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2023/2024

Oil & Gas Report

Highlighting the different facets of B.C.'s oil and gas industry



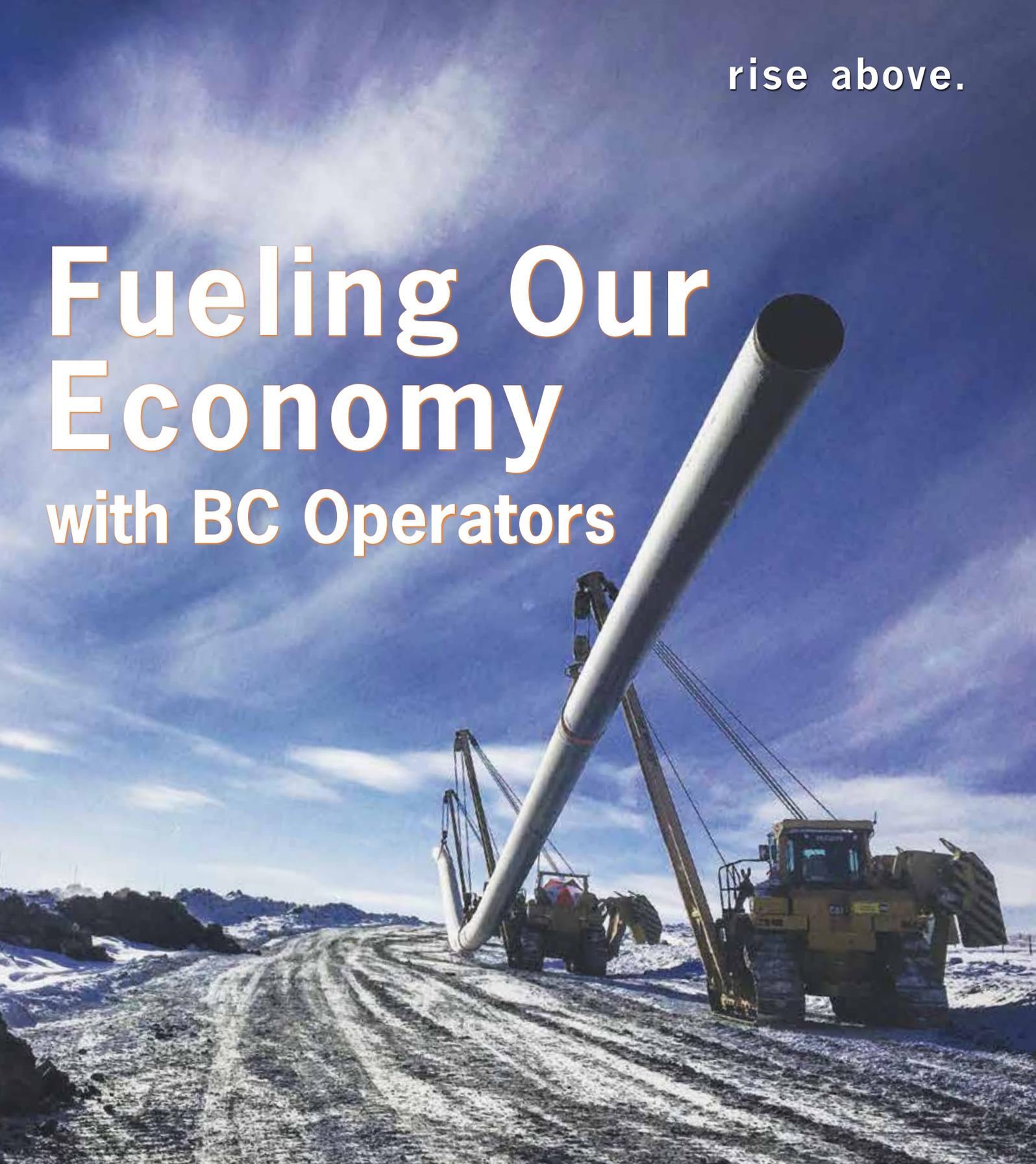
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B.C. Oil & Gas Report

is published by

DEL Communications Inc.

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Winnipeg, Manitoba

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Publications Mail Agreement #40934510

Return undeliverable Canadian addresses to:

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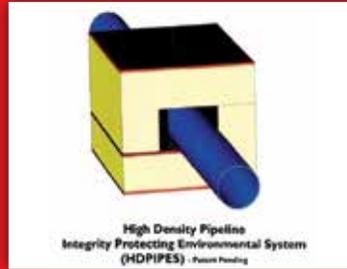
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Message from the editor

In the 2023/2024 *B.C. Oil and Gas Report*, change brings more change. The province's energy regulator, the B.C. Oil and Gas Commission, becomes the British Columbia Energy Regulator and the Petroleum Services Association of Canada becomes Enserva. In this issue we look at the connection between technology and data collection with a report on activity in The Montney Formation and we learn about Canada's potential to be the world's LNG powerhouse. We also hear from the International Brotherhood of Boilermakers Union and learn about innovations from Geoverra and Armour Lubricants.

We hope you enjoy this issue of the *B.C. Oil and Gas Report*, and we look forward to hearing from you and meeting you at this year's industry events.

Tammy

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The BC Oil and Gas Commission gets an expanded mandate and new name



Exciting changes have come to the British Columbia Oil and Gas Commission as we entered our 25th year of operations.

Established in 1998, the organization is British Columbia's single-window life-cycle regulatory agency and has been protecting public safety and safeguarding the environment through the sound regulation of energy activities in the province for the last quarter of a century.

In the fall of 2022, the British Columbia Legislature passed Bill 37, the Energy Statutes Amendment Act, which expands our organization's mandate and brands us with a new name: the

British Columbia Energy Regulator (BCER).

In addition to our current responsibilities concerning oil, gas, and geothermal development, BCER will regulate the production of hydrogen, ammonia, and methanol; and have an expanded role in carbon capture and storage. The Province of British Columbia has identified hydrogen, methanol, and ammonia as essential to working towards a net zero economy.

All are useful as fuel sources, and methanol and ammonia can also act as hydrogen fuel carriers. They can be produced in many ways, including from non-fossil fuel sources, such as clean

electricity, and fossil fuel sources, often in conjunction with carbon capture and storage.

