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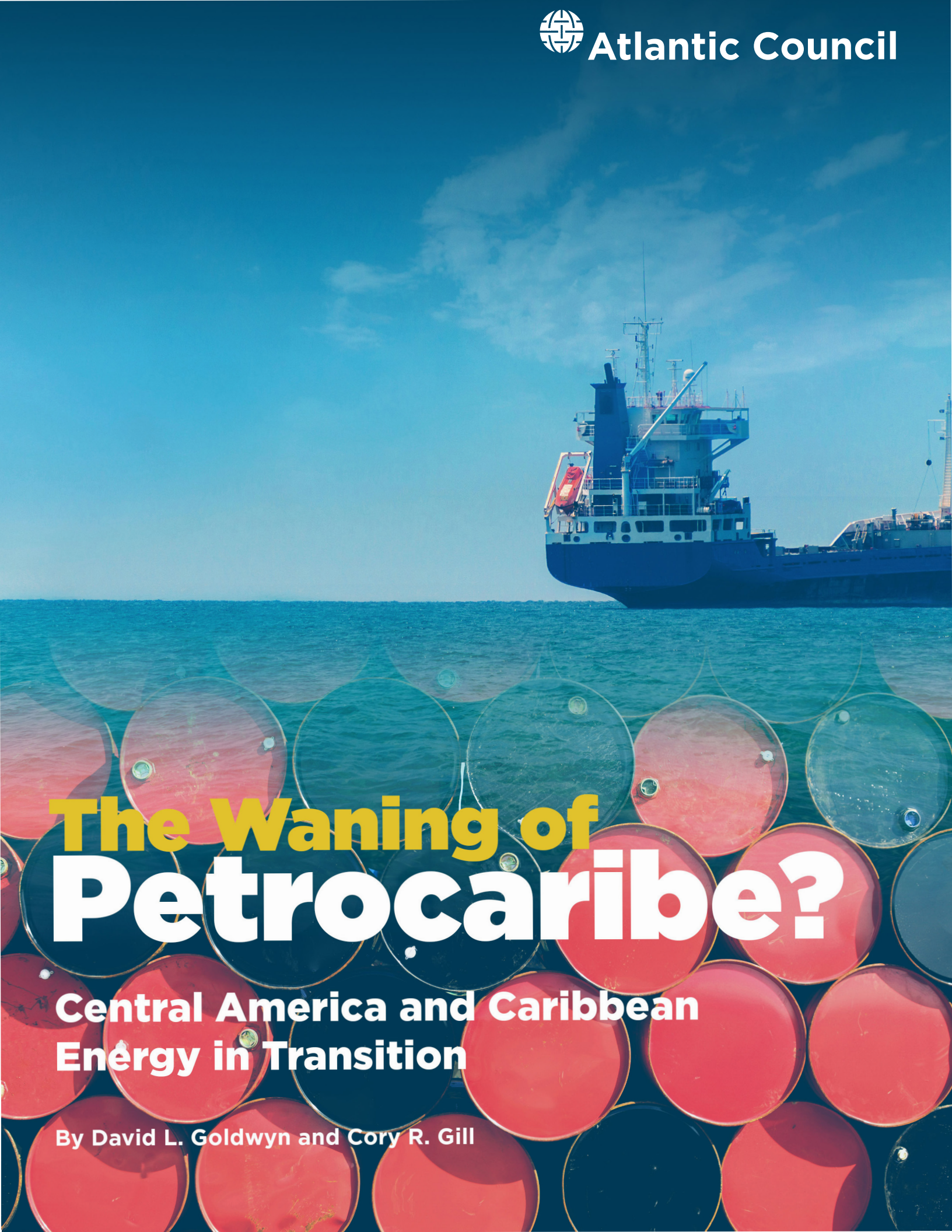

The Waning of Petrocaribe?

Central America and Caribbean Energy in Transition

By David L. Goldwyn and Cory R. Gill

The Atlantic Council's Adrienne Arsht Latin America Center is dedicated to broadening awareness of the transformational political, economic, and social changes throughout Latin America. It is focused on bringing in new political, corporate, civil society, and academic leaders to change the fundamental nature of discussions on Latin America and to develop new ideas and innovative policy recommendations that highlight the region's potential as a strategic and economic partner for Europe, the United States, and beyond. The nonpartisan Arsht Center began operations in October 2013.

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Foreword

Venezuela is teetering on the brink of economic disaster. Although the freefall started some time ago, it is now on track for the most severe contraction since independence. Energy shortages forced President Nicolás Maduro to institute three-day weekends in early April. Comestibles and medicines are in short supply. In this crisis atmosphere, programs such as Petrocaribe face an increasingly dim future.

The abrupt demise of the eleven-year-old chavista oil financing project could cause severe dislocations for its Central American and Caribbean member-nations. Petrocaribe is less critical in an environment of low oil prices, but the global energy market is prone to huge fluctuations.

Thankfully, with help from the US and the international community, Central American and Caribbean countries themselves have taken a number of steps to diversify energy sources and transition from costly, dirty fuels. But more must be done.

We must focus greater attention to the energy stability of countries just off our shores, or just south of our border. Uncertain energy would slow down growth and investment and increase poverty across the region's economies.

