# LNG Trade off DA

## 1NC Shell

### Uniqueness

#### Increase in LNG is coming inevitably, several empirics

**Broking 8-13-12** (**The writer is Associate Director, Commodities & Currencies, of the Economic Times, “The economic times”,** <http://articles.economictimes.indiatimes.com/2012-08-13/news/33182642_1_natural-gas-cubic-metres-prices>)

Fossil fuels have been powering the world for more than a century. Though coal and crude oil dominate the non-renewable energy segment, the usage of [natural gas](http://economictimes.indiatimes.com/topic/natural%20gas) has been increasing steadily due to the rising concern over emissions leading to global warming. Natural gas, an odourless and colourless fossil fuel, contains largely [methane](http://economictimes.indiatimes.com/topic/methane) and emits lesser carbon dioxide on burning than coal and crude oil, which emit 45% and 30%, respectively.¶ http://articles.economictimes.indiatimes.com/images/pixel.gif¶ Natural gas is found deep under the earth in [oil fields](http://economictimes.indiatimes.com/topic/oil%20fields) and coal beds, and is measured in billion cubic metres (bcm). If the gas contains hydrocarbons other than methane, it is called wet natural gas, but if it has only methane, it is termed dry natural gas. At the end of 2011, the world's natural gas reserves stood at 208.4 trillion cubic metres compared with 196.1 bcm discovered till the end of 2010.¶ The world production of natural gas has increased at a compounded annual growth rate (CAGR) of 2.46% since 2005 and was 3,276.2 bcm in 2011. Of this, the US contributed 19%, closely followed by Russia at 18.4%, Canada at 5% and Iran at 4.3%. India had a marginal share of 1.4%.¶ The increase in global production, especially in the US, was due to technical improvement and continued drilling in the shale plays, areas that have a high concentration of natural gas and crude oil. The supply in the US grew at 7.7 % in 2011. A significant rise in output was also witnessed in Qatar and Russia.¶ The global consumption of the fossil fuel has witnessed a marginal growth at a CAGR of 2.17% since 2005 and stood at nearly 3,222.9 bcm in 2011. The consumption slumped in 2009 to 2,930.6 bcm due to the slowdown of the global economy.¶ However, it has gone up again over the past two years due to the implementation of new environmental regulation, which emphasises the reduction in emission of sulphur dioxide and nitrogen oxide.¶ The consumption in North America grew by 3.2% in 2011 compared with that in 2010 as lower prices drove the demand for the fuel. The consumption in China, Saudi Arabia and Japan grew by 21.5%, 13.2% and 11.6%, respectively, but fell to 9.9 % in the European Union due to the weak economy, high prices of gas and the financial debt crisis. The per capita consumption of natural gas in India was 43.11 cubic metres in 2011.

### Link

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### Internal Link

#### Congressional action key in making this project run smoothly which is dependent on demand

Lee 12, (Lee O, Vice president of IPAA, IPAA is the independent petroleum association of America, <http://ipaa.org/issues/comments/NaturalGasCommission.php>)

Developing domestic natural gas supply will be an essential component to meet future domestic natural gas demand. This challenge requires action by Congress to encourage and allow supply to be developed. Broadly stated, it will require access to the national resource base, the capital to produce it, and a reasonable regulatory framework.¶ Access to the national resource base is significantly dependent upon resources underlying federal lands, both onshore and offshore. Access to onshore resources is constrained by a mosaic of restrictions that arise in the federal leasing and permitting process. Some of these arise because of the complexity of the process and the failure to adequately fund the agencies that must administer it under increasingly more complicated standards. Others, however, are a result of planned efforts to use the complexity of the process to delay or derail development. Access to key offshore resources is prohibited by moratoria.¶ Domestic natural gas cannot be developed without adequate capital. A stable federal permitting process is a key step. Without a belief that projects can be completed in a time certain, external capital will not be attracted to this inherently high risk industry. Similarly, internal capital - income from production - is dependent in part on federal tax policy and royalty policy.¶ The regulatory framework must be well reasoned. Environmental management of natural gas production remains an important component of supply development. However, novel interpretations of federal law and burdensome procedural requirements that do not benefit the environment must be avoided. For example, interpretations of the regulation of hydraulic fracturing under the Safe Drinking Water Act and of stormwater management during the construction of exploration and production facilities under the Clean Water Act are clearly at odds with the intent of these laws.¶ Detailed responses to the questions presented in this document address more comprehensively the challenges to natural gas supply. Recommendations are included for actions that the 109th Congress should take to improve natural gas supply

#### LNG expansion key to prevent terrorist attack

Scott **Hadley** 1/11/**08** (<http://www.venturacountystar.com/news/2008/jan/11/lng-opponents-cite-us-report-on-terror-danger/>)

Critics of a proposed liquefied natural gas terminal offshore of Ventura County are pointing to a recent Government Accountability Office report as another reason to sink the terminal, which, they say, could become a target for terrorist attacks. The GAO report does not focus on liquid natural gas, but it tells how thinly spread the Coast Guard is in its ability to protect against terrorist threats. The report looks at the vulnerabilities of the nation's ports, offshore oil, tankers and LNG facilities. The danger is real, said Rep. Lois Capps, D-Santa Barbara "This Government Accountability Office report confirms what I've been saying all along — the LNG proposals off our coast present a significant threat to the safety of our community," Capps said. "Before these proposals move forward, we must ensure the Coast Guard has the resources and assets in place to prevent a potential terrorist attack. But even more important, instead of relying on dirty and dangerous foreign LNG, we must reduce our energy consumption by increasing efficiency at natural gas plants and increasing the use of renewable energy sources."

### Terror Impact

#### **LNG attacks have the force of Nuclear weapons**

**Reynolds 04**, (Sep. 20 2004, Providence Journal, Energy Bulletin, <http://www.energybulletin.net/stories/2004-09-20/lloyds-executive-likens-lng-attack-nuclear-explosion>)

A terrorist attack on an LNG tanker "would have the force of a small nuclear explosion," according to the chairman of Lloyd's, a British insurer of natural gas port facilities like the ones being proposed in Fall River and Providence.¶ The assertion, which is contested by industry experts, was in a speech that the chairman, Peter Levene, delivered last night to business leaders in Houston.¶ Levene described Texas as a "state at risk" and said that securing its remote oil facilities is a "particular challenge."¶ "Gas carriers too, whether at sea or in ports, make obvious targets," said Levene. "Specialists reckon that a terrorist attack on an LNG tanker would have the force of a small nuclear explosion."

