AN Energy Agenda FOR THE Pacific Alliance

A Working Paper of the Americas Society/Council of the Americas
Energy Action Group

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FOREWORD

The Pacific Alliance is the most exciting economic group to emerge from Latin America. The Alliance is groundbreaking because it is one of the first regional attempts to create a larger internal market while also building a gateway to Asian markets. The like-minded countries have demonstrated a commitment to open-markets, private investment, and rule of law, and are pursuing commercial and economic integration. Thus far, however, energy cooperation in the Alliance has been elusive, despite its tremendous potential for integration and coordination.

The Alliance was informally created in April 2011 when Chile, Colombia, Mexico and Peru signed the Lima Declaration, which called for a free flow of capital, goods, people, and services among its members. Together, the four members account for 35 percent of Latin America's GDP and 55 percent of the region's exports. The group officially launched a year later. Subsequently, the countries agreed to eliminate tariffs on 92 percent of goods.

With over thirty observer countries, the Alliance has attracted much attention from around the world, and several other Latin American countries have expressed an interest in joining. Costa Rica and Panama have already taken steps to become members. The Alliance has progressed on issues such as trade, migration, financial markets, and multilateral ties.

The lack of a meaningful energy agenda to date is due in part to long-standing issues. In addition, Ecuador stands in the path physically of energy connections between Colombia and Peru, and Mexico's geographic position separates it from its South American partners. Despite these challenges, the Pacific Alliance countries have much to gain from energy integration. In areas such as conventional energy, power generation, and renewables, much can be accomplished by bringing the countries together.

This paper follows a roundtable discussion convened by the Council of the Americas' Energy Action Group in Bogotá in December 2014 with high-level experts from the private sector, Colombian and U.S. government officials, business associations, multilateral banks, and journalists. The discussions focused on the benefits and strategies for public and private sector cooperation to promote energy integration and connectivity within the Alliance framework with next steps on energy for the Alliance moving forward.

As always, we would like to thank the participants of the roundtable as well as the sponsors of the Energy Action Group, including the Inter-American Development Bank and various private sector entities, for their support of our energy activities.

Eric Farnsworth
Vice President

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DEVELOPING AN ENERGY AGENDA FOR THE PACIFIC ALLIANCE

The energy agenda of the Pacific Alliance is under construction. Even as energy prices fall significantly, each country is making individual gains, yet cooperation among the four has been elusive. Energy markets are fragmented and it is unclear how they might be deepened. With financial markets integrating through mechanisms such as the Integrated Latin American Market (MILA), the same type of arrangement might be pursued in energy through steps such as regulatory convergence. MILA might serve as an example for energy cooperation in the Alliance. Furthermore, issues such as infrastructure, rule of law, fracking, clean energy, climate change and environmental issues could be points of cooperation for the Alliance. With shale gas development prominent in Mexico and Colombia and to a smaller extent in Chile, a regional shale gas council might be useful in sharing best practices across borders. Interconnected markets are more integrated markets, and it is not just a physical interconnection, but coordination on an inter-governmental level. This is the direction governments should consider heading in 2015 and beyond.

Each country is making individual gains, yet cooperation among the four has been elusive.

A SNAPSHOT OF ENERGY ISSUES IN ALLIANCE MEMBER COUNTRIES

I. Conventionals

Thus far, integration is limited in the oil and gas sector. The Alliance features both large producers and consumers of hydrocarbons. As some countries suffer from energy poverty in the region, major producers can cooperate to facilitate energy flows across borders. Thus it may be considered an alliance of unequals. There are several mechanisms that can employed across the Alliance, including with non-Alliance countries, to facilitate energy trade and integration, through sharing of best practices, regulatory harmonization, and free movement of workers, among others.

MEXICO

Announced in August 2013, the Mexican energy reforms are historic because they open the energy sector to private investment for the first time in over 75 years. Mexico is an outlier in Latin America. Ranked in the top ten in the world, Mexico's oil sector has suffered from deficient investment and unexplored potential, particularly in the deep waters in the Gulf of Mexico. Despite decreasing production and dropping oil prices globally, Mexico's hydrocarbons sector remains very attractive.

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Oil and Gas Reserves in Mexico

Source: QMAX

Mexico's energy reforms represent opportunities for other countries in the Alliance to invest. For example, Pacific Rubiales, a Bogotá and Toronto-listed energy company, has signed an agreement with Mexican state energy company Pemex to study oil and gas natural ventures. Companies such as Pacific see Mexico's opening as a "significant driver of future growth," according to CEO Ronald Pantin.[1] Other companies that work across the Alliance countries such as GeoPark, which is present in Chile, Peru, and Colombia, see Mexico as a tremendous opportunity in the oil and gas sector.