This is why, in July 2014, the Atlantic Council's Adrienne Arsht Latin America Center sounded the alarm bells about the imperative to quickly find an alternative to Petrocaribe. We specialize in finding solutions to hemispheric challenges, especially when the international community can play a vital role. This is certainly the case here. Nearly two years ago, Uncertain Energy: The Caribbean's Gamble with Venezuela, laid out six recommendations of how the United States could help countries move away from dependence on Petrocaribe. We are pleased that some of the policy proposals are being adopted. We urge governments to move quickly on some of the issues that remain.

Now, with Vice President Joseph R. Biden hosting the US-Caribbean-Central America Energy Summit in May 2016, we are returning to the issue. David L. Goldwyn, the Latin America Center's Nonresident Senior Energy Fellow and Chairman of our Global Energy Center, and Cory R. Gill, his associate, offer a compelling update of the energy landscape in Central America and the Caribbean. The authors analyze whether the region is prepared for Petrocaribe's eventual end.

US leadership remains crucial as the Caribbean and Central America devise solutions that will meet their energy needs. Vice President Biden's efforts have been laudable. But, with the administration nearing its end, US engagement on these energy issues must continue.

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Introduction

Venezuela's financial free fall casts a shadow of concern over the Caribbean and Central America. In the Caribbean, the sudden decline of Petrocaribe and other Venezuelan credit programs could trigger humanitarian crises and unauthorized migration flows to the US mainland. A Petrocaribe shock could also imperil economic growth in Central America, undermining efforts by the Northern Triangle to address transnational crime.

While some former Petrocaribe recipients have transitioned away from the program, the most vulnerable have not. The United States has a unique opportunity to exercise effective crisis prevention by weaning the remaining governments off insecure Venezuelan credit.

A transition to cleaner fuels could lower countries' high electricity costs, carbon footprints, and political obligations to Venezuela. If the United States, international financial institutions, and European partners can act with speed and savvy, they can also mitigate decades of ideological and political competition between the United States, Cuba, and Venezuela over statist versus market-led models of development.

Based on creative American diplomacy and leadership from some Caribbean and Central American governments, this era of ideological competition seems to be sunsetting. Venezuela's economic collapse—combined with abundant supplies of US energy, low oil and gas prices, and unprecedented US policy and regional leadership—is making Petrocaribe increasingly irrelevant. For nearly two years, as the uncertain prospects of continuing Venezuelan credit support have worsened, many leaders in the Caribbean and Central America have begun to chart a path to political and economic autonomy. Jamaica and the Dominican Republic paid off their Petrocaribe debt at heavy discounts. Rising supplies of US shale gas and oil lowered the cost of crude oil, gasoline, natural gas, and fuel oil substitutes such as propane and cooking gas.

This market shift has opened the door to private investment in cleaner, gas-fired power generation. The United States and international financial institutions have offered diplomatic and financial support to help nations develop renewable energy, with some early successes. US energy diplomacy is helping Central America complete an integrated power grid that can wheel cheaper, cleaner gas-fired power to the region, including the deeply troubled Northern Triangle. President Obama's normalization with Cuba is an opportunity to create a more stable and open Cuban economy. Progress could include weaning the island away from dependence on Venezuela, and assisting in Cuba's move toward renewable and gas-fired power.

Yet progress is both fragile and incomplete. Nations that still rely on Petrocaribe could suffer if a Venezuela debt default cuts off their credit, or if energy prices recover and force them deeper into dependence. Conversion from high-carbon fuels to cleaner gas and renewables is just beginning, and international support must be sustained for it to proceed.

US energy diplomacy must continue beyond the November 2016 election and abandon its remaining ideological agnosticism on the region's use of natural gas for power generation in addition to renewables. Finally, the United States must take

on two of the greatest potential regional migration threats from key Venezuelan energy dependents. This means adopting a serious and creative approach to energy supply in Haiti, as well as empowering Cuba to access the technology needed to liberate it from reliance on Venezuela. This report contains recommendations for completing this transition from uncertain energy to certain progress.

Venezuela's vast oil wealth made Petrocaribe possible: PDVSA's Paraguaná Refinery is one of the largest refineries in the world.

Venezuela and Petrocaribe Today

Petrocaribe: An Overview[1]

Venezuela established Petrocaribe in 2005, as a means to provide generous credit financing for Caribbean and Central American countries to purchase Venezuelan crude oil and petroleum products.[2] Countries make an up-front payment to Venezuela ranging from 30 percent to 95 percent of the official market price, and roll over the remainder into loans ranging from seventeen- to twenty-five-year durations with 1-2 percent interest rates. The terms of this payment structure are calibrated to ensure that the higher the Venezuelan benchmark oil price, the smaller the percentage share the recipient state must pay up front (for precise formulas, see figure 1, p. 6). The Convenio Integral de Cooperación Venezuela-Cuba, a similar, even more generous barter agreement signed in October 2000, governs the export of crude oil and petroleum products from Venezuela to Cuba.[3]

Petrocaribe provided immediate-term budget support to recipient states that faced severe fiscal constraints in a world where oil prices were over $100 per barrel. In 2012, when average oil prices exceeded $111 per barrel, Petrocaribe exports peaked at 121,000 barrels per day.[4] Yet the program also significantly increased the overall debt of recipient states. In some cases, external financing from Venezuela comprised 10-20 percent of individual recipient state gross domestic product (GDP), including 15 percent for Haiti and 20 percent for Nicaragua.[5]

Recipient states also lacked incentive to transition from fuel oil and diesel despite its high overall costs, as neither market-priced natural gas nor renewable energy could compete on equal footing with credit-supported oil. Rather than pass savings onto consumers, governments used savings to help plug budget deficits or finance new programs, leaving industrial and residential consumers saddled with electricity tariffs frequently exceeding $0.30 per kilowatt hour (kWh), the highest in the Western Hemisphere and three times the US average of $0.10 per kWh.[6]