# 2NC

## Uniqueness

#### Ext. Broking 12: That LNG is inevitable, we couldn’t stop it if we wanted to

#### LNG is a promising technology – continuing to increase in the US.

Sophia **Ruester and** Anne **Neumann**, Department of Business and Economics, Dresden University of Technology, Chair of Energy Economics and Public Sector Management, 6-13-**08**, “The prospects for liquefied natural gas development in the US”, Science Direct, [Crystal Xia]

The increasing supply–demand gap in the US is currently met by imports from Canada, Mexico, and offshore LNG. LNG imports more than doubled between 2000 (220 bcf) and 2006 (585 bcf, or 2% of total imports). The share of LNG in total supply—delivered from various sources mainly in the Atlantic Basin—is expected to increase to approximately 20% by 2020. In 2006, Canada contributed 3.5 tcf and Mexico only 2 bcf. Canadian production (and therefore supplies) is expected to decline. Mexican imports are expected to increase significantly when LNG will be delivered to Mexican facilities adjacent to the California border where the regasified LNG will supply southern California.

#### The US needs to secure natural gas and LNG.

Sophia **Ruester and** Anne **Neumann**, Department of Business and Economics, Dresden University of Technology, Chair of Energy Economics and Public Sector Management, 6-13-**08**, “The prospects for liquefied natural gas development in the US”, Science Direct, [Crystal Xia]

The US will become a much larger player in the globalizing natural gas market as importing regions compete for supplies. Within this market environment, the challenge for North American investors is to secure the right amount of LNG delivered as needed. We observe that the global super majors are already engaged along the entire LNG value chain (Ruester and Neumann, 2006), controlling upstream liquefaction, midstream shipping, and downstream regasification capacities. There will be little spare capacity on the export side available for contract with new entrants. New business models like the operation of regasification terminals as “tolling facilities” will appear in the competitive US natural gas market.¶ Even though prices have increased and are expected to stay well above the levels of the pre-2000 era, the US will continue to rely on natural gas to both ensure supply security and mitigate emissions. Reports from the Intergovernmental Panel on Climate Change on the devastating pace of climate change make natural gas the fuel of choice for electric generation, thus calling for LNG capacity to be built now.

## Link Wall

### Links – RE decreases NG Demand

#### Renewable or alternative energy will significantly reduce natural gas demand.

Ryan **Wiser**, Mark **Bolinger**, Matt **St. Clair**, *Ernest Orlando Lawrence Berkeley National Laboratory*, January 20**05**, <<<http://www.osti.gov/energycitations/servlets/purl/838985-WxPCpP/native/838985.PDF>>>

Renewable energy (RE) and energy efficiency (EE) have historically been supported because of their perceived economic, environmental, economic-development, and national-security benefits. ¶ Recently, extreme price volatility in wholesale electricity and natural gas markets has led to discussions about the potential risk mitigation value of these clean energy resources. Deepening concerns about the ability of conventional North American gas production to keep up with demand have also resulted in a growing number of voices calling for resource diversification (see, e.g., Bernstein, Holtberg, & Ortiz 2002; Henning, Sloan & de Leon 2003; NARUC 2003; NPC 2003a). ¶ R[enewable] E[energy]\* and EE are a direct hedge against volatile and escalating gas prices because they reduce the need to purchase variable-price natural gas-fired electricity generation, replacing that generation with fixed-price RE or EE resources (see, e.g., Bolinger, Wiser, & Golove 2003; Awerbuch 2003). In addition to this direct contribution to price stability, by displacing marginal gas-fired generation, RE and EE can reduce demand for natural gas and thus indirectly place downward pressure on gas prices.3 ¶ Many recent modeling studies of increased RE and EE deployment have demonstrated that this “secondary” effect of putting downward pressure on natural gas prices could be significant, with the consumer benefits from reduced gas prices in many cases more than offsetting any increase in electricity costs caused by RE and/or EE deployment. As a result, this price effect is increasingly cited as justification for policies promoting RE and EE. Yet, to date, little work has focused on reviewing the reasonableness of this effect as it is portrayed in various studies, nor have studies attempted to benchmark that output against economic theory. This paper is a first attempt to address these two issues.

### Links – AE decreases NG Prices

#### Renewables decrease demand for natural gas.

Union of Concerned Scientists, 8-26-05, “Renewable Energy Can Help Ease Natural Gas Crunch”, http://www.ucsusa.org/clean\_energy/clean\_energy\_policies/renewable-energy-can-help-ease-natural-gas-crunch.html, [Crystal Xia]

Because increased renewable energy use reduces the demand for natural gas, and creates new competitors to traditional power plants, increasing renewable energy would reduce natural gas prices. Achieving the 10 percent RES could reduce gas prices by 1.9 percent ($0.12 per million Btu) compared to business as usual in 2020. A 20 percent standard could reduce natural gas prices by as much as $0.25/million Btu, resulting in cumulative gas bill savings of $15 billion (Fig. 5) through 2025. Under current EIA forecasts, renewable energy begins to displace new coal-fired power plants (which become economically competitive) instead of natural gas facilities after 2020. As a result, renewable energy has less of an impact on natural gas prices in these later years, but it continues to provide total energy bill savings to consumers from lower electricity prices, and even greater air pollution reduction benefits.

### Links – Wind Decreases NG Demand

#### Wind power trades off with natural gas.

Peter **Urban**, Connecticut Post staff writer, 7-19-20**08**, “Delegation Fighting Offshore Drilling,” [Connecticut Post]. << <http://www.connpost.com/localnews/ci_9928346>>>

Pickens launched a media campaign last week to promote his plan to break America's addiction to foreign oil through a combination of more domestic drilling, conservation, nuclear power and renewable energy sources.

"We currently use natural gas to produce 22 percent of our electricity. Harnessing the power of wind to generate electricity will give us the flexibility to shift natural gas away from electricity generation and put it to use as a transportation fuel — reducing our dependence on foreign oil by more than one-third," Pickens says.¶ Shays has also introduced a comprehensive bipartisan energy reform bill, H.R.1945, that would: improve fuel efficiency of passenger vehicles, offer incentives to purchase energy-efficient appliances, and repeal tax breaks for industries, offer incentives for the purchase of energy-efficient appliances and encourage transit-oriented development corridors in urban areas. Lieberman has co-sponsored similar legislation (S.1554) in the Senate.¶ Shays has also introduced a bill, H.R. 6495, that would provide tax incentives for commuters to carpool, ride public transit, bicycle or telecommute.

