Beyond Petrocaribe: An Alternative Energy Future for Central America and the Caribbean

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As Venezuela faces increasing economic and social pressure at home, observers have questioned the country's ability to maintain its commitments abroad, not least of all Petrocaribe. The oil-for-loans scheme has been invaluable for its Central American and Caribbean recipients; most are dependent on Venezuelan oil to keep the lights on. Moving beyond Petrocaribe is a daunting task, with credit, financing, supply, and infrastructure issues to resolve. Yet without diversification of both suppliers and energy sources, the consequences for Petrocaribe nations will be direr still.

A Brief History

Established with 14 members in 2005, Petrocaribe provides preferential payments for Venezuelan oil on extremely favorable terms. Most members pay between five and 50 percent of the market price upfront, and the remainder over a 17 – 25 year period at one percent interest; El Salvador, the nineteenth member, joined in June 2014.

Venezuela's largesse made the fuel-for-loans scheme not only popular, but indispensible. Energy-starved Caribbean nations in particular benefited as tourism revenue plummeted during the financial crisis, leaving them with few alternatives for meeting their energy needs.

There are a number of reasons why this is an unsustainable model, not least the stability of its supplier, *Petróleos de Venezuela* or PDVSA. There are also serious environmental and economic motives for weaning Central America and the Caribbean off fuel oil, each of which only lends greater support to the argument that these countries need an alternative, and sooner rather than later.

PDVSA's Steady Decline

The problems facing Venezuela's state-owned oil company PDVSA are well known but nevertheless worrisome. Under late President Chávez, PDVSA's production dropped from around 3.4 million barrels per day (bpd) in 1998 to around 2.7 million bpd by 2012. And while output from the Orinoco Belt has been increasing, it is insufficient to offset the downward trend.

Reasons for the decline include a loss of technical capacity, knowledge and human capital, years of underinvestment in exploration and production, corporate mismanagement, and an expansion of the company's mandate well beyond its original mission. PDVSA has financed a series of social welfare programs promoted by the Chávez, and now, Maduro governments. The projects, while admirable, draw tens of millions of dollars a year from the company, leaving little for reinvestment at PDVSA.

Over this same period, domestic consumption increased, meaning more petroleum sold on the subsidized domestic market and a lower exportable surplus. When one then considers the quantity administered through schemes such as Petrocaribe, as well as an estimated 300,000 barrels a day servicing the country's $50bn debt to China, there is very little oil left to go around.

Add to this Venezuela's economic woes, including hyperinflation and weak economic growth, and it is unsurprising that many are concerned about the future of Petrocaribe. By

some accounts, PDVSA brings in half the Venezuelan government's revenue and 96% of the country's foreign currency earnings, tying Venezuela's economic fortunes to those of PDVSA. All of this while Venezuela sits atop the world's largest petroleum reserves, close to 300 billion barrels. The country is also rich in natural gas (195 trillion cubic feet) but has yet to take advantage of these assets.

Despite these problems, Petrocaribe is often considered one of Chávez's more commendable schemes. Although one of its most notable features – its lack of political overtones – may also place it first on the chopping block. In terms of priority, political relationships with nations such as Cuba, as well as loan servicing to China and the economic necessity of exporting to countries paying upfront outweigh the needs of Petrocaribe recipients.

Petrocaribe is already on shaky ground. Delays in shipments from Venezuela and delays in payments or payments in kind by member countries are indications that the parties are struggling to make the agreement work.

The Dominican Republic, which famously sent a 10,000 ton shipment of black beans to service its debt, reportedly still owes over $3.7bn to Venezuela. This is equivalent to 25 percent of its external debt (or around 6 percent of its GDP) Jamaica has calculated its debt at $2.5bn (13.5 percent of its GDP) and it is assumed that the debt of other member countries runs into the hundreds of millions of dollars apiece.

A Petrocaribe Collapse

The fallout from a Petrocaribe collapse would be significant. According to power company AES, the Caribbean relies on diesel and fuel oil for 85 of its electricity generation. In Central America, the figure reached a high of around 50 percent in 2010 although this is declining and the Economic Commission for Latin America and the Caribbean expects natural gas to replace petroleum in the electric sector by 2025. By comparison, the figure is less than 1 percent in the United States.

Unfortunately, most Caribbean countries are not in a financial position to buy elsewhere, particularly not on short notice. Instead, shortages would lead to rationing and blackouts, neither of which is good for maintaining economic activity nor social stability. Elsewhere in Latin America, a sudden drop in electricity supply has been followed by social unrest, not to mention the impact on productivity and economic output.

With access to electricity critical to poverty reduction efforts, the broader socio-economic impact and setback for development goals in the region should also be considered.

The Petrocaribe agreement also covers several joint ventures, such as refineries, as well as loans for social projects, which must be included in any calculation of Petrocaribe's contribution and the implications of its demise.