As officially set out in Bill 37, BCER will "regulate energy resource activities in a manner that protects public safety and the environment, supports reconciliation with Indigenous peoples and the transition to low-carbon energy, conserves energy resources and fosters a sound economy and social well-being."

In granting us greater responsibility, it is recognized our staff has the technical skills, experience, and knowledge required to regulate complex facilities. Our BCER team has experience with



and adopting complicated technical standards and regulations and adjudicating permit approvals related to land, water, air, and archaeology. We also have broad experience with many aspects of safety oversight, a proven restoration timeline framework, and an established orphan fund.

We are excited to move forward with a renewed mandate and new name that will better reflect our latest functions, align with the range of parties we regulate, with a modern logo that reflects our progressive mandate and approach, and demonstrates our commitment to reconciliation with Indigenous nations. ■



Enserva continues to champion Canadian energy's evolution



In 2022, Enserva, formerly known as the Petroleum Services Association of Canada (PSAC), underwent a bold rebrand to reflect its evolving membership and the dynamic path forward for energy in Canada. For over 40 years, Enserva has been a respected voice for the Canadian energy industry, and the Association's future lies in the interconnected energy industry, where all verticals need the services, suppliers, and manufacturers the Association represents.

"2022 was an important year for Enserva and our members as we rebranded the Association to represent our continued commitment to championing Canadian energy while recognizing the ever-evolving industry," says Gurpreet Lail, President and CEO of Enserva. "Our new brand does not lose sight of the important missions that guide our team, specifically ensuring energy security for Canadians while the country reaches towards its net-zero targets."

The Association's membership continues to adapt to the industry landscape by creating space for emerging techniques like liquid natural gas (LNG) to become a reality and creating resources for developing countries so they can reduce their reliance on major emitters like coal. The commercial use of LNG continues to rise, and it is projected that by 2040 the world will consume 50 per cent more LNG than it currently does*. Countries around the globe are realizing the potential of LNG and its increasingly popular position as the energy industry continues to evolve.

"The energy industry has a large role to play in meeting these targets and governments should be including Enserva in these discussions," says Lail. "At Enserva we are helping unlock Canadian energy to help make the world a better place to live."

Understanding that industry provides Canadians with the standard of living that we all enjoy today, Enserva calls on all levels of government to include industry in discussions about targets and paths forward. The Canadian energy industry works diligently to give back to communities, hospitals, and small businesses where its people work and live to create a true sense of community specifically in rural and remote locations of Canada. Only by engaging with the Canadian energy industry and including major players such as corporate executives, government officials, and other valued members of the service, supply, and manufacturing industries in important discourses can we work towards making the world a better place to live and work.

Enserva currently represents 400,000 sector workers across the country and works to reduce energy poverty, increase energy security, and create economic growth and jobs. The Association's strategic direction is achieved by making connections, accessing resources, influencing policy, and providing insights that accelerate the energy evolution.

As the national trade association representing Canadian energy's service, supply, and manufacturing sectors, the Association's main goal is to be the voice of this sector, and to advocate for its members to enable continued innovation, technological advancement, and in-the-field experience. With its new rebrand, Enserva is committed to championing the Canadian energy sector domestically and on international soil, while supporting the industry's exciting evolution. Enserva helps its members to unlock Canadian energy to help make the world a better place. ■

*https://www.eia.gov/outlooks/ieo/pdf/nat_gas.pdf

The Association's strategic direction is achieved by making connections, accessing resources, influencing policy, and providing insights that accelerate the energy evolution.

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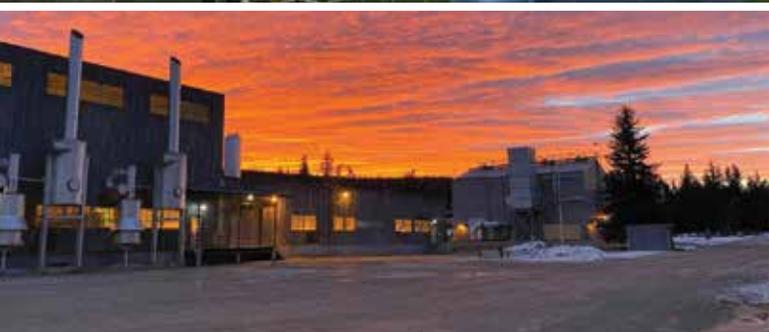
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Enbridge announces expansion of T-South pipeline segment of B.C. Pipeline system



Compressor Station 5, a.k.a. Australian, along the B.C. Pipeline near Quesnel, B.C.



In late 2022, Enbridge Inc. announced the successful completion of an open season for increased transportation capacity on the T-South segment of its B.C. Pipeline (T-South), a natural gas pipeline system, which originates near Chetwynd, B.C. and extends south to the Canada-U.S. border at Huntingdon-Sumas.

The open season was over-subscribed, and Enbridge has sanctioned and is proceeding with a 300 million cubic feet per day (MMcf/d) expansion at a capital cost of up to CAD \$3.6 billion. “This expansion illustrates the immense strategic importance of our B.C. natural gas system in supplying regional and global energy demand with low-emission natural gas,” said Cynthia Hansen, Executive Vice President and President of Gas Transmission and Midstream at Enbridge. “And it also demonstrates how we’re able to leverage our conventional energy transportation assets to extend our growth and generate value for our shareholders.”

The T-South expansion will involve adding pipeline loops and

additional compression under a cost-of-service framework, backed by long-term contracts with a weighted average term of 65 years. The location of the loops and accompanying compression will be determined in the coming months after detailed consultation with Indigenous communities and stakeholders and after environmental and routing assessment have been completed. Once complete, the capital cost estimate will be updated prior to filing the regulatory application, anticipated in 2024.

Pipeline loops are typically constructed using similar materials and construction techniques as the existing pipeline and are subject to the same regulatory and environmental requirements. The addition of pipeline loops can be a cost-effective way to increase the capacity of existing pipelines without the need for significant new infrastructure. The new pipeline loop is expected to increase the capacity of the T-South pipeline by approximately 140 million cubic feet per day.

“Enbridge’s assets in the ground continue to be in high-demand and will continue to be critical in supporting growing energy demand while providing the world with a safe and secure source of energy,” added Hansen.