### Links – Nuclear Decreases NG Demand

#### Nuclear energy will tradeoff with natural gas as taxes and penalties on burning fossil-fuels increase.

Kevin **Spear**, Sentinel Staff Writer, 7-18-20**08**, “Orlando Utility Commission customers should get ready for bigger bills,” [Orlando Sentinel]. [MM] <<<http://www.orlandosentinel.com/community/news/ucf/orl-ouc1808jul18,0,5537378.story>>>

OUC is negotiating to buy a big enough slice of the new plants to serve a total of 90,000 homes. Also in OUC's long-range planning is spending about $500 million on renewable energy, including solar power, bio-fuels and methane gas produced by rotting garbage at Orange County's landfill. Utility executives see the nuclear and clean-energy options as the best responses to a future likely to bring more price increases in coal and natural gas and a tax or penalty on burning fossil fuels that contribute to global warming.

#### Nuclear power will reduce use of natural gas.

Ronnie **Dubs**, St. Petersburg Times Staff writer, 5-21-20**08**, *St. Petersburg Times*, “We will need power from nuclear plants,” St. Petersburg, Florida, [LexisNexis Academic].

The Florida Public Service Commission should approve the construction of the nuclear plant proposed by Progress Energy. The case can be made that the situation is really different this time around and the PSC should approve this additional capacity in the face of an economic downturn. It is hard to argue with slower growth projections, but we should consider the following scenarios:¶ The first thing we need to seriously consider is the avoidance of new power generation capacity using natural gas. Although natural gas is the energy resource of choice for new power generation plants, we are now facing a downturn in domestic natural gas production capacity. Energy companies are drilling more holes than ever but they have been unable to increase domestic production of natural gas for a number of years. The addition of nuclear power plants will mitigate our dependence on costly domestic natural gas and imported LNG to replace domestic production.¶ The second strategic issue of alternate energy for transportation is very important for utility companies. The most compelling business case for cheaper transportation is the battery-operated automobile for commuting short distances. These new cars are designed for short commutes of less than 100 miles and they will require a battery charge-up after every trip. This demand is not yet quantified, but significant progress will be made in the next 10 years, the time it will take to complete a nuclear power plant.¶ The long-term nature of nuclear power plant development will allow us time to recover from a routine economic downturn and allow us to plan for new forms of transportation. I recommend that we add this nuclear capacity to avoid further commitment to natural gas at higher prices and to provide the added capacity for alternative energy platforms based on electricity. We should all think long-term and take control of our future by supporting Progress Energy's project in Levy County.

### Links – Solar Decreases NG Demand

#### Solar Power virtually stops the use of natural gas.

Sarah **Lovanoza**, (MBA in Sustainable Management) Staff writer Clean Technica, 3-27-20**08**, [Clean Technica]. <<<http://cleantechnica.com/2008/03/27/solar-thermal-electricity-can-it-replace-coal-gas-and-oil/>>> [MM]

One of the most common arguments against large-scale use of renewable energy is that it cannot produce a steady, reliable stream of energy, day and night. Ausra Inc. does not agree. They believe that solar thermal technology can supply over 90% of grid power, while reducing carbon emissions.

“The U.S. could nearly eliminate our dependence on coal, oil and gas for electricity and transportation, drastically slashing global warming pollution without increasing costs for energy,” said David Mills, chief scientific officer and founder of Ausra.

You may be wondering, how will we have electricity at night or during cloudy weather?  
Will we use large banks of batteries or burn candles?

The ability to utilize solar thermal technology after the sun sets is made possible by a storage system that is up to 93% efficient, according to Ausra’s executive vice president John O’Donnell.

High efficiency is achieved because solar thermal plants do not need to convert energy to another form in order to store it and do not rely on battery technology. Flat moving reflectors or parabolic mirrors focus solar energy to generate heat. This heat generates steam that turns turbines, thus generating an electric current.

### **Links – US key to global gas prices**

#### **US gas demand key to global natural gas demand**

Booz & Company**, leading global management consulting firm. 06/23/**08**. “The Emerging Global Gas Market.” [Takumi Murayama]**

That is one of the conclusions of a comprehensive new analysis of global gas markets by a Booz & Company team of energy experts. The authors find that current projections of future U.S. energy consumption fail to take into account the impact of any new system to manage CO2 emissions. A so-called cap-and**-**trade regime, in which power producers would be forced to pay for CO2 emissions, could precipitate greatly increased demand for natural gas at the expense of dirtier fuels such as coal. Although nuclear power remains a long-term option, the lead-time on the installation of new nuclear plants will mean natural gas is the only viable alternative in the short to medium term.

In turn, greater U.S. gas consumption could upset the current delicate balance of demand and supply in international markets, placing greater pressure on Europe to expand its efforts to secure long-term gas supply agreements with countries such as Russia. Heightened U.S.-Europe competition could also mark the end of today’s independent regional markets—where demand is more or less fully satisfied by local supply—and the rise of markets that are much more global and interdependent.

The Middle East currently accounts for about two-fifths of global gas reserves, and its role as a central player is unlikely to diminish in the years ahead. Iran, by itself, has 15.5 percent of the global total, and Qatar enjoys 14 percent. The region is likely to continue to supply markets in Europe and the U.S., but there are a number of circumstances under which supplies could be limited or disrupted: if gas is used increasingly for oil production, if oil-associated gas is constrained by OPEC production quotas, or if political instability increases**.** No less significantly, ongoing economic growth in the Middle East could lead to increased demand from power production facilities and from industries such as petrochemicals and fertilizers. The report finds that falling Middle East supplies could be offset by other sources—by Nigerian liquified natural gas (LNG), in Europe’s case, or by Latin American supplies, in the case of the U.S. But the impact of reduced Middle East supplies could be momentous if combined with greatly increased U.S. demand.

That scenario seems likely if a new administration introduces legislation that has the effect of raising the cost of carbon emissions. Assuming a carbon regime partway between the most and least stringent currently envisaged by U.S. lawmakers, the report predicts that the U.S. would need up to 84 bcm more natural gas by 2015 or 12 percent of OECD Europe demand. That additional demand could be met by marginal suppliers such as Nigeria, Trinidad and Tobago, Egypt, and Algeria—but would eat into volumes currently bound for Europe.