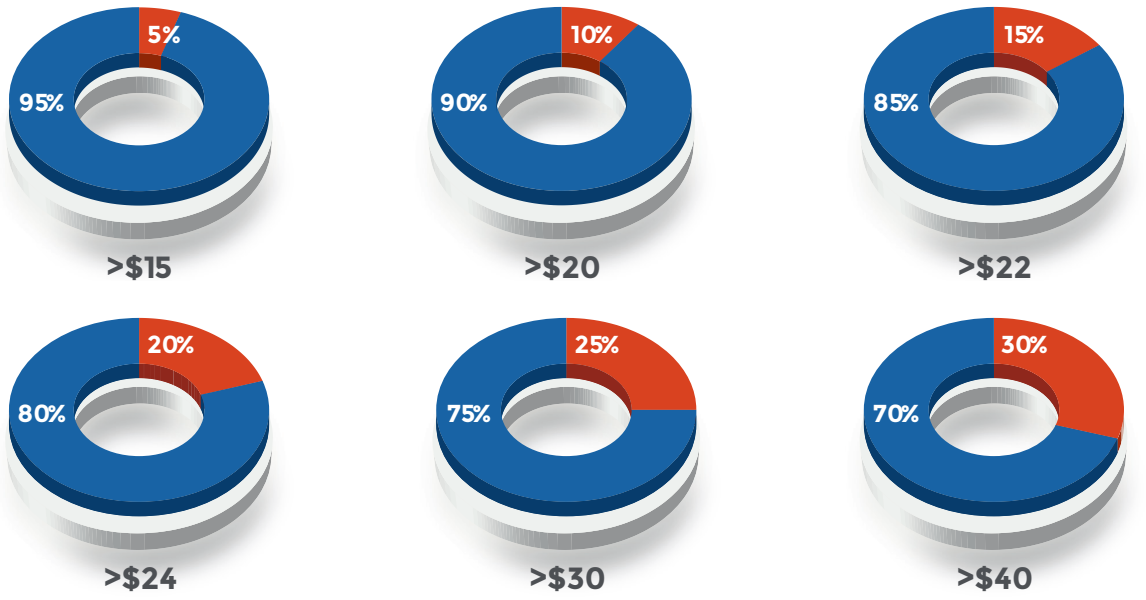
The reliance of Petrocaribe recipient states on the program also eroded their political freedom of action. Venezuela frequently used Petrocaribe to exert influence in the Organization of American States (OAS). Venezuelan President Nicolás Maduro noted in 2014 that countries Venezuela perceived as intervening in its affairs would "go dry." Many interpreted this phrase as a warning to Petrocaribe states to refrain from supporting OAS resolutions critical of the regime.[7]

Figure 1. Petrocaribe Payment Options

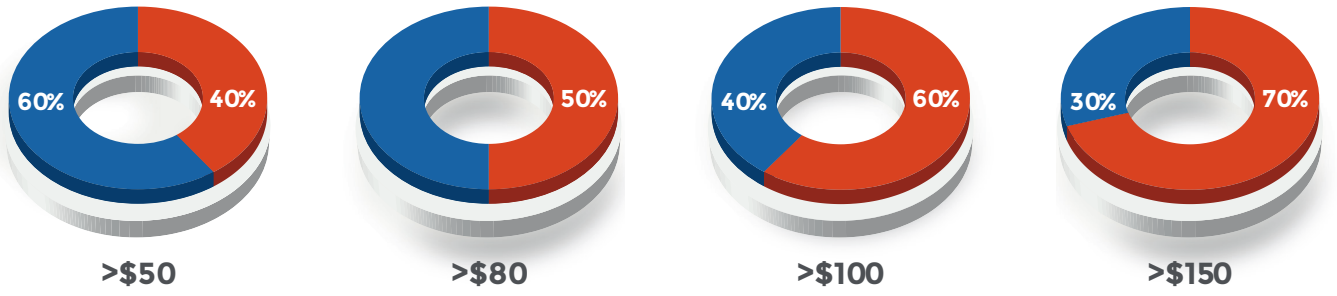
> Payment terms when Venezuela benchmark oil price is greater than dollar figure indicated

Petrocaribe member down payment (In percent)
Venezuela-financed portion (In percent)

17-YEAR LOAN TERM WITH 2 PERCENT INTEREST RATE, 2-YEAR GRACE PERIOD



25-YEAR LOAN TERM WITH 2 PERCENT INTEREST RATE, 2-YEAR GRACE PERIOD



Source: Fifth Summit of the Heads of State of Petrocaribe, Resolution 04.03-05, July 13, 2008, www.hacienda.gov.do/petrocaribe/documentos/resoluciones-04-03-05.pdf

Venezuela Today

Oil prices crashed from as high as $115 per barrel in 2014 to $35 per barrel in March 2016. The Venezuelan economy went into a corresponding freefall, with overall economic mismanagement a major factor as well. Inflation totaled 275 percent last year and GDP declined by 10 percent.[8] The nation took a five-day holiday in March 2016 due to a major power outage, and the government has announced subsequent holidays in an effort to save energy.[9] Multiple economic forecasts project a default on both sovereign debt and the debt of the state-owned oil and natural gas company, Petróleos de Venezuela S.A. (PDVSA), as increasingly likely within the next one to two year.[10]

Reform and restructuring are equally unlikely in Venezuela. The opposition coalition, the Mesa de la Unidad Democrática (MUD), won legislative elections in December 2015; many stakeholders within the coalition are pushing efforts to remove President Maduro from office through legal means, but political paralysis is the most likely forecast.11 The MUD remains rife with internal divisions, and prospects for a change in leadership prior to the 2018 presidential election appear muddled at best. The MUD will likely continue to use its control of the National Assembly in attempts to check or erode President Maduro's executive authority, while the regime itself will remain fully occupied with trying to prevent an even more acute economic collapse.

