North American Energy Integration:

The Canadian Perspective

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

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AS/COA

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INTRODUCTION

A revolution is underway in North American energy. From a posture of energy scarcity North America has moved to abundance. Canada's oil sands, shale oil and gas development in the United States, and significant reforms in Mexico together have the potential to alter fundamentally the global energy map and, with it, strategic energy issues facing Washington. In addition to improving our own energy security, building a more integrated energy sector in North America would improve efficiencies, reduce costs, and contribute significantly to the further consolidation of North America as the world's most productive economic region, creating jobs and contributing to the promise of freer trade.

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From the Canadian perspective, further energy integration within North America is also a strategic issue because the Canadian economy is dependent on natural resources including energy exports. Already the nation is by far the top energy supplier to the United States, and virtually all of its energy exports come to the United States. The relationship is truly symbiotic, and includes the full range of energy trade from power generated by renewables such as hydro to oil and gas shipped by truck, train, and pipelines.

A next logical step in deepening integration would be approval of the Keystone XL pipeline to connect the oil sands with US Gulf Coast refineries. The most recent environmental impact report issued by the State Department at the end of January 2014 found that the pipeline would be an insignificant contributor to greenhouse gas emissions, particularly since road and rail alternatives are more problematic in terms of emissions and safety. Continued delay in the approval process has caused Canada to take steps to diversify its energy markets particularly to Asia, rather than encouraging an even greater focus on North America as an economic space.

This is unsurprising; Canada is simply responding to political and economic signals from Washington and Washington would do the same. Still, a harmonized, more integrated North American energy market benefits all three countries by producing economies of scale, increased production and transport efficiencies, and links between energy and refining capacity. In fact, further North American energy integration would actually help diversify Canadian energy markets, because fuel that is shipped to the Gulf would be refined and then potentially exported onward to third countries.

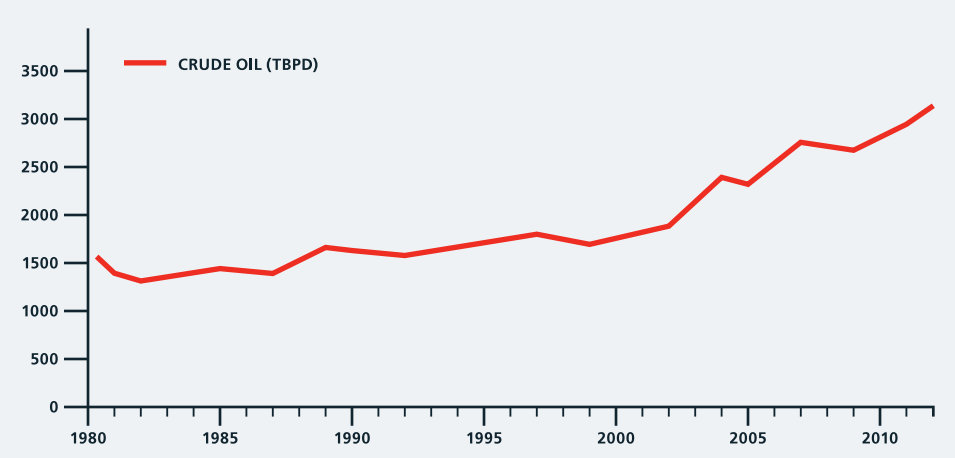
It is therefore particularly important that a timely solution be found that will deepen not weaken the energy partnership that Canada and the United States have long shared and will continue to share. One way to do this would be to approve the Keystone XL pipeline while simultaneously establishing a tri-lateral, North American dialogue on climate change at the cabinet level. In addition to Canada and the United States, Mexico has also played an important role in global climate change discussions, and a unified, coordinated approach among North American partners could greatly enhance each individual nation's activities.

Of course, there is much more to Canada's energy sector than one pipeline application, and by focusing narrowly we miss the broader picture, which is impressive and helpful to understand. Canada is a global energy superpower, and the United States is fortunate to have such a friendly and accommodating neighbor on our northern border. We should do everything we can to harness and build this relationship and, together with Mexico, continue to build the promise of a more fully integrated energy sector within North America.