More gas competition between the U.S. and Europe would increase pressure on Europe’s existing relationships with Russia, Algeria, and Norway and make new supply routes, including those with the Caspian region, that much more vital. Greater competition would also lead to more connectivity between U.S. and European markets, upward price pressure, and higher volatility on short-term markets and energy exchanges. The U.S., meanwhile, would need to further diversify its energy portfolio—for example, by looking to suppliers in West and North Africa.

## Internals

### Internals – LNG Global Market

#### An LNG market is developing now

Paul W. **Parfomak**, CRS Specialist in Science and Technology, 5/24/**04** (CRS Report for Congress Liquefied Natural Gas (LNG) in U.S. Energy Policy: Issues and Implications) [S. Page]

LNG’s effectiveness in moderating U.S. gas prices will be determined by global LNG supply, the development of a “spot” market, potential market concentration, and evolving trading relationships. There appears to be sufficient interest among LNG exporters to meet global demand projections, although it remains to be seen which new export projects will be built. An LNG spot market, which may help U. S. companies import LNG cost-effectively, also appears to be growing. Although some industry analysts believe the future LNG market may be influenced by a natural gas cartel, the potential effectiveness of a such a cartel is unclear. Whether exporters cooperate or not, an integrated global LNG market may change trading and political relationships. In a global market, individual country energy polices may affect LNG price and availability worldwide. Trade with LNG exporters perceived as politically unstable or inhospitable to U.S. interests may raise concerns about supply reliability

#### LNG will grow to meet increased demand

Paul W. **Parfomak**, CRS Specialist in Science and Technology, 5/24/**04** (CRS Report for Congress Liquefied Natural Gas (LNG) in U.S. Energy Policy: Issues and Implications) [S. Page]

Natural gas is widely used in the United States for heating, electricity generation, industrial processes, and other applications. In 2002, U.S. natural gas consumption was 22.8 trillion cubic feet (Tcf), accounting for 24% of total U.S. energy consumption. Until recently, nearly all U.S. natural gas was supplied from North American wells and transported through the continent’s vast pipeline network to regional markets. In 2003, however, due to constraints in North American natural gas production, the United States sharply increased imports of natural gas from overseas in the form of liquefied natural gas (LNG). While absolute levels remain small today, growth in LNG imports to the United States is expected by many analysts to accelerate over the next 20 years, reflecting growing domestic demand and expectations for a global expansion in LNG trade.

#### Natural Gas market expanding

Paul W. **Parfomak**, CRS Specialist in Science and Technology, 5/24/**04** (CRS Report for Congress Liquefied Natural Gas (LNG) in U.S. Energy Policy: Issues and Implications) [S. Page]

Projections of accelerated growth in U.S. LNG demand reflect a general expansion in the global natural gas market. According to the EIA’s most recent international forecast “natural gas is expected to be the fastest growing component of world primary energy consumption.” EIA projects global natural gas demand to rise by an average 2.2 percent annually for the next 20 years, with “the most robust growth... among the nations of the developing world,” much of it to fuel electricity generation. A significant part of this global gas demand growth is expected to be met by new supplies of LNG. Long-term projections of global LNG growth vary, but most major energy companies and industry analysts expect global LNG demand to roughly triple during this period, from 5.4 Tcf in 2002, to 15 Tcf or more in 2020. According to EIA projections, 15 Tcf would account for approximately 10% of global natural gas consumption in 2020

### NG Demand key to LNG

#### Demand for natural gas is key to LNG.

Energy Information Administration, 7-10-08, “What is liquefied natural gas (LNG) and how is it becoming an energy source for the United States?”, http://tonto.eia.doe.gov/energy\_in\_brief /liquefied\_natural\_gas\_lng.cfm, [Crystal Xia]

LNG imports to the United States were generally not competitive with domestic supplies of natural gas and pipeline imports from Canada through the 1980s and 1990s, resulting in low levels of these imports during these decades. However, higher natural gas prices in the United States in recent years have attracted larger volumes of LNG imports to this country, including a record U.S. total in 2007 equaling 771 billion cubic feet (Bcf) of natural gas in gaseous form.[1](http://tonto.eia.doe.gov/energy_in_brief/liquefied_natural_gas_lng.cfm#fnotes) Projected growth in the demand for LNG has resulted in companies adding LNG receiving capacity in the United States. Five LNG import terminals currently operate in the United States. All but one of these has recently expanded. In addition, EIA expects at least four new terminals to be operational in the next two years, more than doubling import capacity from 4.7 Bcf per day at the end of 2006 to over 11 Bcf per day at the end of 2008. This increase in LNG receiving capacity provides the potential for growing U.S. LNG imports in coming years, and EIA projects imports of more than 1 trillion cubic feet of LNG by the end of this decade (see figure, "LNG and Pipeline Import Projection").

#### Natural gas demand is key to the use and the development of LNG.

Business Wire, 8-5-07, “In Last Two Decades, LNG Demand Has Experienced 7.7% Annual Growth Spurred by Strong Imports by European Markets”, http://findarticles.com/p/articles /mi\_m0EIN/is\_2007\_Oct\_5/ai\_n27398314, [Crystal Xia]

Natural gas has come a long way from being flared up as a byproduct to a serious

alternative to oil and coal. Continued market growth in all major regions worldwide has driven the demand for natural gas production, which reached almost three trillion cubic meters (tcm) in 2006. With new discoveries in Kazakhstan, Turkmenistan and China, the natural gas reserves have shown upward trend reaching 6.2 tcf. The future market share of natural gas is all set to grow from the current share of 21% driven by the strong demand in Europe and emerging economies in Asia like India and China. In the absence of pipeline infrastructure, most of this demand has to be fulfilled by liquefying gas and supplying it as liquefied natural gas or LNG.

