Introduction

For over 10 years, the Dominican Republic has counted natural gas as an important fuel source for its energy matrix. Since the opening of the AES Andres terminal in 2003, importation of liquefied natural gas (LNG) has catapulted gas-fired power generation to almost one-third of installed capacity. Yet, despite those developments, 40% of the nation’s electricity is still generated from fuel oil. Dependence on oil is a familiar story throughout the Caribbean. According to a study by AES, fuel oil comprises 85% of power generation in the region.

The question of how to reduce the reliance on fuel oil and take advantage of new opportunities for natural gas imports has stoked a debate in the Dominican Republic over the country’s energy future. The results could have far-reaching implications across the Caribbean, according to policy makers and industry experts at the Institute of the Americas’ Forum on the Outlook for Natural Gas in the Caribbean.

During the current high price oil environment, dependency presents a major opportunity and financial driver to pursue natural gas as an alternate power generation source. Indeed, according to late 2013 estimates by Galway Energy Advisors (Figure 1), there is roughly a $10-15/MMBTU price spread between fuel oil and natural gas (based upon US reference prices). The Inter-American Development Bank (IDB) estimates that the introduction of natural gas would decrease electricity prices as well as lower economic and environmental costs for countries of the region.

Figure 1

Example, 300 MW Power Plant 750 nm from a "Hub" (2017 Projected Prices)

* Projections based on 11/15/2013 NYMEX forward curve for Henry Hub and Brent

Source: Galway Group LP
It is not surprising then that energy sector participants across the Caribbean are assessing how to avail themselves of the natural gas opportunity. Take the Dominican Republic, where demand for power generation is estimated to grow by 2,000 MW over the next fifteen years. Reducing the consumption and imports of fuel oil in exchange for natural gas has become a key objective.

The natural gas boom and shale wave in the US have further piqued the interest of policy-makers and project developers in the Caribbean. There is great hope that the opportunity for cheaper natural gas supplies afforded largely by the United States’ energy revolution will open a new chapter for the Caribbean’s energy outlook and an alternate to the status quo.

Hurdles

The interest in natural gas for the region is not surprising; however, matters of economics provide major hurdles. Several Caribbean nations face a troika of impediments ranging from scale to supply to credit.

When it comes to scale, the size of most Caribbean nations and, more importantly, their power generation demand do not reach the threshold for traditional LNG imports. Moreover, their small market size has kept traditional LNG suppliers from focusing on the region. Despite the increased discussion of smaller scale LNG or compressed natural gas (CNG) supply options, none have completely materialized in a commercial manner.

Further, as one industry expert was quick to highlight, when it comes to the LNG business, “credit is king”. When the costs of the LNG business are taken into account and the requirements for strict take or pay terms in contracts are considered, the ability of most offtakers (utilities, really) in the Caribbean to post the requisite guarantees is practically non-existent.

To overcome these hurdles, industry experts agree upon four focal points that must be further addressed and considered by regional policy makers, multilateral development bank officials and the private sector in the near term: 1) A Caribbean Basin Index; 2) Guarantees and credit enhancement; 3) Supply and the role of Trinidad & Tobago; and, 4) Clarification on US restrictions for re-export of LNG.

Caribbean Basin Index

Perhaps most challenging, but important, is the need for a price index for natural gas in the Caribbean. A “Caribbean Basin Index” that could be derived from a Henry Hub reference price plus would greatly add clarity to the discussions over the potential for natural gas and LNG in the broader Caribbean basin.

Indeed, today’s focus on Henry Hub prices does not properly reflect the realistic options for landing natural gas in the Caribbean. A more accurate price index—a “Caribbean Basin Index” — would more appropriately inform policy makers and sector participants and allow for more transparency vis-à-vis project development.

Guarantees and credit enhancement

In the costly world of LNG and natural gas infrastructure, nations of the Caribbean and particularly utility companies are often at a disadvantage given their market size but, more importantly, their lack of credit and in many cases creditworthiness. As noted above, “credit is king” in the LNG business.