By 2014, economic mismanagement and declining oil production had already made continued support for Petrocaribe and other foreign assistance programs uncertain. The drop in energy prices put fiscal pressure on the Venezuelan economy, but also enabled Petrocaribe clients to shed their debt and dependence by seeking low-cost energy supply in the open market and by taking the opportunity to move to other fuel sources. While exports for the entire Petrocaribe program appear to have declined by approximately 12 percent overall from 2013 to 2014 (or from 111,800 barrels per day to 98,800 barrels per day), the most significant declines were from former anchor clients Jamaica (19.7 percent) and the Dominican Republic (18.5 percent).[12]

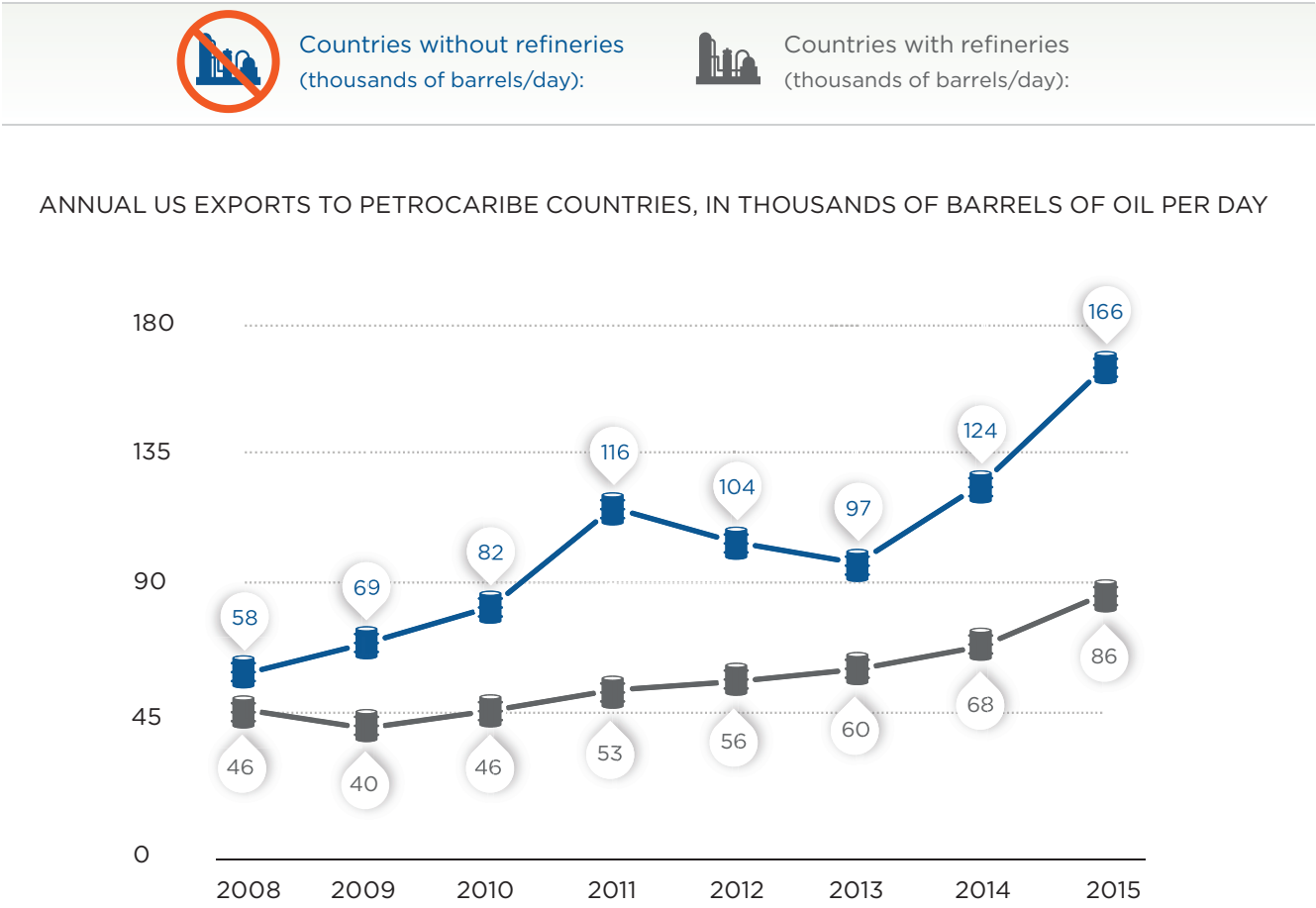
This development is significant. These two countries, among the most populous and most influential in the Caribbean, have large energy demand relative to their neighbors and are therefore indispensable hubs for any regional energy transition to take hold. Both also retired their Petrocaribe debts at fire sale prices: the Dominican Republic paid $1.9 billion to settle nearly $4.1 billion in debt, while Jamaica paid $1.5 billion to settle around $3 billion in debt. The deals were offered by a Venezuelan treasury desperate for liquidity and hard currency.[13] Caracas got immediate access to scarce dollars but weakened its regional influence. Deliveries to the other active Petrocaribe member states are thought to have remained fairly stable through 2014, but some indications suggest that volumes fell, in some cases to zero, in 2015.[14]

