

NATURAL GAS MARKET OUTLOOK

How Latin America and the Caribbean Can Benefit from the US Shale Boom

Lisa Viscidi, Carlos Sucre and Sean Karst

The surge in US natural gas production from the shale boom is transforming global gas markets. Less than a decade ago, with natural gas production on the decline, the United States was expected to become a major importer of liquefied natural gas (LNG) and a “last resort” market for surplus cargos around the world. But today, thanks to an increase in shale gas output, the United States is poised to become a significant supplier of gas to international markets. Export pipelines are being rapidly built, and LNG facilities once designed to receive imports are now being converted to export terminals. Domestic gas production has already displaced

most imports from Canada, Trinidad & Tobago and Middle Eastern suppliers. Export projects in the United States are on track to add LNG to an already oversupplied global market, putting downward pressure on prices and encouraging changes to contract structures around the world.

Across Latin America and the Caribbean, countries that have faced chronic shortages of natural gas stand to benefit from this surplus. Despite holding significant natural gas reserves, the region remains a net importer. Gas demand is rising in most countries, fueled by economic growth and subsidized electricity prices that encourage consumption. Many oil-fired power plants are being converted to burn cheaper and cleaner natural gas. Social and environmental opposition to new hydroelectric projects has also hastened the move toward gas. And natural gas is increasingly used to back up intermittent renewable energy sources, including wind and solar. Increased US gas exports to Latin America and the Caribbean, as well as lower prices tied to the flood of US exports, could contribute to lower electricity prices, reduced carbon emissions and more secure energy supplies in the region. Cheaper and more abundant natural gas could further encourage countries to switch to gas for power generation and advance the transition to natural gas vehicles.

Latin American countries are well-positioned to take advantage of the surge in US gas exports to lower electricity costs, improve energy security and produce cleaner energy.

Foreword

I am pleased to present “Natural Gas Market Outlook: How Latin America and the Caribbean Can Benefit from the US Shale Boom,” a new report by Lisa Viscidi, Director of the Inter-American Dialogue’s Energy, Climate Change and Extractive Industries Program, Carlos Sucre, Energy Matrix Consultant at the Inter-American Development Bank and Sean Karst, a graduate student at the Johns Hopkins School of Advanced International Studies.

The report, made possible with the generous support of the Inter-American Development Bank, is the third in a series of publications on the impact of the North American energy boom on Latin American and Caribbean refined product, crude oil and natural gas markets.

The report highlights findings from a Dialogue-hosted workshop that convened a group of leading experts on natural gas markets in the Americas. We wish to thank Liliana Diaz of Berkeley Research Group, Benjamin Gage of IHS and Ramon Espinasa of the Inter-American Development Bank for their presentations at the workshop. We also appreciate Jane Nakano of the Center for Strategic and International Studies, Jed Bailey of Energy Narrative and James Koehler of Berkeley Research Group for their thoughtful contributions in reviewing the report.

This effort is a product of the Energy, Climate Change & Extractive Industries Program, which informs and shapes policies that promote investment while encouraging economically, socially and environmentally responsible development of natural resources. We are grateful to the Dialogue’s Energy & Resources Committee, which includes Exxon Mobil, Chevron, Shell, Anglo American, Semptra Energy, Holland & Knight, CAF-Development Bank of Latin America and the Inter-American Development Bank, for their generous support for the program.

The views expressed in this report are those of the authors alone and are aimed at stimulating discussion about an important public policy issue.

MICHAEL SHIFTER
President

The expected flood of US gas into the market will contribute to a surplus in global output, reduced prices and lower volatility in LNG markets, as well as enhanced power for buyers to demand flexible contract terms.

However, the near-term outlook for global LNG markets, and US LNG exports in particular, is less favorable than previous estimates suggested. US LNG's competitive advantage depends in large part on high international oil prices, as most LNG contracts outside of the United States are indexed to crude oil. The steep decline since mid-2014 of global crude benchmark Brent, which had remained stable at around \$100 per barrel since 2011, represents a significant setback for US LNG developers. Moreover, the medium-term outlook for oil prices looks increasingly bearish. The global gas demand outlook is also uncertain, raising questions about the volumes of US LNG the global market can absorb and how many export projects will remain economically viable. Demand growth will be concentrated mainly in Asia, and China's economic slowdown -- combined with its recent commitment to import large volumes of pipeline gas from Russia -- has led many experts to rethink their projections for Chinese LNG imports.

Although the most bullish forecasts for US gas exports have been undermined by recent events, the country is still set to become a net gas exporter, giving rise to an upsurge in global gas trade in the coming years. Given their close proximity to the United States and growing natural gas demand, Latin American and Caribbean countries are well-positioned to capitalize on the surplus of US gas exports. Natural gas remains an important and growing part of the fuel mix in Latin America and the Caribbean, and policymakers in the region should not lose sight of the long-term benefits of importing natural gas.

