



Offshore LNG Generation

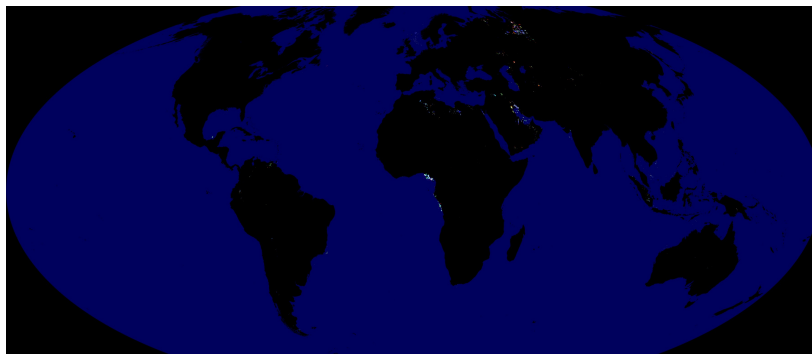
Posted by [Gail the Actuary](#) on February 7, 2009 - 9:15am

Topic: [Supply/Production](#)

Tags: [lng](#), [natural gas](#), [original](#) [[list all tags](#)]

This is a guest post by [Rockman](#), whose comments as an industry insider we have all come to appreciate. He believes that offshore generation of liquefied natural gas (LNG) has great potential.

Burning natural gas has always been viewed in a better light than burning crude oil by the public—more efficient in many home applications and less polluting in general. But it has been a hindrance and a source of frustration for the energy industry from the earliest days. A hindrance even today as billions of cubic feet of natural gas are flared or vented to the atmosphere as a by product of oil production. This is commonly the case with offshore oil fields where lack of pipeline infrastructure and/or local market negates the value of this useful commodity.



World image showing natural gas flares. Click for larger image.

The World Bank estimates 5 to 6 trillion cf (cubic feet) of natural gas are flared /vented yearly representing 400 million tons of green house gas emissions. This is equivalent to nearly one-third of the European Union's annual natural gas consumption. Though this volume includes onshore operations (eastern Russia represents the largest single source), offshore fields are major contributors. Nigeria is the perfect poster child for such waste. At just \$4 per thousand cf Nigeria is losing almost \$100 million annually.

I've personally witnessed the nighttime glow from dozens of offshore flare stacks. Not only does this represent the loss of billions of dollars by this impoverished county but also a well documented health hazard to the population. I've seen the haze cloud stretch from horizon to horizon on otherwise cloudless days. And frustration in the form of proven NG fields which would be commercially viable to drill and produce except for the additional expense of a pipeline connection. Even today in the very mature Gulf of Mexico, with its huge pipeline infrastructure, many such reservoirs remain untapped for the same reason.

Off the northern coast of Australia is a proven field with an estimated 2 trillion cf of NG which has yet to be exploited due to the expense and difficulty of pipeline deployment. The Australian government estimates this field and others in the area represent more than 100 years of their country's consumption. How many additional offshore NG fields may exist in areas which have been condemned for such exploration due to lack of transportation can only be guessed. The energy industry does not spend its capital surveying the amount of NG reserves around the globe that it cannot produce.

A common approach to exploiting NG reserves in areas with little or no market has been to liquefy the product and transport via tanker to energy hungry populations. In 2007 Marathon Oil began such operations in Equatorial Guinea and now weekly ships tankers of LNG from Nigeria's neighbor to the EU. Such onshore plants are typically quite expensive (\$1+ billion), but have often proved viable. But such operations still require pipelines to deliver the NG to the LNG plant.

Recent commitments to the research and construction of floating liquefaction plants may allow these wasted NG resources to be monetized. For over 20 years, companies have struggled to design against the problems generated by such an unstable floating system. Progress is now being made on offshore LNG floating liquefaction plants. Vessels are currently under construction and will be deployed near term.

One great advantage of such mobile plants is to exploit relatively small NG reserves. Typical onshore LNG plants require a huge feed stock to justify their construction. The capability to exploit smaller reserves and move on to other areas may be the most important aspect of this new technology. Just as the number of small oil accumulations dwarf the number giant oil fields so it is with NG accumulations.

As with the exploitation of all commodities, offshore LNG operations will expand as demand, and the prices develop with this demand, grows. Current low prices will certainly inhibit expansion of these efforts, but this dip in the price cycle will end. And as the world eventually accepts the premise of peak oil, it may come to see the utilization of these formerly wasted assets as a buffer to mitigate, to a degree and just for a limited time, the worst aspects many foresee with peak oil.

See also: [Commercial breakthroughs in LNG technology](#) October 2008, World Oil Magazine



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