Petrocaribe's Growing Irrelevance

Petrocaribe is, for now, increasingly irrelevant. Oil prices are sufficiently low for nations to pay for their own supplies, without taking on additional debt. Indeed, the Petrocaribe payment options in figure 1 (see p. 6) indicate a country would pay Venezuela $44 per barrel up front in an environment where total costs were $110 per barrel. In the current price environment, Petrocaribe countries can pay less than $44 per barrel on the open market. The US shale oil and gas boom has created a surplus of refined product, making the United States a low cost exporter of gasoline and propane. The United States increasingly provides a low-cost alternative for Central American and Caribbean markets, as demonstrated in figure 2 (p. 8).

It is also questionable whether Venezuela can continue to offer other nations credit, when it is on the brink of default.[15] A default risks exposing PDVSA assets to seizure by creditors. It is unclear whether, or to what degree, the Petrocaribe

Figure 2. US Exports to Petrocaribe Countries (2008-2015)



Source: US Energy Information Administration Database, https://www.eia.gov/dnav/pet/pet_move_expc_a_EPP0_EEX_mbbl_a.htm

program could survive a major debt restructuring. The victory of the MUD in the December 2015 legislative elections adds an additional element of uncertainty about Petrocaribe. While some within the MUD have called for the review of all Venezuelan energy cooperation agreements[16] the broader coalition includes parties and individuals of diverse ideological persuasion, including those who prefer to keep Petrocaribe in place for political and/or humanitarian reasons.

Given Venezuela's acute economic challenges and its own pending humanitarian disaster, the continued gradual erosion of Petrocaribe is likely. Caracas will look wherever it can to secure immediate-term dollar-denominated export revenues.

Caribbean Nations: Preparing for the End

With small isolated markets, poor credit, limited area for wind farms, and thin government capacity, Caribbean states face challenges in moving to a lower-carbon economy. For the United States, the top priority is helping the larger nations shake their fuel dependency, and then helping the smaller nations with bespoke clean energy solutions. These are challenges that diplomacy and policy reform can address; progress is under way.

The most promising development is the firm commitment of Caribbean nations to move ahead on lower- or no-carbon projects, even though Petrocaribe continues and oil prices remain at multi-year lows. The larger countries are transitioning to natural gas as a baseload fuel for electricity generation. Smaller islands are using natural gas liquids instead of fuel oil, and Caribbean Community (CARICOM) nations are setting an overall target of 20 percent renewable energy by 2017. According to private utilities, some countries can easily reach 30 percent by that date.[17]

CARICOM is working to implement this policy, in part through the development of the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) Platform, to which the United States has provided financial and technical support. C-SERMS serves as an implementation framework and knowledge-sharing mechanism to better allow individual Caribbean countries, multilateral institutions, and the private sector to share information, track progress on efforts to meet renewable energy goals, and avoid duplication of resources.[18]

The United States has made unprecedented efforts to promote the deployment of renewable energy in the Caribbean with bilateral and multilateral initiatives. This work stems from continued US concern that a potential Venezuela default could result in severe economic and energy security impacts on countries that still rely on Petrocaribe to meet a significant share of their energy demand. The Department of Energy (DoE) has helped facilitate Caribbean access to natural gas liquids by processing small-scale export applications in an efficient manner. These efforts have produced important progress.

US and International Renewable Energy Initiatives

The Obama administration, led by Vice President Joseph Biden, launched the Caribbean Energy Security Initiative (CESI) in June 2014 to underscore its interest in helping Petrocaribe and other states transition to a cleaner, more competitive, and secure energy future. Subsequent meetings, including the January 2015 Caribbean Energy Security Summit (CESS) in Washington, provided more concrete detail on key matters such as donor coordination while also creating mandates for US agencies to help Caribbean states attract more clean energy investment. Among the key programs is the $20 million Clean Energy Finance Facility for the Caribbean and Central America (CEFF-CCA), which President Obama launched at the April 2015 US-CARICOM Summit in Kingston, Jamaica.[19]

These are long-term efforts, and the United States has prioritized catalytic financing and technical assistance to national companies to accelerate the pace. Inter-American Development

The United States and multilateral organizations including the IDB and the World Bank are helping Caribbean states attract more clean energy investment, including wind farm projects in Jamaica.

Bank (IDB), European Union (EU), and World Bank efforts are equally important. Geothermal energy has promise as well as the limited development of wind and solar resources. Some of the top projects being carried out in the Caribbean with the support of the United States or other international donors include:

- the Overseas Private Investment Corporation (OPIC)-supported 36-megawatt (MW) Blue Mountain Renewables Wind Power Project in Jamaica;
- the OPIC-supported 20 MW Content Solar Limited Solar Plant in Jamaica;
- State Department technical assistance that resulted in the signing of a purchase power agreement (PPA) in St. Kitts and Nevis to develop geothermal resources;
- the DoE- and OPIC-supported Caribbean Hotel Energy Efficiency and Renewables (CHEER) initiative, which supports energy and water efficiency in the tourism industry in collaboration with the IDB's Caribbean Hotel Energy Efficiency and Renewable Energy Action-Advanced Program (CHENACT-AP);
- the Caribbean Centre for Renewable Energy and Energy Efficiency in Barbados, which is supported by the Austrian and German governments, the United Nations, the EU, the World Bank, the IDB, and others;
- the IDB- and Caribbean Development Bank (CDB)-supported Sustainable Energy Facility to support geothermal projects in Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines; and
- World Bank financing to promote geothermal development in Dominica and St. Lucia.

