAL GAS INFRASTRUCTURE¶ NAME: William B. Tye \*Jose Antonio Garcia \*\*¶ BIO: \* William B. Tye is a Principal at The Brattle Group in Washington DC. Ph.D. in economics from Harvard University. He specializes in regulatory and antitrust issues. Dr. Garcia is a Senior Associate at The Brattle Group's Washington DC office

The natural gas industry is currently facing short-term and long-term interrelated concerns. These concerns are evidenced by energy price spikes, underinvestment in basic infrastructure (both storage and transmission) connecting supply sources with final demand, and insufficient gas supply. Each [\*38] of these three challenges is closely interrelated and must be properly addressed in order to avoid a significant risk of infrastructure failure in the natural gas industry. Recent energy price spikes have taught us that the price elasticity of energy is very steep in the short run. As a result, insufficient supply causes prices to consumers to rise very rapidly. Demand adjustments may be a short-term response to alleviate price spikes but do not constitute a long-term solution to the problem. Price spikes and price volatility motivated by inadequate infrastructure will continue to plague the industry.¶ Former Chairman Greenspan of the Federal Reserve has warned that the dramatic rise of natural gas prices and volatility, motivated in his opinion by a fundamental shift in natural gas supply/demand balance, can significantly affect the long-term path of the US economy. He noted that large and timely infrastructure investments are necessary to bring forth new supplies in order to avoid a risk of infrastructure failure in the natural gas industry. More specifically, it has been claimed that new frontier resources such as LNG, Arctic natural gas including pipeline natural gas from Alaska, and natural gas from Eastern Canada and the U.S. Atlantic Basin are of critical importance to meet growing demand. n147 Gold (2006) suggests that several companies are already planning to build natural gas pipelines to bring gas to the East Region over land from other parts of the country (Texas and Rocky Mountains) instead of investing on more economical LNG terminals in the East Coast. n148 The author suggests that stiff community opposition (from an environmental and permitting standpoint) is threatening most LNG terminal projects along the East Coast. In addition, at present, there are three potential projects being seriously considered for bringing Alaskan natural gas from the Alaskan North Slope to lower forty-eight state markets: (i) The Alaska Natural Gas Transportation System (ANGTS); (ii) the Trans-Alaska Gas System (TAGS), a LNG export project; and (iii) a third potential project involves a new pipeline to transport gas from the North Slope of Alaska to the Canadian border. n149¶ Whereas tight supply generates price spikes, underinvestment in basic infrastructure contributes to the problem. Even if there were a surplus of the natural gas (or LNG) supply, the market does not have the necessary pipeline capacity to transport it. Furthermore, even in the hypothetical situation in which there was adequate transmission infrastructure, the market lacks the capacity to [\*39] store it. The underlying shortages in basic infrastructure, both in terms of storage and transportation capacity, constitute the major constraints on both supply and demand growth and the key determinant of natural gas price volatility. The development of storage facilities is closely dependent upon the availability of interconnecting transportation

### Scenario 1 is Exports

#### Investors have began searching for LNG export terminals

Kelly-Detwiler 12 (Peter, “LNG Export Economics: A Look At Frontrunner Cheniere.” Forbes. 5 December 2012. WEB.

<http://www.forbes.com/sites/peterdetwiler/2012/12/05/lng-export-economics-a-look-at-frontrunner-cheniere/>)

Even if Chesapeake and others sit on supply, a $5 per mmBtu gas price will probably not kill the LNG market.  With European oil-indexed gas at $12 and Asian gas even higher, $5 should still leave plenty of headroom.  According to the Economist, Cheniere [Energy](http://www.forbes.com/energy/) has signed agreements to sell US gas to a number of shippers at “Henry Hub prices with a 15% mark-up and liquefaction fees of $2.15 per mmBtu. After transport and regas costs, the price will probably be around $10 mBtu, still significantly lower than the $16 for oil-indexed gas. So if American gas prices were to go up to [$4-5, there would still be money to be made](http://www.economist.com/node/21558456).” The first LNG players out the door will most likely be companies – such as Cheniere – that have already made investments in regasification facilities to import LNG in the old days prior to the shale gas bonanza.  These companies will have a head start because they already possess significant infrastructure, such as pipelines and shipping terminals.  A dozen such firms have already invested over [$100 bn in regasification facilities](http://www.economist.com/node/21558456), according to the Economist. Those types of investments help move them to the front of the line.

#### Current import terminals can be reversed to liquefy and export natural gas.

Gjelten 12 (Tom, Correspondent for NPR, World Affairs and Washington Week, “The Dash for Gas: The Golden Age of an Energy Game-Changer” World Affairs. January/February 2012. WEB.

http://www.worldaffairsjournal.org/article/dash-gas-golden-age-energy-game-changer)

Such estimates are imprecise and may well be adjusted downward, but the production of shale gas has already dramatically altered the US energy picture. Just a few years ago, it was assumed that the United States would be a net importer of natural gas, with much of it arriving as LNG. But the terminals and regasification facilities that were built to facilitate LNG imports are now going largely unused. The successful production of shale gas could even mean the United States will soon be a net gas exporter. Some of the existing regasification facilities, built for LNG imports, could actually be converted to liquefaction plants, so that excess domestic gas production can be exported as LNG.

#### However only an increase in pipeline development to capture Natural Gas excess can make exporting LNG and domestic use a reality.

Abraham & Richardson 12 (Bill Richardson and Spencer Abraham, US secretaries of energy under Presidents Bill Clinton and George W. Bush. “Shale gas exports will aid US and its allies”, Financial Times. 20 December 2012. WEB.

http://www.ft.com/intl/cms/s/0/d634d316-4a0f-11e2-a7b1-00144feab49a.html#axzz2FjmRezeP)

America could now become a net exporter of liquefied natural gas by 2016. Yet this prospect has aroused concern among some US industrial energy users, who are [eager to retain the competitive advantage](http://www.ft.com/cms/s/0/e5a6c1f6-49ec-11e2-a7b1-00144feab49a.html) they currently enjoy from low energy prices. The fear is that LNG exports would lead to higher natural gas prices in the US, even though shipping and liquefaction costs mean foreign consumers would always pay more than domestic buyers. Some in US industry are now opposed to any LNG exports at all.

We believe, however, that LNG exports can buttress US geopolitical leadership and trade, while at the same time continuing to support low domestic natural gas prices and a renaissance in domestic manufacturing. In addition LNG exports offer the potential for lower global carbon emissions.

The US Department of Energy has confirmed this view in a new report examining the wisdom of exporting LNG. The report, which echoes many other studies, concludes that exports would broadly benefit the US economy with little impact on domestic natural gas prices. It states that [LNG exports](http://www.ft.com/intl/cms/s/0/33fee9b4-3f16-11e2-9214-00144feabdc0.html) could generate up to $47bn in new economic activity in the US by 2020. The more gas exported, the greater the benefits to the US, the report concluded.

The reason is simple. Today much natural gas is flared or shut in because there is not a domestic market for the gas produced as a byproduct of exploration and production of liquid hydrocarbons. By capturing this lost natural gas for export, the US would ultimately reduce price volatility, bolster its long-term reserves and enable its natural gas sector to reach its growth potential.

Meanwhile by becoming an exporter, the US would fill a vital role for its allies in Europe and Asia, many of which are dangerously dependent for natural gas on foreign powers frequently hostile to US interests. Reliance on Russian gas in Ukraine and the EU would be likely to diminish, for example.