In addition, Mexico has great potential for shale gas. The Eagle Ford shale play in south Texas extends into Mexican territory. While the availability of water and security will be a concern, the resource is available and will be exploited once capital is mobilized. Combined with Colombia, Mexico can be a leader in the Alliance in shale gas development.

COLOMBIA

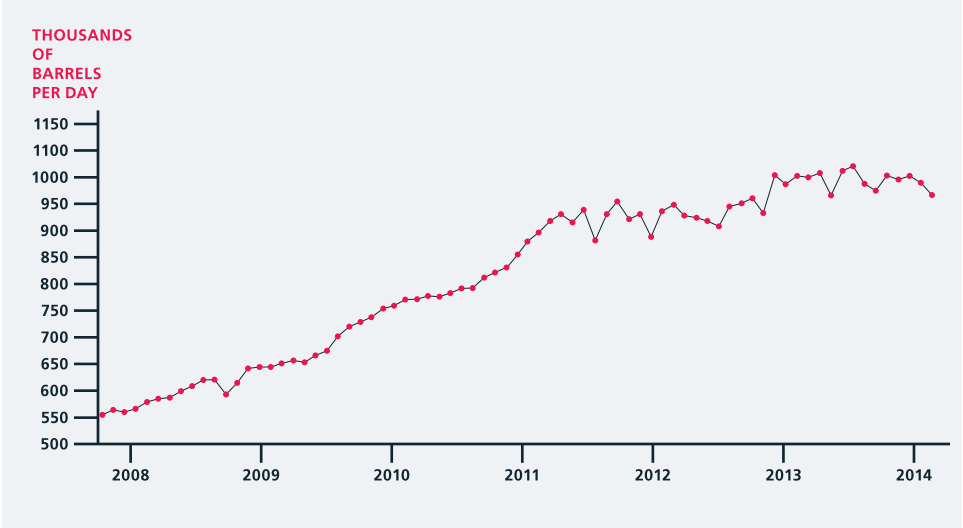
Since 2008, Colombia has dramatically increased hydrocarbon production, after a set of successful regulatory reforms that buoyed exploration and production. Colombia has been producing at more than 1 million barrels per day, yet there are fears internally that this production may not continue its current growth trajectory due to dwindling reserves. Indeed, in 2014, Colombia will produce an average of 981,000 barrels per day representing a downward trend.

Combined with Colombia, Mexico can be a leader in the Alliance in shale gas development.

Like Mexico, Colombia is being hard hit by falling oil prices. Crude oil sales account for more than half of its exports, and the country is facing a budget shortfall in 2015. Dubbed the "*hueco fiscal*" (fiscal hole), the finance ministry is proposing raising taxes to shore up the budget.

Colombia also continues to face limited attacks on energy infrastructure. If successful, the ongoing peace negotiations between the Colombian government and the guerillas would stand to improve the security situation along certain pipeline routes.

[1] "Pacific Rubiales to invest in Mexican oil ventures." Petroleumworld.com. October 21, 2014.



Colombia Monthly Crude Oil Production (2008 to date)

Source: ANH Colombia

PERU

Peru has the eighth largest oil reserves in Latin America, with 633 million barrels of proven reserves, most of which are onshore in the Amazon region.[2] Peru also has more than 15 trillion cubic feet of natural gas reserves, the third largest reserves after Venezuela and Mexico in Latin America.[3] Oil production in Peru has fallen during the last 20 years, but an increase in natural gas production has made up for this deficit. Peru is a net oil importer and imports most of its crude oil from Ecuador and refined products from the United States.