Pending regulatory approvals, the target in-service date for the T-South expansion is 2028. ■

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THE FULL MONTNEY

A look at the B.C. and Alberta Montney Formation



In the heart of British Columbia's resource-rich landscape, the Montney Formation has become a major focus of oil and gas exploration and development in recent years, and many companies are investing in the area to take advantage of the significant hydrocarbon resources it contains.

The geological formation stretching from northeast B.C. to the northwest of Alberta is known for its vast natural gas resources. It is a major unconventional hydrocarbon resource, containing both natural gas and oil, and is considered one of the largest shale gas formations in North America.

The ongoing investment and development in the Montney Formation has seen increased drilling activity, production growth, expansion of infrastructure, advancements in technology such as multi-stage hydraulic fracturing and horizontal drilling, and new environmental initiatives.

XI Technologies, a Calgary-based company that creates research and analytics tools for the Western Canadian energy industry, has studied the Formation leveraging their drilling data to provide an overview of drilling trends throughout the entire play narrowing in on drill history specific to wells that terminated in Lower Triassic (Montney & Doig) formations.

Top Montney operators

Knowing the players in the area is critical. XI Technologies reports that a little over 80 per cent of the ownership of this prolific zone is held by the top 10 companies and there is approximately 1.6 million boe/day being produced in total. There are 22 companies that derive more than 80 per cent of their production from this zone, and among them, seven are part of the top 10 companies that own the Formation. These statistics make it clear how critical this play has become to our industry.

The many companies operating in the Montney Formation range from large multinational corporations to smaller independent exploration and production companies. The top three drillers that have dominated the Montney

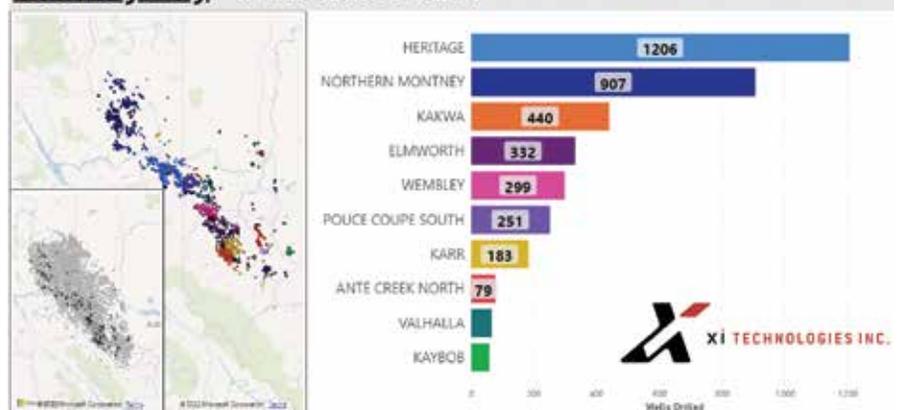
development are ARC Resources Ltd., Ovintiv Canada ULC (formerly Encana Corporation), and Tourmaline Oil Corp. ARC Resources has become the top player in the area over the past five years.

Looking at the last 10 years of activity (including two major economic swings), it becomes easier to identify the newer players, as well as those who have withdrawn or shifted focus away from Montney over time.

Active drilling areas

The Montney play has a wide reach, spanning from northeast B.C. to central Alberta, but the bulk of Montney drilling activity is taking place in the Heritage field and Northern Montney located in B.C., followed by Kakwa, and Elmworth located in Alberta.

Drilling In The Montney Play Where Most Montney Drilling Has Been Focused In The Last 5 Years

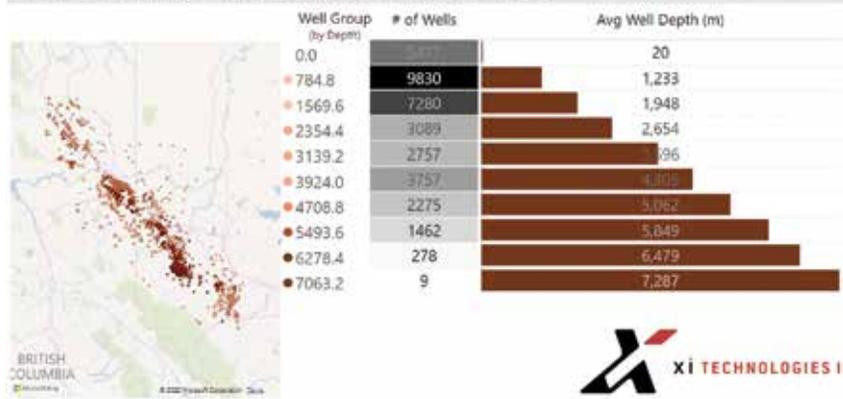


Drilling depths and lengths

Canada's oil and gas sector is internationally admired for its innovation in well construction, much of which is highlighted in Montney drilling. Companies continue to extend their reach as they drill deeper and more complex wells year-over-year.

XI's data shows what has been assumed anecdotally: 2021 represented an increase in wells drilled from the past two years, but still hasn't reached pre-COVID numbers. Also interesting to note is the increase in Total Meters Drilled and Average Well Depth. The combination of these three factors suggests that Montney drilling in 2021 closely rivaled the 2017 peak of drilling investment in Montney.

Drilling In The Montney Play: A Wide Spread Of Drill Depths & Well Lengths Across Foothills & NE BC



As exploration efforts delve deeper into this vast resource, the Montney Formation is poised to play a significant role in meeting energy demands, attracting investment, and fueling economic growth in the years to come.

XI Technologies Inc. is a privately-

owned company based in Calgary, Alberta. XI Technologies creates essential research and analysis tools for the Western Canadian energy industry. To learn more about how XI Technologies can help you improve drilling research and performance, visit www.xitechnologies.com. ■

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Surveyors have always been in the business of data collection, but the technology we have access to now and the improvements we're making in digital transformation give clients access to the information we never thought was possible.

For projects like pipelines, well sites, and facilities, conventional surveying can be tedious. Boots on the ground can pose a serious challenge for crews to acquire precise measurements efficiently and safely taking a lot of time and calling for large crews to get the job done.