#### LNG exports strengthens US international trade.

Levi 12 (Michael, Senior fellow for energy and environment at the Council on Foreign Relations. “A Strategy for U.S. Natural Gas Exports.” Brookings Institute. 4 June 2012, http://www.brookings.edu/~/media/research/files/papers/2012/6/13%20exports%20levi/06\_exports\_lev)

These figures suggest that U.S. LNG exports could become influential if they increased to toward the higher end of the range discussed thus far in this paper, and if exports were priced off the U.S. benchmark. The United States could potentially assume a large market share in several pivotal markets, and perhaps be dominant in one or more. This would¶ give consumers greater leverage in their negotiations with¶ other suppliers. At a minimum, by diversifying the pricing of their imports, it would partly insulate LNG importers from oil¶ market fluctuations.

Potential U.S. exports might also be exploited for wider¶ strategic gain under the right conditions. Current U.S. law¶ makes approval of exports to markets with which the United¶ States has free-trade agreements essentially automatic, but¶ requires extensive review and subsequent approval for exports¶ to others. This ought to give the United States leverage in broader trade negotiations with would-be importers. For¶ example, Japanese officials and market participants have¶ noticed that the recent U.S.-South Korea free-trade agreement¶ will give South Korea special access to U.S. natural gas exports,¶ and have inquired as to whether Japanese participation in the¶ Trans-Pacific Partnership (TPP) trade arrangement would¶ give them similar privileges (Interviews 2011). Regardless of whether Japanese and other policymakers are wise in wanting¶ direct access to U.S. exports, this sort of dynamic can only strengthen the U.S. hand in international trade negotiations, which can lead to broader gains for U.S. consumers and firm

#### US trade is key to stop protectionism and World War 3

Pazner 8 (Michael J., Faculty – New York Institute of Finance, Financial Armageddon: Protect Your Future from Economic Collapse, p. 137-138)

The rise in isolationism and protectionism will bring about ever more heated arguments and dangerous confrontations over shared sources of oil, gas, and other key commodities as well as factors of production that must, out of necessity, be acquired from less-than-friendly nations. Whether involving raw materials used in strategic industries or basic necessities such as food, water, and energy, efforts to secure adequate supplies will take increasing precedence in a world where demand seems constantly out of kilter with supply. Disputes over the misuse, overuse, and pollution of the environment and natural resources will become more commonplace. Around the world, such tensions will give rise to full-scale military encounters, often with minimal provocation. In some instances, economic conditions will serve as a convenient pretext for conflicts that stem from cultural and religious differences. Alternatively, nations may look to divert attention away from domestic problems by channeling frustration and populist sentiment toward other countries and cultures. Enabled by cheap technology and the waning threat of American retribution, terrorist groups will likely boost the frequency and scale of their horrifying attacks, bringing the threat of random violence to a whole new level. Turbulent conditions will encourage aggressive saber rattling and interdictions by rogue nations running amok. Age-old clashes will also take on a new, more heated sense of urgency. China will likely assume an increasingly belligerent posture toward Taiwan, while Iran may embark on overt colonization of its neighbors in the Mideast. Israel, for its part, may look to draw a dwindling list of allies from around the world into a growing number of conflicts. Some observers, like John Mearsheimer, a political scientists at the University of Chicago, have even speculated that an “intense confrontation” between the United States and China is “inevitable” at some point. More than a few disputes will turn out to be almost wholly ideological. Growing cultural and religious differences will be transformed from wars of words to battles soaked in blood. Long-simmering resentments could also degenerate quickly, spurring the basest of human instincts and triggering genocidal acts. Terrorists employing biological or nuclear weapons will vie with conventional forces using jets, cruise missiles, and bunker-busting bombs to cause widespread destruction. Many will interpret stepped-up conflicts between Muslims and Western societies as the beginnings of a new world war.

### Scenerio 2 is Economic Collapse

#### Expensive production cost has sent US Manufacturing jobs overseas and ceased momentum for economic recovery

Raval 12 (Anjli, “US manufacturing down for third month.” Financial Times. 4 September 2012. WEB.

http://www.ft.com/intl/cms/s/0/cf6ea54e-f68f-11e1-9fff-00144feabdc0.html#axzz2FjmRezeP)

The US manufacturing sector contracted for the third straight month in August, the longest slide since the recession ended, in line with recent data showing a pullback in business spending.

The Institute for Supply Management said its manufacturing index declined to 49.6, the lowest level since July 2009. That followed readings of 49.8 in July and 49.7 in June and came in below expectations of 50. A reading below 50 indicates contraction.

There have not been three straight readings below this contraction line since May-July 2009.

ISM surveys more than 300 manufacturing companies on employment, production, new orders, supplier deliveries and inventories.

“The data continue to show a significant loss of momentum in manufacturing in recent months, although the overall index is still well above the low 40s levels typically associated with recession,” said Jim O’Sullivan, chief US economist at High Frequency Economics.

The index averaged 55.2 in 2011 compared with 53.6 in the first five months of 2012.

The new orders measure, an indicator of future demand, fell to 47.1, the lowest since April 2009, from a reading of 48 the prior month as a result of the slowdown in China. Concerns about China’s growth, combined with uncertainty in Europe and worries about the US deficit, have made corporations more cautious about investment and hiring.

Ben Bernanke, Federal Reserve chairman, said last week that the country’s economic situation was “far from satisfactory”, confirming the Fed’s bias toward a [further round of quantitative easing](http://blogs.ft.com/gavyndavies/2012/09/02/us-monetary-policy-at-an-important-turning-point/).

Manufacturing accounts for about 12 per cent of US gross domestic product.

“August’s ISM manufacturing index gives the Fed another green light to launch QE3 next week. Such action is warranted, but it won’t dramatically alter the economic landscape,” said Paul Dales, senior US economist at Capital Economics.

Slowing orders pushed the production index down to 47.2, the weakest since May 2009, from 51.3 in July.

The employment index fell to 51.6, the lowest since November 2009, from 52 the prior month. Analysts said this was particularly concerning after July’s payroll report suggested that conditions were improving.

#### Currently the US have seen the possibility of a ‘manufacturing renaissance’, thanks to the shale gas boom and the abundance of cheap domestic energy.

Carey 12 (Julie M., an energy economist with Navigant Economics. “How Unconventional Oil And Gas Is Supercharging The U.S. Economy” Forbes. 13 December 2012. WEB.

<http://www.forbes.com/sites/energysource/2012/12/13/how-unconventional-oil-and-gas-is-transforming-the-u-s-economy/>)

The second wave of investment will focus on infrastructure to address new supply locations, delivering the product to market, and capitalizing on the near term opportunities arising from lower energy costs. [Billions](http://blogs.forbes.com/billions/) of dollars of investments specifically targeting capital projects in this wave are being announced weekly. Substantial investment in crude oil, natural gas and natural gas liquids pipelines will be required in order to build, expand, and reverse pipelines to address the new supply source locations.  Natural gas processing plants that separate natural gas liquids (NGL) from natural gas will be required to address the growing production levels and new supply regions. In addition, LNG facilities will begin to export natural gas, and there is a potential opportunity for natural gas-to-diesel plants.

In addition to these traditional areas of investment, creative market solutions are also emerging, such as rail transportation of crude oil. While railroads may serve primarily as a near to mid-term solution in the wake of long-lead time pipeline solutions, they are nimble competitors with small capital requirements that can be quickly deployed to utilize the country’s far-reaching rail networks. With only a few years needed to recover capital costs on investment, the competitive landscape changes and rail transportation rates could be reduced after pipelines enter the market to keep railroads competitive and still profitable. These factors suggest that railroads could be in the crude oil transportation business for the long haul.