US and International Support for Natural Gas

The greatest progress in transitioning from Petrocaribe fuel oil to cleaner fuels has come from Jamaica's move to liquefied natural gas (LNG) and smaller-island adoption of natural gas liquids. The US shale gas boom and efficient regulation by DoE has spurred this headway.[20] DoE adopted procedures that enabled permits for small-scale exports of LNG and other liquids to be approved expeditiously.[21] Prior to CESS, only the AES Andres LNG terminal in the Dominican Republic had LNG importing capability, primarily for gas to feed the company's gas-fired power plants in the country.

These regulatory changes have helped facilitate LNG flows to the Caribbean. Ongoing LNG projects in the region include:

- AES efforts to offer LNG trans-shipment capabilities at the Andres terminal by the third quarter of 2016, with the intent of making the facility a regional trans-shipment hub for Caribbean, Central American, and South American offtakers;
- New Fortress Energy's tender to provide LNG to Jamaica's Bogue power plant, enabling it to convert to natural gas;
- New Fortress Energy's tender to construct a LNG terminal to serve a new gas-fired power plant at Old Harbour in Jamaica; and
- IDB preparations to help Barbados construct infrastructure to import LNG.

Increasing gas access in the Caribbean makes sense but more needs to be done. US policy remains somewhat agnostic on natural gas penetration in the Caribbean, despite the near-term carbon reduction impacts. Caribbean markets are small, and buyers need lower volumes, shorter terms, and credit support.[22] The market may fix itself, as excess LNG supply and the accessibility of floating storage units (FSUs)[23] may lead to creative marketing. Volumes that would appear marginal in the context of large LNG contracts with major Asian and European offtakers are capable of significantly altering the Caribbean's energy mix.

The United States should embrace a policy that falls in line with that of international financial institutions. The IDB helpfully offers financial support for LNG import infrastructure to countries where renewables cannot substitute for fuel oil and diesel as a baseload energy source. This policy is relatively new, and an early client is Barbados, where the IDB is in the planning phase of financing LNG import infrastructure. The IDB hopes to apply successes and lessons learned in Barbados to similar projects elsewhere in the region. Access to natural gas will ensure that countries can diversify their energy supplies with cleaner, less expensive fuels.

Options for Smaller States?

While the cost and scale of LNG access is so far challenging for the smaller islands, many have diversified their supply and lowered their carbon footprints and fuel costs by importing other natural gas liquids (NGLs), such as propane. The US Virgin Islands' utility, the Virgin Islands Water and Power Authority, is importing propane for power generation as it is less expensive and simpler to liquefy than natural gas. Yet, while NGLs such as propane provide buyers with supply diversification, security, and carbon reduction benefits, they deliver more limited price relief than LNG and may be more vulnerable to demand shocks.[24]

Unfinished Business

Cuba and Haiti are two of the greatest risks for abrupt, large-scale migration in the Western Hemisphere. Actions to accelerate economic development in both countries to disincentivize such an event and mitigate this risk should be a top priority.

Government capacity in Haiti remains extremely weak, and work to completely restructure and reform Electricie d'Haiti (EdH), Haiti's national electric utility, has not succeeded. Haiti would benefit from gaining the ability to leverage natural gas and renewable energy to deliver power to its citizens through distributed generation systems. The World Bank, the IDB, and the United States and Norwegian governments have all demonstrated willingness to help implement such an approach. The United States has significant expertise in the deployment of hybrid mini-grids, which it could utilize to lay the groundwork for such a system. The United States should thus liaise with willing partner countries and international financial institutions to launch a pilot project that could be paid for, at least in part, by Haitian consumers paying for their power usage by using mobile phones, which are ubiquitous in Haiti. Lifeline tariffs could be provided by income transfers where necessary. If the pilot project succeeds, larger-scale private investment may follow.

Cuba's importance to a regional energy solution has increased, following ongoing US efforts to normalize relations with the island. Cuba is much more likely to proceed with large-scale political and economic change if Venezuela's influence, which persists in part through continued Cuban dependence on Venezuelan crude oil and petroleum products, wanes over time. The United States therefore has significant interests in helping Cuba leverage its ample wind and solar potential to make a major energy transition, which would also include a move to natural gas as a baseload fuel, similar to what is occurring in Mexico, Panama, and El Salvador. The Obama administration should focus on garnering the political will to allow the export of US technology, which would enable Cuba to develop both gas import infrastructure and a robust indigenous renewable energy sector.

In 2015, Les Anglais, Haiti inaugurated its first solar-powered microgrid, a small step in the diversification away from hydrocarbon-fired electricity.

Central America: US Engagement Brings Progress

Central America's energy insecurity derives from an overdependence on fuel oil, the resistance of existing generators to competition, and limited regional integration. It also suffers from high power prices, second only to the Caribbean in the Western Hemisphere. Approximately seven million people region-wide (or around 16 percent of the population) lack access to electricity.[25] Enhancing energy access and lowering costs are critical for investment and stability.