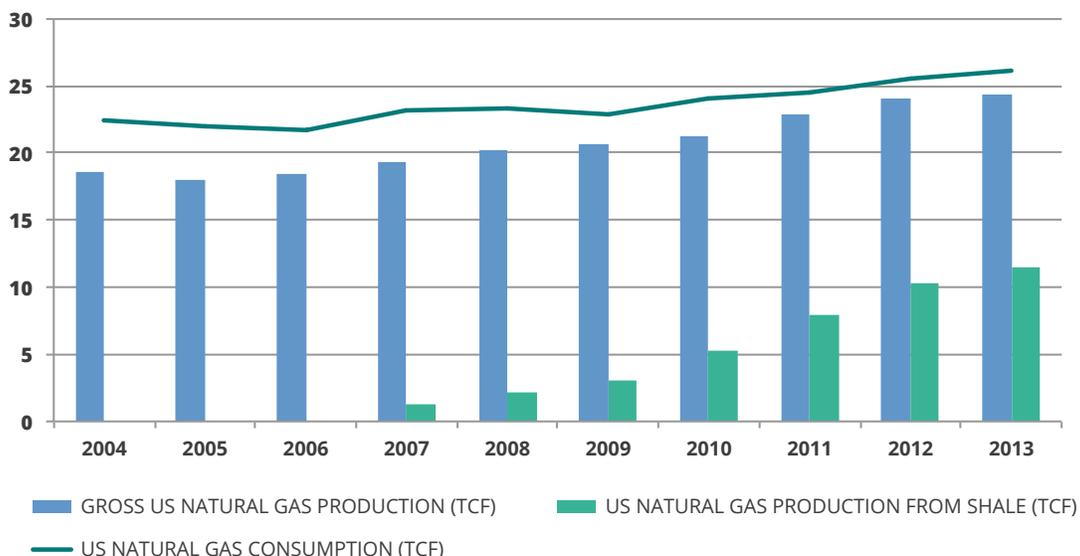
The Push to Export US Natural Gas

US natural gas production has increased rapidly since 2007, driven primarily by the development of shale gas extraction technology that has led to the boom in shale gas production and compensated for declines in conventional gas output. Over the past decade, new and refined technologies have made horizontal drilling and hydraulic fracturing cost-competitive methods for extracting unconventional gas resources, including from shale formations. In 2014, shale gas accounted for half of the record 26 trillion cubic feet (Tcf) produced in the United States. While shale plays are relatively dispersed across the continental United States, Texas, Pennsylvania, Arkansas and Louisiana have led the charge in gas production. In 2014, the Marcellus play in Pennsylvania and the Eagle Ford play in Texas together produced as much gas per day as Qatar, the world's largest LNG exporter.

Soaring shale gas production has led to a steep decline in natural gas prices on the US benchmark Henry Hub, encouraging domestic demand. Gas is increasingly used to generate electricity in the United States, as it has become cost competitive with coal and provides a baseload fuel to intermittent renewable energy sources. Natural gas is also increasingly used for transportation, as truck fleets convert from diesel. The Energy Information Administration (EIA) projects that US gas demand will rise by 10% to 2040, while production will rise by 39%.¹

FIGURE 1: US GROSS NATURAL GAS PRODUCTION, US SHALE GAS PRODUCTION AND US NATURAL GAS CONSUMPTION, 2004-2013

Source: US Energy Information Administration



Even as gas demand increases, the gap between consumption and production continues to narrow, and imports are on the decline. Pipeline imports from Canada, the United States' top gas supplier, have plummeted since 2007. LNG imports—which at their 2007 peak were equivalent to almost a fifth of the country's total gas consumption—have virtually disappeared, making supplies earmarked for the United States available to other markets. By 2017, the United States is projected to become a net gas exporter, as exports of LNG and piped gas to Mexico rise and imports from Canada decline.² By 2040, as much as one fifth of US gas production will be exported, with LNG representing 46% of total gas exports, compared to a mere 1% share in 2014.³

In anticipation of the export boom, US companies have been lining up to build liquefaction terminals and retrofit regasification facilities for export. The Department

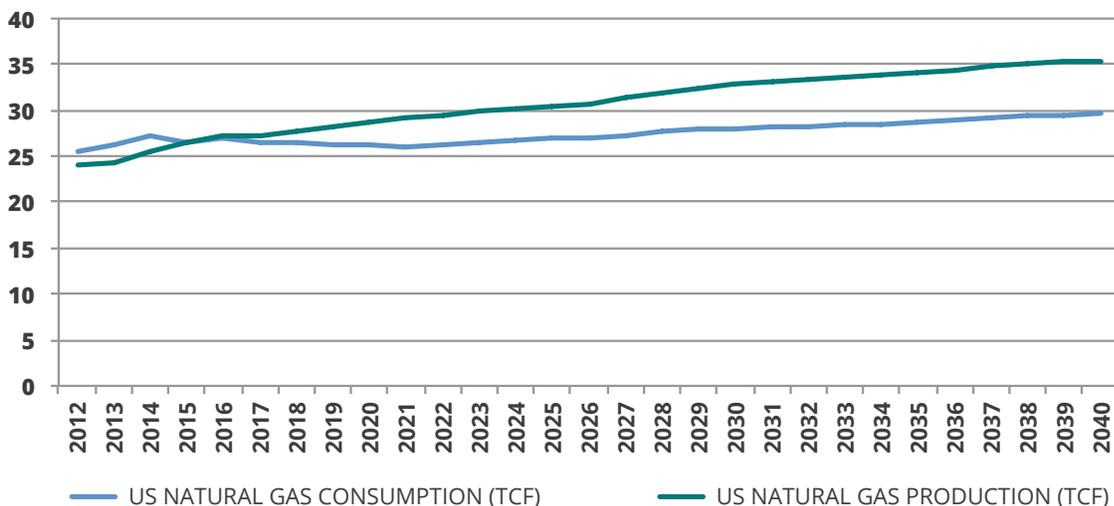
of Energy (DOE) and the Federal Energy Regulatory Commission (FERC) have eased some of the regulatory bottlenecks for export permit approvals, and several proposed facilities have quickly arranged financing and contractors. US LNG developers have benefited from abundant and cheap financing from US investors, amid low interest rates and a shortage of other investment opportunities. Even project developers with weaker balance sheets than major oil companies and no LNG export experience have been able to secure financing on US capital markets. Since 2010, the DOE has received dozens of applications to export domestically produced LNG.⁴ Of those, several projects have been approved to export to countries that have a Free Trade Agreement with the United States and entered the construction phase.⁵ In the next few years, ten additional LNG projects are likely to be approved—adding total new capacity of 5.76 Tcf per year by 2019.⁶ The first LNG export terminal, Cheniere's Sabine Pass, is expected to come online at the end of 2015, and the company has already signed a number of 20-year contracts with buyers. The remaining approved terminals are expected to become operational over the next four years.

As the United States moves closer to becoming a net gas exporter, LNG shipments are expected to target mainly Asian and European markets, where demand is growing at the fastest rate. However, US LNG projects may also look to smaller, closer markets to meet growing demand in Latin America and the Caribbean.

Global gas demand is projected to grow by 51% by 2035, mainly due to increased consumption from the power and industrial sectors.