During this second wave, there will be a manufacturing resurgence, in part because of lower expected energy costs. Other macroeconomic factors will also be at work—including relative improvement in U.S. labor rates as labor markets tighten in China and other countries. Petrochemical plants will become cost effective competitors in the worldwide market and will be a significant component of the manufacturing investment story. Manufacturing facilities will be built to manufacture pipes, drill bits, valves and other required infrastructure materials. In addition, other manufacturing plants will likely be built solely as a play on the expectation of relatively low energy costs into the future. Such suspects could include those whose energy costs are large portion of production costs: semiconductors, plastics, and LCD televisions. The trend includes linking production and energy resources in an efficient manner, and moving production closer to market demand in order to minimize transportation related costs.

#### Manufacturing Jobs are key to the US Economy and to technological innovation.

Ettlinger & Gordon 11 (Michael Ettlinger is the Vice President for Economic Policy at American Progress. Kate Gordon Senior Fellow at American Progress. Most recently, Kate was the VP for Energy Policy at American Progress “The Importance and Promise of American Manufacturing.” Center for American Progress. April 2011. PRINT.

http://cdn.theatlantic.com/static/mt/assets/business/CAP\_Importance\_and\_Promise\_of\_American\_Manufacturing%20.pdf)

Manufacturing is critically important to the American economy. For generations,¶ the strength of our country rested on the power of our factory floors—both the¶ machines and the men and women who worked them. We need manufacturing¶ to continue to be a bedrock of strength for generations to come. Manufacturing is woven into the structure of our economy: Its importance goes far beyond what happens behind the factory gates. The strength or weakness of American manufacturing carries implications for the entire economy, our national security, and the well-being of all Americans.

Manufacturing today accounts for 12 percent of the U.S. economy and about¶ 11 percent of the private-sector workforce. But its significance is even greater than these numbers would suggest. The direct impact of manufacturing is only a¶ part of the picture

First, jobs in the manufacturing sector are good middle-class jobs for millions of Americans. Those jobs serve an important role, offering economic opportunity to hard-working, middle-skill workers. This creates upward mobility and broadens¶ and strengthens the middle class to the benefit of the entire economy. What’s more, U.S.-based manufacturing underpins a broad range of jobs that¶ are quite different from the usual image of manufacturing. These are higher-skill¶ service jobs that include the accountants, bankers, and lawyers that are associated with any industry, as well as a broad range of other jobs including basic research and technology development, product and process engineering and design, operations and maintenance, transportation, testing, and lab work.

Many of these jobs are critical to American technology and innovation leadership.¶ The problem today is this: Many multinational corporations may for a¶ period keep these higher-skill jobs here at home while they move basic manufacturing¶ elsewhere in response to other countries’ subsidies, the search for cheaper¶ labor costs, and the desire for more direct access to overseas markets, but eventually¶ many of these service jobs will follow. When the basic manufacturing leaves the feedback loop from the manufacturing floor to the rest of a manufacturing operation—a critical element in the innovative process—is eventually broken.¶ To maintain that feedback loop, companies need to move higher-skill jobs to where they do their manufacturing.

And with those jobs goes American leadership in technology and innovation. This¶ is why having a critical mass of both manufacturing and associated service jobs in¶ the United States matters. The “industrial commons” that comes from the crossfertilization¶ and engagement of a community of experts in industry, academia, and¶ government is vital to our nation’s economic competitiveness.

Manufacturing also is important for the nation’s economic stability. The experience¶ of the Great Recession exemplifies this point. Although manufacturing¶ plunged in 2008 and early 2009 along with the rest of the economy, it is on the¶ rebound today while other key economic sectors, such as construction, still¶ languish. Diversity in the economy is important—and manufacturing is a particularly important part of the mix. Although manufacturing is certainly affected¶ by broader economic events, the sector’s internal diversity—supplying consumer¶ goods as well as industrial goods, serving both domestic and external markets— gives it great potential resiliency.

Finally, supplying our own needs through a strong domestic manufacturing sector¶ protects us from international economic and political disruptions. This is most¶ obviously important in the realm of national security, even narrowly defined¶ as matters related to military strength, where the risk of a weak manufacturing¶ capability is obvious. But overreliance on imports and substantial manufacturing trade deficits weaken us in many ways, making us vulnerable to everything from exchange rate fluctuations to trade embargoes to natural disasters.

#### Economic downturn will trigger a global nuclear war and extinction.

Bearden 00 – Director of Association of Distinguished American Scientists

[T. E., “The Unnecessary Energy Crisis: How to Solve It Quickly,” Space Energy Access Systems, http://www.seaspower.com/EnergyCrisis-Bearden.htm]

History bears out that desperate nations take desperate actions. Prior to the final economic collapse, the stress on nations will have increased the¶ intensity and number of their conflicts, to the point where the arsenals of weapons of mass destruction (WMD) now possessed by some 25 nations, are almost¶ certain to be released. As an example, suppose a starving North Korea launches nuclear weapons upon Japan and South Korea, including¶ U.S. forces there, in a spasmodic suicidal response. Or suppose a desperate China — whose long-range nuclear missiles (some) can reach the United States —¶ attacks Taiwan. In addition to immediate responses, the mutual treaties involved in such scenarios will quickly draw other nations into the conflict, escalating it significantly. Strategic nuclear studies have shown for decades that, under such extreme stress conditions, once a few nukes are launched, adversaries¶ and potential adversaries are then compelled to launch on perception of preparations by one's adversary. The real legacy of the MAD concept is this side of the MAD coin that¶ is almost never discussed. Without effective defense, the only chance a nation has to survive at all is to launch immediate full-bore pre-emptive strikes¶ and try to take out its perceived foes as rapidly and massively as possible. As the studies showed, rapid escalation to full WMD exchange occurs. Today, a great¶ percent of the WMD arsenals that will be unleashed, are already on site within the United States itself. The resulting great Armageddon will destroy¶ civilization as we know it, and perhaps most of the biosphere, at least for many decades.

## Advantage 2- Environment

#### Lack of pipeline infrastructure leading to massive increases in natural gas flaring

Park 12 ENERGYOIL AND NATURAL GAS¶ Increase in "Flaring" Tied to Pipeline Shortages¶ by Minjae Park May 14, 2012 <http://www.texastribune.org/texas-energy/oil-and-natural-gas/increase-gas-flaring-due-gas-pipeline-shortages/>

With oil production on the rise in Texas, drilling companies are increasingly burning off the natural gas that surfaces with the oil because they can't get pipelines in place fast enough to transport it.¶ “There’s just more demand for pipelines than they can currently keep up with,” said James Mann, a lawyer who represents pipeline companies.¶ But the process — called "flaring" — is raising concerns among environmentalists, who say it releases nitrogen oxide, sulfur oxide and other emissions with public health risks into the atmosphere.¶ “There is clearly a cause for concern with the sheer magnitude of flaring that is taking place due to the potential air quality and climate impacts," Ramon Alvarez, a scientist at the Environmental Defense Fund, wrote in an e-mail to the Tribune. ¶ The number of flaring permits approved by the Texas Railroad Commission has increased sharply in recent years, from 107 in fiscal year 2008 to 651 in fiscal 2011, according to Ramona Nye, an agency spokeswoman. This corresponds with a dramatic increase in demand for drilling permits. ¶ ¶ The Railroad Commission issued 9,347 drilling permits in the long-active Permian Basin last year, up from 3,369 in 2009. The West Texas region, which is 250 miles wide and 300 miles long, has generated at least 260 million barrels of oil in each of the last three years. ¶ The gushing flow from the Eagle Ford Shale, an oil field 50 miles wide that stretches 400 miles along southeast Texas, is more recent, made possible by a drilling technique known as hydraulic fracturing. Oil production from the Eagle Ford Shale has spiked from 130,802 barrels in 2004 to more than 30 million barrels last year. Drilling permits issued for the shale area have also risen dramatically in recent years, from 26 in 2008 to 2,826 in 2011.¶ Pipeline companies have struggled to keep pace, the result of infrastructure needs like processing plants to remove contaminants and compression systems to pump natural gas. Even before construction of a pipeline can begin, there are legal issues to take care of, Mann said, such as acquiring the rights to private land and obtaining the various government permits. Materials, equipment and workers must also be available.¶ One indication of how much capacity is needed in the Eagle Ford Shale is the amount of money that pipeline companies plan to invest there. The Texas Pipeline Association’s 39 member companies have so far announced $6 billion in investments for the oil-rich shale field, said Thure Cannon, the association’s executive director.¶ Oil companies could pause or reduce oil production in order to capture more of the natural gas byproduct. Unlike oil, gas is difficult to transport using trucks. But their preferred option — especially with oil prices so high — is not to lower production; it's to flare the gas while building a gas pipeline.¶ “When crude oil is $100” a barrel, Mann said, “nobody wants to shut in their oil wells to wait for a gas gathering line to take away their gas.”