The decline of Petrocaribe puts many Central American nations at risk. Nicaragua is a significant Petrocaribe offtaker, importing around a combined 25,000 barrels per day of crude oil and petroleum products in recent years, representing over 75 percent of its oil demand.[26] Other Central American nations have seen the availability of Petrocaribe crude and product decline, and have, therefore, increased their imports of US petroleum products. Unless these nations transition from oil-fired power to another fuel, their electricity prices will remain high, and they will risk a price shock when global oil prices recover.

This is a danger to US national security as well. The more financially stressed these nations are, the more restricted they will be to help address pervasive violence and poverty in the Northern Triangle. For Guatemala, Honduras, and El Salvador, the direct economic effects of higher-cost energy will further stifle business opportunities. Underdevelopment remains a powerful driver of unauthorized migration flows to the United States.

President Obama took a major step toward addressing regional energy security at the April 2015 US-CARICOM Summit in Jamaica, by expanding CESI to include Central America. At the summit, President Obama created a new energy security task force partnership with Caribbean and Central American countries to evaluate progress and "identify concrete steps to advance energy sector reform, regional integration, and clean energy development."[27] A joint meeting with both the Caribbean and Central American task forces will occur in Washington in early May.

Regional politics have precluded the Central American task force from addressing gas supply to the region. Still, the Obama administration has focused intensely and successfully on completion of a regional power grid while commercial progress is being made to add new LNG-fired gas generation to feed into that grid. A regional framework, allowing for the transit of gas-fired electricity to customers throughout Central America increases the likelihood that offtakers will be able to purchase LNG supplies in volumes sufficiently large to attract global suppliers. Without such conditions in place, offtakers would likely be unable to purchase LNG to replace fuel oil and petroleum products and to mitigate attendant price volatility and security of supply risks.

Progress on Natural Gas Supply and Power Market Integration

The fast track to lowering regional electricity prices lies in bringing on new gas-fired generation to meet demand growth. Low LNG prices and new technology are driving commercial progress. Investors are focused on building self-supplied, natural gas-fired power plants. Many of these plants source more gas than the plant needs, allowing for the potential conversion from fuel oil to gas for existing plants.

The AES Corporation's investment in Panama is illustrative. In September 2015, AES won a competitive bid to construct a 350 MW, combined-cycle natural gas-fired plant with a ten-year PPA in Panama. AES's business will initially comprise only the sale of natural-gas-generated electricity to Panamanian distribution companies. But the new storage and regasification terminal may help Panama become a regional energy hub, serving growing demand in both the Caribbean and Central America. Commercial operations are expected to begin in 2018.[28]

Another example is Energía del Pacífico. It won a tender in November 2013 to construct a 355 MW, gas-fired power plant in El Salvador. First dispatch of electricity from the new power plant is expected in 2019.[29] Energía del Pacífico has also expressed interest in using excess storage capacity at its storage and regasification terminal to supply additional power plants in El Salvador or elsewhere in the region.

At the governmental level, the United States Trade and Development Agency (USTDA) is financing a feasibility study to develop an LNG terminal for the Panama Canal Authority (ACP). ACP has demonstrated significant interest in building an LNG terminal to maximize the benefits of the expected increase in LNG tanker traffic following the completion of the Panama Canal expansion project this year.[30] USTDA's decision to finance the study is a promising signal that the United States is transitioning away from its previous reluctance to support increased utilization of natural gas in Central America and the Caribbean. Even further steps, such as OPIC support for projects at a scale comparable to its support for renewable projects in the Caribbean and Central America,[31] must still be taken.

In addition, the United States and the six Central American countries using the Central American Electrical Interconnection System (SIEPAC) have leveraged the US-Central America Energy Security Task Force that President Obama launched in Kingston to accelerate electricity integration. A well-integrated regional market will create true competition for power supply, lower prices, improve reliability, reduce carbon emissions, and decrease the need for Petrocaribe fuel oil or diesel to run regional power plants.

The task force is boosting existing multilateral efforts to expand the Central American Electricity Market (MER) and increase the transit and sale of electricity across national borders through the SIEPAC transmission line. Since mid-2013, transactions on the MER have quadrupled. Specifically, the task force has facilitated progress in alleviating congestion on transmission lines, affirming time-bound commitments to create a dispute settlement mechanism, and shoring up willingness to test longer, two- or three-year transmission rights contract models to give generators more certainty. Such efforts will help attract the private investment needed to finance an anticipated second SIEPAC line to double its 300 MW of capacity.[32] This development will ultimately increase the scale of regional electricity trade and contribute to lower consumer prices. Increased power integration in Central America is capable of facilitating the sale of gas-fired electricity from new facilities in Panama and El Salvador to countries with less secure, more price-volatile crude oil and petroleum products.

Policy Recommendations and Conclusion

Much of the Caribbean still faces the challenges of weak sovereign credit, small markets, and limited access to financing for an energy transition. But bright spots exist. Jamaica and the Dominican Republic both have sufficiently large markets and adequately creditworthy utilities to attract private sector financing for a conversion from oil to natural gas as a baseload for power generation. Jamaica and St. Kitts and Nevis, with some assistance from the State Department, OPIC, and other US government agencies, have garnered private sector investments in solar, wind, and geothermal energy projects. In Central America, Panama and El Salvador are enjoying new investment in gas-fired generation.

Yet many other countries, especially the smaller Caribbean islands, see less investor interest. As they develop policy frameworks to welcome renewables, low-cost and low-carbon natural gas liquids seem a quick, easy, and relatively cost-effective way to help diversify energy mixes. But this solution is only possible if they can afford the infrastructure needed to access, store, and transport such fuels. When this low oil price cycle ends, nations that are not making progress today will be the hardest hit and the least able to adapt.

