

The U.S. Natural Gas ‘Crisis’



An Analysis prepared by

Pan Eurasian Enterprises

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What is it, is it really a Crisis, and what can be done about it?

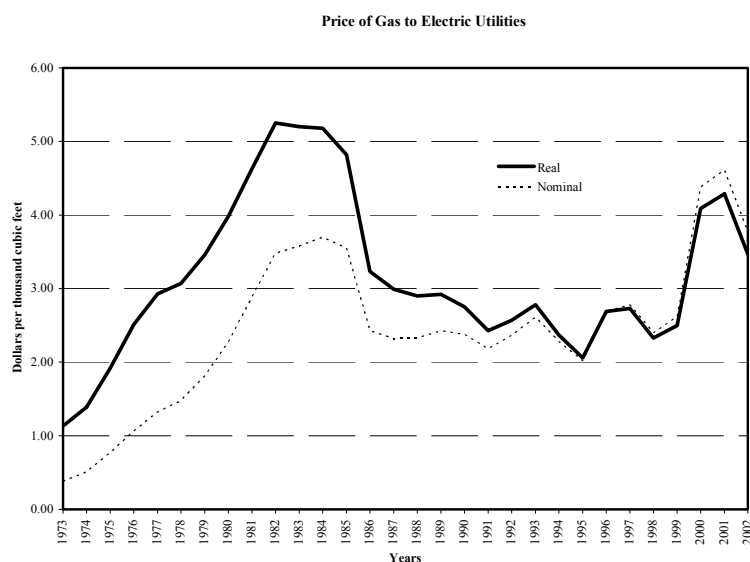
The latest round of hyperbole gripping the US energy industry is the “natural gas crisis.” The genesis of this crisis is higher than usual prices being paid by consumers in 2003 for natural gas, with less of a summer drop in prices than might otherwise have been expected. Proponents of deregulation in general have long promised that “price signals” will trigger investment and balance markets more efficiently than administered and regulated planning processes. Now, the US is getting price signals. The problem is that many don’t like them (consumers), politicians don’t understand them, and single issue lobbyists are using them to promote support for their own particular initiatives. As far as we can tell, no one has welcomed them for what they are: price signals just as was intended.

First, let us dispel the myth: there is no immediate crisis in the supply of natural gas to the US. There has been no talk of “brown-outs” or “black-outs” in service, although in some regions there have been interruptions as allowed under interruptible contracts during the winter peak season. That is normal. We are not aware of any significant service disruptions to uninterruptible customers.

But prices are high, and have remained unusually high into the summer months this year when they would usually drop off. It seems that this situation is the result an increasingly tight and inflexible market mainly due to increased demand from substantial new gas-fired power plant capacity brought on line since the winter of 2001-2002 not being fully satisfied by new supplies.

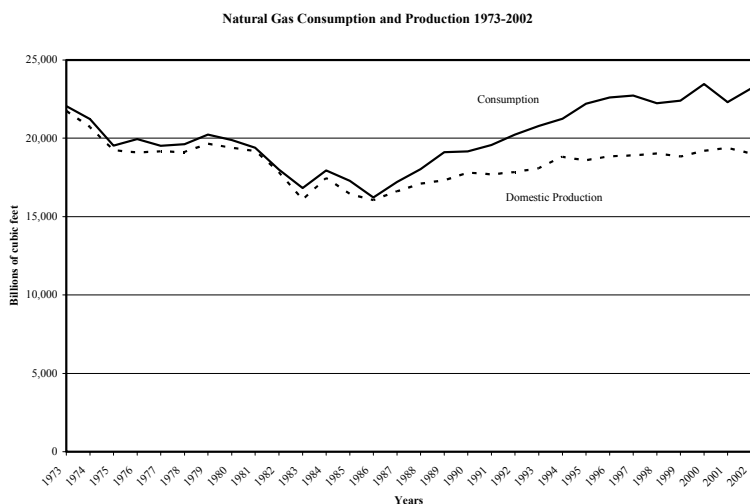
The prices usually referred to in the national press refer to spot (next day) deliveries at the Henry Hub. Studies done by the US government and others have given assurance that this indicator is substantially valid as an indicator of what is happening in the market in generalⁱ. More specific indications relative to specific markets would quote “city gate” prices for that particular market.

