

# FACT SHEET: Liquefied Natural Gas in Philadelphia

## Why LNG?

97% of natural gas consumed in the U.S. is from the U.S. and Canada, transported via pipeline.<sup>1</sup> However, natural gas production has peaked in North America. Over time, we're drilling more and more, but finding less and less.<sup>2,3</sup> Between 1998 and 2004, natural gas prices more than tripled as imports from Canada slowed and domestic production failed to keep up with demand.<sup>4</sup> To feed the increasing demand, more liquefied natural gas (LNG) terminals are being proposed, to increase imports from overseas.

## How Many?

The U.S. has 4 existing LNG terminals and a fifth was recently constructed in the Gulf of Mexico. Approximately 60 additional LNG terminals have been proposed in North America,<sup>5</sup> though the Federal Energy Regulatory Commission (FERC) has estimated that only 10 LNG terminals are needed to meet short-term demand (of which two are in Mexico and two are in Eastern Canada).<sup>6</sup> Three of the existing LNG terminals are on the Eastern U.S. seaboard and two more are projected by FERC as "needed" to meet demand. FERC has already approved two new terminals (in GA and MA) and five other Eastern U.S. proposals have filed applications. The PGW proposal is among six more proposals that have yet to file applications.<sup>7</sup> Once the first 2-4 eastern facilities are built, the other proposals are likely to be withdrawn, since they won't have a market.<sup>8</sup> Can PGW really beat out 12 competitors to become one of two eastern U.S. LNG terminals?

## Peak Gas

Globally, the demand for natural gas is increasing faster than it can be met. Global production is going to peak around 2020,<sup>9</sup> meaning that supply will start to drop as demand continues to rise. This will drastically increase costs and will exacerbate global conflict, as China, India and other growing economies compete with the U.S. for the world's limited gas supplies. China has plans for 8-9 LNG terminals.<sup>10</sup>

## PGW's Bad Economics

An LNG terminal will be an economic nightmare for PGW and the city residents who will ultimately suffer for PGW's economic failures.

Since the terminal wouldn't be build until around 2010,<sup>11</sup> and since natural gas production is going to peak globally around 2020, the terminal will only have around 10 good years of economic life (propped up by excessive use of U.S. tax dollars to support military ventures to secure foreign sources of gas).

It's unlikely that PGW will manage to pay off the expenses of building the terminal in only ten years. Bonds may be necessary to finance the project over a much longer period. Once gas prices spike again around 2020, PGW could be left with an even deeper financial crisis than they're currently facing.

The project could also be set back by the fact that it can't meet current safety laws without moving a local road further from the terminal and moving one of the two large storage tanks so that they're not so close together. PGW is seeking a waiver from these rules, risking safety to cut costs.<sup>12</sup>

## PGW: Plan for the Future

PGW will not always be in the natural gas business. Natural gas will not always be an affordable fuel for home heating. Rather than use LNG as a



band-aid, postponing the inevitable, PGW should be ahead of the curve and start planning *now* for the alternatives. PGW should invest in massive conservation and efficiency programs, to help save energy and money by weatherizing homes, installing solar hot water heating systems and geothermal heat pumps and investing in algae-based biofuels, wind and solar power.

Philadelphia Gas Works (PGW) announced late in 2004 that they plan to build a liquefied natural gas (LNG) terminal in Port Richmond section of Northeast Philadelphia. Amerada Hess has been named as the oil corporation that PGW may end up contracting with to operate the facility.

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## LNG = More Wars

Globalization of gas markets increases global conflict over gas supplies. Liquefied natural gas would be imported from Qatar, Algeria, Nigeria, Trinidad and Tobago, Australia and Indonesia. Iraq, Iran, central Asia and Russia are also have major gas resources<sup>13</sup> and are likely to remain the focus of US military ventures.

The U.S. has a long-standing history of conflict with oil-producing nations, to control oil supplies. Now, as natural gas markets globalize, our military conflicts are starting to be about natural gas as well.