BACKGROUND

The Canadian oil sands represent 98 percent of Canada's proven oil reserves, with 173 billion barrels of reserves compared to 1.5 billion barrels of conventional oil. Canada is the largest supplier of crude oil to the United States, which will only increase as Canada's energy sector develops. Globally, Canada has the third largest proven reserves after Venezuela and Saudi Arabia.[1] Furthermore, only 21 percent of the world's proven oil reserves are available to private sector investment – and over half of those reserves are in the oil sands.

The oil sands are mostly found in the province of Alberta in Western Canada. They are concentrated in Athabasca, near Fort McMurray, as well as the Peace River region. Conventional oil resources can be found in the Western Canada Sedimentary Basin (WCSB) and offshore in fields in the Atlantic and Arctic. The oil sands area spans 140,200 square kilometers, but extraction is only disrupting 0.5 percent of the surface area.



Canada's Crude Oil Production (1980–2012)

Source: U.S. Energy Information Administration

[1] Alberta's Oil Sands (Holly Driscoll, Director, U.S. Federal Relations, Government of Alberta. Presentation given November 4, 2013.)

Canada produced 2.9 million barrels per day of crude oil in 2011.[2] This makes Canada the sixth largest producer in the world. This production is estimated to reach around 3.5 million barrels per day by 2020. In 2012, oil sands production accounted for 55 percent of crude oil production.[3]

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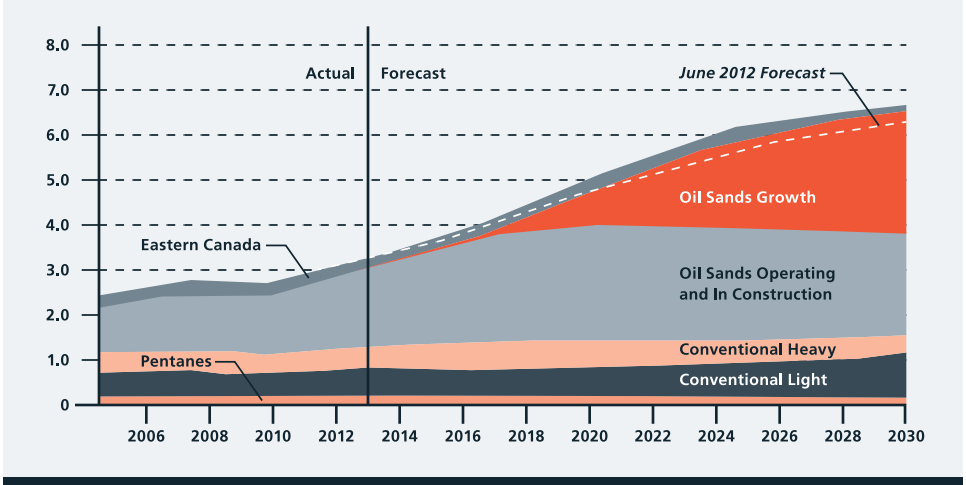
The oil sands are composed of water, sand and a heavy oil called bitumen. In order to extract crude oil, bitumen must be separated and then upgraded to varying degrees before it can be refined. Production is via two main processes: mining and *in situ*. Mining involves clearing large areas of land and overburden, and digging deep into the sand, which is mined when there is a minimum bitumen content of 8–11 percent or higher. *In situ* is used to access bitumen buried too deep for mining. During the *in situ* process, steam may be injected into the earth to separate the bitumen and pump it up to the surface. Solvents may replace or supplement steam in the years ahead. Some extraction processes do not require steam injection at all.



Canadian Oil Sands & Conventional Production (MBPD)

Source: Canadian Association of Petroleum Producers

[2] Canada. U.S. Energy Information Administration. http://www.eia.gov/countries/country-data.cfm?fips=CA. Site accessed February 3, 2014.