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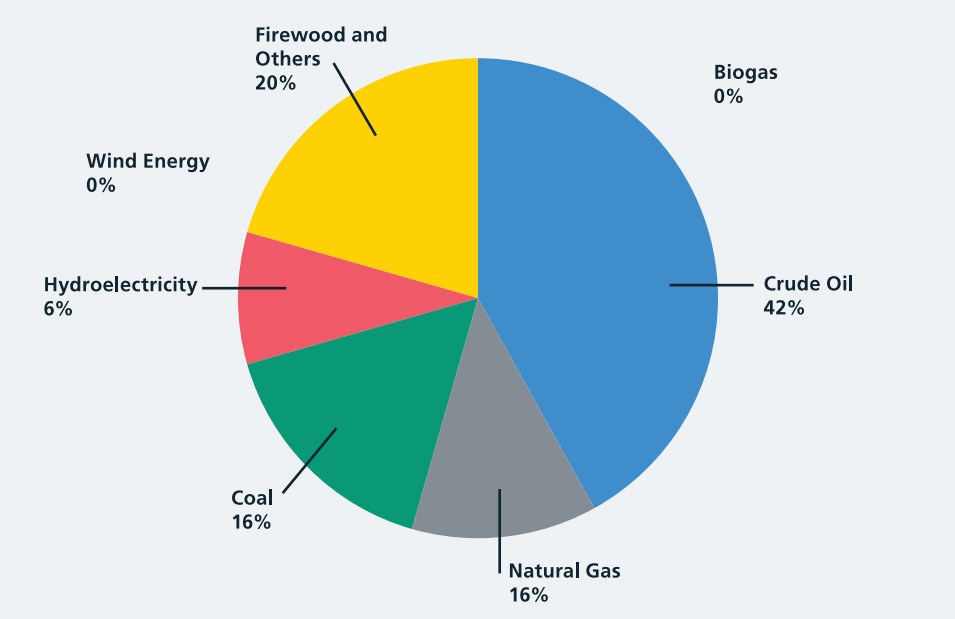
2 "Peru: Overview." U.S. Energy Information Administration. June 2014.
3 Ibid.

Peru would benefit from increased energy integration with the Alliance, due to its increasing energy consumption needs and growing production, in particular natural gas. If it can find the political will to move beyond its standing dispute with Chile, Peru could set up a natural gas interconnection with its neighbors. Also, while unlikely to join the Alliance in the near term for political reasons, Ecuador will continue to play a key role in Peru's energy future.

CHILE

Chile is a major consumer of energy – the fifth largest in South America.[4] Yet while the country is rich in minerals such as copper, it has minimal hydrocarbon reserves. Thus Chile is dependent on countries such as Ecuador, Brazil, Colombia and Argentina for crude oil imports and the United States for refined products. Chile is also importing natural gas from Trinidad and Tobago, Qatar, and Yemen, and would like to import gas from Peru.[5] The expansion of the Panama Canal is potentially good for Chile's imports, especially LNG.



Chile Primary Energy Production and Imports

Source: CNE, 2010

[4] "Chile: Overview." U.S. Energy Information Administration. July 2014.
[5] Ibid.

Due to Chile's lack of reserves, it suffers from high energy costs, hampering industries such as copper extraction and other manufacturing. Chile's electricity costs, among the highest in the world, have risen by 193 percent over the past ten years.[6] Chile has much to gain from energy integration in particular with neighboring Peru.

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II. Power generation

Through the interconnection of power grids, the Pacific Alliance could deepen integration of energy markets. Constructing pipelines and power grids is fundamental to cross-border connectivity in the Alliance. Regulatory convergence across these borders can lower costs and boost competitiveness. Internally, the countries suffer from an infrastructure deficit that must be addressed. The main challenges are political and regulatory, as regional integration is technically possible.

In order for electricity integration to be successful, the countries must address the technical challenges of long distances between the countries. Connections currently exist between Colombia and Ecuador and to northern parts of Peru, which could be expanded. The pre-existing connection with Venezuela, Ecuador and Panama is another building block.

Regulatory convergence across these borders can lower costs and boost competitiveness.

Energy connections already exist among countries of the Alliance. State-owned Colombian company Interconexión Eléctrica (ISA) is the main power transmission company in Peru and is building power connections to the north of Chile. ISA is also very active in Chile. Peru LNG, which is owned by Hunt Oil, plans to sell 70 percent of output to Mexico.[7] While not a member of the Alliance, Ecuador will be linking up via a 500kV electrical transmission line with Peru, a move that is a de facto link from Peru to Colombia, which already has deep connections with Ecuador.

6 "Chile's electricity costs among world's highest, industry group says." EFE. July 18, 2014.
7 Ibid.

Historic tension between Chile and Peru is often cited as a barrier to deeper Pacific Alliance energy integration. A 2014 ruling at the International Court of Justice on the maritime dispute between the two countries sought to resolve the major issues. Nonetheless, cooperation remains politically fraught.