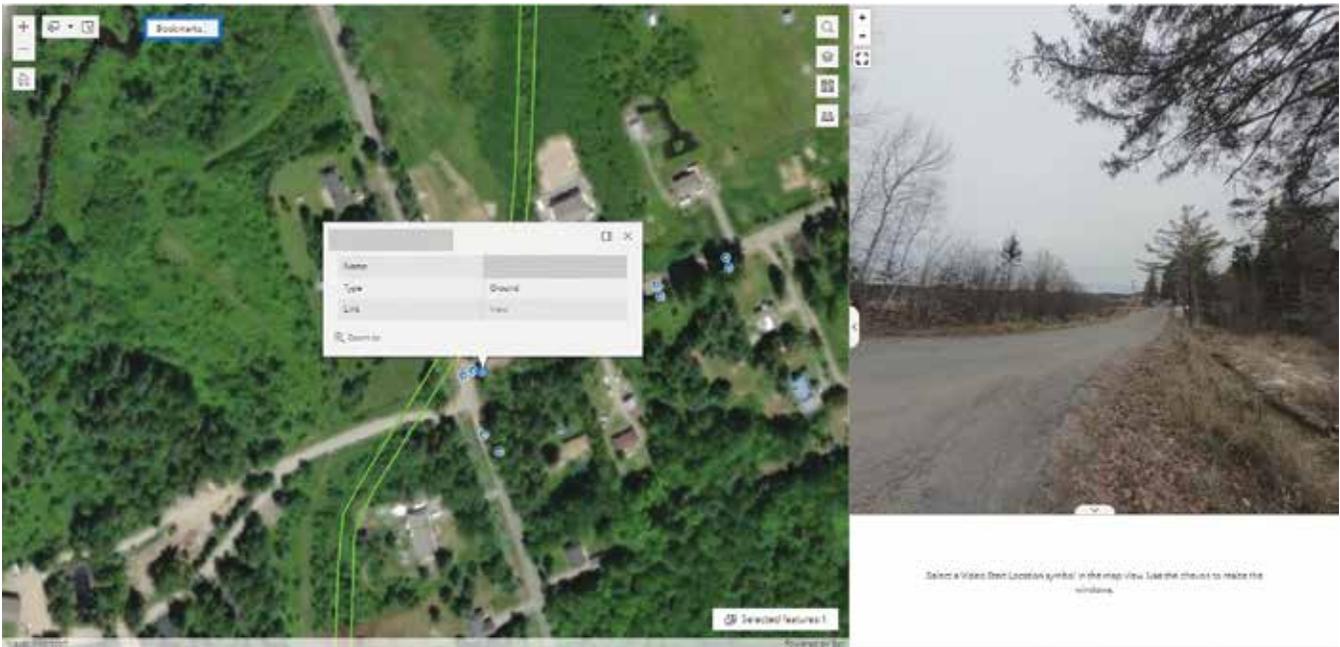
While there's a time and a place for traditional surveying, GeoVerra embraces technology to advance our industry and yours. Sometimes, it means giving our boots a break.

New standards

Mobile Mapping Systems, or MMS, is an advanced laser affixed to a moving vehicle that scans its surroundings 360 degrees. This technology measures objects by millions of points per second with centimetre accuracy, quickly collecting every visual component in diverse environments including highways, urban streets, railways, and pipeline routes. Clients can easily access this new class of data digitally, for a total immersive and accurate 3D view of objects and surroundings for their project.

Technology is redefining the major pipeline projects and radically changing the way our clients think about surveying. With improved safety, compressed schedules, and reduced costs for some of the country's largest infrastructure and energy projects, MMS is our standard for collecting spatial data. In fact, GeoVerra's teams were one of the first to adopt mobile mapping technology and was the first company in North America to receive Trimble's MX50 with the AP60 GNSS-Inertial system – a MMS for surveying, engineering, asset management, documentation, and mapping.

Alex Garcia, GeoVerra's National Manager, Mobile Solutions, relies on MMS for the major projects he handles. "The system collects the imagery and



what we call 'point cloud,'" he says. "That means the laser is spinning and collecting tiny dots that are literally three millimetres apart from each other. We take accuracy to the next level."

The MMS makeover

"Before MMS, it looked like this: the team assembles to the site and physically walks all day to collect data for only one of those components. If more information was needed, say specific powerline data, then the team would reassemble again for another day in the field, collect the information,

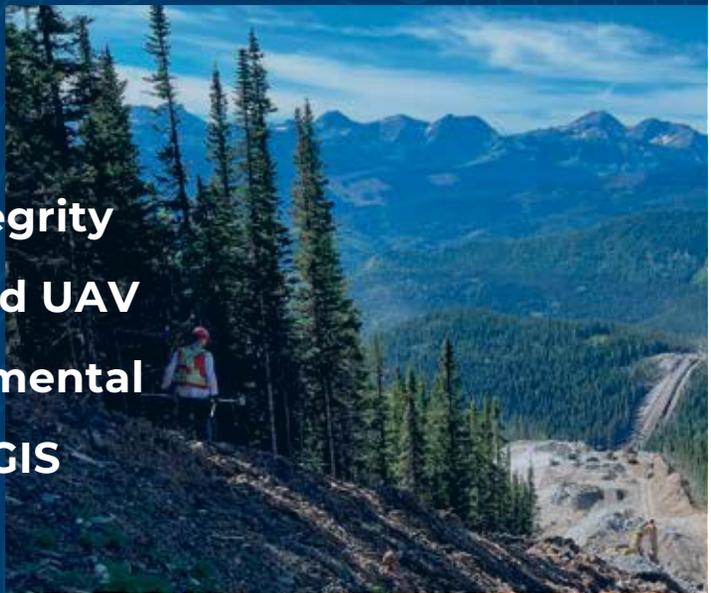
and take it back to the office," explains Garcia.

"With mobile, it's simple: the surveyor drives down the road, collecting 360 degree point cloud and images," says Garcia. "From surface condition,



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facilities, assets, and whatever else the client needs, we can collect everything with high precision—and it's accomplished literally in a day, saving valuable time."

In fact, Garcia's team collected 350 kilometres' worth of data for a client—with centimetres' accuracy—in one day. That same result would require more than three months of boots-on-the-ground collection by a team of surveyors. On large projects, meeting or exceeding schedule expectations is critical.

Of course, increasing productivity at the expense of safety is not an option. Now we have fewer boots on the ground to get the job done, mitigating safety risks.

