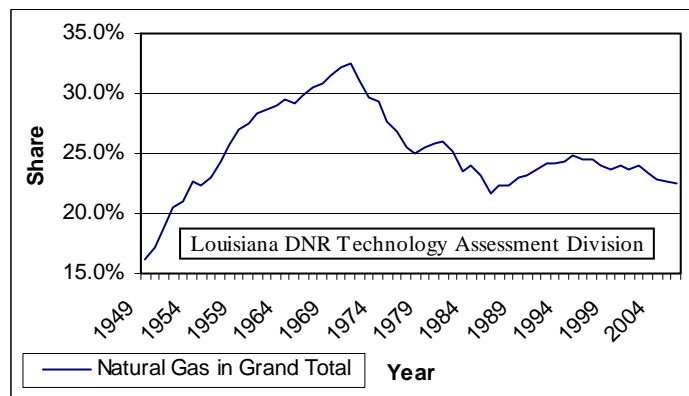


# AN UPDATE ON LIQUEFIED NATURAL GAS

by  
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The United States consumes about 100 quadrillion British Thermal Units of energy each year [at least has done so over the last decade or so]. This is a lot of energy that needs to be supplied; otherwise, the highly sophisticated U.S. industrial infrastructure suffers severe disruptions. One important source of energy is, of course, natural gas. In Figure 1 below we show the share of natural gas in the total consumption of energy.

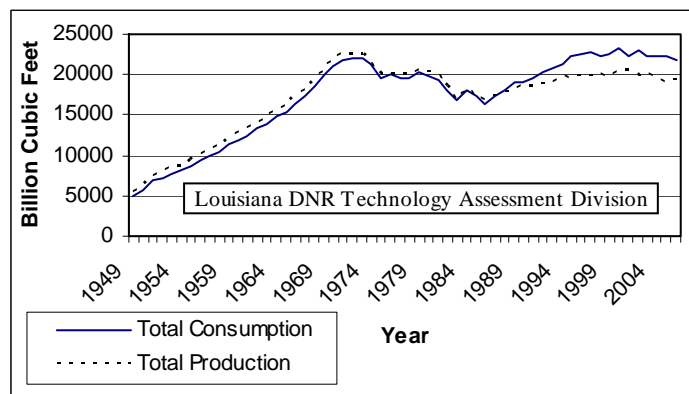
Figure 1. Consumption of Natural Gas as a Share of Total U.S. Energy Consumed (Share of Billions of BTUs)



Data Source: EIA ([www.eia.gov](http://www.eia.gov))

As one can see, natural gas consumption increased dramatically in the post-war years, peaking in 1971 with almost 35% of total energy gulped up that year. After that, the share of gas fell consistently until the mid-1980s [coinciding with the rise of nuclear power]. Since the early 90s, the share of natural gas in total energy consumption hovered around 23%. This still is a sizable share that needs to be satisfied. The next figure illustrates production and consumption of natural gas over the same time span.

Figure 2. Consumption and Production of Natural Gas in the U.S.



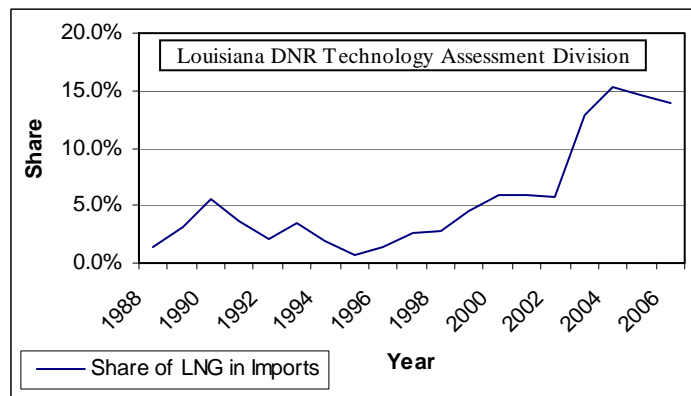
Data Source: EIA ([www.eia.gov](http://www.eia.gov))

Production and consumption of natural gas matched almost perfectly from the post-war years until the late 1980s. Since then, however, consumption has outpaced production, and the gap needed to be filled with imports. This brings us to our subject at hand.

Natural gas is an excellent, clean burning, fuel; however, it has the drawback that it is difficult to transport and store. International trade in natural gas traditionally has come through long pipelines built between the United States, Canada and Mexico. Liquefied Natural Gas (LNG) changed all that.

LNG is natural gas that has been converted to liquid form [via cooling the gas to approximately -260 degrees Fahrenheit] for ease of storage and transport. In fact, in such form, it can be transported to remote locations where the set up of pipelines is not possible. In recent years, technology has become more cost-effective to do so, and the data bear out the remarkable increase in imports of LNG. See Figure 3.