### Terror

#### Ext. Lee 12: Congressional action key and underlined in high demand

#### Ext. Hadley 08: LNG expansion key to prevent terror

## Impact

### Terror

#### Ext. Reynolds 04: That weaponized LNG tankers have the power of nuclear weapons

#### LNG attacks likely in major harbors

Jay **Fitzgerald** 11/7/**03** (<http://www.wildcalifornia.org/pages/page-115>)

A terrorist attack on a giant liquefied natural gas tanker in Boston Harbor likely would devastate nearby neighborhoods in Boston, Charlestown, and Everett, a forthcoming federal study suggests. That directly contradicts two key reports that helped the U.S. Coast Guard justify the resumption of LNG shipments through the harbor in the months after Sept. 11, 2001. Boston Fire Commissioner Paul Christian said he believes the forthcoming study by the National Oceanic and Atmospheric Administration - assuming it withstands scientific review - would end the debate about what would happen if terrorists successfully struck one of the big, distinctive ships. "We are looking at a very intense fire," said Christian, who opposed letting LNG tankers return to the harbor two years ago. The preliminary NOAA study is undergoing peer review. The reports cited by the Coast Guard two years ago were quickly compiled without scientific review in the immediate weeks after the 9-11 terrorist attacks. They minimized the impact of a major spill if an LNG tanker was attacked, saying any resulting fires would be relatively small and contained. But NOAA's study, a summary of which was obtained by the Boston Herald, generally sides with a more devastating scenario long portrayed by Massachusetts Institute of Technology professor emeritus James Fay, said Bill Lehr, a researcher on the NOAA study. Fay, whose work has frequently come under bitter attack by industry groups, has warned that a strike against an LNG tanker - such as the boat bomb used against the USS Cole in 2000 - could spark a huge inferno that would kill and scorch nearby residents, set waterfront buildings ablaze and shoot searing electromagnetic waves into neighborhoods that could spark even more fires.

#### LNG safety isn’t perfect despite what the industry wants you to believe – fatal accidents have occurred before.

Audrey Hudson, staff writer, 1-3-07, “Security found lax at LNG sites”, Washington Times, LexisNexis Academic, [Crystal Xia]

However, at a Cleveland storage facility in 1944, a dike failure leaked liquefied natural gas into the streets and storm sewers, causing an explosion that killed nearly 130 people. At the Cove Point facility in Lusby in 1979, a pump seal failed and the gas vapors were ignited by a worker switching off the circuit breaker, killing him and leaving part of the building in ruins. Liquefied natural gas is natural gas that is cooled to nearly 300 degrees below zero and is less dense than water, because the change in state reduces its volume 600 times, making it more economical to transport. Since the September 11 terrorist attacks, the departments of Transportation and Homeland Security have joint responsibility for LNG terminals, which some critics say pose security threats to nearby communities.

## Other Impact Modules

### LNG Turns environment

#### Natural gas is the most effective method for manufacturing fuel cells

Adams 11, (Thomas, B.S. Chemical Engineering, Michigan State University, Ph.D. Chemical and Biomolecular Engineering, University of Pennsylvania  Combining coal gasification, **natural** **gas** reforming, and solid oxide **fuel** **cells** for efficient polygeneration with CO2 capture and sequestration,)

Several polygeneration process systems are presented which convert natural gas and coal to gasoline, diesel, methanol, and electricity. By using solid oxide fuel cells as the primary electricity generator, the presented systems improve upon a recently introduced concept by which natural gas is reformed inside the radiant cooler of a gasifier. Simulations and techno-economic analyses performed for a wide range of process configurations and market conditions show that this strategy results in significant efficiency and profitability improvements when CO2capture and sequestration are employed. Market considerations for this analysis include variations in purchase prices of the coal and natural gas, sale prices of the products, and CO2 emission tax rates.

#### NG can cut emissions in half

Gardiner 11, (Beth, The Associated Press as a political correspondent in London. She graduated cum laude from [Yale](http://topics.nytimes.com/top/reference/timestopics/organizations/y/yale_university/index.html?inline=nyt-org). 2-22-11, The New York Times, <http://www.nytimes.com/2011/02/21/business/energy-environment/21iht-renogas21.html?_r=0>)

Natural gas is billed by its supporters, including President [Barack Obama](http://topics.nytimes.com/top/reference/timestopics/people/o/barack_obama/index.html?inline=nyt-per), as a clean fuel that could play a big role in a low-carbon future. But others are questioning the environmental credentials of an energy source that, while easier on the atmosphere than [coal](http://topics.nytimes.com/top/reference/timestopics/subjects/c/coal/index.html?inline=nyt-classifier) and [oil](http://topics.nytimes.com/top/news/business/energy-environment/oil-petroleum-and-gasoline/index.html?inline=nyt-classifier), is still a fossil fuel that causes sizable emissions of climate-warming gases. Its backers say it emits only half as much carbon as coal when burned, and some environmentalists agree that it could bridge the gap until cleaner sources slowly come into use.

### Accidents

#### Cross apply 1NC Uniqueness, link and internals, then run as another scenario

#### A. A growing domestic LNG market causes increased safety regulation

Paul W. **Parfomak** and Aaron **Flynn**. 1/28/**04** (Import Terminals: Siting, Safety, and Regulation, RL32205) [S. Page]

Liquefied natural gas (LNG) is a hazardous fuel frequently shipped in large tankers to U.S. ports from overseas. While LNG has historically made up a small part of U.S. natural gas supplies, rising gas prices, current price volatility, and the possibility of domestic shortages are sharply increasing LNG demand. To meet this demand, energy companies have proposed building dozens of new LNG import terminals throughout the coastal United States. But many of these terminals would be built onshore near populated areas, so local communities fear the terminals would expose them to unacceptable safety and security hazards. Potentially catastrophic pool fires or vapor cloud fires could arise from a serious accident or attack on LNG infrastructure. Faced with the widely perceived need for greater LNG imports, and persistent public concerns about LNG safety, Congress is examining the adequacy of safety provisions in federal LNG siting regulation.

