

# LNG: An Un-American Energy Source



## **Liquefied Natural Gas:** *An Expensive, Dirty, Foreign Fossil Fuel That Threatens Our Natural Gas Energy Independence*

Executive Summary of a 60-page Clean Ocean Action Report

For the complete report contact Clean Ocean Action or visit  
[www.cleanoceanaction.org](http://www.cleanoceanaction.org).

**Prepared by:**

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Heather Saffert, Ph.D.

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**A Clean Ocean Action Report**

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**David Byer** received a Juris Doctor, magna cum laude, from Vermont Law School (VLS) where he received many academic and leadership awards, and is a member of the New Jersey Bar. He also received a Bachelor of Science (also magna cum laude) from University of South Carolina in Accounting, with a minor in general sciences. Before joining Clean Ocean Action, he was a Judicial Clerk in Kenai, Alaska. He also was a law clerk for Kaplan Kirsch and Rockwell in Colorado and a Research Fellow for the Sustainable Endowments Institute, Cambridge, Massachusetts.

**Heather Saffert** received her Ph.D. in Oceanography from the University of Rhode Island. She received a Bachelor of Arts from Wesleyan University in Biology, with honors for coastal ecology research. She has worked as a marine science consultant and instrument developer. Her Ph.D. centered on coastal water quality problems and developing a new instrument with SubChem Systems in Rhode Island to measure fecal bacteria levels. Heather also took part in a survey of the Hudson River and its plume. She has received Surfrider Foundation scholarships and a National Sea Grant Fellowship.

#### **Clean Ocean Action**

Founded in 1984, COA is a regional, broad-based coalition of 125 conservation, environmental, fishing, boating, diving, student, surfing, women's, business, service, religious, and community groups with a mission to improve the degraded quality of the marine waters off the New Jersey/New York coast. COA works to identify sources of pollution and mounts a campaign on each source using research, public education, and citizen action to convince our public officials to enact and enforce measures that will clean up and protect our ocean.

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## EXECUTIVE SUMMARY

The price of energy has catapulted energy issues to the top of public debate and galvanized the nation. The need to become more energy independent and efficient has become a unifying battle cry. At the same time, the effects of global climate change are apparent, including dramatic swings in weather, sea level rise, and ocean acidification. Consequently, the need to reduce our greenhouse gas (GHG) emissions is also at center stage.

New Jersey (NJ) has already taken steps to address these issues, and has become a national leader in energy conservation, renewable energy, and reducing greenhouse gas emissions. Further, one of Governor Jon Corzine's earliest actions directed New Jersey to develop an Energy Master Plan to, in part, meet goals for renewable energy and emissions reductions by 2020 and beyond. This is an important and critical opportunity to shape NJ's energy future and create tens of thousands of good, high-quality, green jobs in the state. A final plan is expected in the fall of 2008. Similarly, under the leadership of Governor David Paterson, New York has now embarked on its own State Energy Plan and a draft will be available in the Spring of 2009.

Into this volatile, complex, evolving environment a new energy debate is unfolding just off the Jersey Shore where three different companies propose three different projects to import foreign liquefied natural gas (LNG) to the region. What is LNG? Simply put, it is natural gas cooled to minus 260 degrees Fahrenheit, at which point it becomes liquid. In this compressed form, large volumes can be transported, allowing foreign sources to be shipped to the U.S. Indeed, all of these proposals seek to bring LNG from foreign sources. Fortunately for the U.S., and as will be discussed shortly, we don't need it.

First, the Atlantic Sea Island Group, a group of private investors, wants to fill a large area of ocean to attempt to create the world's first open sea island, 19.5 miles east of Sea Bright, New Jersey, and 13 miles south of Long Beach, New York. The island would serve as a home for the LNG port "Safe Harbor Energy." Second, Excalibur (a new conglomerate) seeks to build "Liberty Natural Gas," four turret buoys to receive LNG 15 miles off Asbury Park, New Jersey, using slick and deceptive advertising that LNG will solve the problem of high gasoline prices at the pump. *In fact, LNG is not gasoline.* Finally, Exxon proposes "BlueOcean Energy," an experimental, massive floating storage and regasification unit (FSRU) 20 miles off the Manasquan Inlet, New Jersey.