Major investments in infrastructure would be needed as Peru does not have the requisite power plants or transmission lines in place to export. According to the Peruvian trade association AFIN, Peru needs to invest nearly $33 billion in electricity generation and transmission by the end of the 2010s and add 2,000MW annual for the rest of the decade, in order to meet domestic demand and export.[8]

Peru could capitalize on its tremendous potential for hydroelectric power. Its current potential is 60,000MW.[9] In addition, Peru has significant natural gas reserves, and it is the only South American country on the Pacific coast with an LNG export facility, which could send gas to Chile in addition to China. Peru has the potential to be an energy hub in the Alliance.

Natural gas is a compelling feedstock because it is abundant and cleaner than other fossil fuels.

Natural gas is a compelling feedstock because it is abundant and cleaner than other fossil fuels. As some countries of the Alliance are major natural gas producers, the abundance of gas can lead to decreased costs of manufacturing. With excess supply in certain countries, and the ease of shipment via pipelines and LNG tankers, natural gas can fill in reliability gaps in hydroelectric power, for instance.

In June 2014, Peru awarded a 34-year concession to build and operate a 600 mile-long natural gas pipeline from the central jungle to the southern coast.[10] The winning bidder was a consortium called Gasoducto Sur Peruano, a partnership between Brazilian company Odebrecht and Spanish company Enagás, who will invest approximately $4 billion, with overall project costs estimated at over $7 billion, according to government agency ProInversion. The pipeline has the potential to reach the north of Chile, which would benefit mining areas.

8 "PERÚ NECESITA US$32.987M DE INVERSIÓN EN ENERGÍA HASTA 2021." América Economía. February 20, 2014.
9 Chauvin, Lucien. "Electric links hint at added energy for Pacific Alliance." *Financial Times.* April 1, 2014.
10 Kozak, Robert. "Gasoducto Sur Peruano Gets Peru Gas-Pipeline Concession." *Wall Street Journal.* June 30, 2014.

The Camisea fields in Peru have been active since 2004, when the Transportadora de Gas del Perú S.A. built twin pipelines to move natural gas from central Peru to other areas.

Given the countries' geographical position, Asian markets are vital to energy exports and the countries have worked toward defining a common position across the Pacific on other issues through existing and proposed trade agreements. Energy markets are the next step to consolidate the Alliance's posture to Asia, and with each other.

III. Renewables

The Alliance has affordable renewable energy sources, including hydro power, which is a major source of electricity in countries of the Alliance. Beyond hydro, other clean energy sources remain a small percentage of the energy matrix, but potential exists for other renewable energy, in particular solar and wind. In order for investment to come to the sector, prices must be competitive and the business climate must be favorable. In addition, renewable energy must be competitive on its own, without subsidies.

Renewable energy must be competitive on its own, without subsidies.

MEXICO

Mexico has a 12-year program for renewable energy production, and it seeks to generate 35 percent of its energy from renewable sources by 2024.[11] This would be a huge step up as only three percent of electricity was generated by wind, solar, and geothermal in 2013 (with hydroelectricity supplying 11 percent).[12] The government expects major increases in solar and wind power by 2018, including increases of 55 MW of solar in 2012 to over 600 MW, and wind reaching nearly 9000 MW from its current 1300 MW.[13]

The energy reforms will open the state utility company CFE to private sources of generation, which will also make it easier for private power plants to be con-

[11] Paluck, Nathan. "Mexico's Newly Opened Energy Market Attracts Renewables." RenewableEnergyWorld.com. May 8, 2014.
[12] "Mexico: Country Analysis Overview." U.S. Energy Information Administration. April 24, 2014.
[13] Paluck.

structed. Also, CFE must purchase renewable energy before other sources of energy. Because of an estimated four percent annual growth in electricity demand, the government is relying on private investment to bridge the gap. However, the government will not offer subsidies to the renewable energy industry.

The private sector will be driving increased capacity in solar and wind development. The cost of electricity for large business has doubled in the last 10 years (from 6 to 13 cents per kWh[14]), and businesses do not receive the same subsidies as households. Thus, it makes sense for larger companies to develop their own renewable energy resources.

Finally, Mexico has world-class geothermal resources. Geothermal is particularly attractive because it is a steady source of power, unlike the intermittency of hydro, solar, and wind. Mexico is the world's fourth largest geothermal energy producer, with nearly 1000 MW of capacity. Private-public partnerships are aiding in the development of these resources.

The private sector will be driving increased capacity in solar and wind development.