Overall, Central America is in a better position than most of its Caribbean neighbors to absorb the impact of a partial or complete collapse of Petrocaribe. However, this should not be the basis on which to ignore the sub-region, with its complex socio-economic and

security troubles, and which is already a significant source of migrant flows to the United States.

A Post-Petrocaribe Future?

Regardless of the stability of Petrocaribe, it is in the region's best interests to diversify its energy matrix and do so in a way that leads to a cleaner energy future.

Diversification must happen in two ways: 1. Diversification of suppliers; 2. Diversification of energy sources. In other words, reducing the region's reliance on a single supplier, particularly one as unstable as Venezuela, and introducing alternative fuels. In the short to medium term, Petrocaribe members will still require a petroleum supplier(s) and even with a successful fuel switch in the electric sector, transport and other industries will also require petroleum inputs. However, for the purpose of this discussion, the focus will be on power generation and the switch to a natural gas-based electric matrix in Central America and the Caribbean.

This will be a gradual process, requiring enormous support and investment from nations such as the United States, along with multilateral institutions in the region, but it remains essential to building energy security in the region and, in turn, economic growth and development.

Building a Natural Gas Market in the Caribbean

There are several reasons why building a natural gas market should be the alternative to Petrocaribe. Natural gas is a cleaner burning fuel source, it is abundant in the region, it is cheaper and less volatile than oil, and it can also promote renewable energy deployment in the region's electric mix.

Central America and Caribbean nations are blessed by a proximity to regional suppliers, including the world's largest natural gas producer, the United States. The benefits of promoting the United States as a regional natural gas supplier include proximity, cost, and a natural gas surplus thanks to the country's shale gas boom.

Colombia is also a potential supplier with domestic natural gas production increasing, a new liquefaction terminal in place, and easy access to the region via its Caribbean coast.

Trinidad and Tobago is also an obvious choice. It is an established natural gas producer and the depreciation of the country's liquefied natural gas (LNG) infrastructure could bring down prices.

Even Mexico, once an important regional energy player, is on the verge of sparking an energy renaissance of its own. The country is in the midst of an energy reform process that is opening its oil and gas sector for the first time in over seven decades. Mexico has important natural gas reserves – both conventional and unconventional – and while serious development is a long way off, the country should not be discounted.

Indeed, Mexico and Venezuela once worked together to provide generous credit for oil under the San José Accord, a scheme not unlike Petrocaribe in the 1980s. This also raises

the question of promoting supply blocs, such as North America, or a consortium of countries with an interest in supplying the region and sharing the risk.

Ideally, Petrocaribe members would source natural gas as LNG from several sources. A diversity of suppliers would overcome one of the disadvantages of Petrocaribe.

There has also been some interest in hydrocarbon exploration in the Caribbean basin beyond Trinidad & Tobago, in particular off the coast of Guyana and Suriname. However, it would be unwise to rely on major oil and gas discoveries as part of a regional energy strategy.

A Challenging Road Ahead

In order to take advantage of the enormous opportunities afforded by a natural gas market in place of Petrocaribe, several hurdles must first be cleared. The United States could play a part in overcoming the challenges of financing and developing the infrastructure, creating a pricing index, and supporting Caribbean and Central American countries in accessing credit.

Pricing. One challenge not limited to the Caribbean is the issue of pricing. While Caribbean countries are understandably excited about the prospect of cheap natural gas from the United States, the Henry Hub price does not reflect the cost of landing natural gas in the region. Instead a Caribbean basin pricing index would consist of Henry Hub plus transport and associated costs.

Financing. For Petrocaribe members, the scheme's most attractive feature is its financing options. With countries paying between 1 and 2 percent interest on loans over several decades, Caribbean nations with serious budgetary problems have been able to keep the lights on (mostly) even during the financial crisis. It would be impossible for a private enterprise to compete.

An even more important consideration, however, is credit. A lack of credit worthiness has meant Petrocaribe countries are unable to attract suppliers. This is an area in which multilateral institutions can help by providing loan guarantees and a level of debt forgiveness.

Infrastructure. Although technology has made LNG more efficient and cost-effective for small markets, infrastructure is still expensive. Caribbean countries run up against similar credit issues in securing loans in this arena too. It should be noted that while this paper focuses on LNG, compressed natural gas (CNG) has also been presented as a possible solution. Although CNG may provide a viable alternative in the future, for now LNG remains the most cost-effective option for the region.

Panama Canal expansion. As the Panama Canal expansion project opens new trading routes for LNG, there is a concern that it may lure suppliers on the Caribbean side, in particular US and Colombian suppliers, away from smaller Caribbean markets in favor of more lucrative alternatives in Asia or Europe. The impact of the Panama Canal expansion on the ability of Petrocaribe nations to attract suppliers at a cost they can afford remains unknown.