#### **New wells have led to flaring being on the rise for the first time since 2008.**

Vukmanovic 2012 (Oleg 5/3/2012, Reuters, Huffington Post, Natural Gas Flaring Rises Globally, Fueled By U.S. Shale Boom, <http://www.huffingtonpost.com/2012/05/03/natural-gas-flaring-rises-globally_n_1474838.html>, gem)

LONDON, May 2 (Reuters) - The U.S. shale energy boom is fuelling a rise in the burning of waste gas after years of decline, a World Bank source told Reuters ahead of the release of new data, giving environmentalists more ammunition against the industry. Global gas flaring crept up by around 2 billion cubic meters (bcm) in 2011, the first rise since 2008, preliminary data from the World Bank shows. The increase is mostly due to the rise in shale oil exploration in North Dakota, propelling the United States into the top 10 gas flaring countries along with Russia, Nigeria and Iraq. The preliminary data - which will be released in detail later in May - shows that global gas flaring crept up to around 140 billion cubic meters (bcm) in 2011, up from 138 bcm the previous year.

#### Massive global gas boom inevitable- only a reduction in flaring can ensure it does not lead to a spike in GHG emissions

Reuters 12 World to gain from gas glut if regulation right: IEA By Henning Gloystein and Oleg Vukmanovic¶ LONDON/OSLO | Tue May 29, 2012 11:54am EDT¶ (Reuters) <http://www.reuters.com/article/2012/05/29/us-energy-gas-iea-idUSBRE84S0XJ20120529>

A boom in unconventional natural gas over the next 20 years could see the United States and others benefit from cheaper energy while the importance of the Middle East declines, the International Energy Agency (IEA) said on Tuesday.¶ Growth in shale in the United States and China could match gains made in conventional gas in Russia, the Middle East and North Africa combined, IEA Chief Economist Fatih Birol told Reuters.¶ "Unconventional gas will fracture the status quo, and will be a complete game changer with major geopolitical implications," Birol said.¶ High natural gas prices have helped spur investment in previously unavailable, unconventional gas reserves that include tight-gas, shale gas, and coalbed methane resources.¶ Yet the boom can only run if measures are taken to ensure these reserves are extracted in a socially and environmentally satisfactory way, the IEA said in a report.¶ "Greenpeace opposes the exploitation of unconventional gas reserves because the impacts have not been fully investigated, understood, addressed and regulated," the environmental group said. "The IEA report essentially affirms that these concerns are real but falls short of actually addressing them."¶ The IEA admits that unconventional gas production will pump 12 percent more greenhouse gases into the atmosphere, compared with conventional extraction methods, but says the figure could drop below 3.5 percent if producers follow its recommendations and stop venting gas and minimize flaring.¶ Speaking at the report's launch in London on Tuesday, the IEA's Executive Director Maria van der Hoeven said the most important thing is for gas to substitute more polluting fossil fuels such as coal in electricity generation.¶ Falling prices driven by an unconventional gas glut would help displace coal, Hoeven said, potentially slashing emissions further.¶ But gas must be accompanied by renewables and the roll out of carbon capture and storage (CCS) technology, an as yet unproven technology designed to trap exhausts from coal-fired power stations, in order to limit a long-term global rise in temperatures to 2 degrees Celsius above pre-industrialized levels.¶ "Renewables are indispensable to this goal and that means government measures for supporting renewable energy must be there for years to come...because otherwise lower gas prices will make renewables uncompetitive," Hoeven said.¶ The IEA report underscored the economic gains offered by the rapid growth in unconventional gas, with "countries that were net importers of gas in 2010, including the United States, gaining the wider economic benefits associated with improved energy trade balances and lower energy prices."¶ Australia, India, Canada and Indonesia are also set for big increases in unconventional gas production, it said.¶ "The share of Russia and countries in the Middle East in international gas trade declines from around 45 percent in 2010 to 35 percent in 2035," the report said.¶ For Europe, where shale is expected to play a smaller role than elsewhere, Birol said that growth could still be enough to offset a decline in conventional gas output.¶ "The main benefit for Europe will that there will be lower gas import prices, putting pressure on oil-indexation of traditional gas supply contracts," Birol said.¶ Europe's main gas suppliers, Russia and Norway, sell their gas under long-term contracts that are linked to the oil market.¶ Because oil prices have remained firm on strong demand from emerging economies while European gas prices have fallen on weak domestic demand, European gas suppliers are forced to sell imported gas to their customers at a loss, and utilities lose money when generating electricity from imported gas.¶ The IEA said this price structure could change as a result of a global unconventional gas glut.¶ The report said that natural gas could become the world's second most important energy source after oil within the next two decades, should the right rules be introduced to ensure safe and environmentally sustainable use of unconventional gas resources.¶ Global gas demand could rise by over 50 percent between 2010 and 2035 and reach 25 percent of the world's energy mix, overtaking coal to become the second largest primary energy source after oil, the IEA said.¶ Growth in the gas sector would equal the combined growth in the coal, oil and nuclear sectors and outstrip expansion in the renewable energy sector, the IEA said.¶ "Production of unconventional gas, primarily shale gas, more than triples to 1.6 trillion cubic feet in 2035," the IEA said.¶ "The share of unconventional gas in total gas output rises from 14 percent today to 32 percent in 2035."¶ It noted the majority of the gas production increases would come after 2020 as producers needed time to develop a commercial unconventional gas sector.¶ Expanding unconventional gas production at such rapid rates will require a total of 1 million unconventional wells to be produced by 2035 globally, the IEA said. That's compared to the 500,000 such wells drilled in the past 20 years.¶ Of that 1 million, the U.S. will require 300,000 and China 200,000, with the remainder shared with the rest of the world.¶ The U.S., the world's biggest shale gas producer, currently has just 100,000 unconventional wells in operation.¶ COSTLY REGULATION NEEDED¶ The IEA said the rules needed to ensure unconventional gas production is both environmentally and socially acceptable would raise production costs.¶ "I hope that the industry will recognize that it will be tested against the worst practices in the sector," Birol said.¶ The report said such measures "could increase the overall financial cost of developing a typical shale gas well by an estimated 7 percent."¶ Yet should the industry fail to implement strict enough rules, the IEA said a lack of public acceptance would likely mean that only a small share of unconventional gas resources would become available for development.¶ As a result, unconventional gas production rises only slightly above current levels by 2035, sending worldwide gas import bills 60 percent higher than in the scenario of an unconventional gas glut.¶ Yet Birol said he was "cautiously optimistic" that industry and governments would introduce the needed measures to enable a global gas boom.¶ Shale gas is extracted using a technology called hydraulic fracturing or fracking, which involves pumping large amounts of water and chemicals underground.¶ The technology has been blamed for causing slight earthquakes and been banned in several countries, but it has also transformed the U.S. energy sector and caused domestic energy prices to plummet in recent years.