You've got data

So, after you've collected all of this great data through MMS, unmanned aerial vehicles (UAVs) or by another advanced tech survey means, what is the client going to do with it? Who's going to see it? How do we make the most of it?

GeoVerra's National Manager of GIS and in-house client portal champion, Cindy Genkin, answers these questions constantly. Using a geographic information system (GIS) that creates, manages, analyzes, and maps all types of data—then crafting it into one

seamless, tailored web portal—she helps make data more accessible to GeoVerra clients than ever before. "We put information into one place so everyone can collaborate," says Genkin.

Cut the cookie cutter

These portals are powerful and meaningful, allowing clients to analyze massive amounts of information and make data-driven decisions for nearly every industry imaginable. "Every portal is unique to our client, shaped to suit their goals," explains Genkin. "That can include supplemental dashboards, still images, 360 panoramic images, 3D models, documents, precise maps, and so much more."

By understanding, integrating, and delivering data in an intuitive, visual way, teams can gain more insights, drive smarter operations, and ultimately, deliver a safer and more sustainable project and business.

Geomatics has always been ahead of the game in leveraging technology, but for years, it was only larger infrastructure projects with big budgets that could afford to pull information together in this way—until COVID.

"In the last two years, this interest has trickled down to every type of project," says Genkin. "If there's any element

of dispersion, no matter the industry, clients want to be able to connect online." With people at home and major site restrictions, GeoVerra collected data and made sure everyone could see it—without anyone ever stepping foot on site.

"A perfect example is construction monitoring. Every so often we'd scan the site with panoramic images. People could go in and see exactly what was happening, then compare it to the design files to ensure everything was on target. To think that was only ever done in person... it's opened up everyone's eyes."

Real life results

When GeoVerra gets involved in a project early enough, they can help clients organize the data they have, identify what's missing, and design a way for the entire team to collaborate. "It's about creating one place where you can go and get an answer, without having to wait three hours for the person who knows that answer," says Genkin.

It's hard to attach a dollar amount to time saved with so many factors at play, but Genkin recalls gathering and displaying data from many different sites for one client. "They said they saved \$50,000 in one month."

GeoVerra delivers more information, better accuracy, and increased safety—all while saving manpower and money.

Think MMS and data visualization can boost your next oil and gas or energy project? Contact GeoVerra today at www.geoverra.com/contact-us. ■



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Boilermakers: Front and centre in championing cleaner energy solutions for B.C.

BY RICHARD MACINTOSH



LNG Canada's huge new liquefied natural gas terminal takes shape on the Pacific shores at Kitimat, BC. When completed, it will be the cleanest LNG facility in the world. Photo courtesy LNG Canada

Boilermakers know energy. The bulk of our work is performed in the energy industry — building and maintaining B.C.'s oil refineries and natural gas plants, as well as nuclear, hydroelectric, and coal-fired power-generating stations, oil-sands extraction plants, and other energy facilities across Canada.

Working on the front line of the energy sector, Boilermakers are well placed to speak to the challenges we face in a world with increasing demands for energy coupled with an urgent need to reduce greenhouse gas emissions to combat global warming.

While we encourage the development of renewable energy sources, we are all too aware that dependence on conventional energy will remain with us for decades to come. The issue of natural resources versus renewables is not an “either/or” proposition.

Unfortunately, the energy debate is beset by extreme and

alarmist arguments that villainize fossil fuels as the number one climate risk. This is short-sighted and misses the heart of the matter: the villain is not fossil fuel — it's carbon dioxide. The stark reality is that fossil fuel demand is not going away. Our move to a carbon-free energy future needs to be a gradual, reasoned, well-balanced plan requiring us to innovate and use the best means available to reach our environmental goals.

Boilermakers are committed to applying our expertise to any of the viable technologies that can provide for cleaner energy extraction, refining, and transport. To that end, we're proud champions of two proven innovations that can invigorate B.C.'s energy lifeblood while simultaneously combatting CO₂ emissions.

Carbon Capture, Utilization, and Storage

From its very beginnings as a climate-change solution, Boilermakers have been a driving force behind the promotion

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You need the right people for the job.

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You need to stay on schedule and on budget.

Canada's economy sometimes suffers from a shortage of skilled tradespeople. Working with the Boilermakers is your key to avoiding these shortages and getting your project finished on time and on budget.

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A Boilermaker of B.C.'s Local 359 at work. Boilermakers see CCUS and LNG as key strategies in the quest for a clean energy future.

of carbon capture, utilization, and storage (CCUS). In our battle against global warming, CCUS is a pivotal bridging technology that will help us make the giant leap from a high-emitting present to a non-emitting future.

Experts agree that CCUS is the only clean technology that can decarbonize industry. No other existing technology can do it, and its versatility means it can be applied to countless processes: steel, cement, fertilizer, petrochemicals, pulp and paper, as well as oil, coal, and gas-fired power.

Having had a hand in building Canada's first three CCUS projects in Alberta and Saskatchewan, Boilermakers have seen first-hand that carbon capture works, and the technology is becoming more economical and effective with every new initiative. Indeed, if all proposed carbon-capture projects in Canada go ahead, they could capture 115 million tonnes of CO₂ — 60 per cent of Canada's 2030 target.

What's more, constructing and maintaining CCUS facilities will mean thousands of good jobs for Boilermakers and other tradespeople — the kind of just transition that doesn't leave skilled workers out of the mix.

Reaching our emissions targets and saving the planet from global warming is within our grasp, if stakeholders keep forging forward with sound solutions like CCUS and improving them every step of the way.

Liquefied natural gas

Clean-burning, spill-safe, and carbon-frugal, LNG is a natural fit for B.C.'s economy. With some 1.2 trillion m³ of untapped natural gas reserves, B.C.'s supply (enough to fuel domestic needs for 300 years) is ripe for export to energy-hungry economies in Asia.

There is a lot of buzz around LNG Canada's massive LNG storage and transport hub under construction in Kitimat, B.C., and Boilermakers are proud to be part of it. The project represents the largest single infrastructure investment in the province's history — about \$40 billion. When completed, the Kitimat terminal will be one of the cleanest in the world, producing less than half the emissions of the average LNG facility elsewhere.