These facilities beg the question, "Should New Jersey and New York allow offshore Liquefied Natural Gas facilities?" At first glance, it seems intriguing and alluring. Big fat hulking tankers safely offshore, full of compacted natural gas ready when we want it; abundant, reliable, dependable, cheap, and clean. Or is it?

Clean Ocean Action (COA) was curious. As a regional, broad-based coalition of 125 conservation, environmental, fishing, boating, diving, student, surfing, women's, business, service, religious, and community groups with a mission to improve the degraded water quality of the marine waters off the New Jersey/New York coast, it is our job to evaluate potential ocean threats. These facilities would begin the industrialization of the coast, but perhaps, given the energy needs of the region, LNG may hold interesting opportunities to shift from dirtier forms of energy such as coal. Could the environmental consequences be minor? After all, natural gas has

been called a “bridge fuel” to help us transition to energy conservation and green renewable sources of energy.

Thus, COA embarked on a research mission to determine if LNG was a knight in shining armor or a Trojan horse, or maybe something in between. Water Policy Attorney David Byer, and Staff Scientist Heather Saffert, Ph.D., with a host of experts and advisors, carefully researched issues, cross-referenced information, and asked hard questions to uncover the facts about LNG. While not exhaustive, the report, *LNG: An Un-American Energy Source*, is comprehensive. It is well documented and based on sources from government, industry, trade journals, research institutions, non-governmental groups, and news publications.

In short, the research found the following facts.

***Thanks to abundant and growing sources, the U.S. is energy independent for natural gas.***

Importantly, currently 97% of the U.S. need for natural gas is supplied by North American sources with 86% produced by the U.S. Thus, the U.S. is independent for natural gas. Moreover, unlike oil, the U.S. is awash in domestic natural gas, and is the number two producer in the world. The future supplies look rich. In 2003, government sources predicted an abundant U.S. supply of natural gas – enough to last more than 60 years. More recent industry sources that include newly found reserves, including some in Canada, predict supplies lasting 120 years at current consumption rates. While there may be a need to enhance and improve distribution of the domestic sources, many projects are under construction and planned. The report factually describes many of these projects, but COA makes no judgments as to their environmental suitability or merits. However, many of these projects are ongoing and will bring more domestic natural gas sources to the east coast and beyond. To make informed decisions, policy makers need to be aware of the growing domestic supplies and capacity in the region. (Section II)

***The growing domestic natural gas reserves can meet all of the growing demand in the U.S. and specifically NJ.***

As the country continues to grow and natural gas consumption increases, federal sources predict that the rates of use will grow at a slower rate than previously thought. The nation is getting better at energy conservation and efficiency, and NJ is leading the way. The NJ Draft Energy Master Plan predicts that even under the Business-As-Usual scenario (no special efforts to reform energy use), NJ’s natural gas consumption levels in 2020 would be only slightly higher than 2006 and below 2004 rates. Under a more proactive approach (the Alternative Scenario), energy conservation and renewables are enhanced and electricity based on natural gas is increased – enough to replace dirty coal and oil facilities. Even with this scenario, NJ consumption of natural gas would fall below 2004 rates with efficiency and conservation savings in other sectors. Some have suggested that NJ’s pipeline infrastructure needs improvement. However, NJ has the proven pipeline capacities to meet projected future demands. (Section III)

***In the worst-case scenario, should we need LNG, there is already a glut of existing LNG import capacity. Even by 2030, LNG imports are expected to be below 50% of current capacity.***

The current and under construction U.S. import capacity of LNG, which can supply the east coast, stands at nearly 20 billion cubic feet per day. The most the entire U.S. has ever imported was a little over two billion cubic feet per day—10% of the existing and imminent LNG capacity. With soaring domestic supplies and the high costs of LNG, most ports are

twiddling their thumbs waiting for their “ships to come in.” In a bizarre twist, with the U.S. market not buying the expensive LNG shipments, two of the newest ports are applying to import just enough LNG to keep the terminal functional and then exporting it when they find a global bidder. This is also a slippery slope toward selling off the U.S.’s own supplies of natural gas. Moreover, the U.S. government estimates that by 2030, the import of LNG at existing and under construction ports will be below 50% of their potential capacity. Clearly, new LNG import facilities are unwarranted and unjustifiable.