[3] Talk about Oil Sands. http://www.energy.alberta.ca/OilSands/pdfs/FactSheet_OilSands.pdf. Accessed January 10, 2014.

POLITICS AND POLICY

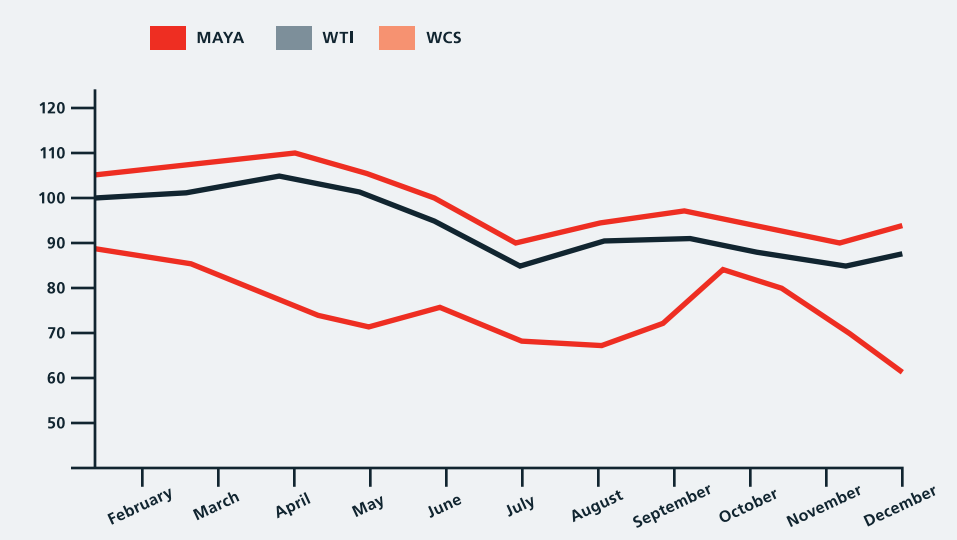
The oil sands fuel Canada's economic growth. According to the Canadian Association of Petroleum Producers, the oil and gas sector brought in $65 billion in investment into Canada in 2013. The sector accounts for 20 percent of the Toronto stock exchange, and generates government revenue of $18 billion in taxes and fees.

Provincial governments primarily manage the regulatory system. In Alberta, the Alberta Energy Regulator is responsible for the application to the construction, implementation and abandonment phases regarding water resources, public lands, and environmental protection. All projects must receive a permit. The Alberta government is still trying to find a balance on the speed of approvals.

Because provinces entirely own the resource and manage most of the regulatory system, this has led to some wrangling regarding pipeline projects that cross provincial borders. A landlocked province, Alberta transports oil via neighboring provinces to the west or east coast, as well as south to the United States. While Alberta is geographically closer to the ports at British Columbia and moving the oil west facilitates strategic exports to Asia, the Premier of British Columbia has wavered on both environmental and financial grounds on whether to support expansion of crude oil pipeline capacity to the Pacific Coast.

Looking to the east, the New Brunswick provincial government has been more enthusiastic about new pipeline construction and also has mentioned an interest in utilizing their local refineries. Although the federal government has limited authority over many regulatory issues, the federal National Energy Board is the primary permitting authority for interprovincial and international pipelines. The Federal government has made clear that it supports expanded market access via pipeline to drive development and economic growth, but provincial regulatory authority and the substantial rights of Canada's first nations over "traditional lands" leave the federal government far from having a free hand on such pipeline questions.

Despite significant production, Alberta's "bitumen bubble" – the gap between the price for Western Texas Intermediate crude (WTI) and Western Canadian Select (WCS) – has strained the fiscal situation of the province. Alberta has faced a major budget deficit because WTI prices have traded around $30 per barrel higher than WCS. Oil sands are the largest contributor to Alberta's non-renewable resource royalty revenue, accounting for $3.6 out of $7.6 billion in royalties in 2012. Early in the year, WCS oil was receiving around $85 per barrel and by the end of the year, the earnings dropped to the low $50 per barrel range contributing to a $6 billion budgetary gap.[4] This budget gap was due to royalties falling below projections.