On a broader, but not so timely, scale the Energy Information Administration (“EIA”) publishes nationally averaged prices. Our analyses are mainly based on EIA information because it is available for a greater range of time.ⁱⁱ



We have examined the price of gas paid by electric utilities since 1973 due to the growing importance of electricity generation to the gas market and the consequential impact on electricity prices. The chart above shows that gas pricesⁱⁱⁱ, in real terms, peaked in the early 1980s (the previous gas crisis that led to deregulation), followed by a period of decline. The lowest prices were seen in the mid-1990s, followed by a steady rise in prices. The prices in 2003 (not shown) are higher than the peaks shown in the chart and spot prices at the time of writing are still over \$5.00^{iv}.

Some press reports suggest that a sudden increase in gas consumption starting in the 1990s with no parallel increase in production capacity is to blame for the present situation. That is a misleading analysis, although there is some truth to it. A look at the domestic natural gas production and consumption balance shows the problem^v.



The present problem has its roots in the mid 1980s when the preceding decline in natural gas consumption turned around to a steady growth in demand. The cause of this growth was the increasing popularity of natural gas as a fuel for new, independent power plants. It is true that the growth in consumption was not accompanied by a parallel increase in the *domestic* production of natural gas. In fact, the new demand was met mostly by increases in imports, almost entirely from Canada.

Consumption of gas for power plants has continued to increase into 2003 as a number of power plants have been brought on line with the eventual potential to add as much as another 10% to the overall consumption, depending on how the new plants are dispatched.^{vi}

The question is: can the Canadian resource base support the additional demand? The answer is that it increasingly appears that new alternatives must be found. This is where the single issue lobbyists have jumped in.

There are four general sources of new natural gas that are being lobbied for:

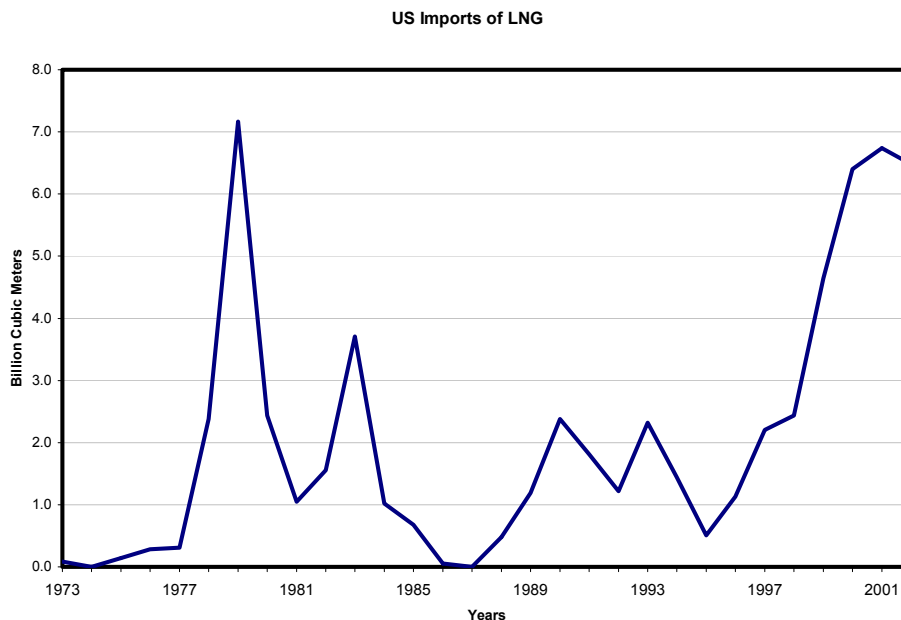
- Offshore US reserves presently off limits for oil and gas exploration and development (US East, West and Gulf coasts) for environmental and political reasons;
- Central US, Rocky Mountain area reserves presently in national parks and other lands off limits for oil and gas development for the same reasons;

- Reserves in the Canadian North (MacKenzie Delta) that would require extensive infrastructure support including a major new pipeline to connect into the existing delivery systems, possibly in conjunction with;
- Alaska where many of the potential reserves are, or supporting pipelines would be, in protected areas.

Each of these suggestions is politically difficult and will face substantial opposition from environmentalists, amongst others. The latter two alternatives require massive infrastructure investments. Given the uncertainties of the markets and of prices (these price curves don't give much certainty about recovery of massive investments) the industry is asking for government supports for construction of pipelines and other infrastructure to support these investments. In the present economic climate, government support is not easy to obtain.

In addition, some parties are suggesting that liquefied natural gas (“LNG”) is an answer. In our view, it is an option well worth pursuing, but LNG also has its problems. These include:

- Limited facilities to receive LNG in the US at present, requiring construction of expensive new receiving and re-gasification facilities at deep water ports, which tend to be developed areas where further development is not welcomed;
- Substantial environmental and “NIMBY” (not in my back yard) opposition wherever new LNG receiving terminals might get built;
- An erratic and unstable history that gives little comfort for financing, as shown below^{vii}.