### Scenario 3 is Warming

**The best and most recent study has found that warming is real and anthropogenic with absolute certainty**

**Gleckler et al 2012** (P.J., B. D. Santer, C. M. Domingues, D.W. Pierce, T. P. Barnett, J. A. Church,

K. E. Taylor, K. M. AchutaRao, T. P. Boyer, M. Ishii and P. M. Caldwell [Program for Climate Model Diagnosis and Intercomparison, Lawrence Livermore National Laboratory; Antarctic and Climate Ecosystems Cooperative Research Centre; Centre for AustralianWeather and Climate¶ Research andWealth from Oceans Flagship; Climate¶ Research Division, Scripps Institution of Oceanography; Indian Institute of Technology; National Oceanographic Data Center, NOAA; Climate Research Department,¶ Meteorological Research Institute]; Human-induced global ocean warming on multidecadal timescales; DOI: 10.1038/NCLIMATE1553; kdf)

Large-scale increases in upper-ocean temperatures are evident¶ in observational records1. Several studies have used¶ well-established detection and attribution methods to demonstrate¶ that the observed basin-scale temperature changes¶ are consistent with model responses to anthropogenic forcing¶ and inconsistent with model-based estimates of natural¶ variability2–5. These studies relied on a single observational¶ data set and employed results from only one or two models.¶ **Recent identification of systematic instrumental biases6¶ in expendable bathythermograph data has led to improved¶ estimates of ocean temperature variability and trends7–9 and¶ provide motivation to revisit earlier detection and attribution¶ studies.We examine the causes of ocean warming using these¶ improved observational estimates**, together with results from¶ a large multimodel archive of externally forced and unforced¶ simulations. The time evolution of upper ocean temperature¶ changes in the newer observational estimates is similar to¶ that of the multimodel average of simulations that include the¶ effects of volcanic eruptions. **Our detection and attribution¶ analysis systematically examines the sensitivity of results to¶ a variety of model and data-processing choices. When global¶ mean changes are included, we consistently obtain a positive¶ identification (at the 1% significance level) of an anthropogenic¶ fingerprint in observed upper-ocean temperature changes**,¶ **thereby substantially strengthening existing detection and¶ attribution evidence.¶** We examine volume average temperature anomalies (1T) for¶ the upper 700m of the global ocean (see Methods). Figure 1a¶ compares uncorrected observational 1T estimates ISH-UNCOR¶ (ref. 10) and LEV-UNCOR (ref. 11) with improved versions,¶ ISH (ref. 8) and LEV (ref. 9), which incorporate corrections for¶ expendable bathythermograph (XBT) biases. The bias-corrected¶ temperature analysis7 from a third group (DOM) is also shown.¶ Bias corrections have a substantial impact on the time evolution¶ of 1T, particularly during the 1970s–1980s, when they markedly¶ reduce spurious decadal variability. ¶ As shown below, **these bias adjustments have important¶ implications for detection and attribution (D&A) studies**. Although¶ there are no significant differences between the 1T trends (which¶ range from 0.022 to 0.028 ◦C per decade) in the three improved¶ observational data sets, Fig. 1a illustrates that substantial structural¶ uncertainties remain. The impact of different XBT bias corrections¶ is a major source of this uncertainty12. Another important component of observational uncertainty¶ relates to the sparseness of ocean temperature measurements and¶ to the different methods used to objectively infill data where¶ and when measurements are not available13–15. ISH and LEV use¶ objective mapping techniques to carry out infilling, generating¶ anomalies that are biased towards zero in data-sparse regions.¶ The infilling method of DOM employs statistics of observed¶ ocean variability estimated from altimeter data. We compare the¶ spatially complete infilled estimates (1TIF) with subsampled 1T¶ data (1TSS) restricted to available in situ measurements (see¶ Methods). Not surprisingly, the 1TSS variability in Fig. 1b is¶ greater than that of 1TIF, particularly at the times/locations of the¶ sparsest sampling (early in the record and in the southern oceans;¶ Supplementary Fig. S1).¶ We use results from phase 3 of the Coupled Model Intercom-¶ parison Project (CMIP3; see Methods and Supplementary Informa-¶ tion) to obtain information on the behaviour of 1T in unforced¶ (control) simulations and in externally forced twentieth-century¶ runs (20CEN). **External forcing is by a variety of anthropogenic¶ factors (primarily greenhouse gases and sulphate aerosols). In some¶ models, the applied forcing also includes natural changes in volcanic¶ aerosols and solar irradiance**. The seven CMIP3 models (with the¶ data required for our analysis) incorporating the effects of volcanic¶ eruptions (VOL) in the 20CEN simulations uptake less heat than¶ the six that do not (NoV)16.

#### Flaring creates acid rain, global warming, and causes species extinction.

Nigerian Compass 2012 (April 23, nigeriancompass.org, <http://www.compassnewspaper.org/index.php/features/life-style/2481-towards-achieving-zero-level-gas-flare>, Towards achieving zero level gas flare.)

Other health hazards and effects associated to gas flaring and oil pollution includes; increased environmental temperature, heat-wave/mental heat and of course global warming. This condition dehydrates surroundings, habitats, ecosystem, food chain, nitrogen cycle, oxygen cycle, flora and fauna, animals and vegetation that thereby cause their actual deaths or poor yields of environmental resources. The presence of carbon and traces of nitrogen and sulfur in natural gas leads to the production of various oxides and sulfides, when these chemicals are inhaled through the flaring it settles in nostrils down to the lungs as thick carbon monoxide, which blocks the passage of oxygenated blood to the heart of human beings and animals. The oxides and sulfides in hydrocarbon with gaseous chemicals when flared combine with water in the atmosphere to form various types of corrosive acids such as nitric and sulfurous acids that irritates the human skin and prevent plants chlorophyll from functioning. This also leads to cancer of the skin and corrode galvanized roofing sheets close to oil and gas production zones like Egi-Ali-Ogba Clan communities in Rivers State. Gaseous acids like cadmium, benzene and calcium also pollutes streams, natural water ways like swamps, creeks, ponds, including arable farm lands rivers soil nutrients and thereby killing fishes, aquatic animals and plants and stave human beings of source of water.

#### That causes human extinction.

Tickell 8 [Oliver, Climate Researcher, The Guardian, 8-11, “On a planet 4C hotter, all we can prepare for is extinction”, http://www.guardian.co.uk/commentisfree/2008/aug/11/climatechange]