However, even with this glut, even more ports are pending along the east coast—beyond the Jersey Shore. This begs the question, “Why would corporations seek to build these terminals?” This is an interesting and reoccurring question. It could be speculation, another proverbial foot-in-the-door, or to enter and corner a market. Whatever the reason, more LNG ports would not be in the public interest and would re-direct limited resources and investments away from green energy. (Section IV)

***LNG is foreign and will come primarily from sources in Russia and the Middle East. It is expensive, as much as twice domestic rates, and a global price war is underway, causing prices to soar.*** As with any commodity, price is largely dependent upon supply and demand. Having abundant domestic sources allows natural gas to be competitively priced here, although these prices have risen over the last few years. However, these prices are still far less compared to the global market for LNG, especially since LNG is often indexed to oil. Markets all over the world that do not have rich domestic sources are vying for LNG and are willing to pay as much as twice as the U.S., and at times even more. Two of the fastest growing markets for LNG are China and India, whose LNG use is exploding. Just for starters, China is building five LNG ports this year, and recently outbid the U.S. and Europe for LNG from Qatar. Most importantly, the loyalty of the supply is to the dollar. The country willing to pay the most gets the gas. The bidding war is constant.

The vast majority, over two-thirds, of natural gas reserves are in Russia and the Middle East. Even if the market price looked reasonable, LNG needs to be shipped over 14,000 miles (five times the width of the U.S.) to get it here, which also increases the price. It is true that one proposal seeks to bring LNG from Trinidad and Tobago, which is closer to the U.S. market. However, the long-term supply there is uncertain and once diminished, would cause suppliers to switch to other major sources, such as Russia and the Middle East.

There are also hidden costs that will be passed onto consumers and taxpayers. For example, the composition of natural gas from foreign sources is commonly different than domestic sources. Power plants using regasified LNG in New England may need to invest in expensive retrofits to make it compatible with their equipment. Add to these costs the offshore port facilities and ships, which are very expensive. Further, a little known fact is that U.S. taxpayers currently pay the U.S. Coast Guard (USCG) to provide security and patrols for LNG shipments and facilities. Of note, a government report found that the USCG was grossly under budget to meet security demands of LNG shipments and facilities, and this report was before several new ports were added. (Sections V and VI)

***LNG is far more polluting than domestic natural gas.*** LNG can be up to 40% more polluting than domestic natural gas, and has been compared to the burning of coal. The increase is caused

by the excessive energy needs that LNG requires during its lifecycle. The process is dirty and requires the cooling of natural gas to negative 259 degrees Fahrenheit, loading it into tanker ships, transporting it thousands of miles (often using ships burning bunker fuel), and then re-heating it to turn LNG back into gas. These polluting steps are in addition to the basic pollution to find, tap, pipe, and burn natural gas supplies. Some argue that the gas used to generate LNG would otherwise be flared off. This is a red-herring issue. In fact, flaring is increasing despite growing LNG exports. Finally, it is important to note that while natural gas is perceived as “clean” and green, it is not. Though it burns cleaner than coal or oil, natural gas is a fossil fuel and has its own significant greenhouse gas footprint, and indeed natural gas is, by far, NJ’s largest carbon dioxide source behind gasoline. (Section IX)

***The industrialization of the ocean with tankers and facilities would have substantial environmental consequences to the marine environment, threatening our fishing and tourism industries and the economy.*** The Jersey and South Shore has not always been the treasure that it is today—a source of multibillion-dollar tourism and fishing industries and a thriving ecosystem. Not so long ago, the shore was a national joke with dead and dying dolphins, hundreds of beach closings, medical waste and garbage washing-up on the beaches, as well as having the title of the Ocean Dumping Capitol of the World. We have all worked hard, in a non-partisan effort, to create the improved environment of today, which still requires dedication and steadfast vigilance to continue progress toward a healthy ocean. Indeed, it is why we call the region the Clean Ocean Zone and are working to pass federal legislation to lock in progress and lock out pollution.

