

Portent of a Perfect Storm - U.S. Energy Independence

By Haydn I. Furlonge*

Regional Supply Outlook

According to the World Energy Outlook, 2011 (International Energy Agency), U.S. gas demand will increase by about 5 trillion cubic feet (tcf) per annum by 2035. Current imports amount to about 3.5 tcf per annum (Annual Energy Outlook, 2013, EIA, U.S. DOE). Cumulative imports plus incremental consumption amount to less than 200 tcf through to 2035. Numerically, all of this can be easily met by newly found shale gas reserves, currently estimated to be 482 tcf.

Hence, the question is not whether there are ample reserves for export, but how much and how soon. Actually, the U.S. already has more planned projects (10 out of 38) over the period 2013 to 2018, and planned capacity (113.8 mtpa versus 336.1 mtpa) than any other country in the world (LNG Journal, Oct. 2012). Whilst only a fraction of these planned projects will be built, the scale of this trend is impressive when one considers that current global capacity is 287.5 mtpa. In other words, U.S. gas and LNG producers are gearing up to compete for market space.

Assuming half of the planned U.S. liquefaction capacity is built (and this is optimistic by U.S. EIA estimation), about 60 tcf of gas will be consumed by the U.S. to 2035. The point here is that even if the U.S. were to cease imports of gas (see expected trend in Figure 1) in lieu of domestic supply (200 tcf), and generously export LNG (60 tcf), this is just over half of the new 482 tcf of indigenous commercial reserves. Bear in mind that the U.S. also has 202 tcf of conventional gas reserves. The implication for the regional gas market is that a “tidal wave” from the West can be expected.

From the East, about 20 million tonnes of LNG is due to come onstream between 2012 and 2015. A restart of the Kenai plant, Angola’s first Train and incremental production in Algeria will more than meet incremental demand. In the medium-term, East Africa’s new 400 tcf of gas reserves will make an impact sooner or later. Australia’s quest to become the world’s largest LNG player could see 40 million tones being added. Pacific supply will no longer be restricted to Pacific deliveries. The commissioning of the Panama Canal expansion works will open a flood gate, as LNG carriers will be able to move freely from East to West.

All things considered, this spells the brewing of a “perfect storm” right in the middle of the Atlantic basin region. The implications for an increasingly globally connected gas business are several.

Regional Gas Pricing

According to the NERA Report (Dec. 2012) commissioned by the U.S. DOE, there is expected to be a slight to moderate impact of increased U.S. export of gas owing to shale production on U.S. gas prices (between U.S.\$ 0.22 and 1.11 per Mcf). Such an increase above the current U.S. gas price range of U.S.\$ 3.00 to 4.00 per Mcf is not intolerable for U.S. consumers considering past trends. Given where gas prices are in the region today (in the U.S.\$ 10 to 18 per Mcf range), the price perturbation within the U.S. is negligible compared to the potential impact of U.S. export volumes on regional pricing. The scale of increased U.S. LNG re-export and liquefaction supply capability will serve to help settle unprecedented gas prices in South American and European markets which have been troubled by the freeze on nuclear power and oil price linkages.

Further, the relevance of the Henry Hub gas price marker has all but momentarily disappeared given that the demand pull from Europe and the Far East means that the UK’s National Balancing Point (NBP) and crude oil prices have respectively influenced Atlantic prices. However, as import/re-export and liquefaction infrastructure is boosted, the U.S. could once again become a genuine natural gas hub and price indicator for the Atlantic.