Even in the face of such daunting challenges, the pay-off for current Petrocaribe members cannot be ignored: the environmental and long-term financial benefits of switching from oil to natural gas and renewables, the security that comes with reducing their reliance on Venezuela, and the potential economic and political security that comes with stable, reliable, and affordable access to energy in the region.

Recommendations for U.S. Government and Military

The United States is in a unique position to support the Caribbean and Central America in a transition to a post-Petrocaribe future. There are many areas in which the United States can provide direct support, including financial inputs and expertise; as well as indirect, through supporting the efforts of multilateral institutions. The U.S. Vice-President's Caribbean energy security initiative announced on June 19 aims to address many of the challenges noted above and represents a good first step.

Supply. The United States Government, particularly the Department of Energy and Federal Energy Regulatory Commission, should relax the regulatory stringency of U.S. LNG exports to the region and provide clarity on the issue of re-exports. The most cost-effective way for the Caribbean to acquire natural gas is via a hub and spoke system. Natural gas supplies are received at a 'hub', such as the Dominican Republic, and distributed via smaller vessels to other islands or 'spokes'. However, current U.S. restrictions on LNG exports to countries without a Free Trade Agreement (FTA) with the United States may complicate exports to other islands in the Caribbean or re-exports from a country with an FTA, such as the Dominican Republic.

Credit support. The United States could play a leadership role in resolving the credit problem, a vital step in supporting Caribbean and Central American countries to move beyond Petrocaribe. One option is for the United States to convene a consortium of interested nations and multilateral institutions to develop a shared loans mechanism, reducing the United States' portion of the risk.

As part of its Caribbean energy security initiative, the U.S. government has announced that the Overseas Private Investment Corporation will provide development finance through "targeted loans, guarantees, and other credit enhancements" to unlock private sector capital for infrastructure. That the U.S. government is taking these challenges seriously sends an important signal to Caribbean countries struggling to reduce their reliance on Petrocaribe.

Case studies. In developing a natural gas market in the region, it would be wise to learn from those countries already making the switch, including the Dominican Republic, El Salvador, and Puerto Rico.

The Dominican Republic has begun a successful campaign to introduce natural gas into its matrix. Since opening the AES regasification plant in 2003, the country has increased natural gas' contribution to around one-third installed capacity. However, it has been a slow process with 40 percent of the country's power still generated by fuel oil. Other countries in the region will need to make a more rapid transition.

El Salvador will become the first country with a natural gas power plant in Central America – due to come online in 2018 – which is a big step for the region. This is particularly significant given Central America's transmission interconnection – SIEPAC – and progress towards an integrated electric market, facilitating natural gas deployment beyond the landing country.

Without the benefit of Petrocaribe membership, Puerto Rico has managed to power its electric sector with a combination of oil and natural gas. The country has both a regasification terminal to receive LNG and a combined cycle power plant, a model that could be helpful elsewhere.

Foster development of renewables projects. What Central America and the Caribbean basin lack in hydrocarbons reserves, they make up for in renewable resources. There are already several multilateral initiatives working on renewable energy projects in the region, and these should be encouraged. But even as renewable projects grow, solar, wind and other renewables are intermittent and natural gas would still be required to provide the firm capacity.

Foster regional cooperation. These goals should not be understood as a mission for the United States alone. The U.S. can, and should, cooperate with multilateral and regional organizations, including development banks, CARICOM and SICA.

One possible financing option is for several Caribbean nations to pool their natural gas purchasing in order to build scale and attract LNG suppliers. However, the difficulty in coordinating Caribbean nations as whole, or even smaller sub-groups within the region, makes this option particularly difficult, at least in the short-term.

Central America is better placed to take advantage of the opportunities afforded by natural gas and to cooperate as a region on the issue. This is in part due to historical and cultural reasons as well as geography, but is also due to efforts in recent years by the United States and multilateral institutions to promote regional energy integration. While political sensitivities and disputes remain, countries are closer to overcoming these challenges than their neighbors in the Caribbean.

Conclusion

Whether or not PDVSA or Venezuela is able to make the changes necessary to maintain its commitment to Petrocaribe and its members, it is in the United States' interest to support a transition away from oil dependence in the region. The technology in both natural gas and renewables sectors is rapidly advancing, and there are several suppliers in the region or even further afield. A key problem remains financing and credit support. Is the United States, a multilateral institution, or a consortium of nations in the region willing to take on the financial risk to provide loans for infrastructure and supply contracts?

A cleaner and more diverse energy matrix is essential not only for ensuring energy security but as a foundation for economic growth and sustainable development. A successful transition in Central America and the Caribbean is in everyone's interest, not just the members of Petrocaribe.