We need to get prepared for four degrees of global warming, Bob Watson told the Guardian last week. At first sight this looks like wise counsel from the climate science adviser to Defra. But the idea that we could adapt to a 4C rise is absurd and dangerous. Global warming on this scale would be a catastrophe that would mean, in the immortal words that Chief Seattle probably never spoke, "the end of living and the beginning of survival" for humankind. Or perhaps the beginning of our extinction. The collapse of the polar ice caps would become inevitable, bringing long-term sea level rises of 70-80 metres. All the world's coastal plains would be lost, complete with ports, cities, transport and industrial infrastructure, and much of the world's most productive farmland. The world's geography would be transformed much as it was at the end of the last ice age, when sea levels rose by about 120 metres to create the Channel, the North Sea and Cardigan Bay out of dry land. Weather would become extreme and unpredictable, with more frequent and severe droughts, floods and hurricanes. The Earth's carrying capacity would be hugely reduced. Billions would undoubtedly die. Watson's call was supported by the government's former chief scientific adviser, Sir David King, who warned that "if we get to a four-degree rise it is quite possible that we would begin to see a runaway increase". This is a remarkable understatement. The climate system is already experiencing significant feedbacks, notably the summer melting of the Arctic sea ice. The more the ice melts, the more sunshine is absorbed by the sea, and the more the Arctic warms. And as the Arctic warms, the release of billions of tonnes of methane – a greenhouse gas 70 times stronger than carbon dioxide over 20 years – captured under melting permafrost is already under way. To see how far this process could go, look 55.5m years to the Palaeocene-Eocene Thermal Maximum, when a global temperature increase of 6C coincided with the release of about 5,000 gigatonnes of carbon into the atmosphere, both as CO2 and as methane from bogs and seabed sediments. Lush subtropical forests grew in polar regions, and sea levels rose to 100m higher than today. It appears that an initial warming pulse triggered other warming processes. Many scientists warn that this historical event may be analogous to the present: the warming caused by human emissions could propel us towards a similar hothouse Earth

#### Evaluate climate change through the precautionary principle

**Friedman** 2009 (Thomas; Going Cheney on Climate; December 8; www.nytimes.com/2009/12/09/opinion/09friedman.html; kdf)

This is not complicated. **We know that our planet is enveloped in a blanket of greenhouse gases that keep the Earth at a comfortable temperature.** As we pump more carbon-dioxide and other greenhouse gases into that blanket from cars, buildings, agriculture, forests and industry, more heat gets trapped. **What we don’t know, because the climate system is so complex, is what other factors might over time compensate for that man-driven warming**, or how rapidly temperatures might rise, melt more ice and raise sea levels. It’s all a game of odds. We’ve never been here before. **We just know two things: one, the CO2 we put into the atmosphere stays there for many years, so it is “irreversible” in real-time** (barring some feat of geo-engineering); **and two, that CO2 buildup has the potential to unleash “catastrophic” warming.** **When I see a problem that has even a 1 percent probability of occurring and is “irreversible” and potentially “catastrophic,” I buy insurance**. That is what taking climate change seriously is all about. If we prepare for climate change by building a clean-power economy, but climate change turns out to be a hoax, what would be the result? Well, during a transition period, we would have higher energy prices. But gradually we would be driving battery-powered electric cars and powering more and more of our homes and factories with wind, solar, nuclear and second-generation biofuels. **We would be much less dependent on oil dictators who have drawn a bull’s-eye on our backs; our trade deficit would improve; the dollar would strengthen; and the air we breathe would be cleaner. In short, as a country, we would be stronger, more innovative and more energy independent. But if we don’t prepare, and climate change turns out to be real, life on this planet could become a living hell. And that’s why I’m for doing the Cheney-thing on climate — preparing for 1 percent.**

### Scenario 4 is Biodiversity

#### Acid rain causes destruction in multiple areas of the environment; all marine life will die

Lindstrom, 11 - Professor of Political Science with Saint John's University/College of Saint Benedict since 2005, Ph.D from North Arizona University (Matthew, Encyclopedia of the U.S. Government and the Environment, 2011, //)

**Acid rain has been a fully realized ecological problem** for only a few decades. The effects of acid rain have been recorded in the eastern United States, Great Britain, Germany, and elsewhere. More recently, **acid rain is becoming a significant problem** in China, Japan, and other rapidly industrializing nations like India and Taiwan. **Scientists fear the negative effects will continue to worsen unless governments and industries work together. Acid rain can affect bodies of water by increasing the acidity until fish and marine vegetation can no longer survive**. As acidity rises, **forms of aquatic life struggle to survive**. At pH 5.5, bottom-dwelling bacterial decomposers start to disappear, leaving organic debris to collect. In such cases, **plankton, the base of the aquatic system, lack its food source, negatively affecting all marine life**. Further, if the composed leaf litter problem persists, **toxic metals such as aluminum and mercury can be released and seep into the groundwater. At pH levels of 4.5 and below, nearly all aquatic life will die**. **Acid rain also greatly affects forests and soil by washing away vital nutrients and replacing them with harmful toxins. Some of the great forests in Germany and western Europe are** believed to be **dying from acid deposition**, which is a result of a combination of wet and dry acid pollution. Scientists believe **essential nutrients for plant life are washed away by acid rain, which can also affect crop yields**. During this process, **toxic metals are transferred from the atmosphere to forests. These** deposits of lead, zinc, copper, chromium, and aluminum, among others, **retard growth of local plant life**, as well as mosses, algae, nitrogen-fixing bacteria, and fungi, all of which contribute to the health of forests.

#### Biodiversity loss outweighs all other impacts

Clarke 2012 (Chris [Director of Desert Biodiversity]; Is There a Bigger Environmental Issue Than Climate Change? Scientists Say Yes.; May 15; www.kcet.org/updaily/the\_back\_forty/wildlife/is-there-a-bigger-issue-than-climate-change-scientists-say-yes.html; kdf)

Climate change is a serious issue, but a couple of recent studies remind us that it may not be the biggest threat to life on Earth as we know it. It may in fact be essentially a symptom of a broader problem, one which hasn't gotten nearly as much attention from either green groups or the environmentally oriented press. What's the issue? Loss of biodiversity, also known as extinction. And ignoring it to focus on climate change can have dire consequences, especially in the California desert.¶ Over the last few years an increasing number of scientists have suggested that the planet's collapsing biological diversity may well be the largest and most intractable environmental problem we face. As threatening as climate change may be, it could be mitigated substantially by making a few wrenching but nonetheless straightforward changes in the way we do our business. (The fact that we lack the political will to make even those changes says more about our collective shortsightedness than about the nature of the problem itself.)¶ In the interests of full disclosure, I should say that for the last few months I've been working to launch a non-profit, Desert Biodiversity, to promote and defend the biological diversity of North America's deserts. I'm not an objective observer here. The deserts of North America are an uncharted biodiversity hotspot, largely intact and with a surprising wealth of species: think "rainforests without rain." And they're ground zero for industrial renewable energy development propelled by national concern about climate change. We have here a situation in which proponents of a solution to a huge environmental problem may actually be worsening a bigger problem.¶ Despite my non-disinterested point of view, I think it's arguable that the collapse in biodiversity has deeper roots. Even if we transform our society to a carbon-neutral one, as long as our numbers continue to swell and our demand for comforts continues, other species will pay the ultimate price. As we convert more and more of the planet to resources for our own use, we deprive other species of the habitat they need to survive. Most biologists agree that species are going extinct at at least 100 times the "background rate," perhaps more like 1,000. As one species after another dies out, the total biological diversity of the planet dwindles, and the resilience of the ecosystems on which we depend suffers. The pace of extinction hastens and the web of life unravels even faster.¶ A recent study out of UC Santa Barbara lends support to the idea that biodiversity and the resilience of the environment are deeply intertwined. The study, published in Nature on May 2, found that ecosystems that had lost species suffered losses in plant productivity. (This is important: plant productivity -- the use of sunlight to turn water and carbon dioxide into organic matter - is the basis of most life on Earth.) Researchers found that the greater the loss of plant species in an ecosystem, the lower plant productivity became. As postdoctoral fellow Jarret Byrnes said in a press release from UCSB's National Center for Ecological Analysis and Synthesis (NCEAS),¶ "For the past 15 years, ecologists have built a rich understanding of the consequences of humans driving species extinct. What we didn't know before this paper is whether those impacts of species loss rank up there with those from the major drivers of environmental change. Our work shows that, indeed, the impacts of species loss look to be on par with many kinds of human-driven environmental change."¶ In other words, according to NCEAS, loss in biodiversity poses just as big a threat to the planet as climate change or pollution. NCEAS isn't alone in this assessment. In January, biodiversity researchers from around the world convened in Copenhagen to coordinate a United Nations response to the extinction crisis. In a statement released after that meeting, Carsten Rahbek -- Director of the Center for Macroecology, Evolution and Climate at the University of Copenhagen -- said "The biodiversity crisis is probably a greater threat than global climate change to the stability and prosperous future of mankind on Earth."