FIGURE 2: US NATURAL GAS CONSUMPTION AND PRODUCTION, 2012-2040

Source: US Energy Information Administration



How the US Gas Boom is Changing Global Gas Markets

The US shale gas boom has implications for natural gas and LNG markets all over the world, a point which has not been lost on US officials. “We anticipate becoming big players, and I think we’ll have a big impact,” US Energy Secretary Ernest Moniz told reporters in April. “We’re going to influence the whole global LNG market.”⁷ Indeed, the expected flood of US gas into the market will contribute to a surplus in global output, reduced prices and lower volatility in LNG markets, as well as enhanced power for buyers to demand flexible contract terms.⁸ These shifts, which favor importers, provide incentives for many countries to switch to gas for power generation and transportation.

US exports are expected to add LNG to a market that will likely remain soft over the medium-term. The prospect of a surge in exports from the United States is already undermining new export projects in other regions. Before US shale production began to grow, European and Asian utilities, as well as oil majors like Shell and BG, built new LNG export facilities underpinned by long-term contracts, as a surge in LNG demand appeared imminent. However, global markets are now awash with LNG, and developers in Australia and Canada have already cancelled some LNG projects that were no longer competitive.⁹

Unlike in the United States, where electricity demand growth has been decoupled from economic growth for decades, in Latin America, electricity demand growth surpasses GDP growth in many countries.

The increase in shale gas output is also contributing to lower LNG prices and reduced price volatility by increasing liquidity in international LNG markets.¹⁰ Increased domestic supplies have already dented US natural gas prices, leading to a widening spread between Henry Hub and prices for more expensive Asian and European LNG, which are generally indexed to Brent crude. The price spread between Henry Hub and Japanese oil-indexed LNG contracts grew from \$4.35 per million British thermal unit (MMBtu) in 2008 to \$11.98/MMBtu in 2014.¹¹

FIGURE 3: JAPAN LNG PRICES VS US HENRY HUB PRICES, 2004-2015

Source: BP Statistical Review of World Energy 2015, World Bank

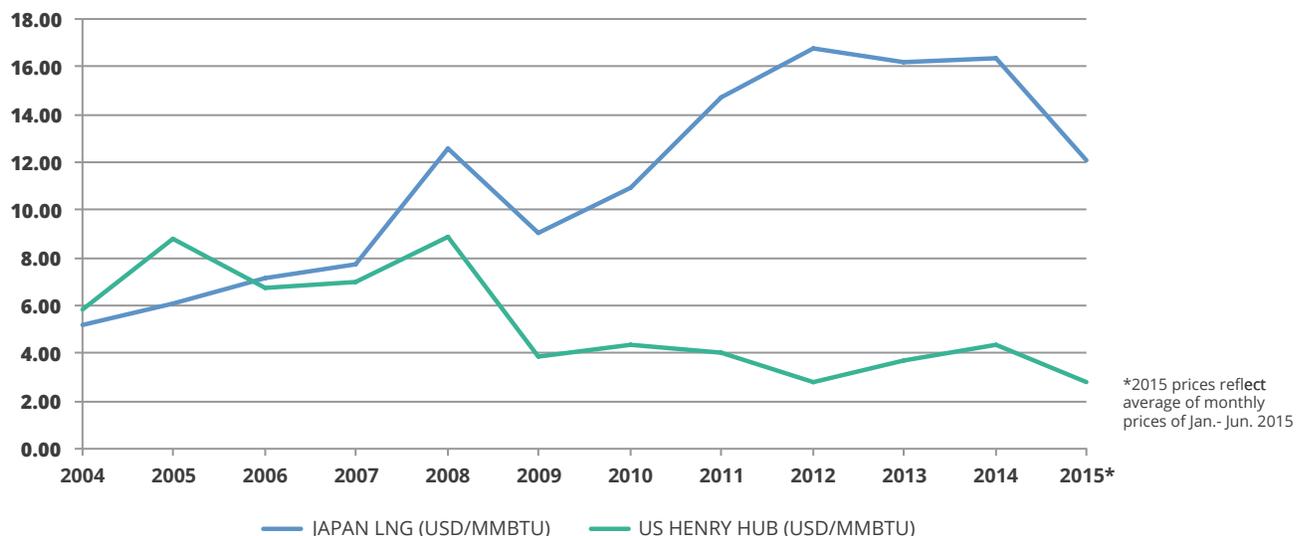
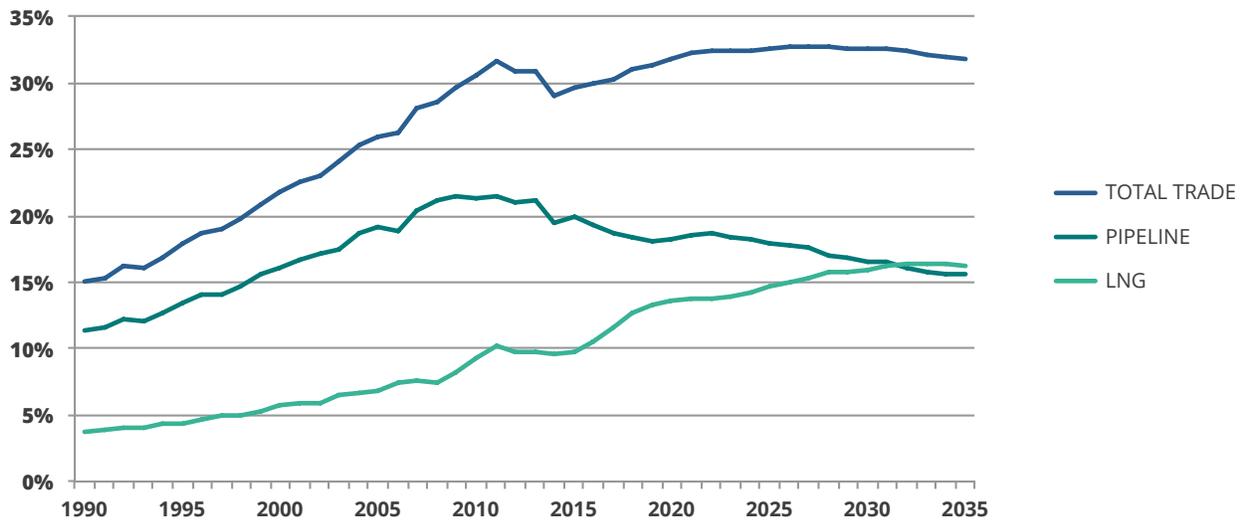