The economic benefits are colossal. At the peak of the construction phase, up to 10,000 workers will be employed erecting the facility's infrastructure. And the Kitimat project is couched in sound environmental thinking. Its target market is industries in eastern Asia, now heavily reliant on coal-burning plants, for whom a swing to LNG would make a serious dent in the world's net emissions.

Make no mistake, global demand for fossil fuels will remain high for the foreseeable future. The world consumed 4.2 trillion m³ of natural gas in 2021, and demand is projected to grow to 4.4 trillion m³ in 2030 and remain at that level through 2050. LNG's cleaner profile and B.C.'s ample reserves make LNG a potent weapon in our fight for a clean energy future.

Richard MacIntosh is an International Representative of the International Brotherhood of Boilermakers union and the IBB's Assistant International Director of Climate Change Policy Solutions for its M.O.R.E. Work Investment Fund. He is based in Surrey, BC. ■

Detect equipment failure in progress with fluid analysis



LUBRICANTS



Fluid (oil) analysis can detect equipment failures in progress and point you straight to the root cause of problems, preventing catastrophic failures and costly losses in production. Regardless of the application – drilling, field services, or oil and gas production - if equipment is down, it is costing you money. Highly contaminated operating environments, extreme operating conditions, and the economics of equipment replacement make fluid analysis a valuable and necessary part of managing asset reliability.

Acidity of compressor, natural gas engine, and Biogas engine lubricants

The pH of virgin lubricants is typically around seven, and maintaining a neutral pH is vital to avoid corroding metals in contact with the lubricant. However, typical operations (oxidation, blow-by of combustion gases) and environmental contamination increase the acidity of lubricants (decreases the pH).

To combat acids, lubricants have additives, such as detergents and antioxidants. As they neutralize the acids, the additives are consumed and eventually exhausted. Oil analysis flagging limits are designed to notify maintenance staff



well before the additives are depleted in order to avoid corrosive component wear from occurring.

Two different tests are required to evaluate the amount and strength of acid present in a lubricant – Acid Number by ASTM D664 and initial pH (i-pH) by ASTM D7946. Acid Number evaluates the amount of acid in the oil

and i-pH can measure the intensity (strength) of the acid. Results aid data analysts in evaluating whether the lubricant is past its useful life and should be changed in order to prevent corrosive component wear.

An elevated Acid Number may be attributed to either weak organic acids from lubricant oxidation or the presence of a strong acidic contaminant. A strong acidic contaminant is a much more severe condition because it will cause corrosive component wear, which leads to decreased component life. Monitoring both the Acid Number and initial pH of lubricants is essential to maximize equipment uptime and maintenance savings.

Are you confident with your fluid analysis program?

Armour Lubricants offers a Total Lubrication Management Program, complete with fluid analysis and more. We work with premium Phillips 66 lubricants, offering proof of performance in teardown and engine cleanliness.

Be confident with your maintenance program. Contact Armour Lubricants to audit your current processes and make sure you keep your engines running smoothly.

Natural gas engines

Below are areas to look at when you note problems with natural gas engines. This type of engine must be handled differently than their diesel engine counterparts. When looking for a reason of failure we must play detective and rule out the possibilities. Consider the following:

- If you note electrical pitting in the bearings and crankshaft area, look on the oil side. This type of pitting usually indicates the electrical current flowing through the oil. You usually will not see the electrical ground problem on the coolant side.
- It is important to know at what temperature the engine is running. Standby engines sit cold and when they are brought up to engine temperature, it must be above 190°F to burn off any

Downtime is the oil and gas industry's number one enemy. In an environment where equipment is expected to run 24/7/365 under extreme conditions, downtime caused by equipment failure can quickly put a company out of business. Fluid analysis can predict equipment failure before it happens and eliminate downtime – saving you time and money. It costs so little to protect so much. Contact Armour Lubricants in Fort St. John to support your maintenance teams with top line fluid analysis and Phillips 66 Lubricants.

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moisture. If the engine is allowed to run cold it tends to make nitric acid.

- It is important to check the oil samples to see what the sulfate and nitrites are doing. If they are high, this is a good indication of combustion gases.
- It is important to know what the procedures are for operating the engine. Are you running up to operating temperature once a week, bi-weekly, or once a month? Has all moisture burned off? If oil is just hot enough to expand, then the engine is shut off and the oil contracts, moisture will remain. Over time this will cause nitric acid to form.
- Is there an air or electric starter on the engine? If it is an electrical starter, does it have an automatic battery charger on the system? This will eat it alive.
- Engine starters must be grounded to one side of the engine and not the block.

Armour Lubricants understands what unscheduled downtime means to your bottom line. We provide premium Phillips 66 lubricants and best in class service for maintaining equipment in the oil and gas sector. ■

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Upstream oil and natural gas investment will reach \$40 billion in 2023



PROVIDED BY THE CANADIAN ASSOCIATION OF PETROLEUM PRODUCERS

The Canadian Association of Petroleum Producers (CAPP) is forecasting oil and natural gas investment in upstream production will hit \$40 billion in 2023, surpassing pre-Covid investment levels. That represents \$4 billion, or 11 per cent, more in additional spending across Canada's economy than the prior year.

"Investment into Canada's oil and natural gas industry circulates back into the economy, benefiting all Canadians," says Lisa Baiton, CAPP President & CEO. "The expected \$40 billion of investment this year

will be spent with businesses across the country, including hundreds of which are Indigenous-owned, support hundreds of thousands of jobs, and direct new spending towards improving environmental performance and emission-lowering technologies, such as carbon capture."

Baiton says that the oil and natural gas production from this level of industry spending will generate tens of billions of dollars in royalty and tax revenues to governments to support investment into hospitals, schools, social programs, and infrastructure projects across the country.

Producers are expected to remain focused on disciplined investment with the increased spending going towards maintenance and incremental growth projects while also managing inflationary pressures which are impacting the entire supply chain. Additional spending is also expected to go towards environmental protection and emission reduction technologies such as advancing the development of carbon capture utilization and storage (CCUS). A report issued by BMO Capital markets showed Canadian oil and natural gas producers have invested an average of \$1.2 billion annually since 2012 into research and development, much of that focused on reducing emissions. The report estimates in 2022 that investment rose to \$1.4 billion and could exceed \$2 billion by 2025. In addition, Canada's upstream oil and natural gas industry is the largest investor in environmental protection, spending over \$3 billion annually in areas such as biodiversity habitat protection, air quality management, and water protection.