## THUS THE PLAN

The United States Federal Government should clarify that natural gas pipeline projects will be evaluated on a case-by-case approach removing the bias toward incremental pricing. Incremental pricing will apply to projects that provide benefits only to new customers, projects that provide benefits for only existing customers will use rolled in pricing mechanisms, and projects that benefit both new and existing customers will be financed using a fair allocation of the costs based on cost-causation and benefits received.

## Contention 3- Solvency

#### Current FERC policy sends mixed price signals deterring investment- the plan’s pricing rules can provide the incentives necessary for pipeline infrastructure expansion

Tye and Garcia 07 Copyright (c) 2007 Federal Energy Bar Association¶ Energy Law Journal¶ 2007¶ 28 Energy L. J. 1¶ LENGTH: 22979 words¶ ARTICLE: WHO PAYS, WHO BENEFITS, AND ADEQUATE INVESTMENT IN NATURAL GAS INFRASTRUCTURE¶ NAME: William B. Tye \*Jose Antonio Garcia \*\*¶ BIO: \* William B. Tye is a Principal at The Brattle Group in Washington DC. Ph.D. in economics from Harvard University. He specializes in regulatory and antitrust issues. Dr. Garcia is a Senior Associate at The Brattle Group's Washington DC office

The 1999 Policy Statement sets out a "threshold requirement" in establishing the public convenience and necessity for existing pipelines proposing an expansion project. n115 The threshold requirement established that pipelines must prove that the project can proceed without "subsidies" from their existing customers. n116 According to the Commission, this will generally mean that expansions will be priced incrementally so that expansion shippers will have to pay the full costs of the project, without subsidy from the existing customers through rolled-in pricing. n117¶ If this threshold requirement is interpreted literally to enforce a generalized bias in favor of incremental pricing, it would not constitute an appropriate general standard for establishing the public convenience and necessity for pipelines proposing an expansion project. The appropriate test for public convenience and necessity should consider not only the benefits that can be financed out of charges to new customers, but all the costs and benefits of a project. The Commission recognizes this problem when it discusses what it believes to be the weakness of the prior policy of relying chiefly on contracts to demonstrate demand for an expansion project:¶ ¶ the reliance solely on long-term contracts to demonstrate demand does not test for all the public benefits that can be achieved by a proposed project. The public benefits may include such factors as the environmental advantages of gas over other fuels, lower fuel costs, access to new supply sources or the connection of new supply to the interstate grid, the elimination of pipeline facility constraints, better service from access to competitive transportation options, and the need for an [\*30] adequate pipeline infrastructure. The amount of capacity under contract is not a good indicator of all these benefits. n118¶ ¶ A bias in favor of incremental pricing arising from literal application of the "threshold requirement" to all circumstances is not consistent with economic efficiency, because it fails to consider that many projects create significant benefits that go beyond direct benefits to incremental customers.¶ Commissioner Bailey's dissent from the 1999 Policy Statement points to the problem. As the policy initially appeared to read, it is a "threshold requirement" that the project can proceed without subsidies from their existing customers, which "will usually mean that the project would be incrementally priced ... ." n119 As Commissioner Bailey noted, "There is too little recognition here that some types of construction projects are not designed solely for new markets or customers, that existing customers can benefit from some projects, and that rolled-in pricing may still be appropriate." n120¶ Perhaps in response to this concern, the clarification of the 1999 Policy Statement later recognized the fact that some projects combine an expansion for new service with improvements for existing customers. n121 Clearly, however, a policy biased in favor of incremental pricing would never account for such benefits if the "threshold question" is whether the project can proceed without "subsidies" from their existing customers, which will usually require that the project be incrementally priced. Such projects might never get past the threshold, if it is taken literally. n122¶ A "threshold requirement," if it has any application, should apply only to projects that benefit new customers only. Rather than use the threshold test to create a bias towards projects that can only be financed incrementally, the appropriate test is to ensure that total benefits to existing customers, new customers, and the public justify the costs of the project. By failing to consider benefits to both new and existing customers, a bias in favor of incremental pricing regardless of circumstances sends the wrong price signals to the market. It leads to inefficient investment and contracting decisions that discourage investments in pipeline infrastructure that would also provide system benefits, grid efficiency, and reliability. Hybrid projects that confer benefits on both new and existing customers may never get constructed if the "threshold requirement" is taken literally, because it requires that only new customers pay for the benefits they receive. n123 The remedy for this possible confusion is relatively simple and is consistent with the 1999 Policy Statement. Cost recovery must follow benefit creation whenever it is possible (i.e., the parties who cause the need for or receive the [\*31] benefit from new investment should pay the costs). The simplest case is one in which the investment grants benefits only to existing ratepayers. Here, the only real solution is to roll-in the costs. Likewise, a project that confers benefits only on new ratepayers could be financed by incremental treatment to hold existing ratepayers harmless. The in-between cases, where benefits are conferred on existing and new customers should be dealt with on a case-by-case approach to allocate the costs fairly.¶ Administrative and regulatory costs are also a factor. Depending on the facts, the two approaches can have significant differences with regard to the burdens they place on regulators and their staff, the potential for regulatory in-fighting and gaming, and encouragement of strategic behavior by the parties. Many other factors can enter in as a practical matter, and can be dealt with under an unbiased, flexible approach.¶ Correcting the possible confusion arising from a literal application of the "threshold requirement" can be readily achieved within the context of the 1999 Policy Statement. The Commission's "Clarification Order," makes clear that there are three types of expansion projects. n124 Further, footnote 12 of the original Order clearly indicates that "projects designed to improve existing service for existing customers ..." should be granted rolled-in treatment. n125 The Commission needs only to clarify that the "threshold requirement," if it implies a bias in favor of incremental pricing, should apply only to its first category of projects - expansion projects designated to serve only new customers. The balanced approach we recommend can thus be easily accommodated without revising the 1999 Policy Statement. Indeed, actual cases often reflect this more sensible approach as discussed above.

#### Removing the bias towards incremental pricing key to solve gas price volatility

Tye and Garcia 07 Copyright (c) 2007 Federal Energy Bar Association¶ Energy Law Journal¶ 2007¶ 28 Energy L. J. 1¶ LENGTH: 22979 words¶ ARTICLE: WHO PAYS, WHO BENEFITS, AND ADEQUATE INVESTMENT IN NATURAL GAS INFRASTRUCTURE¶ NAME: William B. Tye \*Jose Antonio Garcia \*\*¶ BIO: \* William B. Tye is a Principal at The Brattle Group in Washington DC. Ph.D. in economics from Harvard University. He specializes in regulatory and antitrust issues. Dr. Garcia is a Senior Associate at The Brattle Group's Washington DC office