FIGURE 4: SHARES OF GLOBAL GAS CONSUMPTION

Source: BP Energy Outlook 2035 - February 2015



Competition from US LNG has also started to influence Asian and European markets. Even before international oil prices plummeted in the second half of 2014, some Asian buyers had succeeded in negotiating lower contract prices, and European spot prices had declined in response to competition from the United States. More broadly, the expected surge of cheaper US LNG exports is disrupting traditional contract models and empowering buyers to demand more flexible terms and an end to oil-indexed prices.¹²

In the longer term, increased global gas supplies and lower prices may also encourage natural gas demand. Global gas demand is projected to grow by 51% by 2035,

mainly due to increased consumption from the power and industrial sectors, according to BP.¹³ While today LNG remains a niche market – a mere 10% of gas produced annually is liquefied for export – LNG trade will rise prominently over the next 20 years. By 2030, LNG’s share of global gas trade will surpass that of pipeline gas trade, vastly increasing the flexibility and fluidity of global gas markets.¹⁴ Cheap and abundant LNG creates incentives for countries to use more gas for power generation and transportation. This, in turn, could lead to air quality improvements and reductions in carbon emissions. Natural gas emits approximately 43% less carbon than coal and about 30% less carbon than oil, with none of the particulate matter or sulfur oxide¹⁵—although many experts argue that methane leaks during natural gas production may counter its benefits as a clean fuel.¹⁶

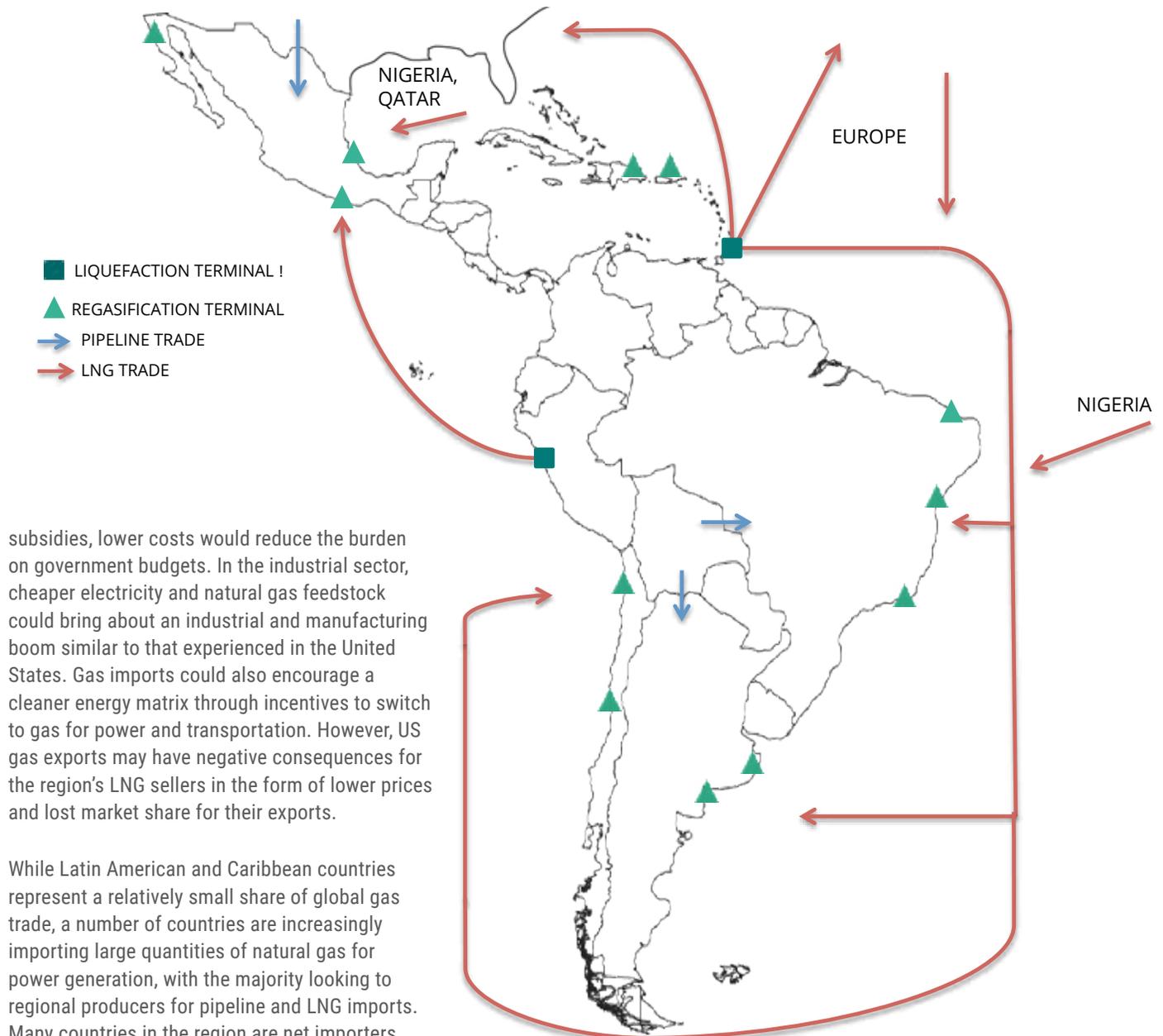
New gas-fired power plants are being built to meet soaring electricity demand, and existing plants are being converted from burning expensive and polluting oil products to cheaper, cleaner natural gas.