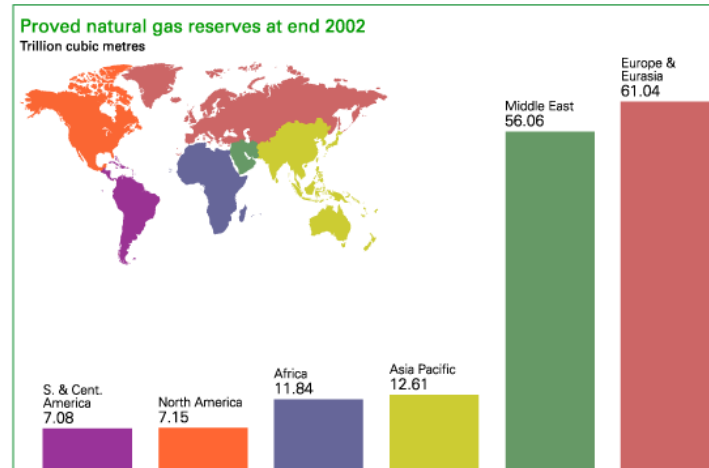
The experience of the last eight years with LNG imports has been positive, but earlier years suggest a boom and bust cycle. We believe that another bust cycle could occur if the Alaskan and northern Canadian options are pursued.

The primary advantage of LNG is that it can respond more quickly to “market signals” than the other options, and in doing so can possibly keep the others out of the market for a while. The primary disadvantage is the environmental and NIMBY factor, especially since the investments

would most likely be made in populated areas, whereas the Alaskan and Canadian options would focus investments in mainly undeveloped areas. We don't foresee the US government opening up access to the Atlantic and Pacific coast offshore fields short of severe supply pressures in the market, which have not yet developed.

Some forecasts suggest that the present surge in the use of natural gas (for generation of electricity) will top off with another 5 tcf of demand. If this cannot be supplied from present sources ("business as usual" scenario), then one or more of the foregoing options will be needed to fill the gap. Another 5 tcf of demand will certainly increase the pressures in the market; whether or not such demand is supportable under present supply structures is a question. LNG presents the most flexible means of adjusting to meet demand, but perhaps not the cheapest.

In the long run, it would seem that LNG imports will increase. The chart below, taken from the BP Statistical Review of World Energy, shows the dominant position of Europe, Eurasia and the Middle East in reserves of natural gas. The long term reserve potential is in the new developing regions of Russia and the CIS, and in the Middle East where oil has been exported for many years, but gas has not. In the long run, that is where the US, and all the Americas, must shop for gas.



Summary

Is there a crisis? No, not yet. If nothing is done to start working on the solutions to this imbalance between supply and demand, it will become a crisis at some point as demand continues to rise. Another 5 tcf (140 bcm) in annual demand, plus another harsh winter or unusually hot summer, or (worse) the two in tandem, and we believe severe strains will emerge to create a worse situation than at present is being called a crisis, unless new sources of supply come into the market. LNG represents the most flexible source of gas to meet requirements at the margin.

But, 5 tcf, or 140 bcm, is a substantial amount compared to the peak annual quantity of 7 bcm delivered in LNG to date. LNG cannot fill the gap by itself. A combination of the options will be required for a more cost-effective and long term solution.

NOTES:

ⁱ See U.S. Natural Gas Markets: Relationship Between Henry Hub Spot Prices and U.S. Wellhead Prices by Philip Budzik (www.eia.doe.gov/oiaf/analysispaper/henryhub/index.html)

ⁱⁱ All charted data in this report are taken from the various reports of the Energy Information Administration of the US Government. This information can be readily accessed at www.eia.doe.gov/emeu/mer/

ⁱⁱⁱ *Annual Energy Review*, Table 6.8: Energy Information Administration.

^{iv} Spot prices can be checked at the New York Mercantile Exchange on their web site (www.nymex.com)

^v *Annual Energy Review*, Table 6.1: Energy Information Administration.

^{vi} This assertion is based on a rough calculation assuming that: the heat rate of new plants coming on stream is about 8,500 Btus per kwh; the plants are dispatched about 6,000 hours per year; the amount of capacity coming on line after 2002 will be about 50,000 megawatts.

^{vii} *Annual Energy Review*, Table 6.3: Energy Information Administration.