The natural gas industry is currently facing closely interrelated concerns. Short-term and long-term issues are mainly price volatility, lack of adequate basic infrastructure connecting supply sources with final demand, and tight supply. Whereas tight supply might motivate price spikes, underinvestment in basic infrastructure, both storage and transmission, contributes to the problem. These legitimate challenges need to be addressed to ensure that there is sufficient infrastructure in place in advance of when it is needed. The Commission's Order No. 636 and Order No. 637, by granting greater flexibility to shippers in the delivery of gas across a pipeline system, has blurred the difference between what customers under "old" contracts can do with their capacity rights and what a shipper under a "new" incremental contract can do. n158 By failing to impose costs on existing customers, any bias in favor of incremental pricing may push too many costs onto new users, while existing customers enjoy benefits at no cost. The result of allocating no costs to existing customers would discourage the development of needed basic infrastructure. The inability of the market to improve the core energy infrastructure will lead to more recurrent and severe crises, reinforce price volatility, and dramatically increase risk in the market.¶ Cost recovery should follow benefit creation whenever it is possible, without bias toward rolled-in or incremental pricing. The simplest case is one in which the investment grants benefits only to existing ratepayers. Here, the only real solution as the Commission recognizes, is to roll-in the costs. At the other extreme we have the projects that confer benefits only on new ratepayers. In principle, unless there are extenuating circumstances, brand-new pipeline projects or expansion projects that are not part of a mainline system and are undertaken only for new customers should be financed on an incremental basis. Finally, the in-between cases, where benefits are conferred on pre-existing and new customers, should be dealt with on a case-by-case approach to allocate the costs fairly. In actual gas markets characterized by underinvestment in basic core infrastructure, the huge cost of not having enough justifies implementation of an unbiased pricing policy.¶ Correcting any perceived general bias in favor of incremental pricing can be easily accomplished within the framework of the 1999 Policy Statement. To erase all doubt, the Commission should clarify that projects will be evaluated by an unbiased case-by-case approach that differs according to the three circumstances identified by the Commission in its Clarification Order. Any bias toward incremental pricing would apply only to projects that provide benefits only to new customers. As always, projects to create system benefits for existing [\*42] customers would be automatically rolled in. Hybrid projects would be financed by a fair allocation of the costs based on cost-causation and benefits received. The implementation of these policies could be improved by clarifying the implementation of some of the methodologies to eliminate uncertainties and possible errors, as discussed above. The recent EPAct 2005 has not provided any further clarification on the practical implementation of the threshold requirement for pipelines proposing new gas infrastructure projects.

#### The plan is critical to massive investment in natural gas infrastructure- regulatory reform solves bottlenecks and prevents system failures and results in pipeline expansion

Tye and Garcia 07 Copyright (c) 2007 Federal Energy Bar Association¶ Energy Law Journal¶ 2007¶ 28 Energy L. J. 1¶ LENGTH: 22979 words¶ ARTICLE: WHO PAYS, WHO BENEFITS, AND ADEQUATE INVESTMENT IN NATURAL GAS INFRASTRUCTURE¶ NAME: William B. Tye \*Jose Antonio Garcia \*\*¶ BIO: \* William B. Tye is a Principal at The Brattle Group in Washington DC. Ph.D. in economics from Harvard University. He specializes in regulatory and antitrust issues. Dr. Garcia is a Senior Associate at The Brattle Group's Washington DC office

The issue of who should pay for natural gas pipeline capacity expansions and how the rates should be structured has been a subject of debate among interested parties during the past few years. The issue is whether the cost of a pipeline expansion should be borne only by the new expansion customers (incremental rates), or whether a pipeline company can spread the cost of providing the new service over all its customers, both existing and new (rolled-in rates).¶ On September 15, 1999, the Federal Energy Regulatory Commission (the FERC or the Commission) issued a Policy Statement, Certification of New Interstate Natural Gas Pipeline Facilities (1999 Policy Statement). n1 The 1999 [\*3] Policy Statement was a refinement of a policy statement issued in 1995 (1995 Policy Statement). n2 Before the FERC's 1999 Policy Statement, the Commission applied a presumption in favor of rolled-in rates when the cost impact of the new facilities would result in a rate impact on existing customers of five percent or less and some system benefits would occur. The 1999 Policy Statement, on the other hand, established that the threshold applicable to existing pipelines is whether the project can proceed without subsidies from their existing customers. This generally means that expansion projects will be priced incrementally, so that expansion shippers will have to pay the full costs of the project, without subsidy from existing customers that could lead to uneconomic expansion and discourage entry by new pipeline companies. However, the 1999 Policy Statement acknowledges that there are cases where costs can be rolled-in (for instance, "inexpensive expansibility" made possible because of earlier costly construction, existence of vintage capacity, or where facilities are needed only to improve service for existing customers). n3 The absence of pipeline-to-pipeline competition has also been presented as a justification to permit rolled-in pricing.¶ The relevant academic literature on pricing of capacity pipeline expansions, as well as the more general literature on public utility pricing, shows that the desirability of rolled-in or incremental pricing as the most efficient and equitable policy depends on the particular characteristics of the project at issue and the particular ratemaking goals the author treats as paramount. It also supports the idea of considering all of the costs and benefits of a project in the test of public convenience and necessity. Any bias in favor of incremental pricing might then prove as harmful as any bias in favor of rolled-in treatment. An analysis of the relevant economic principles and their implementation in specific cases leads to the conclusion that a generalized bias towards incremental pricing is neither economically efficient nor equitable: (i) forcing pipelines to support new projects financially without relying on charges from existing customers fails to consider that many projects create significant benefits that go beyond just direct benefits to incremental customers; (ii) it may promote inefficient subsidization from new customers to existing customers; (iii) it would promote a risk-reward imbalance among industry participants that would strongly discourage the investment in pipeline infrastructure necessary to achieve system benefits and grid efficiency; (iv) it may promote undue discrimination in favor of existing customers who impose the same incremental costs but pay lower rates; and (v) it fails to achieve an equitable sharing of the costs and benefits of new additions since existing customers do not pay for the benefits they enjoy.¶ The natural gas industry is currently facing short-term and long-term interrelated concerns that can have disastrous consequences on domestic manufacturing competitiveness and consumer benefits: mainly, price spikes and price volatility, lack of adequate basic infrastructure connecting supply with demand, insufficient gas supply and the high vulnerability to a numerous range of hazards (for instance, coordinated terrorist attacks on energy infrastructures, [\*4] natural disasters - hurricanes, earthquakes, floods, landslides, forest fires - or unintentional human errors).¶ The burden of the risk of cost recovery under incremental pricing, the forced roll-in of successful projects - i.e., projects in which incremental revenues are in excess of incremental costs - to confer their net benefit to existing customers, the possibility of later switching methods under "changed circumstances," the reluctance of pipeline customers to sign long-term contracts and the increased contractual flexibility granted to shippers during the last five years due to the Commission's open access policies Order 636 n4 and Order 637 n5 will tend to discourage the efficient investment of pipeline expansion to prevent bottlenecks, to assure system reliability, and to serve future demand additions. The huge cost of not having enough investment in core infrastructures justifies the immediate reconsideration of any policy that would create a bias in favor of incremental pricing. The implementation of an unbiased pricing policy will provide better incentives to the market participants to invest in needed basic infrastructures that will ultimately increase the flexibility of the energy system. This flexibility adds both reliability and security to the energy network.

#### Expanded infrastructure key to successful flaring reduction

Farina 2010 (Michael; Leader, Fuels Center for Excellence Global Strategy and Planning GE Flare Gas Reduction; <http://www.ge-energy.com/content/multimedia/_files/downloads/GE%20Flare%20Gas%20Reduction%2001-24-2011.pdf>

The technology to address the problem¶ exists today and the policy reforms required¶ are largely understood. However, deeper¶ issues regarding infrastructure development¶ and market design hinder progress in the¶ places where gas flaring is most rampant.¶ Many constructive efforts to reduce flaring¶ are underway, yet on the current path it¶ will likely take a decade or more to minimize¶ this wasteful practice. However, with greater¶ global attention and concerted action, largescale¶ gas flaring can be largely eliminated¶ in as little as five years.