#### B. Unsafe LNG risks pool fires, explosions, freezes, and terrorist attacks.

Paul W. **Parfomak** and Aaron **Flynn**. 1/28/**04** (Import Terminals: Siting, Safety, and Regulation, RL32205) [S. Page]

Natural gas is combustible, so an uncontrolled release of LNG poses a hazard of fire or, in confined spaces, explosion. LNG also poses hazards because it is so cold. The likelihood and severity of catastrophic LNG events have been the subject of controversy. While questions remain about the credible impacts of specific LNG hazards, there appears to be consensus as to what the most serious hazards are. Pool Fires. If LNG spills near an ignition source, the evaporating gas in a combustible gas-air concentration will burn above the LNG pool. The resulting “pool fire” would spread as the LNG pool expanded away from its source and continued evaporating. A pool fire is intense, burning far more hotly and rapidly than oil or gasoline fires. It cannot be extinguished — all the LNG must be consumed before it goes out. Because an LNG pool fire is so hot, its thermal radiation may injure people and damage property a considerable distance from the fire itself. Many experts agree that a large pool fire, especially on water (due to heat transfer), is the most serious LNG hazard. Other Safety Hazards. LNG spilled on water could (theoretically) regasify almost instantly in a “flameless explosion,” but an Idaho National Engineering Laboratory report concluded that “transitions caused by mixing of LNG and water are not violent.” LNG vapor clouds are not toxic, but they could cause asphyxiation by displacing breathable air. Such clouds rise in air as they warm, however, diminishing the threat to people on the ground. Extremely cold LNG could injure people or damage equipment through direct contact. The extent of such contact would likely be limited, however, as a major spill would likely result in a more serious fire. The environmental damage associated with an LNG spill would be confined to fire and freezing impacts near the spill since LNG dissipates completely Terrorism Hazards. LNG tankers and land-based facilities could be vulnerable to terrorism. Tankers might be physically attacked in a variety of ways to destroy their cargo— or commandeered for use as weapons against coastal targets. LNG terminal facilities might also be physically attacked with explosives or through other means. Some LNG facilities may also be indirectly disrupted by “cyber-attacks” or attacks on regional electricity grids and communications networks which could in turn affect dependent LNG control and safety systems.

### Russia

#### A. The world’s dependence on Russia is increasing – especially the U.S.

Marshall I. **Goldman**, Kathryn Wasserman Davis Professor of Russian Economics (Emeritus) at Wellesley College, former associate Director of the Davis Center for Russian Studies at Harvard University from 1975 to 2006, M.A. and Ph.D. degrees in Russian studies and economics from Harvard University, honorary Doctor of Laws degree from the University of Massachusetts, Amherst, Fulbright-Hayes Lecturer at Moscow State University, State Department consultant, May 27, **2008**, Petrostate: Putin, Power, and the New Russia, Oxford University Press, Pg. 3-7

But it is not only Europe that finds itself each day becoming more and more dependent on energy exports from Russia. Although the United States is separated from Russia by oceans, it also is beginning to import and consume more and more Russian energy. As in Europe, the United States is trying to reduce its overreliance on energy imports from the Middle East. As part of this diversification, in 2005 the United States imported dose to $8 billion worth of Russian petroleum. In woO, that jumped by 25 percent to $1o billion. True, that represented only 3 percent of our petroleum imports small, but an increase from the 2.2 percent of 2004 and a hint that we are likely to increase imports in the future.' More than that, in woo, LUKoi1, one of Russia largest private oil companies, purchased nearly 3,000 filling stations in the United States from Getty Oil and Mobil and is now busily converting them into LUKoil outlets. It also should be noted that in woO, Russia became the world's largest producer of petroleum, producing more than Saudi Arabia. This is not the first time Russia has produced more petroleum than anyone else. It also reigned as the world's largest producer in the late 1970s and 198os. Even this was not unprecedented. As Table Intro. r indicates, Czarist Russia from 1898 to 1901 also produced more oil than the United States, until then the leader.

#### B. Plan prevents need to import LNG from Russia

Ryan Wiser and Mark Bolinger, research scientists @ Ernest Orlando Lawrence Berkeley National Laboratory

Concerns about the price and supply of natural gas in the US have grown in recent years, and futures and options markets predict high prices and significant price volatility for the immediate future. Whether we are witnessing the beginning of a major long-term nationwide crisis or a costly but shorter-term supply demand adjustment remains to be seen. Results presented in this article suggest that resource diversification, in particular increased investments in renewable energy, could help alleviate the threat of high gas prices over the short and long term. By displacing gas-fired generation, increased deployment of renewable energy is expected to reduce natural gas demand and consequently put downward pressure on gas prices. A review of the economics literature shows that this secondary effect is to be expected and can be measured with the inverse price elasticity of natural gas supply. Because of the respective shapes of long- and short-term supply curves, the long-term price response is expected to be less significant than the shorter-term response. The effect of this natural gas price reductionmay not entirely represent an increase in aggregate economic wealth, and may in part reflect a benefit to natural gas consumers that comes at the expense of natural gas producers**.** Conventional economics does not generally support government intervention for the sole reason of shifting the demand curve for natural gas and thereby reducing gas prices. If policymakers are uniquely concerned about the impact of gas prices on consumers, however, or are concerned about the potentially harmful macroeconomic impacts of higher gas prices or on increasing imports of natural gas, then policies to reduce gas demand may be considered appropriate. It also deserves note that this secondary gas-price-suppression form of risk mitigation is *additional* to the direct risk-reducing benefit of replacing variable-priced natural gas with fixed-price renewable energy.

#### C. Cooperation on LNG is key to U.S.-Russia relations

George W. **Bush,** the president of the United States, February 24, **2005**, “President and President Putin Discuss Strong U.S.-Russian Partnership”, <http://www.whitehouse.gov/news/releases/2005/02/20050224-9.html>, [T-Jacob]

Another important and interesting opportunity is our cooperation in the supplies of liquified natural gas. In the year 2010, 2011, a large amount of liquified natural gas can be supplied from Russia to the United States. Our investment corporation is becoming generally bilateral. The first steps -- but constant steps are being made by Russian companies that are starting to invest their capital into American economy. We have also discussed the status and prospects of Russia's cooperation in science, high-tech; in particular, in the exploration of outer space. In conclusion, I would like to say that I highly appreciate

the outcome of this summit. Later this year, we are going to meet a few more times within the framework of various international fora. I would like to take this opportunity to thank the President of the United States who has accepted the invitation to participate in the festivities on the occasion of the anniversary of the great victory on May 9th in Moscow. This is a natural manifestation of respect of historic memory and the memory of the alliance that bonded our two countries in the years of the second world war.

#### D. US-Russian relations are key to preventing nuclear terrorism and proliferation

David Kramer, Deputy Assistant Secretary for European and Eurasian Affairs, July 12, 2006, “The Future Obit of US Russian Relations”, Speech: US State Depart . David, Deputy Assistant Secretary for European and Eurasian Affairs, “The Future Orbit of US Russian Relations”, Speech: US State Department, July 2. [T-Jacob]

Our cooperation will include the physical protection of nuclear materials, suppressing illicit trafficking of those materials, responding and mitigating the consequences of any acts of nuclear terrorism, and cooperating on the development of the technical means to combat nuclear terrorism, denying safe haven to terrorists, and strengthening our national legal frameworks to ensure the prosecution of such terrorists and their supporters. This initiative serves U.S. national security interests. We have invited partner nations to meet in the fall to elaborate on and endorse a statement of principles for this initiative. It's one we hope to expand.