Mexico's renewable energy profile gives it a privileged position within the Pacific Alliance, and it could cooperate with the other members through sharing of successful case studies and intellectual capital.

COLOMBIA

Like other countries in South America, Colombia is heavily reliant on hydroelectric power to produce electricity. 70 percent of the country's electricity matrix is through hydropower. While current usage stands at 9000 MW, the potential is estimated at over 90 GW.[15] Potential roadblocks to development are the social and environmental costs of building hydroelectric power plants, and as in all Pacific Alliance countries, consultations with local communities should be conducted as appropriate.

[14] Ibid.
[15] Bytheway, Bryce. "Colombia's Future as it Masters Renewable Energy." *APEC CEO Summit Magazine.* October 31, 2013.

Colombia has excellent conditions for wind power. Wind is attractive due to its low cost and its clean energy profile. Offshore regions off the northern coast of the country have winds that are unmatched in South America outside Patagonia.[16] Despite potential such as the 21 GW in the Guajira peninsula, Colombia currently only has 20 MW of installed capacity. The country would be well served by promoting this investment opportunity for the private sector, which could generate significant gains for an environmentally sound energy source.

In this regard, the Colombian government encourages the integration of non-conventional energy sources (wind, solar, and geothermal) through tax incentives, and enables the delivery of energy surplus from self-generators. It is expected that they will allow development of new potential energy sources, diversify the energy matrix, increase the interest of investors worldwide, and aid in sustainability.

At the same time, through technical cooperation with entities such as the Inter-American Development Bank (IDB), the country is defining the roadmap for the successful implementation of smart grid infrastructure in Colombia, including advanced metering infrastructure, demand response, and distributed generation.

PERU

Like Mexico and Colombia, Peru has a diversified energy matrix but is looking to boost its renewable energy profile. The country announced during the December 2014 COP20 meetings in Lima that it plans to hold a bidding round in the first half of 2015 for solar, wind, biomass, and geothermal projects. Currently, fossil fuels provide approximately half of Peru's power while the other half is almost entirely provided by hydroelectric power. Renewable energy supplies just under three percent of the electricity matrix.[17]

Like Mexico and Colombia, Peru has a diversified energy matrix but is looking to boost its renewable energy profile.

[16] Ibid.

[17] Dezem, Vanessa. "Peru to Unveil Plans for Renewable Power Auction During UN Talks." *Bloomberg.* November 17, 2014.

Because demand for electricity is increasing yearly at around five percent, Peru will need to increase its supply, and Energy and Mines Minister Eleodoro Mayorga has said that Peru would eventually source 60 percent of electricity from renewable sources, including hydropower. For this to be possible, the bidding rounds should specify attractive investment terms including a favorable and certain regulatory environment. Peru should consider consulting with other Alliance countries, in order to promote harmonized regulations, as a means to promote a consistent investment climate across the four countries.

CHILE

As an energy-poor country, Chile maintains incentives to develop resources that it does have: solar, wind, and geothermal energy. Chile's hydroelectric potential is also well known, and will continue being a mainstay in the energy matrix. However, the Atacama Desert in the north of the country has some of the most favorable conditions for solar energy in the world, which has attracted significant investment from companies such as SunEdison, Sunpower, and Abengoa. Chile has also set an aggressive renewable energy target, with a goal of sourcing 20 percent of the energy matrix from renewable energy by 2025. In order to make this possible, 4000 MW of clean energy projects must come online in the next decade.[18]

Chile's hydroelectric potential is also well known, and will continue being a mainstay in the energy matrix.

[18] Gonzalez, Bea. "Chile will need up to 4,000 MW in coming year to comply with Law 20/25." *PV Insider.* April 14, 2014.

RECOMMENDATIONS – BUILDING THE PACIFIC ALLIANCE ENERGY AGENDA

With this framework in mind, several recommendations for action present themselves.

a. With lower energy prices, the Alliance countries should seek to create larger internal markets and stronger investment conditions to draw investment that might otherwise be on the sidelines now awaiting more favorable energy prices.

b. Alliance members should bring regulations together in terms of private sector participation in the energy industry to make it easier for companies to invest across the region. One of the key purposes of the Alliance is to harmonize regulations in order to facilitate cross-border integration.

c. In order to meet its renewable energy needs, Chile could work with other Alliance countries, especially Peru, to link electricity grids and deepen integration. Because all four countries have resources and a desire to deepen their renewable energy profile, they should establish a working group of their respective ministries of energy, as well as the private sector, to evaluate best practices in order to promote investment and development.