2012 Benchmark Crude Oil Prices ($ Per Barrel)

Source: Government of Alberta

[4] Energy: Annual Report. Government of Alberta. http://www.energy.alberta.ca/Org/Publications/AR2013.pdf Accessed January 16, 2013.

Environmental Issues

Despite the advantages to the Canadian economy, the oil sands have detractors. First, the oil sands have become a point of contention with increasingly available natural gas in the country. Second, oil sands production emits greenhouse gases, uses two barrels of water per barrel of oil, and produces tailings, which is residue left over from the extraction process. Also, because oil sands production and refining is energy intensive, production results in higher GHG emission per barrel on a wells-to-wheels life cycle basis than do many conventional crudes. However, some oil sands production is close to the same GHG intensity as the average barrel refined in the United States, and some crudes, including California heavy, have higher GHG intensity than most oil sands products.

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In 2007 Alberta imposed an intensity-based carbon price of $15 per ton, requiring major emitters to decrease their emissions by 12 percent either through actual reductions, offsets or paying $15 per ton into the provincial GHG reduction technology fund. This was North America's first price on carbon. Carbon capture and storage technology is also being employed to offset carbon emissions, with the Alberta government committing a total of $1.3 billion over 15 years to fund two large CCS projects.

In addition, the Government of Alberta allocated $200 million to start the Innovation Energy Technologies Program (IETP) in 2005. The program incentivizes companies to implement new and innovative technologies to increase resource recovery and environmental sustainability by offering royalties adjustments of up to 30% or up to $10 million per project. In 2012–2013, this program funded 14 projects with five finalized before the year's end.[5]

[5] Government of Alberta. http://www.energy.alberta.ca/OilSands/1693.asp.

Indigenous Issues

The proposed construction of the Northern Gateway Pipeline by Enbridge highlights conflict with indigenous groups regarding the oil sands. Although transporting oil to the Canadian coast is necessary for export purposes, there are several First Nation communities which have limited rights to traditional lands along the proposed route and have expressed concerns that have negative implications for community-member health and the surrounding environment.

In December 2013, Canada's National Energy Board granted approval for the project citing the opportunity for revenue from shipments to Asia as in the national interest, outweighing the concern of indigenous groups and leaving the central government 180 days to make a decision. The Northern Gateway pipeline is only one example of indigenous rights issues and business leaders are looking to the government for more clarity on how to best proceed.[6]

INVESTMENT AND FINANCING

In 2012, $20 billion was spent on the oil sands, more than one-third the total capital spent in the Canadian oil and gas sector. Investors want certainty of growth and exit plans, when considering issues previously discussed, such as government permitting, the environment and consultation with and accommodation of indigenous peoples.

In order to ensure certainty for investors, the government of Alberta should seek to maintain ongoing policies, including a rules-based set of regulators, transparency in tax regimes, and the setting of rules for foreign investment in the marketplace. In addition to tax and regulatory certainty, investors want certainty of a market outlet and saleable product. Access to markets is required to ensure the product has a marketplace, thereby improving the economics and financial viability of any oil

[6] Van Loon, Jeremy. "Enbridge Northern Gateway Pipeline Gets Canada Approval." Bloomberg. 19 December 2013.

sands project. When the oil sands underperform, the result is financial loss, but more importantly, a loss of confidence. Capital avoids risks, and goes where the profit is highest. American capital is also increasingly tied up in natural gas in the United States.

In particular, Canada has set up a policy regarding state-owned enterprises (SOEs) from other countries that seek to invest. The Canadian government has identified the risks of foreign SOEs in how they might divert from national economic and industrial objectives. Most notably, SOE policy will determine whether countries such as China are able to invest. A case study of the issue was CNOOC's takeover of Canadian company Nexen in February 2013. At the time, it was China's largest foreign takeover, valued at over $15 billion. The decision contradicted Prime Minister Harper's statement in 2012 that discounted SOEs after his government's hard work to reduce foreign government ownership in the sector. However, with less U.S. investor capital flowing into the extractive industries in Canada, the government could not afford to turn away Chinese investment – especially since it is one of the markets being targeted as a key export market. Subsequent guidelines indicated these could be some of the last foreign state-owned company investments in the oil sands. The new rules say that from now on these bids will only be granted in exceptional circumstances.