Conventional oil and natural gas capital investment for 2023 is forecast at \$28.5 billion, while oil sands investment is expected to reach \$11.5 billion.

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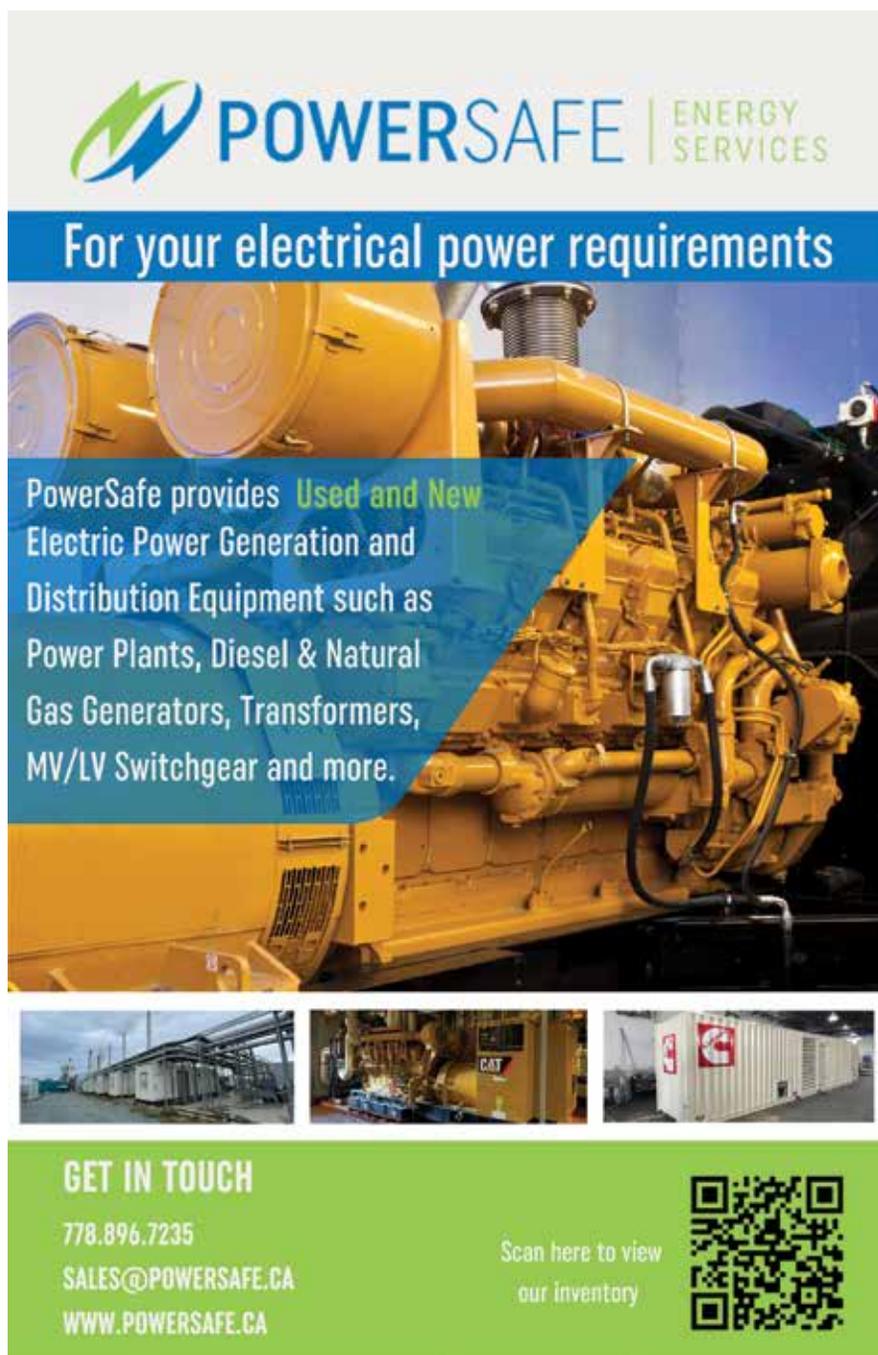
The \$40 billion mark represents the third straight year of consistent growth in upstream investment, delivering over 80 per cent growth since the 2020 low of \$22.0 billion reached during the Covid-19 pandemic.

For B.C., changing and growing global markets for natural gas have translated into stronger natural gas prices over the past year. Producers in B.C. are expected to grow investment in the province by about \$1 billion in 2023, reaching a total of \$7.2 billion. Investment in the province is expected to be helped by the recent agreements signed by the Province of British Columbia with several Indigenous Nations which satisfies the courts, establishes a process to manage cumulative effects and provides for resource development authorizations and a path towards long-term sustainable development.

Baiton says that 2023 may be one of the most pivotal moments in time for Canada's oil and natural gas industry. "With an emerging liquefied natural gas export industry, the expected completion of the Trans Mountain pipeline expansion, and billions of dollars in emissions reduction investments waiting to be unlocked, Canada is positioned to play a much larger role in providing responsibly produced energy resources to the world" says Baiton.

"To capture this opportunity, industry and all levels of government will need to work collaboratively on critical pieces of policy to create the conditions for Canada's oil and natural gas industry to continue to thrive for decades to come." ■

Conventional oil and natural gas capital investment for 2023 is forecast at \$28.5 billion, while oil sands investment is expected to reach \$11.5 billion.



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Canada has the potential to be a natural-gas powerhouse



The world is pleading with Canada to unlock its full potential

BY LISA BAITON, PRESIDENT AND CEO, CANADIAN ASSOCIATION OF PETROLEUM PRODUCERS

Canada's natural gas producers and supporters have long touted that a strong liquefied natural gas (LNG) sector could provide two critical benefits: Canada would benefit economically by diversifying our buyers, and second, lower emissions Canadian LNG could potentially displace emissions intense coal consumption in Asia and help lower world emissions.

With the advent of the Russian invasion of Ukraine, there is a third reason to support exporting Canadian gas to international markets: increased energy security for Canada's allies.