d. Increased regulatory collaboration could benefit the clean energy profile of the Alliance as a whole. As countries compete for investment, they can promote clean energy opportunities jointly by positioning the Alliance as a prime destination. Investment need not be a zero-sum game, and through an improving investment climate for clean energy, the Alliance as a whole can be a regional leader in clean energy development, including solar, wind, geothermal, and shale gas.

e. A shale gas council could be established to promote cooperation, best practices, technology exchange, and joint project development.

f. Energy infrastructure must also be a vital piece of cooperation for the Alliance. The MILA is a perfect example of an alliance-wide initiative that maximizes the shared affinity between the countries for open markets and investment-friendly regimes. The Alliance could consider the creation of a development bank, similar to the North American Development Bank, which was established through the North American Free Trade Agreement to finance infrastructure projects.

g. Cross-border energy projects could also be listed on the MILA, with technical assistance or financing from the IDB or the Andean Development Corporation. Investments in pipelines, smart grids, and transmission lines would stimulate the development of robust infrastructure, which is the backbone of energy projects. By focusing on energy infrastructure, the countries of the Pacific Alliance can directly boost their competitiveness.

h. The countries should set up a regional labor pool, where qualified workers can achieve certifications that can be applied to all Alliance countries. Welders in Peru should be able to work on energy projects in Chile, for example; engineers in Colombia should be allowed to practice their craft in Mexico.

i. In order to facilitate these initiatives, the Alliance countries should hold meetings of different regulatory and planning bodies jointly, which can be expanded to include companies that are investing across borders. Offtake agreements and concessions should also be standardized in order to promote investments.

CONCLUSION

Across the region, the fluctuating price of oil is adversely affecting the oil and gas industry, which has a direct impact on national budgets. Hydrocarbons will remain dominant in the energy profiles of the Alliance countries for the immediate future, because, besides hydro, renewables are a small portion of each country's energy matrix. Each country has much potential that can and should be developed. The ultimate question will be how the Pacific Alliance countries take advantage of their geographic, economic, and political proximity to achieve mutual energy objectives, in order to increase connectivity, boost energy market integration, and ultimately, to improve the lives of their people. It's time to add energy into the mix.

Americas Society (AS) is the premier forum dedicated to education, debate, and dialogue in the Americas. Its mission is to foster an understanding of the contemporary political, social, and economic issues confronting Latin America, the Caribbean, and Canada, and to increase public awareness and appreciation of the diverse cultural heritage of the Americas and the importance of the inter-American relationship.

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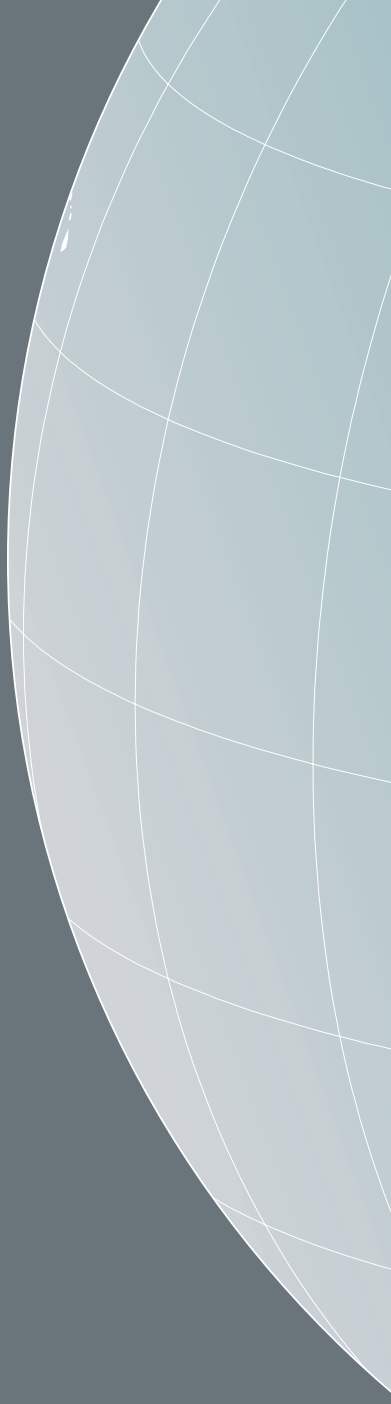

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