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MARKET ACCESS

Alberta exports 1.35 million barrels per day to the United States, and sends 368,000 barrels per day to other parts of Canada.[7] Canada exports primarily to the United States and does not compete against other countries due to the decline of crude oil purchases abroad because of the increased global availability of natural

[7] Alberta's Energy Industry. An Overview. http://www.energy.alberta.ca/Org/pdfs/Alberta_Energy_Overview.pdf. Accessed January 10, 2014.

Keystone XL Proposed Pipeline

Source: TransCanada Corporation

gas. According to the U.S. Energy Information Administration, 99 percent of Canadian oil exports go to the U.S. market. Nevertheless, in order to compensate for potential decreased exports to the United States, Canada is looking to increase exports to Asia as a hedge. The east-west strategy makes sense given the pipeline infrastructure and the need for countries in Asia to fuel industrial development.

Pipelines can be controversial in terms of where they are built and what markets are reached. Alberta already connects to more than 410,000 kilometers of pipelines across Canada and the United States. Canada also has over 18,000 km of crude oil pipelines.[8] The Keystone XL pipeline is by far the most well-known due to the politics surrounding its construction and approval. The top half of the pipeline – Phase I – which starts in Alberta and proceeds south to Nebraska and east to Illinois, is operational. Phases II–III are also active, from Nebraska to Oklahoma and then connecting Cushing to the Gulf Coast refinery. The final phase, which requires Presidential approval, would deliver crude from Alberta to Nebraska through a different route. Phase IV would send 830,000 barrels per day of crude to refineries in the Gulf Coast. There is a demand for heavy crude in the Gulf Coast refineries, due to decreased production in Mexico and Venezuela.

The project has been a political lightening rod due to concerns expressed by opponents of greenhouse gas emissions in the oil sands. The final piece of the project would cost $5.3 billion to construct. The last environmental impact statement, issued by the U.S. Department of State in January 2014, stated that the pipeline would be unlikely to increase greenhouse gas emissions. Nevertheless, delays on Keystone XL approval have engendered a possible strategic shift toward Asia and other foreign markets by Prime Minister Harper and his government to the clear detriment of U.S. interests and North American integration.

There are also domestic pipelines that ship oil to the west and east from Alberta. For example, pipelines are transporting crude to the Atlantic coast through New Brunswick and to the Pacific through British Columbia (the shipping point

[8] Alberta Energy: Quick Facts 2011.

for Asia). There have been conflicts between provinces – for example between Alberta and British Columbia, since provinces have leverage points in the process. Nevertheless, provinces are not autonomous on pipeline matters, as the interprovincial pipeline lead is with the National Energy Board. Due to the attractiveness of the sector, American and European companies will continue to invest.

In the absence of sufficient pipeline capacity, railroad capacity has been growing exponentially. The current list of proposed rail projects from Alberta, if fully built, would equal the capacity of Keystone XL. Proponents of the Keystone pipeline point to rail as an alternative transport mechanism that more harmful for the environment than pipelines. The same can be said of crude shipments by truck.

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RENEWABLES

In Canada the story is not just oil and gas, of course, even if that is what normally makes news. Canada is a world leader in renewables. Renewable energy contributes substantially to Canada's energy matrix – over 15 percent of the country's energy supply. Canada is the third largest producer of hydroelectric power in the world, which supplies nearly 60 percent of electricity generation. Wind and biomass also contribute to generation, and solar voltaic power is a fast-growing industry.[9] Alberta in particular has taken advantage of wind power, with more than 800 MW connected to the grid, which reach approximately 1,000,000 homes.[10] In terms of bioenergy, there is significant installed capacity in Quebec, Ontario, Alberta, and British Columbia.