Eight steps are needed to help bring this nascent progress to the next level:

First, **sustain the diplomatic tempo into the next administration.** The Obama administration should maintain its high-level diplomatic and export financing support for both the Caribbean and Central America through 2016. But it must also put into place steps to encourage the next administration to sustain this level of support. Resolving the outstanding SIEPAC transmission issues this year would be a landmark achievement.

Second, **enhance credit support for Caribbean nations.** Credit support should pinpoint initiatives that address both immediate- and longer-term priorities. In the short run, the Department of the Treasury should liaise with international financial institutions to provide credit support to nations dependent on Petrocaribe in the event that the program abruptly collapses. This scenario is a concern to US officials, especially if oil prices recover.

The United States also must join the IDB and other willing partners in helping the smaller island nations finance the modest infrastructure investments needed to wean themselves off fuel oil and diesel over the medium and longer term in order to seek alternatives to a dying Petrocaribe. These pathways could include combinations of grants, long-term bonds, and host country contributions.

Third, **the US Department of Energy should pilot smart grid and smart city technologies in the Caribbean to demonstrate how frontier technologies can save costs and carbon.** DoE would benefit from collaborating with and leveraging the ongoing work of the IDB. The bank has smart grid projects in Colombia and Ecuador and is in the development phase of newer Central American and Caribbean projects.[33] A challenge grant might bring donor

support from other governments, private industry, and the Caribbean diaspora.

Fourth, **OPIC should increase the availability of its loans, guarantees, and other credit enhancements to provide support for gas import infrastructure on smaller islands.** Such an effort would mark a clear step by the administration to move away from its unproductive and unnecessary agnosticism on natural gas infrastructure. A "renewables first" policy is fine, supporting renewable energy where it can provide baseload power (such as potential geothermal projects throughout the Eastern Caribbean) or serve as an important source of intermittent supply. Yet OPIC should provide support for projects that will allow for gas to serve as a baseload or backup fuel in cases where renewables can act only as an intermittent source of power supply.

Fifth, **the United States and international financial institutions should help CARICOM and the small island nations build capacity to lead donor coordination efforts and facilitate the procurement, construction, and management of large-scale energy projects.** CARICOM is qualified to lead donor coordination, but it needs more personnel and funding. For smaller island states, the challenges of procurement, project management, and basic regulation are obstacles to deployment of renewable and other sources of generation. The United States has historically provided expertise by loaning retired utility executives to support countries through USAID and the US Energy Association. It might also leverage the Peace Corps to deploy such experts to the Eastern Caribbean.

Sixth, **the United States should help pilot a distributed energy solution to Haiti's energy challenges.** While Haiti's national utility cannot be fixed in our generation, it is possible to deploy a system of mini-grids to Haiti, powered by solar panels and backstopped by diesel engines or liquid petroleum gas (LPG). These grids can be managed by local or national cooperative system(s), with power paid for, at least in part, by consumers using mobile telephones. The IDB or the World Bank should lead donor support to organize and deploy the system, with technical assistance from the United States. For an estimated total cost of $1.8 billion through 2030, the investment in power would be a fraction of the cost of a migration crisis.[34]

Seventh, **the United States should exempt the export of relevant energy technology to Cuba** to allow the island to begin developing both natural gas import infrastructure and a strong domestic renewable energy sector. Authorization of other non-financial US technical support should also be considered. Success would erode the energy lever that Venezuela regularly applies to maintain influence over the island. Cheaper energy would support the growing independent private sector.

Eighth, **Caribbean and Central American leaders should follow the example set forth in Mexico's midstream and downstream energy reforms** and fully open their energy sectors to private investment. Such action would require state-owned enterprises and heritage power providers to compete with new market entrants rather than protecting them from necessary change. It would also empower a transition to market pricing to allow natural gas and renewables to serve as cost-competitive alternatives to fuel oil and diesel.

Caribbean states should study the progress and outcome of the IDB's efforts to finance LNG import infrastructure in Barbados as a potential model and make adjustments to their investment frameworks as necessary. Central American states should prioritize addressing remaining challenges to SIEPAC and, in parallel, take steps now to double the transmission line's capacity to 600 MW and interconnect electrically to Mexico. In particular, Guatemala's government should continue to collaborate with Mexico and the SIEPAC governments to facilitate infrastructure construction that allows Mexican electricity and/or natural gas to pass through the country directly into SIEPAC.

Conclusion

The United States has significant, enduring interests in the Caribbean and Central America. Regional leaders have demonstrated a willingness to cooperate with Washington to advance shared interests on matters including trade and investment, security, and promoting increased regional economic competitiveness. Successful collaboration on energy will yield significant national security and economic benefits to the United States and its partners. This progress would create stronger political autonomy, help to address the root causes of unauthorized migration, increase commercial opportunities, and boost efforts to address both climate change and shared criminal and security threats.

Petrocaribe has receded in relevance. A result of low oil prices, Venezuela's rapid economic decline, and the Obama administration's launch of CESI, recipient countries are diversifying supply, adopting lower carbon fuels, aggregating power markets, and expanding the use of renewable energy. The IDB and the World Bank have stepped forward with critical financing and creative project development programs. This constitutes remarkable, historic, and salutary progress. The region needs to sustain this momentum and complete the energy transition before this price cycle ends and dependency returns.

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Endnotes

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