Those skeptical of these claims can look no further than the trade mission to Canada by Japan's Prime Minister Fumio Kishida. Kishida's visit – not unlike German Chancellor Olaf Schulz before him – to Canada was accompanied by what should be an uncontroversial ask: Kishida wants to replace their Russian natural gas imports with LNG imports from Canada. Canada, for its part, seems to agree that the proposal makes sense, with Minister of Natural Resources Jonathan Wilkinson highlighting the progress on LNG Canada and advocating for a further strengthening of the energy relationship between Canada and Japan.

For a country like Japan with minimal domestic gas production, a reliable natural gas supply is critical to its energy security. Japan imports more than 100 billion cubic metres (bcm) of natural gas per year, and, according to the IEA, these imports make up 90 per cent of their domestic consumption. With the need to secure natural gas access being so central to energy security in Japan, it is little wonder why Japanese companies are financial stakeholders in LNG export facilities

all around the world. These partnerships include Japan's involvement in Russia's Sakhalin 2 LNG project north of Japan in the Sea of Okhotsk, which is likely seen as necessary to secure future supply.

Canada, which currently produces over 150 bcm of natural gas annually, presents an obvious solution to Japan's gas needs. And Kishida's proposal reflects this. His hope is to replace the approximately nine per cent (nine bcm) of Russian gas currently imported from Russia with gas from Canada.

The Japan-Canada LNG connection is, in many ways, the ideal match even beyond the obvious gas market synergies. Both countries have strong existing bonds, highlighted by integrated economies and similar value systems. But Canada has other significant advantages to serving the Japanese LNG market that other exporters do not share.

First, Canada's west coast is closer to Japan than American export facilities. This reduced distance means reduced transport costs and lower associated emissions. It would also allow the American LNG industry to continue to serve European markets and reduce Japanese dependency on LNG exports from Qatar and Oman, LNG that could be rerouted to satisfy growing European and more easterly Asian demand.

There also exists a direct business connection between Japan and Canada: the Mitsubishi Corporation is a partner in LNG Canada – Canada's largest LNG facility currently under construction – owning 15 per cent of the project. That means it has a strong commitment to Canada's emerging LNG industry – and is committed to the long-term success of LNG Canada, which is expected to operate well into the mid-21st century.

LNG projects and their associated offtake agreements are, by nature, long-term. Late last year Germany – which also asked Canada for natural gas – recently entered a 15-year agreement with Qatar to supply LNG, and Japan entered a 20-year commitment to purchase LNG from a facility in Louisiana. If Japan and Canada can finalize a similar deal, we could be the reliable long-term provider of natural gas they need.

In a world where energy and natural gas demand is only expected to grow, such a deal would lend strong support for the continued development of LNG export facilities along Canada's west coast. It could transform Canada's LNG industry and grow our standing and influence in our capacity to provide the world with the natural gas it requires. A notable example is the approval and expansion of the LNG Canada

facility; building the second phase of the project would allow the facility to double its exports to 28 million tons and, in turn, mean that Canada could satisfy even more world natural gas demand.

Canada has an economic opportunity to provide gas to the world and a meaningful opportunity to lessen Russia's energy influence abroad. We can simultaneously meet our friend's energy needs and grow Canada's geopolitical influence. Prime Minister Kushida's ask should be taken seriously by Canadians. We have the potential to be a natural gas super-power, the world knows this, and they simply just want us to unlock our full potential.

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NYC billboards feature message about importance of Canada's energy to Reconciliation

BY CEC STAFF



Partnerships with Canada's energy sector offer an incredible opportunity to pull our next generation out of poverty

A Canadian Indigenous leader lent his voice to a Manhattan billboard campaign in September, hoping to bring global awareness about the country's energy industry and the important role it's playing in bettering the standard of living of many First Nations People in Canada.

"Partnerships with Canada's energy sector offer an incredible opportunity to pull our next generation out of poverty," says Dale Swampy, President of the National Coalition of Chiefs. "These partnerships advance the path of Reconciliation."

Swampy, whose organization represents about 80 First Nations communities across Canada, hopes his message during New York's Climate Week – one of the largest environment-focused

events in the world – helps shine a light on the strong relationship many Indigenous communities have with Canada’s oil and gas and cleantech industries and the role economic and environmental partnerships have in the pursuit of Reconciliation.

“It’s important people also understand that the oil and gas industry is taking its commitment to tackle climate change seriously and that the inherent relationship our people have with the environment is helping projects to be developed more responsibly,” says Swampy.

Canada ranks number one among the world’s top oil reserve holders in all three areas of ESG (environmental protection, social progress, and governance), according to international

third-party assessments, and oil and gas employs more Indigenous people than any other industry in the country.

In fact, overall Indigenous representation in the oil and gas sector was more than six per cent in 2019, according to Statistics Canada. For comparison, Indigenous peoples make up about 3.3 per cent of Canada’s total workforce.

More First Nations communities and businesses are entering into equity partnerships and mutual benefit agreements on major pipeline and energy infrastructure projects. Canada’s oil sands producers have spent \$15 billion with Indigenous businesses since 2012, reaching a record \$2.4 billion in 2019, according to the Canadian Association of Petroleum Producers.

“Yet unfortunately there are some coordinated groups who are preying on the desperation of some of our people to turn world opinion against Canada’s oil and gas industry,” says Swampy, a member of the Samson Cree Nation.

Swampy says that as a result, Indigenous communities lost out as governments have in the past bowed to extremist pressure and denied projects such as the Keystone XL and Northern Gateway pipelines, which would have brought hundreds of millions of dollars of economic growth to communities.

The \$65,000 campaign, sponsored by the Canadian Energy Centre (CEC), features Swampy and the simple message “Indigenous partnerships with oil and gas advance the path of Reconciliation.”

The campaign ran from September 20 to 25 on three large outdoor electronic billboards in high-traffic New York locations targeting Climate Week speakers, delegates, and media.

CEC President and CEO Tom Olsen says Swampy has been an integral voice for Canadian First Nations involvement in beneficial equity partnerships.

“Dale has been a courageous voice for many years now on the important role First Nations leaders, businesses, and monitors can play in supporting stronger and more sustainable projects,” says Olsen. “It’s time the world gained that understanding too.”

More examples of equity partnerships with First Nations communities can be found at the campaign website at responsiblecanadianenergy.com.

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