Canadian policymakers have emphasized hydro because it is a clean, renewable energy source. As recently as 2010, Canada had over 500 hydroelectric stations

[9] Natural Resources Canada. https://www.nrcan.gc.ca/energy/renewable-electricity/7295. Accessed January 23, 2014.

[10] Government of Alberta. Talk about wind power. http://www.energy.alberta.ca/Electricity/pdfs/FactSheet_Wind_Power.pdf. Accessed January 23, 2014.

with more than 75,000 megawatts of installed capacity. These generated nearly 350 million megawatt hours in 2010, concentrated in Quebec province.[11] According to the Canadian Hydropower Association, much potential remains – some 160,000 megawatts.

Provinces have implemented targets and policies to promote renewable energy development. Alberta implemented a target that 3.5 percent of total energy was to be renewable by 2008. Ontario offers a Standard Offer Program, which sets a feed-in tariff for small renewable energy projects in order to facilitate businesses to sell renewable power to the provincial grid. Finally, Manitoba has a target of developing 1000 megawatts of wind energy by 2014.[12] Canada's renewable energy profile will continue to grow as the conditions for investment remain favorable.

NORTH AMERICAN ENERGY INTEGRATION

North America has become an epicenter of oil and gas production growth in recent years. The shale revolution in the United States and the passage of energy reforms in Mexico indicate that energy production is on the rise across the continent.

Up until the shale revolution, the United States assumed it would be energy dependent for the long-term and looking to its neighbors Canada and Mexico as well as the Middle East. As this shift has gained momentum, Canada has become vulnerable given its massive oil exports and rapidly declining gas exports, to the United States.

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Nevertheless, the United States will not be self-sufficient without Mexico and Canada because of gasoline. The United States consumes 18 million barrels per day of gasoline and produces 7 million barrels per

[11] Natural Resources Canada.
[12] Pembina Institute. Canada's Renewable Energy Future. http://www.pembina.org/re/canada. Accessed January 23, 2014.

day of conventional oil and 3 million barrels of tight oil. The United States thus will not be energy independent, as natural gas is not fungible in the transportation sector.

Energy integration is a mainstay on the continental agenda, and ongoing developments will certainly frame the discussion.

Energy integration is a mainstay on the continental agenda, and ongoing developments will certainly frame the discussion. North America has deepened its status as an emerging energy powerhouse. The Mexican energy reforms offer a compelling opportunity for Canadian firms to be involved in exploration and production, marketing, and the provision of services to the Mexican oil and gas sector. Integrating North American energy markets is a win-win for the countries involved.

ABOUT THE ENERGY ACTION GROUP

In partnership with the Inter-American Development Bank and others, the Council of the Americas' Energy Action Group (EAG) seeks to convene high-level representatives of the private and public sectors to develop strategic energy and climate policies for the Americas. In December 2013, the EAG convened a high level group of experts in Calgary to discuss opportunities and challenges facing Canada's oil and gas sector. "North American Energy Integration: The Canadian Perspective" brought together approximately 25 representatives of investment banks, consultancies, energy companies, journalists, academics, diplomats, and the government of Alberta. The discussion was structured across topics of market access, financing, investment climate, and the cross-border energy agenda. Looking ahead, given Canada's role as an economic giant and an energy superpower, the Council anticipates a continued emphasis on these issues.