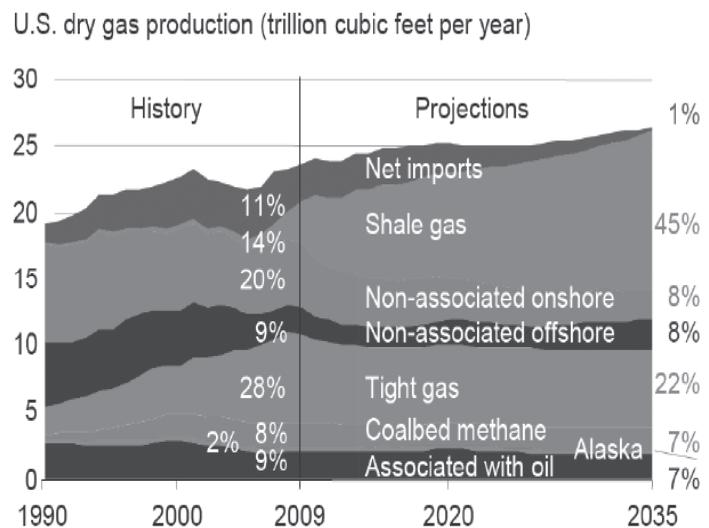


Figure 1: Projected U.S. Net Imports and Shale Gas Production (Source: U.S. DOE)

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Increased U.S. Petrochemical Production

“For the first time in over a decade, U.S. natural gas prices are affordable and relatively stable, attracting new industry investments and growth and putting us on the threshold of an American manufacturing resurgence,” according to the Chairman and CEO of Dow Chemicals (Source: ICIS news, 19 April 2012). This phenomenon is very good for the U.S. economy, but it has a ripple effect beyond its borders. Traditionally, U.S. manufacturers have relied on investments in and product from facilities in other countries such as Mexico, South America and Trinidad.

The competitive advantage of these countries has now taken a blow, as incremental U.S. demand may

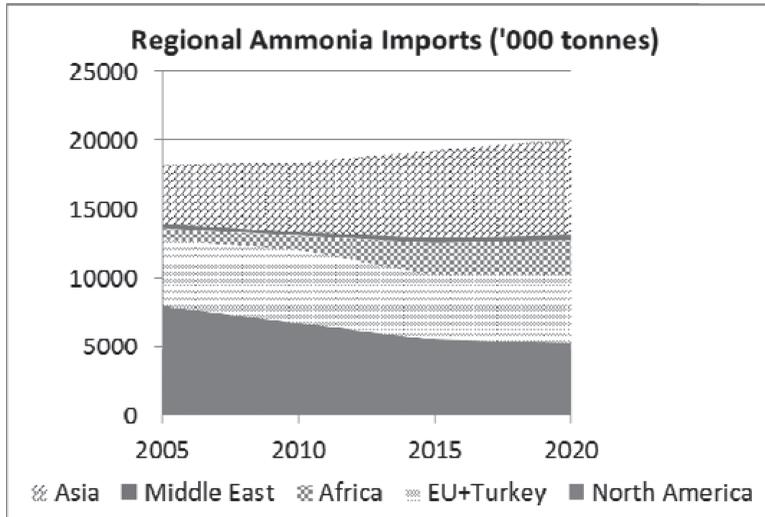


Figure 2: Projected U.S. Ammonia Import
Source: Fertecon

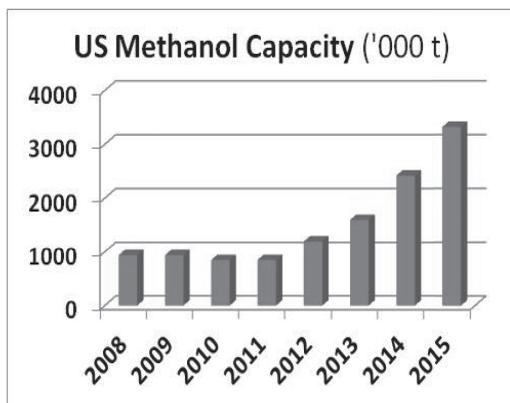


Figure 3: Projected U.S. Methanol Capacity
Source: Chemical Marketing Associates Inc.

now be soaked up by its own indigenous production. As shown in Figure 2, ammonia imports are expected to decline over the next several decades, and U.S. methanol production is already on the rise (Figure 3). The decision by Methanex to relocate its methanol plant from Chile to Louisiana is a sure sign of which way things are moving. This changes the petrochemical supply chain in a fundamental way, and is cause for concern for countries that have grown accustomed to foreign direct investment in their export-based economies.