Devising a way to address the lack of access to credit or reasonably priced credit options is a key for realizing LNG opportunities in the Caribbean. As is understanding the burdensome “take or pay” contract language and clauses.

Credit enhancement support is perhaps the linchpin to landing LNG in the broader Caribbean basin. It is a role that multilateral development banks such as the IDB and CAF could provide.

One other financing option raised during discussions was for several nations to pool their natural gas purchasing in order to build scale and potentially attract the attention of traditional LNG suppliers. Of course, the difficulty in coordinating the Caribbean nations as a whole— or even as smaller sub-groups — may keep this option off the table, at least in the short term.
Supply and the role of Trinidad & Tobago

There is of course great attention focused on the potential for “cheaper” natural gas due to the excess capacity in the United States. More specifically, the potential for LNG imports from the US Gulf Coast export market seems to be a natural fit for the Caribbean. However, at least in the near term, the preceding two focus areas – price and credit - must be addressed first.

Instead, this presents an excellent opportunity for a regional solution (or two) for supply. The long history of LNG exports from Trinidad & Tobago should be used as a way to further deployment of natural gas in its Caribbean neighborhood (Figure 2). Dealing with the issues of scale must be addressed but there are huge upsides including geopolitical, distance and, most notably, cost. Liquefaction infrastructure in Trinidad & Tobago has the huge benefit of being largely depreciated and thus not as costly in terms of the LNG value chain for new contracts.

**Figure 2**

Source: Inter-American Development Bank

In addition to Trinidad & Tobago, the Caribbean coast of Colombia offers potential for a regional supply source that may be an appropriate fit in terms of scale, size and cost for the nations of the Caribbean basin.

Clarification on US restrictions for re-export of LNG

As previously noted, there is great optimism surrounding the boom in US natural gas production and potential for LNG exports from the Gulf Coast to supply the Caribbean. But an important corollary to the potential for LNG exports can be found in the concept of a “hub and spoke” system for delivering natural gas supplies to the broader Caribbean basin (Figure 3). That is a solution for a main, larger scale receipt terminal that would then distribute smaller cargoes of LNG to forward destinations. It is a concept not unlike that used by airlines in the United States.

But the solution raises the question of how to land natural gas in smaller countries in the Caribbean that do not have a free trade agreement (FTA) with the United States. If LNG were exported from the US to a “hub” that had an FTA, such as the Dominican Republic, it is currently unclear whether the LNG could then be delivered to a “spoke” location that was not party to an FTA with the US. Clarification on this issue and potential relaxation of the restrictions currently in place...
merits further review by the US Department of Energy.

**Figure 3**

![Map of the Caribbean region showing hypothetical natural gas export projects and terminals]

*Source: Galway Group LP*

**Conclusion**

The Caribbean’s long-time dependence upon oil-derived products for the bulk of its energy needs has increasingly come with deleterious effects. Despite increased attention on diversification and deployment of renewable energy, as well as cut-rate oil imports through the Petrocaribe agreement, the volatility of oil prices continues to impact economies of most Caribbean nations.

The potential and opportunity provided by incorporating (or in the case of the Dominican Republic, increasing) what are potentially cheaper and cleaner burning natural gas supplies has led to the hope for a new chapter for the Caribbean’s energy outlook. But, as the foregoing analysis underscores, there are several key elements of the equation that demand attention and will determine exactly what role natural gas will play for the energy future of the Caribbean.

*This report is based on discussions during the Forum on the Outlook for Natural Gas in the Caribbean, held on February 13, 2014 in Santo Domingo, Dominican Republic.*

*The Institute of the Americas’ Energy Program works to foster a deeper understanding of the most critical energy issues facing the Western Hemisphere. For more information and upcoming events, follow us on twitter [@IOA_Energy](http://twitter.com/IOA_Energy) or visit: [www.iamaericas.org/energy](http://www.iamaericas.org/energy)*