## Terrorism

Currently, LNG is produced in Trinidad, Iran, Algeria, Malaysia, Brunei, Libya, Egypt, Bolivia, Indonesia, Venezuela, Oman, Nigeria, Qatar and the United Arab Emirates, which are members of the four-year-old Gas Exporting Countries Forum. Most of these countries are locations where al Qaeda has an already established foothold.<sup>14</sup>

The U.S. policy of using military power to dominate world energy supplies is the prime inspiration for terrorism as a form of resistance.

In 2004, former White House counterterrorism director Richard Clarke revealed that intelligence analysts believed al Qaeda operatives had entered the country in the years before the 9/11 attacks by stowing away on LNG tankers in Algeria and jumping ship in Boston.<sup>15</sup>

## Philadelphia = Juicy Terrorism Target



Philadelphia would be the largest city to host an LNG terminal. If terrorists sought to inflict maximum casualties by targeting an LNG facility, Philly would be a prime target.

A May 2005 report for the Rhode Island Attorney General found that terrorist groups have the intent and ability to launch another attack on U.S. soil and that US oil and gas infrastructure is a desired target. LNG tankers and terminals are vulnerable to attack and cannot be cost-effectively secured.<sup>16</sup>

GAO, the investigatory arm of Congress, recommended in 1979 that the government prohibit any additional large-scale LNG facilities in or LNG tanker transit through urban areas.<sup>17</sup>

In Boston, flights are halted while an LNG ship moves through the harbor, as is traffic on the Tobin Bridge.<sup>18</sup> Will flights be halted at Philadelphia area airports when shipments come in? Will I-95 and all of the bridges be closed? There will be major economic impacts to the region when the river traffic is shut down every 10 days for a 12 hour tanker trip up the Delaware.

## Accidents

Terrorism isn't the only risk. LNG carries an inherent risk of accidents, as do all industrial facilities. LNG's properties make it uniquely dangerous if there were to be a spill or fire.

According to a December 2004 report by Sandia National Laboratory,<sup>19</sup> an accident or terrorist attack on a liquefied natural gas tanker could cause "major injuries and significant damage to structures" a third of a mile away and could cause second-degree burns on people more than a mile away. A "worst case scenario" could set structures aflame out to 2,067 feet and burn people as far as 6,949 feet away. The report's idea of "worst case" didn't include the actual worst case, failing to study larger ships that are planned and assuming that only some of the LNG tanker contents are released.

FERC allows damaging thermal radiation beyond the site boundary as long as its level is below 5 kilowatts per square meter. However, it is not until the thermal radiation intensity falls below 1.6 kilowatts per square meter that there is no damage to exposed humans.<sup>20</sup>

Footnote references available in the web version:  
[www.actionpa.org/lng/](http://www.actionpa.org/lng/)

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<sup>1</sup> 97.1% of U.S. natural gas comes from the U.S. and Canada via pipelines (80.6% from U.S., 16.5% from Canada). 2.9% comes via LNG from Algeria, Egypt, Malaysia, Nigeria, Oman, Qatar and Trinidad. Data is from U.S. Department of Energy's Energy Information Administration for January through October 2005. See

[http://www.eia.doe.gov/oil\\_gas/natural\\_gas/data\\_publications/natural\\_gas\\_monthly/ngm.html](http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/natural_gas_monthly/ngm.html) for raw data on imports and [http://tonto.eia.doe.gov/dnav/ng/ng\\_cons\\_sum\\_dcu\\_nus\\_m.htm](http://tonto.eia.doe.gov/dnav/ng/ng_cons_sum_dcu_nus_m.htm) for U.S. gas consumption data.

<sup>2</sup> Julian Darley, "High Noon for Natural Gas: The New Energy Crisis," Chelsea Green Publishing Company, Aug 2004. <http://www.highnoon.ws>

<sup>3</sup> "Exxon: Natural Gas Has Peaked in North America," June 30, 2005.