#### E. Terrorism = extinction

**Alexander 09 (Alexander Prof and Director of Inter-University for Terrorism Studies 3**

**Yonah, Terrorism Myths and Realities, Washington Times, Prof and Director of Inter-UniversityFor Terrorism Studies)**

Last week's brutal suicide bombings in Baghdad and Jerusalem have once again illustrated dramatically that¶ theinternational community failed, thus far at least, to understand the magnitude and implications of theterrorist threats to the very survival of civilization itself.¶ Even the United States and Israel have for decades tendedto regard terrorism as a mere tactical nuisance or irritant rather than a critical strategic challenge to their national securityconcerns. It is not surprising, therefore, that on September 11, 2001, Americans were stunned by the unprecedented tragedyof 19 al Qaeda terrorists striking a devastating blow at the center of the nation's commercial and military powers. Likewise,Israel and its citizens, despite the collapse of the Oslo Agreements of 1993 and numerous acts of terrorism triggered by thesecond intifada that began almost three years ago, are still "shocked" by each suicide attack at a time of intensive diplomaticefforts to revive the moribund peace process through the now revoked cease-fire arrangements (hudna). Why are the UnitedStates and Israel, as well as scores of other countries affected by the universal nightmare of modern terrorism surprised bynew terrorist "surprises"? There are many reasons, including misunderstanding of the manifold specific factors that contributeto terrorism's expansion, such as lack of a universal definition of terrorism, the religionization of politics, double standards of morality, weak punishment of terrorists, and the exploitation of the media by terrorist propaganda and psychological warfare.¶ Unlike their historical counterparts, contemporary terrorists have introduced a new scale of violence interms of conventional and unconventional threats and impact. The internationalization and brutalization of current and future terrorism make it clear we have entered an Age of Super Terrorism (e.g. biological, chemical, radiological, nuclear and cyber) with its serious implications concerning national, regional and global security concerns

### SHELL – LNG ECONOMY

#### A. US LNG imports are expected to rise.

Business Wire, 7-17-08, “Waterborne Energy Predicts Record Spike in U.S. LNG Imports for 2009”, http://www.istockanalyst.com/article/viewiStockNews+articleid\_2410132~title\_ Waterborne-Energy.html, [Crystal Xia]

Waterborne Energy, a Houston-based consulting group that specializes in analyzing LNG markets, is forecasting a big year for U.S. LNG imports in 2009.

"Surprisingly, few industry observers are talking about this production 'bubble,' set to dramatically shift the dynamics of the global LNG market," notes Steve Johnson, president of Waterborne Energy. "We anticipate that between November, 2008, and December, 2009, about 2,868 bcf. of new LNG will be introduced to the marketplace. This should begin to significantly impact the U.S. LNG market by the summer of 2009."

Citing 2008 as an anomaly, Johnson notes that U.S. LNG imports fell short of expectations this year due to delays in new production, rising demand and other unexpected incidents.

Johnson says several LNG projects, already behind schedule, are under pressure to commission facilities and get product online.

"We expect about 117 bcf. per month of new LNG production to be available globally by the end of March 2009."

#### B. Renewable or alternative energy will significantly reduce natural gas prices.

Ryan **Wiser**, Mark **Bolinger**, Matt **St. Clair**, *Ernest Orlando Lawrence Berkeley National Laboratory*, January 20**05**, <<<http://www.osti.gov/energycitations/servlets/purl/838985-WxPCpP/native/838985.PDF>>>

**\*[Paraphrased: One acronym expanded for clarity].**

Renewable energy (RE) and energy efficiency (EE) have historically been supported because of their perceived economic, environmental, economic-development, and national-security benefits.

Recently, extreme price volatility in wholesale electricity and natural gas markets has led to discussions about the potential risk mitigation value of these clean energy resources. Deepening concerns about the ability of conventional North American gas production to keep up with demand have also resulted in a growing number of voices calling for resource diversification (see, e.g., Bernstein, Holtberg, & Ortiz 2002; Henning, Sloan & de Leon 2003; NARUC 2003; NPC 2003a).

R[enewable] E[energy]\* and EE are a direct hedge against volatile and escalating gas prices because they reduce the need to purchase variable-price natural gas-fired electricity generation, replacing that generation with fixed-price RE or EE resources (see, e.g., Bolinger, Wiser, & Golove 2003; Awerbuch 2003). In addition to this direct contribution to price stability, by displacing marginal gas-fired generation, RE and EE can reduce demand for natural gas and thus indirectly place downward pressure on gas prices.3

Many recent modeling studies of increased RE and EE deployment have demonstrated that this “secondary” effect of putting downward pressure on natural gas prices could be significant, with the consumer benefits from reduced gas prices in many cases more than offsetting any increase in electricity costs caused by RE and/or EE deployment. As a result, this price effect is increasingly cited as justification for policies promoting RE and EE. Yet, to date, little work has focused on reviewing the reasonableness of this effect as it is portrayed in various studies, nor have studies attempted to benchmark that output against economic theory. This paper is a first attempt to address these two issues.

#### C. High natural gas prices are key to LNG.

Amanda **Griscom**, energy analyst at the environmental consulting firm GreenOrder, 11-6-**03**, “Liquid Assets”, <http://www.grist.org/news/powers/2003/11/06/assets/>, [Crystal Xia]

And that's just the beginning. Natural gas demand is projected to increase by nearly 50 percent in the next two decades, and net imports are projected to increase by more than 200 percent, according to the Energy Information Administration, which develops official statistics for the U.S. Department of Energy. And the percentage of LNG in our total natural gas demand is expected to rise from less than 1 percent today to nearly 30 percent in 2025. "The growth in LNG is viable largely because it is now cost-competitive with piped-in gasoline," said Manning of KeySpan. "If natural gas were as cheap as it was in the '90s -- when it was roughly $2 per thousand cubic feet -- LNG wouldn't be an attractive alternative, but today it's more than double that."