ACKNOWLEDGEMENTS

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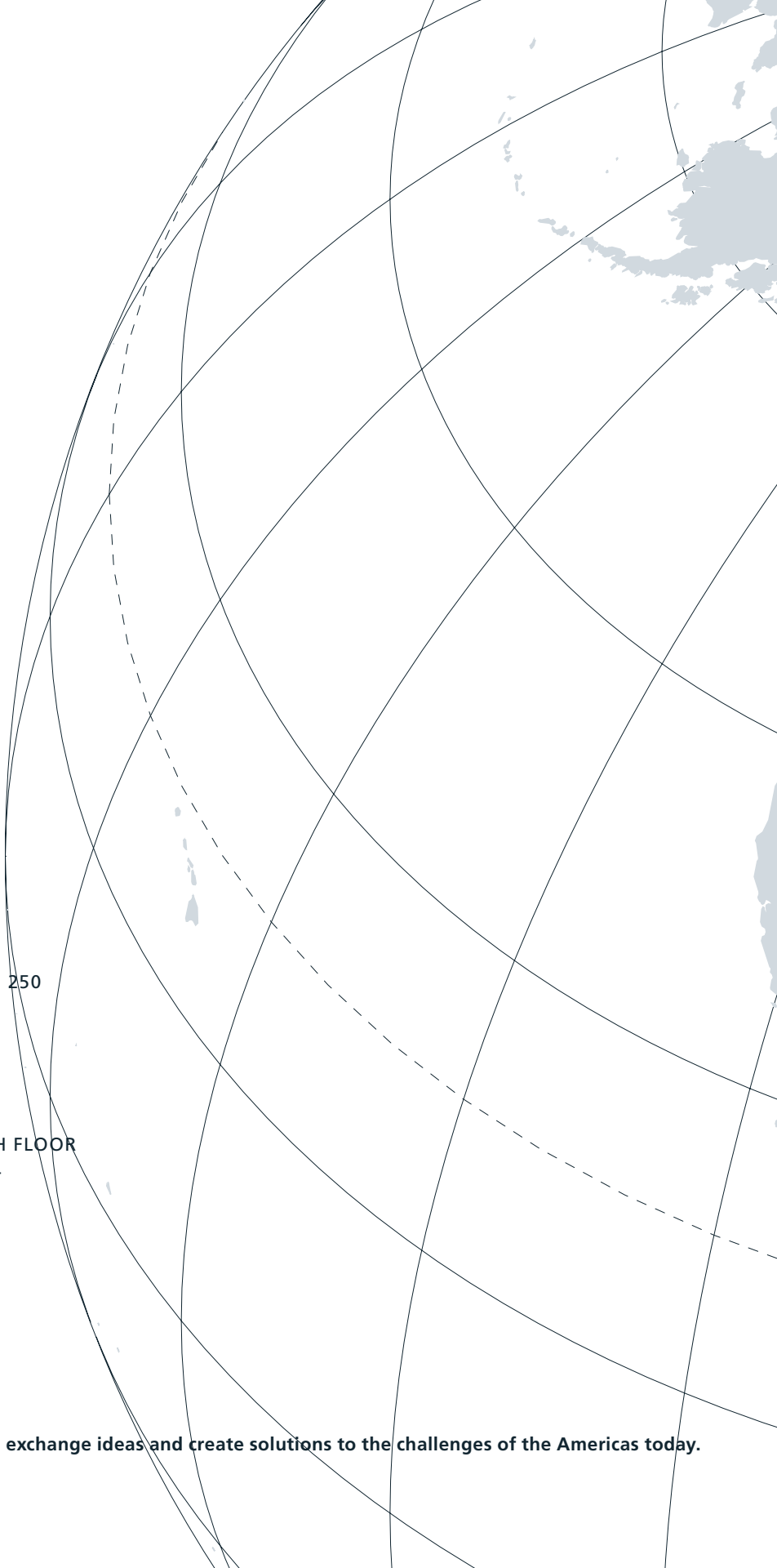
The opinions expressed herein do not necessarily reflect the views of sponsoring companies and organizations.

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.

Council of the Americas (COA) is the premier international business organization whose members share a common commitment to economic and social development, open markets, the rule of law, and democracy throughout the Western Hemisphere. The Council's membership consists of leading international companies representing a broad spectrum of sectors, including banking and finance, consulting services, consumer products, energy and mining, manufacturing, media, technology, and transportation.

Energy Action Group (EAG) The Americas Society and Council of the Americas Energy Action Group brings together the public and private sectors to develop strategic energy policies for the Americas. The EAG hosts forums in cities across the Americas and publishes working papers and recommendations on key energy and climate topics.



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