The building of an island by an entity that admits no experience in this maritime construction building, or an experimental floating storage-tanker facility brought in by Exxon (a notoriously bad environmental neighbor), or Excalibur’s (a new conglomerate formed for this purpose) underwater hoses will each have different, varying degrees of significant and profound effects on the marine environment. However, all of the facilities will cause:

- hundreds of acres of seafloor habitat to be destroyed for infrastructure – including prime fishing grounds;
- death to billions of marine organisms as a result of entrainment and impingement;
- water pollution from wastewater, biocides, nitrogen, and possible spills;
- extensive air pollution, including CO<sub>2</sub> emissions, sulfur dioxide, and nitrogen oxide (particularly bad for marine waters by adding nitrogen);
- death by ship strikes to or harassment of marine mammals and turtles, including threatened and endangered species.

Lest we forget, the mid-Atlantic can often turn turbulent and mean. Nor’easters, tropical storms, and hurricanes are extremely destructive. The impressive waves and winds, during these storms, that we see hit the beach are in fact reduced by near shore shallower waters. Offshore, these waves are giants and can easily destroy infrastructure. Indeed, according to the federal records, one rogue wave measured in the area proposed for the island was over 55 feet tall. We need only look to Hurricanes Katrina and Rita, which destroyed or seriously damaged approximately 223 platforms and oil rigs, of which at least 113 platforms were destroyed, and damaged more than 560 pipeline segments in the Gulf of Mexico. Finally, there is the issue of the slippery slope. Where LNG facilities go, other industrial facilities will follow. (Section X)

***LNG at Sea--Unsafe and Not Secure.*** LNG tankers and facilities are security risks and vulnerable to attack. Thus in this regard, it may seem wise to place them offshore. However, as mentioned, the USCG is already spread thin and is unable to adequately police existing facilities. Although large exclusion zones are proposed and will reduce or eliminate public access, these facilities are still vulnerable. These large ocean areas will be challenging to monitor, will be hard to patrol, and are far from aid and support services. Importantly, these LNG facilities are also located at the gateway to the NY/NJ Harbor, the Atlantic coast's premier port and the third largest in the nation. Not to mention the economic importance of the region in finance and commerce industries. Security consultants also raise serious concerns regarding the LNG tanker ships becoming hijacked by unfriendly governments. (Sections VII)

***In the end, who will be the boss of NJ's energy future? LNG will shift us from independent to dependent for natural gas—a policy that is antithetical to the national call for Energy Independence—an Un-American Choice.*** In the 20<sup>th</sup> century, the U.S. became dependent on foreign oil to drive our cars and heat many of our homes. The consequences are now painfully evident. In stark contrast, today, we are 97% self-reliant with North American sources of natural gas that can be sustained for 60 and perhaps 120 years or more. So, for now, we are the boss of our energy future.

IF New Jersey opens our doors to LNG it will only serve to lock us into another polluting, foreign fossil fuel dependency and addiction—only this time it will be for the energy we need to power our electricity plants, heat our homes, and cook our meals.

IF New Jersey is lured into LNG, other governments, primarily Russia and the Middle East, will control our energy source. These countries are not the friendliest to the U.S., nor are they consistent. The recent aggression by Russia in the county of Georgia is a chilling, alarming, and revealing testament for why the U.S. must maintain energy independence with domestic natural gas while transitioning to a sustainable and clean energy future.

Shifting to a foreign dependency for fossil fuels is not a wise energy policy decision; in fact it is antithetical to the national call for Energy Independence. As today's energy needs prove, been there done that, let's not be fooled again.

**In conclusion**, while not an easy read, this report is compelling and conclusive, and with over 450 footnotes it is well documented. LNG is not in the public interest; it is only in Big Energy's interest. The answer to the question, "Should New Jersey/New York allow offshore Liquefied Natural Gas facilities?" is clear: No.



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