NGVAMERICA
Natural Gas Vehicles for America

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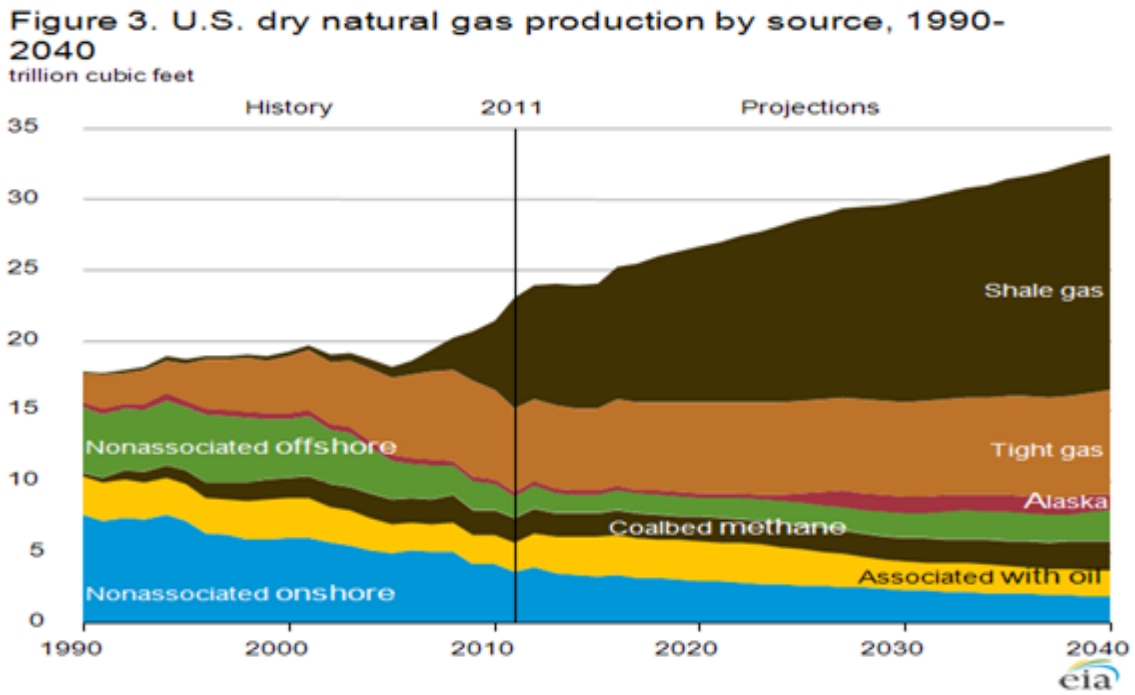
FACT SHEET

Advocating the increasing use of NGVs where they benefit most.
For the economy. For the environment. For health. For security. For America.

NGVAmerica Position: Natural Gas Exports

Studies by all credible experts have concluded that America's natural gas resource base is huge. Current estimates conclude that the United States has over 100 years of natural gas supply at our current rate of consumption, and, since production technology continues to improve, that estimate is expected to increase. The following figure depicts the U.S. Energy Information Administration's 2013 Annual Energy Outlook natural gas production forecast:



Unlike in many other countries, the price of natural gas in the U.S. is largely determined in the marketplace through the interplay of supply and demand. The actual production of U.S. natural gas has skyrocketed recently as the result of significant advances in production technologies, such as horizontal drilling and hydraulic fracturing and their application in gas shale formations. This sharp rise in production coupled with only modest increases in demand has put strong downward pressure on prices. In fact, natural gas in the field is at or near record low price levels. This has been a windfall for existing natural gas consumers, and it has stoked increased interest in using natural gas by all the major consuming sectors. However, even with that increased interest, demand has not kept up with supply—hence the historic low prices. For gas producers, very low prices have acted as a brake on production. Wells that are

uneconomic at current prices have been shut–in, and exploration and production budgets have been cut or shifted to more economically attractive areas (e.g., oil shale).