What Latin America and the Caribbean Can Gain from US Gas Exports

Latin America and the Caribbean can benefit from the increased supply, lower prices and greater flexibility of natural gas trade spurred by the imminent rise in US exports. Importing cheap natural gas can lead to lower electricity costs, boosting economic growth. For the many countries that provide residential electricity

FIGURE 5: PIPELINE & LNG TRADE IN THE AMERICAS

Source: BP Statistical Review of World Energy 2015, International Gas Union - World LNG Report 2014



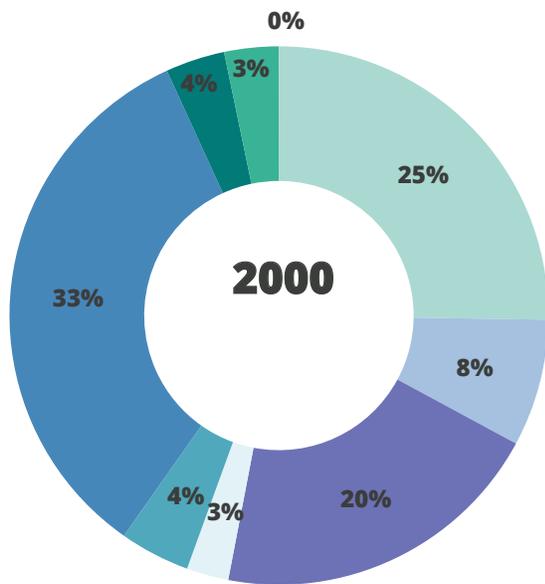
subsidies, lower costs would reduce the burden on government budgets. In the industrial sector, cheaper electricity and natural gas feedstock could bring about an industrial and manufacturing boom similar to that experienced in the United States. Gas imports could also encourage a cleaner energy matrix through incentives to switch to gas for power and transportation. However, US gas exports may have negative consequences for the region's LNG sellers in the form of lower prices and lost market share for their exports.

While Latin American and Caribbean countries represent a relatively small share of global gas trade, a number of countries are increasingly importing large quantities of natural gas for power generation, with the majority looking to regional producers for pipeline and LNG imports. Many countries in the region are net importers, as demand has grown rapidly and a shortage of upstream investment has prevented the development of domestic reserves. In 2014, Latin American and Caribbean countries produced 6.7% of the world's natural gas supply but consumed 7.5% – despite holding over 280 Tcf of untapped proven reserves. In the same year, the region represented about 9% of global LNG demand, with Mexico, Brazil, Argentina and Chile as the largest importers. The region also traded significant amounts of natural gas via pipeline, most of which flowed from the United States to Mexico and from Bolivia to Brazil and

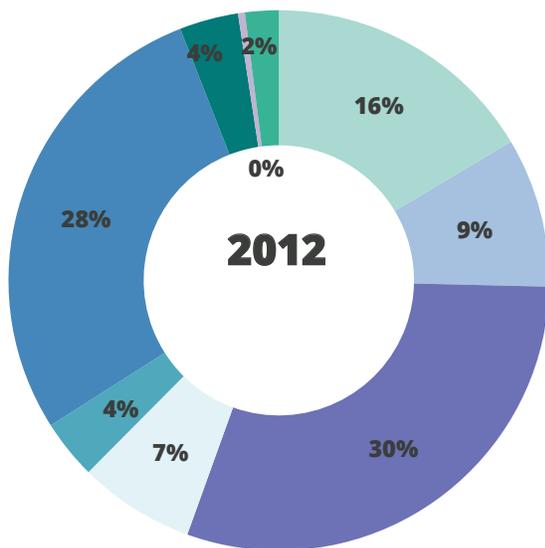
Argentina. Although most countries are net importers, two countries in the region – Trinidad & Tobago and Peru – are important net exporters. Trinidad & Tobago serves as a vital LNG supplier in the Western Hemisphere, meeting 39% of Latin America's total LNG demand in 2014.¹⁷ And Peru began exporting LNG from its Camisea field in 2010, sending most of its cargos to Mexico through a long-term contract.

FIGURE 6: LATIN AMERICA ELECTRICITY MATRIX, 2000 VS. 2012

Source: Inter-American Development Bank Energy Database



- OIL PRODUCTS
- COAL
- NATURAL GAS
- BIOFUELS & WASTE
- GEOTHERMAL
- HYDRO
- NUCLEAR



- OIL PRODUCTS
- COAL
- NATURAL GAS
- BIOFUELS & WASTE
- GEOTHERMAL
- HYDRO
- NUCLEAR
- SOLAR & WIND
- IMPORTS

Unlike in the United States, where electricity demand growth has been decoupled from economic growth for decades, in Latin America, electricity demand growth surpasses GDP growth in many countries,¹⁸ due largely to expanding electrification, inadequate energy efficiency measures and demand from energy-intensive industries. New gas-fired power plants are being built to meet soaring electricity demand, and existing plants are being converted from burning expensive and polluting oil products to cheaper, cleaner natural gas. In the transport sector, natural gas vehicle penetration is also growing. The region accounts for 27% of the global natural gas vehicle fleet, and Argentina, Brazil, Colombia and Bolivia boast among the largest fleets in the world.¹⁹ Lower natural gas prices and more flexible supplies would further encourage demand in both the electricity and transport sectors in the region.

The following sections examine the existing and potential impacts of an increase in US gas exports for importers in Mexico, South America, Central America and the Caribbean.

Mexico

Mexico has been arguably the foremost beneficiary of the US shale boom, as pipeline imports from the United States have provided access to cheap gas to meet a growing deficit. Although it is the third-largest natural gas producer in the Western Hemisphere, Mexico’s domestic demand has consistently outstripped supply over the past decade. State-owned Pemex’s low investment in exploration and production has led to steadily declining output levels, which fell by 9% between 2010 and 2014.²⁰

Growth in demand for natural gas from the power and industrial sectors is only serving to widen the supply-demand gap. Power demand is projected to grow by 4% annually over the next ten years. By 2028, natural gas will represent 90% of total fossil fuel consumption in the public power sector, compared to a mere 60% in 2013, as oil-fired power plants switch to gas and new gas-fired plants are built. This transition will help reduce Mexico’s greenhouse gas emissions, which are 38% higher per capita than the average for Latin America and the Caribbean.²¹ The industrial sector—which employs a quarter of Mexico’s work force and accounts for 93% of exports—will likewise see strong growth in gas demand, more than doubling by 2028.²²

To meet growing demand, Mexico has increased pipeline imports from the United States as well as LNG supplies at its three re-gasification terminals. In 2014, Mexico imported 35% of the total gas consumed in the country,

doubling its US pipeline imports between 2010 and 2014. Half of US gas exports are now destined for Mexico, with the remainder piped mainly to Canada.