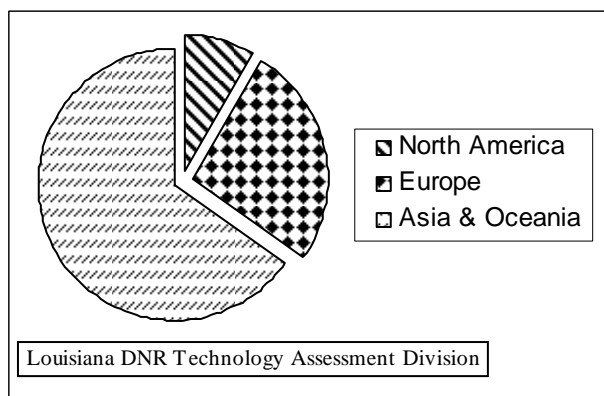
Figure 3. Share of LNG in U.S. Natural Gas Imports



Data Source: EIA ([www.eia.gov](http://www.eia.gov))

The U.S. is not alone in this dramatic rise in LNG imports. The Asian countries have seen a big increase in their LNG purchases, with Japan, South Korea and Taiwan taking the lion’s share of such imports. The following is a pie chart for world LNG imports in 2006:

Figure 4. World LNG Imports 2006

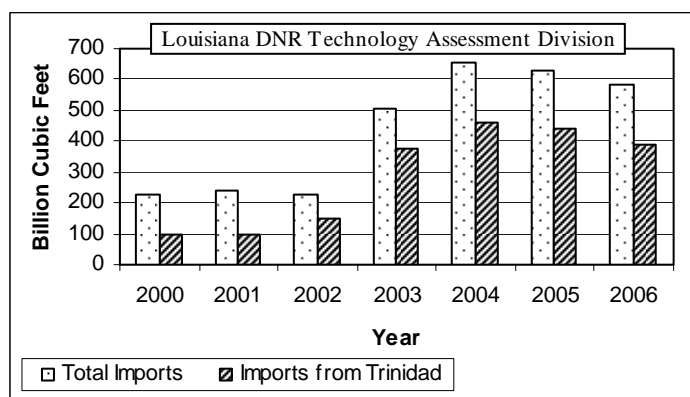


Data Source: EIA ([www.eia.gov](http://www.eia.gov))

Asia & Oceania imported about 5 trillion cubic feet of LNG in 2006. Of this quantity, Japan amounted to 60% of it, and South Korea another 20%. The combined total of both of these countries takes about half of all LNG imported worldwide. In Europe, Spain and France are big importers of LNG, with the former purchasing more quantity and the latter about the same as the U.S., which imported almost 600 billion cubic feet in 2006.

For the United States, the most important supplier is Trinidad & Tobago:

Figure 5. LNG Imports



Data Source: EIA ([www.eia.gov](http://www.eia.gov))

Given this dramatic rise in LNG trade, several terminals are being proposed for construction. The following is a list of terminals (as of January 14, 2008) in operation, and approved but not yet operative, taken from the Federal Energy Regulatory Commission (FERC) website accessed on February 11, 2008 (<http://www.ferc.gov/industries/lng/indus-act/terminals/exist-prop-lng.pdf>):

Table 1. Terminals in operation

Location	Regasification Capacity (billions of cubic feet per day)	Owner
Everett, MA	1.035	DOMAC – SUEZ LNG
Cove Point, MD	1.0	Dominion – Cove Point LNG
Elba Island, GA	1.2	El Paso – Southern LNG
Lake Charles, LA	2.1	Southern Union – Trunkline LNG
Gulf of Mexico, near LA	0.5	Gulf Gateway Energy Bridge – Exceleerate Energy
<b>Total Constructed</b>	<b>5.835</b>	

Table 2. Approved by the Maritime Administration/Coast Guard

Location	Regasification Capacity (billions of cubic feet per day)	Owner
Port Pelican, off LA coast	1.6	Chevron-Texaco
Offshore Louisiana	1.0	Main Pass McMoRan Exp.
Offshore Boston	0.4	Neptune LNG – SUEZ LNG
Offshore Boston	0.8	N.E. Gateway – Exceleerate En.
<b>Total Approved</b>	<b>3.8</b>	

Table 3. Projects approved by FERC

Location	Regasification Capacity (billions of cubic feet per day)	Owner
Hackberry, LA	1.8	Cameron LNG – Sempra Energy
Freeport, TX	1.5	Cheniere/Freeport LNG Dev.
Sabine, LA	2.6	Sabine Pass Cheniere LNG
Corpus Christi, TX	2.6	Cheniere LNG
Corpus Christi, TX	1.1	Vista del Sol – ExxonMobil
Fall River, MA	0.8	Weaver’s Cove Energy/Hess LNG
Sabine, TX	2.0	Golden Pass – ExxonMobil
Corpus Christi, TX	1.0	Ingleside Energy – Occidental Energy Ventures
Logan Township, NJ	1.2	Crown Landing LNG – BP
Port Arthur, TX	3.0	Sempra Energy
Cove Point, MD	0.8	Dominion
Cameron, LA	3.3	Creole Trail LNG – Cheniere LNG
Sabine, LA	1.4 (Expansion)	Sabine Pass Cheniere LNG
Freeport, TX	2.5 (Expansion)	Cheniere/Freeport LNG Dev.
Hackberry, LA	0.85 (Expansion)	Cameron LNG – Sempra Energy
Pascagoula, MS	1.5	Gulf LNG Energy LLC
Pascagoula, MS	1.3	Bayou Casotte Energy LLC – Chevron Texaco
Port Lavaca, TX	1.0	Calhoun LNG – Gulf Coast LNG Partners
Elba Island, GA	0.9	El Paso – Southern LNG
Total Approved	31.15	

Table 4. Mexican Approved Terminals

Location	Regasification Capacity (billions of cubic feet per day)	Owner
Altamira - Tamulipas	0.700	Shell/Total/Mitsui
Baja California	1.000	EnergiaCosta Azul-Sempra Energy
Baja California	1.500	Energy Costa Azul-Sempra Energy -Expansion
Manzanillo	0.500	<i>Not given</i>
Total Approved	3.700	

A stable and dependable supply of natural gas is critical for the U.S. economy. The many projects approved by the federal government indicate that the market is recognizing such fact. However, local siting resistance, as well as policy uncertainty, especially with energy bills discussed in Congress, may derail many of the above projects.