[http://www.pastpeak.com/archives/2005/06/exxon\\_natural\\_g.htm](http://www.pastpeak.com/archives/2005/06/exxon_natural_g.htm)

<sup>4</sup> Annual average wellhead prices of natural gas climbed from \$1.96 per thousand cubic foot in 1998 to \$5.49 in 2004 and \$7.05 in 2005 (through October), reaching a monthly peak of \$10.97 in October 2005. Energy Information Administration <http://tonto.eia.doe.gov/dnav/ng/hist/n9190us3a.htm>

<sup>5</sup> Federal Energy Regulatory Commission (FERC) Liquefied Natural Gas page: <http://www.ferc.gov/industries/lng.asp> (see maps in "LNG Projects" section at top of page)

<sup>6</sup> Presentation by FERC Chairman Pat Wood before Stanford Washington Research Group 2005 Institutional Policy Conference, May 5, 2005. <http://www.ferc.gov/EventCalendar/Files/20050512094600-PW%20Stanford%20Washington%20Research%20Group%20May05%20speech1.pdf>

<sup>7</sup> Note 5 *supra*.

<sup>8</sup> Notes 5 and 6 *supra*. On FERC's LNG website, they state that: "Many industry analysts predict that only 12 of the 40 LNG terminals being considered [in the U.S.] will ever be built."

<sup>9</sup> "HUBBERT REVISITED-6: Multicyclic Hubbert model shows global conventional gas output peaking in 2019," Oil & Gas Journal, Aug. 16, 2004. <http://www.energyjustice.net/naturalgas/2019globalgaspeak.pdf>. See also note 2 *supra*.

<sup>10</sup> "China clamps down to avoid LNG terminal glut," *Reuters*, September 5, 2005.

<http://sg.biz.yahoo.com/050902/3/3uoqd.html>

<sup>11</sup> "Pipe Dreams," *Philadelphia Weekly*, November 10, 2004. <http://www.philadelphiaweekly.com/view.php?id=8406>

<sup>12</sup> "In the Matter of the Fiscal Year 2006 Budgets/Oversight Review of PGW's Proposed FY 2006 Operating Budget and Forecast for Fiscal Years 2007 Through 2011 – Recommended Decision," Philadelphia Gas Commission Hearings, August 24, 2005.

*"there are two major aspects of PGW's current configuration that do not meet safety standards 'that would make it very difficult from a cost perspective to move forward with the project if [PGW] were not given grandfathered status or a waiver from current regulations.' One is the setback distance from the right-of-way, in this instance Delaware Avenue and an adjacent road. PGW believes this could be remedied fairly easily with a 'slight redirection of the road.' The other 'troubling' issue is 'the proximity of the tanks [to one another]... It would be very difficult for [PGW] to essentially either tear down one of the tanks or pick one of them up and move it someplace else to do this project.'"*

<sup>13</sup> Note 2 *supra*.

<sup>14</sup> "Public Safety and FERC's LNG Spin – What Citizens Aren't Being Told," Pipeline Safety Trust, May 14, 2005. [http://www.lngwatch.com/race/docs/LNG\\_Public\\_Safety\\_FERC.pdf](http://www.lngwatch.com/race/docs/LNG_Public_Safety_FERC.pdf)

<sup>15</sup> "Study spells out high toll on city in LNG," *Boston Globe*, Dec. 21, 2004.

[http://www.boston.com/news/local/articles/2004/12/21/study\\_spells\\_out\\_high\\_toll\\_on\\_city\\_in\\_lng\\_attack/](http://www.boston.com/news/local/articles/2004/12/21/study_spells_out_high_toll_on_city_in_lng_attack/)

<sup>16</sup> "LNG Facilities in Urban Areas: A Security Risk Management Analysis for Rhode Island," May 2005.

<http://www.projo.com/extra/2005/lng/clarkereport.pdf>

<sup>17</sup> *Ibid*.

<sup>18</sup> Note 15 *supra*.

<sup>19</sup> "Guidance on Risk Analysis and Safety Implications of a Large Liquefied Natural Gas (LNG) Spill Over Water," Sandia National Laboratories, December 2004. [http://www.fe.doe.gov/programs/oilgas/storage/lng/sandia\\_lng\\_1204.pdf](http://www.fe.doe.gov/programs/oilgas/storage/lng/sandia_lng_1204.pdf)

<sup>20</sup> Dr. James A. Fay, "Public Safety Issues at the Proposed Fall River LNG Terminal," January 12, 2004.

<http://nolng.org/Dr.Fay-report.pdf>