#### D. LNG is a vital part of the world economy.

Energy Information Administration, 7-10-08, “What is liquefied natural gas (LNG) and how is it becoming an energy source for the United States?”, http://tonto.eia.doe.gov/energy\_in\_brief /liquefied\_natural\_gas\_lng.cfm, [Crystal Xia]

International LNG trade has grown rapidly in recent years as new export facilities have started operations in several countries. In 2006, 13 countries exported natural gas in the form of LNG to 17 importing countries.[2](http://tonto.eia.doe.gov/energy_in_brief/liquefied_natural_gas_lng.cfm#fnotes) International trade equaled the equivalent of more than 7.5 trillion cubic feet of natural gas in 2006. By the end of 2010, there will likely be five additional exporting countries for a total of 18 LNG source countries, although not all will be consistent suppliers of LNG to the United States.

The United States is not the only country that is turning to new international sources of natural gas. Countries in Europe and Asia also rely heavily on LNG supplies. By far the largest volume of LNG consumption is in Asia, where Japan and South Korea are the largest importers, accounting for more than 55% of global LNG demand. In Europe, Spain is the largest importer with about 11% of global consumption. Prices in these countries in recent years have surpassed market prices in the United States, resulting in the occasional diversion of cargos from the United States to these countries.

#### <Insert Economy drop = impact>

## A-To’s

### Uniqueness overwhelms Link

#### LNG comes inevitably, it’s the demand that will decrease and thus safety regulation, this argument misrespond

### A-To LNG Safe

#### LNG safety isn’t perfect despite what the industry wants you to believe – fatal accidents have occurred before.

Audrey Hudson, staff writer, 1-3-07, “Security found lax at LNG sites”, Washington Times, LexisNexis Academic, [Crystal Xia]

However, at a Cleveland storage facility in 1944, a dike failure leaked liquefied natural gas into the streets and storm sewers, causing an explosion that killed nearly 130 people. At the Cove Point facility in Lusby in 1979, a pump seal failed and the gas vapors were ignited by a worker switching off the circuit breaker, killing him and leaving part of the building in ruins. Liquefied natural gas is natural gas that is cooled to nearly 300 degrees below zero and is less dense than water, because the change in state reduces its volume 600 times, making it more economical to transport. Since the September 11 terrorist attacks, the departments of Transportation and Homeland Security have joint responsibility for LNG terminals, which some critics say pose security threats to nearby communities.

### A-To LNG to dangerous

#### LNG ships are incredibly safe.

Lloyd’s List International, 5-23-08, “LNG and LPG vessels are safest around, says P&I club”, LexisNexis, [Crystal Xia]

GAS tankers are today among the safest ships afloat but the sector still has a battle with a public image of vessels laden with potentially explosive and devastating cargo. A recent study by the leading marine mutual the UK P&I Club has shown that gas tankers have consistently fewer claims than any other shipping segment. That is reflected in the fact that out of 50,000 voyages made by liquefied petroleum and liquefied natural gas tankers since the 1960s, there has been no major loss incident. "Misinformed opponents of gas ships have portrayed them as bombs waiting to go off", says UK P&I Club loss prevention director Karl Lumbers. "In fact, they're among the safest ships afloat and have consistently fewer cargo claims than other types of ships." More than 900 specialist tankers take 50m tonnes of LPG each year worldwide, together with 20m tonnes of ammonia and petrochemical gases, while more than 200 vessels carry 150m tonnes of LNG.

#### LNG is safe and secure.

William H. Lehr, Emergency Response Division @ National Oceanic and Atmospheric Administration, 2-20-07, Journal of Hazardous Material, Volume 140, Issue 3, pg 411, Science Direct, [Crystal Xia]

The safety record for such liquefied natural gas (LNG) is an admirable one. According to the United States Federal Energy Regulatory Commission (FERC), in the past 40 years there have been more than 33,000 LNG ship voyages without a significant accident or cargo security breach. However, the number of proposed re-gasification terminals before FERC for approval exceeds by an order of magnitude the number of existing terminals. Moreover, the post 9/11 environment requires that we not only consider the consequences of accidental releases but also deliberate terrorist attack on the LNG supply.

#### LNG is one of the safest energy sources around.

Cindy Hurst, political-military research analyst @ Foreign Military Studies Office, 6-30-08, “Liquefied Natural Gas: A Growing Economic Target?”, http://www.thecuttingedgenews.com/in dex.php?article=572, [Crystal Xia]

William Cooper, Executive Director for the Center of LNG said, “The added security features for the tankers coming into port are such that a successful attack on an LNG tanker is slim to none.” Captain Scott Conway argues that LNG tankers are the safest tankers in the shipping industry. “There’s no way I’d bring my wife or child on an oil tanker, for example. However, we didn’t hesitate to bring our families on the LNG ships. That is how safe the ships were. They’re very well made.” After witnessing various experiments done on LNG and working closely with the liquid, Conway also views it as “an extremely safe, non-toxic, non-explosive cargo.” Despite these views, the debate continues, and as long as the uncertainties surrounding the safety of LNG remain unanswered, officials must continue to strive for maximum safety measures. The U.S. and other consumers of LNG should learn to manage and understand these risks in order to reach a solution that will best mitigate any possible incident. Anne Korin summed it up by saying, “We don’t know what would happen because there hasn’t been such an attack yet.” The goal should be to place a large enough buffer between tankers (and terminals) “from any dense urban areas so as to minimize appeal of the target, which lies in its potential to provide a mass casualty incident.” Finally, when it comes to LNG as an economic target, the best measure to mitigate this possibility is simply to ensure that appropriate measures are taken to keep dependency on LNG at a reasonable level.

### A-To Bad for environment

#### EPA studies empirically deny any drilling claims the Aff might make

Lee 12, (Lee O, Vice president of IPAA, IPAA is the independent petroleum association of America, <http://ipaa.org/issues/comments/NaturalGasCommission.php>)

Meanwhile, EPA initiated a study of coalbed methane hydraulic fracturing environmental risks. EPA limited its study to coalbed methane partly because the court cases were directed toward coalbed operations and partly because, if hydraulic fracturing environmental risks existed, they would occur in the shallow coalbed fields. In June 2004, EPA released the results of its study. Its results were straightforward. "Based on the information collected and reviewed, EPA has concluded that the injection of hydraulic fracturing fluids into coalbed methane wells poses little or no threat to USDWs and does not justify additional study at this time."

#### Strict EPA regulations kill Economy