NGL Market

U.S. shale gas and oil production will cause natural gas liquids (NGLs) production to increase by 50% in five years time from about 2.4 million barrels per day to 3.6 mbpd. Most of this incremental supply will emanate from Eagle Ford covering south Texas, Marcellus in Pennsylvania and other liquids-rich shale plays. Cheaper natural gas for heating and incremental demand from petrochemical expansion

will unfortunately not be able to absorb new propane and ethane supply respectively.

As such, a glut of NGLs is expected, driving down U.S. prices. Inevitably, excess volumes will seek the export market, thereby resulting in the U.S. becoming a net exporter of NGLs. This may not find a ready market in Latin America and Europe, which already have a high penetration rate for NGLs and is sufficiently supplied. This can only lead to increased competition for existing NGL exporters in the region.

New Ownership Matrix

Another impact of the opportunities arising from U.S. shale business activity at the company level, has to do with new investments, divestments and acquisitions. With other opportunities beckoning elsewhere and financial re-structuring imperatives, some companies are even taking the early occasion to sell their interests and move on. The recent GdF-Suez and now Repsol moves to restructure their business are noteworthy given their level

of involvement in the region's gas arena. This makes room for new players, not the least of which are Chinese firms who have demonstrated keenness to take strategic interests in Western gas assets. On the product off-take segment of the gas chain, Indian companies are taking strong interests to secure U.S. LNG volumes to feed relatively new import facilities.

At the country level, diminished U.S. reliance on energy imports, and its potential to become a significant energy exporter has major implications not only on market dynamics but energy geopolitics. Countries such as Nigeria, Algeria, Trinidad and Tobago, and those in the Middle East would no longer find the U.S. a haven for LNG, which alters the influence of these countries in political terms to some extent. In fact, the U.S. will be their outright competitor. Even for new provinces in Africa that are only just trying to enter the energy export market, having a competitor with already well established gas infrastructure (pipeline, tank and underground storage, and export terminals) only makes their circumstances that more difficult.

With divestments along with significant investment to be made in U.S. shale resources and in new provinces in Africa, the ownership matrix of hydrocarbon reserves is currently being transposed. If one were to juxtapose Australia's efforts to commercialize its conventional gas reserves as well as to develop its coalbed methane and shale gas reserves, with access via the Panama Canal, then it is not far-fetched to envisage a shifting of the axis of the energy world from the Middle East to latitudes of the West and Far East.

Concluding Remarks

U.S. Energy Independence is a subject of great interest for the energy market of the Atlantic region. Industry players are flocking close to the shores of the U.S. in anticipation of some dramatic changes in the supply side of the equation. Even a moderate policy position on U.S. exports will be welcomed by U.S. manufacturers and upstream players. Reaction by the rest of the region and indeed a more connected global gas market has far greater implications for consumers and governments around the world than one might conceive.

The Energy Independence Solution (continued from page 32)

more dependent on selling oil to us than we have been in buying it from them. Though fears of the oil weapon abound, in fact the embargo was a total fiasco from the standpoint of the exporters. Notice how often it's been used since 1973.

The narrative is counterproductive since it posits a world that doesn't exist and never has, and offers a solution—independence—that is next to impossible to achieve; it would be extremely costly and foolish to try.

Nevertheless, it is kept alive because it provides a bold-sounding, yet straightforward answer to a complex social-technological issue that affects the daily lives of everyone. But there are no easy answers, no cure-alls, for America's energy issues. It's not even clear what anyone means by "energy independence" much less what it would actually take to get there. As the late Nobel prize-winning social scientist, Elinor Ostrom observed, "[We need to] call attention to perverse and extensive uses of policy panaceas... We should stop striving for simple answers to solve complex problems."

Energy independence is a simplistic concept, but a logical goal given the energy narrative. Until the narrative changes, we will never see effective energy policy in the United States.

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