In order to facilitate this growing influx of US gas imports, numerous pipeline networks and expansions are currently under construction or have recently been completed. Between 2008 and 2013, US pipelines to Mexico doubled their capacity to 4.7 billion cubic feet per day (Bcf/d).²³ The primary market for US gas exports continues to be in the north and center-west interior of Mexico, regions which lack access to associated gas produced in Pemex's Gulf of Mexico fields. In order to further increase gas imports, Mexico is constructing an additional 10,000 km of new gas pipelines, which will increase capacity to 20.6 Bcf/d. The Agua Dulce-Frontera, Tucson-Sásabe and Los Ramones pipelines will tap into shale plays in southern Texas for export to Mexico.²⁴ LNG imports and domestic gas production, two important supply sources for Mexico, are expected to remain flat through 2028, meaning US gas imports will be critical to filling the supply-demand gap.²⁵

The rise in imports from the United States is also leading to lower electricity prices. Electricity prices for Mexico's industrial sector increased nearly threefold between 2002 and 2014 – almost double those of its main trading partner, the United States. The country's average residential rates remained low, thanks to significant subsidies that have taken a toll on public finances. However, since the beginning of 2015, electricity prices in Mexico have declined significantly, thanks largely to cheap natural gas imported from the United States.²⁶ Mexico's energy reform and the transition from fuel oil to natural gas for power generation could lead to a 13% decline in electricity tariffs, boosting manufacturing output by up to 3.9% and overall real GDP by 0.6%, according to an IMF working paper.²⁷

The Southern Cone

South American natural gas demand has grown over the last decade, with Brazil, Argentina and Chile importing the largest amounts. Indeed, the Southern Cone has emerged as a key LNG market, with demand in 2013 almost on par with that of China. Brazil and Argentina, which together account for 79% of the Southern Cone's LNG market, buy cargos on a short-term basis through spot markets rather than through traditional 20-year contracts. This approach affords greater flexibility in accessing imports and financing, but it has also led these countries to pay among the highest LNG prices in the world.

In Brazil, natural gas consumption has consistently exceeded domestic production over the past decade, and the gap continues to widen. Brazil receives 50% of its gas imports from Bolivia, but began buying LNG on the spot market in 2009 to access more flexible supply during drier periods when less hydroelectric power is available. In the near-term, Brazil's government has indicated it prefers to pay higher spot prices in order to maintain import flexibility and use hydropower when available. Government projections show average LNG imports remaining steady at 1.45 Bcf/d through 2030.²⁸ In the longer term, associated gas from the country's offshore pre-salt fields may close the supply gap.

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Argentina has been a net gas importer since 2008 due to rising domestic demand and declining production. Government subsidies have kept residential gas prices low, causing demand to swell and the country's energy deficit to widen. Indeed, its gas imports have tripled since 2010. Argentina has been buying LNG on a short-term basis at prices approaching those paid by Asian LNG importers and would have to pay a premium for longer-term contracts as it is considered to have high credit risk. In the near-term, LNG imports are expected to grow as Argentina seeks to reduce its reliance on pipeline imports from Bolivia.²⁹

Chile is also a large LNG importer, with nearly 80% of its natural gas consumption imported as LNG. The country began looking to LNG imports after Argentina reduced pipeline exports during an energy crisis in 2004. Facing strong opposition to new hydroelectric projects, the government plans to increase the share of natural gas in the electricity matrix and build a third re-gasification

terminal. Chile's electricity prices doubled between 2007 and 2014 and are projected to rise by 30% by 2021. The country hopes to increase LNG supply, replacing diesel, to keep electricity prices low and ensure that its mining industry stays competitive.³⁰

Uruguay plans to import small quantities of LNG to back up intermittent renewable energy sources and displace oil in its electricity matrix. The government plans to install a floating storage and regasification unit (FSRU) near Montevideo, which will satisfy the country's relatively small gas market, and re-export remaining gas via pipeline to Argentina. This project has been delayed until 2016, however, due to financial issues with the FSRU developers.³¹

South American LNG buyers importing on a short-term basis will particularly benefit from the reduced prices, lower volatility and more flexible terms resulting from the increase in LNG exports from the United States. These countries will be able to purchase excess capacity from LNG exporting facilities that are financed with long-term contracts in other countries, enabling them to import US LNG at lower prices on the spot market without taking on the financial risk of a long-term contract.³² They will also benefit indirectly from US LNG exports – as the overall increase in global LNG supplies leads to lower spot prices and increased liquidity on global markets, prices for spot cargos from Europe, Africa or Trinidad & Tobago will also likely decline. The lower short-term prices are advantageous for buyers that want to import LNG only during high demand periods when other energy sources are not available. Chile is an exception, as it is the only country in the region that has committed to long-term LNG contracts.

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The Caribbean

In the Caribbean, hydrocarbon and large-scale renewable resources are markedly scarce, forcing the majority of countries to rely on fossil fuel imports for power generation. In fact, 11 of 14 nations in the region rely on diesel and fuel oil-fired plants for over 75% of installed capacity.³³ As a result, Caribbean countries have the highest and most volatile electricity costs in the Western Hemisphere, with an average price of \$0.33 per kWh, compared to \$0.11 per kWh in the United States. Trinidad & Tobago is an outlier in the region as it depends almost entirely on domestic gas supply for generation and has relatively low electricity prices.