The Unique Economics of Gas Shale Production

For traditional gas production, the supply-price curve is the familiar smoothly rising line. However, the supply-price curve for gas from shale formations, which the figure above shows will represent an increasing percentage of U.S. gas production, appears to have a "kink" or an inflexion point in it. As the price for natural gas rises from low levels, supply from gas shale rises slowly since most shale gas is still not economic at those levels. However, at or around the inflexion point, a massive amount of shale gas becomes economic to produce, and a very small increase in price results in a huge increase in supply. Currently, that inflexion point appears to be somewhere in the range of $5 to $6 per thousand cubic feet (Mcf), although improvements in technology will most likely push the value of that inflexion point down over time. Currently, natural gas in the field sells for less than $4 per Mcf. Since gas from shale currently comprises about 23 percent of America's gas production and is forecasted by the U.S. Energy Information Agency to comprise almost 50 percent of U.S. production in 2035, this inflexion point phenomenon is critical to understanding the implications of various federal natural gas use policies.

The Federal Government's Options

Federal government policy can influence both the supply and demand for natural gas. Historically, federal policy has encouraged the production (supply) of domestic natural gas but it has been—and continues to be—largely silent on the consumption (demand) of natural gas.[1] It appears that the federal government has three basic options with respect to natural gas demand:

1. Do nothing;
2. Encourage more natural gas demand by permitting the export of liquefied natural gas (LNG) to other countries; or
3. Encourage more natural gas demand by promoting more domestic use of natural gas.

Option 1: Do Nothing

The federal government could simply continue its current policy, i.e., let the marketplace determine the domestic use of gas and restrict the export of natural gas to other countries in the form of LNG via tanker. The result would be continued production declines until falling supply meets rising demand, at which point the price of gas in the marketplace would begin increasing. As cheaper conventional gas becomes less and less available and the need for gas

[1] Since natural gas is cleaner burning than most other fuels, federal clean air and greenhouse gases policies favor increased natural gas use. But, increased natural gas use is not the explicit intent of those policies.

from shale increases, the price of natural gas would begin approaching the gas shale inflexion point, where it would stabilize.

Option 2: Permit the Export of LNG to Other Countries

Until recently, natural gas exports were limited to a small amount of gas via pipeline to the border areas of Canada and plus one small LNG export terminal in Alaska, which exported gas that had no way to reach the lower 48 state markets. However, with the excess of gas supply in the U.S. and the historically low price, a number of companies have started the process of securing approvals for the construction of large export facilities. There is a case to be made for the federal government approving some or all of these facilities. If that were to happen, the inflexion point would be reached by increasing demand, and the result would be similar to Option 1 above. Although, with this option the inflexion point would be reached sooner,. This option also would have the added benefit of reducing America's balance of trade deficit.

Option 3: Encourage the Domestic Use of Natural Gas — Especially in Transportation

Natural gas is already among the most used energy resource in the U.S. Almost 26 percent of all U.S. energy consumption is natural gas (24.3 quadrillion Btu). It is used as a fuel in every major consumption sector, i.e., residential, commercial, industrial, electricity generation, and transportation—and as a feedstock in the petrochemicals industry. It is efficient and low polluting (lowering both urban pollution and greenhouse gases), and it is also relatively inexpensive. Currently, natural gas is selling in the field for under $30 per barrel of oil equivalent (BOE). Federal policy could begin to explicitly encourage the use of more natural gas in all applications. But, it is as a transportation fuel that natural gas can have the greatest benefit for the country. In 2011, the U.S. spent $362 billion for imported petroleum. Our dependence on foreign oil increased our balance of trade deficit; distorted our foreign and military policies; increased urban air pollution and greenhouse gases; and cost America hundreds of thousands of jobs, and money that could have been invested here was shipped overseas. Almost two-thirds of the petroleum we use is burned to power vehicles. It makes little sense to continue to import oil at $90–$100 per barrel rather than to begin quickly shifting to domestic natural gas to power our vehicles at $30 per BOE. This shift is already happening in the heavy-duty truck and bus market, but it could happen much faster in all vehicle applications if it were the explicit federal policy to aggressively make that switch. If that were to happen, the result would be similar to Option 1 above, but like Option 2, the inflexion point would be reached sooner by increasing demand. This option would help reverse all the negative impacts of imported oil listed above. In addition, this option would have the added benefit of helping to reduce inflation. It also is important to point out that everything we purchase moves by truck, and running those trucks on less expensive natural gas would decrease operating costs and the cost of the products they carry.

Conclusion

All three options would result in the price of natural gas stabilizing at around the inflexion point. However, the benefits the three options offer America are very different. Note also that Option 2 and 3 are not mutually exclusive. There is more than enough gas in America at that critical inflexion point to significantly increase gas use domestically *and* to serve the export market. However, it is in all American's interests to use more domestic natural gas here at home in all applications—especially for vehicles. It should be federal policy to encourage more domestic use for our domestic natural gas.