Caribbean countries could greatly reduce the cost of power generation while cutting carbon emissions by displacing oil products with less expensive natural gas. According to the Inter-American Development Bank (IDB), the long run marginal cost of diesel-fueled power plants in the Caribbean is significantly higher than that of gas-fired plants, indicating that electricity prices across the region could be slashed in half by switching to natural gas.³⁴ The study also found Henry Hub-priced natural gas to be the most likely supply source for the Caribbean due to the United States' close proximity to the region and its imminent ability to export LNG from terminals along the Gulf of Mexico.

As US LNG export terminals come online, the Caribbean could look to develop island hubs with large re-gasification plants, connecting supply to neighboring countries via smaller LNG vessels or compressed natural gas (CNG). For example, AES's gasification plant in the Dominican Republic, the only large-scale gasification terminal in the Caribbean, excluding Puerto Rico, could receive US LNG imports and send gas to other countries, such as Jamaica or Cuba. The United States could also export containerized LNG cylinders to various countries in the Caribbean. Containerized LNG does not require the large-scale re-gasification and storage infrastructure of traditional LNG projects, making it accessible to small industrial consumers.

While US gas presents an opportunity to reduce electricity costs and bolster economic development, the region faces a number of obstacles, with a lack of financing the foremost bottleneck. Many Caribbean countries have poor credit ratings and cannot take on more public debt, making private sector investment critical in financing the necessary infrastructure to facilitate gas trade.³⁵ Even if all

oil-fired power generation in the region was converted to natural gas, it is unlikely that the combined demand would surpass 1 Bcf/d by 2020.³⁶ LNG suppliers such as the United States might prefer to target larger, more lucrative markets in order to anchor financing for export terminals. In fact, importing natural gas as a substitute for fuel oil and diesel may only be viable if the region integrates plans for gas imports and presents itself to exporters as a unified market, allowing for economies of scale. This will likely be difficult given that many countries have conflicting energy policies and utilities with varying market structures. Moreover, lower oil prices have reduced the financial impetus for Caribbean countries to switch to natural gas.

Central America

Central America has a relatively diverse electricity matrix, but the region continues to suffer from high electricity prices as a result of its reliance on imported oil for power generation. Renewable energy sources make up nearly 62% of total installed capacity in Central America, with hydropower alone contributing nearly 80% of installed capacity in Costa Rica and over 40% in Guatemala, Honduras and Panama. Yet fuel oil and diesel still account for a large share of power generation, leading to high electricity prices that range from \$0.20/kWh to \$0.30/kWh. Many of these countries have increasingly turned to oil products to supply electricity during periods of drought, as well as to avoid conflicts associated with dam construction.

Central America also faces the challenge of expanding generation capacity to meet a projected 4.7% to 5.5% annual growth in demand for electricity through 2030.³⁷ To keep up, between 6.5 GW and 11 GW of new capacity must be installed in the coming period—nearly double the region's total capacity in 2012.

Central America could potentially displace oil products with natural gas, lowering electricity prices for consumers while simultaneously cutting carbon emissions. According to the IDB and the Central American Bank for Economic Integration, adding cheap natural gas to the region's electricity matrix could cut power prices by as much as 23%-30%. The IDB notes that Central America could build one to three re-gasification terminals and feed gas-generated electricity to the integrated market along the isthmus. For this integrated approach, gas-fired power would be produced at the LNG import point and then exported to the region as electricity via the Central American Electrical Interconnection System (SIEPAC) transmission line. Alternatively, the region could pursue an

individual country market approach in which each country focuses on self-supply, building LNG re-gasification terminals and smaller gas-fired power plants.³⁸ Guatemala is in a unique position to tap into Mexico's gas supply via pipeline. Indeed, the two countries have tentative plans to construct a cross-border pipeline. The integrated-market solution faces a number of barriers, including market structure disparities between the various countries and the implicit requirement that countries cede control over their energy supply.

A recovery in LNG prices will depend on the rate of demand growth in China and other emerging markets in Asia, South America and Eastern Europe, as well as the extent to which consumption holds up in the world's largest LNG markets, Japan and South Korea.

The United States is the most likely LNG supply source for Central America, according to the IDB. As the US approaches LNG exporter status, Central America could greatly benefit from the country's close proximity and free trade agreements with many Central American countries. Similar to the Caribbean, the region will have trouble competing on price and volume against much larger LNG importing regions, including Europe and Asia. Additionally, private sector investment will be key for the development of LNG receiving terminals, especially given the difficulty of a number of Central American governments to finance these projects.

Uncertainty over US LNG Expansion

Although the prospect of large-scale LNG exports from the United States is promising for most Latin American and Caribbean countries, the volume of future US LNG exports is uncertain. On the supply side, the economic viability of many US LNG projects has come into question with the decline in international oil prices. LNG contracts indexed to oil are benefiting from lower crude prices, constraining the competitiveness of Henry Hub-linked LNG contracts. As a result, many of the proposed terminals that receive approval from US regulators may be put on hold. Lower oil prices have already led to a decline in Asian and European LNG prices, causing the spread with North American LNG prices to narrow. Moody's credit rating agency predicts that low LNG prices will result in the cancellation of the vast majority of the liquefaction projects currently proposed in the United States.³⁹ However, projects already under construction will continue as planned, which will lead to excess liquefaction capacity over the rest of this decade, the rating agency notes. Many analysts believe that, barring a supply shock, the lower oil price environment will last through 2016 or longer until higher-cost producers are forced to take production offline or until demand recovers. As a result, investors are including lower oil price assumptions in their medium-term analyses of LNG project economics.

On the demand side, the key question is whether LNG imports will grow fast enough to absorb the substantial additional supply flooding the market. Global gas demand is increasingly centered in Asia, which will be the destination for most US LNG exports. Asia Pacific countries are the leading importers of LNG, taking in 73% of global LNG exports in 2014. However, although Asian buyers have signed multiple supply agreements with US LNG developers in recent years, there are still substantial volumes of planned export projects in the United States that have yet to secure buyers.⁴⁰ A recovery in LNG prices will depend on the rate of demand growth in China and other emerging markets in Asia, South America and Eastern Europe, as well as the extent to which consumption holds up in the world's largest LNG markets, Japan and South Korea. Carbon reduction policies will also be a factor determining the speed of demand growth in Asia and other emerging markets. As China and other heavily coal dependent economies look to reduce coal consumption to lower emissions and improve air quality, they will likely increase natural gas consumption.

Although some earlier projections for gas exports from the United States may be revised down, the country remains on track to become a net gas exporter, contributing to a significant increase in global gas trade in the coming years.

FIGURE 7: GLOBAL LNG SUPPLY OUTLOOK

Source: BP Energy Outlook 2035 - February 2015

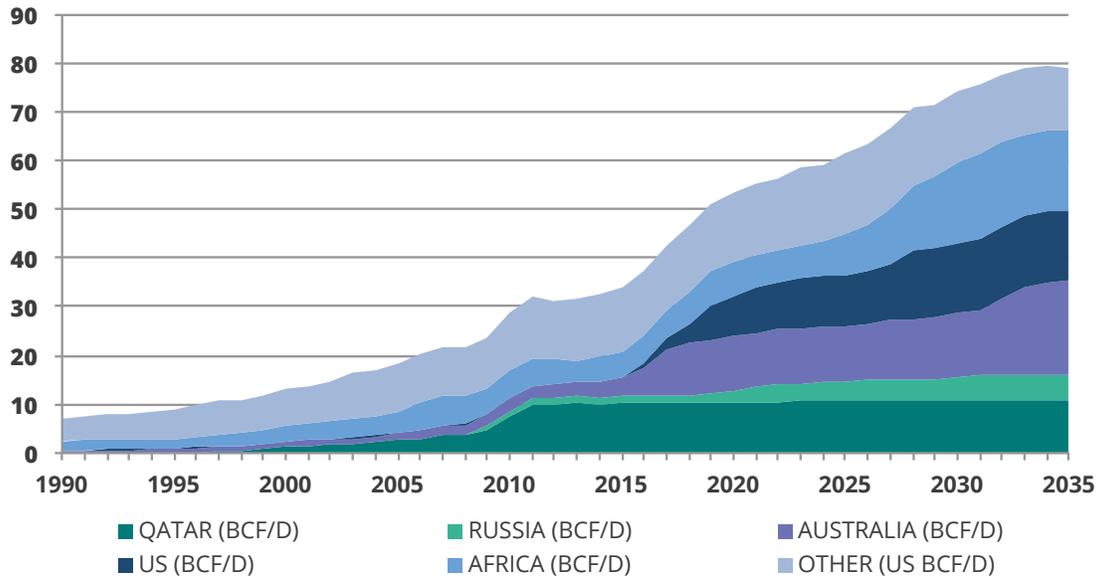
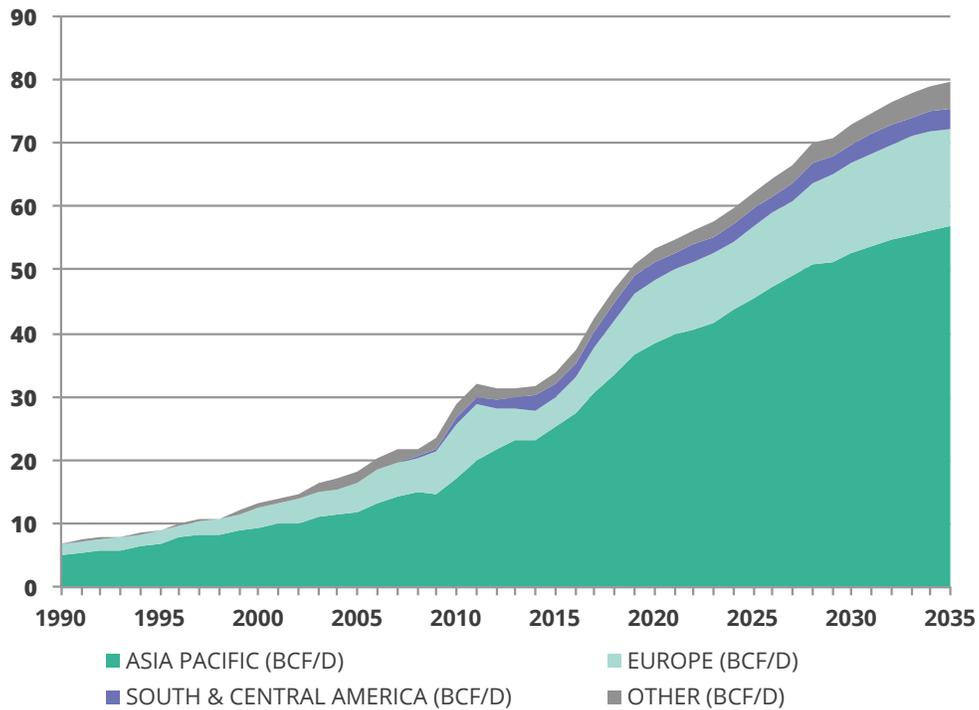


FIGURE 8: GLOBAL LNG DEMAND OUTLOOK

Source: BP Energy Outlook 2035 - February 2015



CONCLUSION

Although some earlier projections for gas exports from the United States may be revised down, the country remains on track to become a net gas exporter, contributing to a significant increase in global gas trade in the coming years. Latin American countries are well-positioned to take advantage of the surge in US gas exports to lower electricity costs, improve energy security and produce cleaner energy. Although the recent decline in oil prices eases some of the economic pressure to convert to natural gas, it does not diminish its long-term advantages.

Latin America can hasten the transition to natural gas and exploit the benefits of US gas exports by further expanding energy integration, including pipeline infrastructure and electrical grids. Mexico's increased imports of US gas will depend on the growth of cross-border pipeline infrastructure, while Central America and the Caribbean can benefit from US gas exports by improving electrical grid integration.

As global gas trade grows in the coming decades, Latin American and Caribbean importers stand to benefit from the imminent increase in US natural gas exports.

FOOTNOTES

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