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THE COASTAL
GASLINK
NATURAL GAS
PIPELINE IS AN
\$11.2-BILLION
FEAT OF
ENGINEERING.
THE BIGGER
CHALLENGE
IS PROVING
ITS BENEFITS
OUTWEIGH
THE COSTS

BY PAUL
CHRISTOPHER
WEBSTER

PHOTOGRAPHS BY
KRISTOPHER GRUNERT

FROM
THE VALLEY

B E L O W

the pipeline crews up on the mountain-side above are seldom visible through the clouds. Today, though, it's brilliantly clear in the coastal mountains of north-west British Columbia. High in the alpine icefields, tiny specks of yellow are faintly identifiable as earth-moving machines digging the path for one of the most ambitious—and embattled—infrastructure projects in Canadian history.

For Carlos Pardo, construction manager on the toughest section of the \$11.2-billion, 670-kilometre Coastal GasLink pipeline that will connect the natural gas fields of eastern B.C. to the Pacific coast, it's a rare sunny day. "It's not often I get the chance to actually see what we're up against," he murmurs as he scans the icefields above. "It really doesn't get any more extreme than this."

Pardo is under enormous pressure to get the pipeline—now more than two-thirds complete—through the mountains to a \$40-billion liquefied natural gas (LNG) plant under construction in the coastal city of Kitimat. The work has acquired a heightened sense of urgency since the Russian invasion of Ukraine this past February led to a serious decrease in natural gas coming out of Russia—and a 116% increase in prices over the past year.

But getting the pipeline—which is being assembled from 10-tonne, 60-foot sections of four-foot-wide pipe—through these mountains is an almost



superhuman challenge. "In some places here, the pipeline runs upward almost vertically," Pardo explains. His section includes 22 mountain slopes that warrant alpine classifications. "Along one stretch, it's a 1.4-kilometre black-level ski run with a 700-metre change in elevation," he adds. "We had to build a cable crane and gondola system to get the workers and pipe pieces up the longest stretch. This is an epic project."

Pardo got his start in the pipeline business in Colombia, where the challenge of laying pipe through the Andes was compounded by fears of an attack by armed guerillas. Mercifully, here in these mountains, violence—beyond the ever-present threat of a bear attack—is not an issue.

But the pipeline Pardo and his team are struggling to build *has* inspired violence at other stops along the route. Environmental activists adamantly oppose the project both because it will eventually transport five billion cubic feet of natural gas each day at a time when the world's scientists agree we need to stop burning fossil fuels, but also for the potential destruction of otherwise pristine territory.

In Houston, B.C., millions of dollars in equipment were destroyed this past February, and at times large numbers of police have been pitted against protesters at blockade sites along the pipeline's path, like in Wet'suwet'en, where hereditary chiefs oppose the project even though the community's elected lead-

ers have joined 19 other First Nations in signing agreements with the pipeline's builder and minority owner, TC Energy.

Despite high prices and the fact that just about everyone these days is desperate to gain access to Canada's copious natural gas, the CGL project faces forbidding economic obstacles. Riding in the back seat of Pardo's pickup truck, Kent Wilfur—TC Energy's vice-president of project delivery for the CGL pipeline—describes the ongoing boom in Canadian pipeline construction with a mix of astonishment and wariness. In 31 years in the industry, says Wilfur, "I've never seen it as busy as this." As the company pushes through northern B.C., Wilfur says, TC Energy is also implementing what it describes as a \$10-billion upgrade to its Nova Gas Transmission Line in north-eastern B.C. and Alberta, which connects to the main line through central Canada and the United States (where its Keystone XL project was recently scrapped). Meanwhile, the twinning of the federally owned TMX oil pipeline between Alberta and the Pacific coast is also underway at an estimated cost of \$21 billion.

From Wilfur's perch as the TC Energy executive responsible for getting CGL built, what all this pipeline fever amounts to is a worrying scarcity of labour and equipment (compounded by pandemic-related shutdowns) that are propelling sharply rising costs for, well, just about everything. Ask him about the price of building in this high mountain route called Icy Pass—where crews from a nearby base camp are scrambling under Pardo's supervision to get the most treacherous stretches in place before winter hits—and you'll get a quiet chuckle. "Let's just say it's very expensive," he admits.

A more precise acknowledgement of just how expensive came in late July, when TC Energy revised its original \$6.6-billion estimate upward to \$11.2 billion. But it gave no indication of where all that new money would come from; nor did its partners, New York-based investment giant KKR, the National Pension Service of Korea and AIMCo, the entity that manages Alberta's government pension funds, which collectively bought 65% of the project in 2019.

Suffice to say Wilfur and his team face enormous challenges as they inch their way toward Kitimat. Eventually, the consortium hopes to ship all that LNG to thirsty nations in Asia and beyond—

which, the company insists somewhat incongruously, could actually help lower total global greenhouse gas emissions, not raise them.

With global energy consumption growing insatiably, says TC Energy's CEO, François Poirier, "it's our responsibility to transition to lower emissions." And Canadian natural gas, he adds, is among the cleanest in the world, making LNG "the fuel of choice" for nations looking to transition away from coal and oil. "We've always felt the long-term prospects for LNG are really good, and North America is incredibly well-placed to meet global demand."

Whether you buy into that argument or not, the CGL pipeline, together with the Kitimat LNG plant, amount to the single biggest Canadian infrastructure investment gamble since the construction of the St. Lawrence Seaway in the 1950s and the transcontinental railroads in the 1880s. Overcoming all the obstacles—political, social, environmental—has become a high-wire juggling act for everyone involved.

But for Carlos Pardo, the focus today

is on making the best of a spell of glorious June weather that's allowing snow-clearing operations and rock blasting in Icy Pass. While the sun still shines, he aims to make significant progress. "Winter will be back soon enough," Pardo muses with an anxious glance aloft to where the giant excavators on the snow-covered mountainsides look like ants moving at a glacial pace. "Actually, it's winter year-round in a lot of places up there."

IN KEEPING WITH the spectacular engineering ambitions on display at Icy Pass, 50 kilometres westward down the CGL pipeline corridor, the largest private investment in Canadian history is transforming the small coastal city of Kitimat, population 8,000.

In the town's harbour, a massive concrete dome the size of a sports stadium is taking shape beneath a forest of cranes and scaffolding. The facility is nestled between the coastal mountains and the ocean, and adjacent to an aluminum plant that transformed

◀ Section 8 of the pipeline route includes 22 mountain slopes that warrant alpine classifications



▶ Carlos Pardo (left), the man responsible for Section 8 of the pipeline, and Kent Wilfur, the TC Energy executive in charge of the project



this Indigenous fishing village into an industrial boomtown in the 1950s. Some 5,000 workers are involved in building what will be Canada's first LNG plant. When the facility is finished, gas brought through the CGL pipeline from eastern B.C.'s extensive gas fields will be cooled to -162°C and turned into liquid form—reducing its volume 600-fold—for export to Asia in specialized ships. Funded by LNG Canada, a consortium of Shell, Petronas, Mitsubishi, PetroChina and Korea Gas, the plant is expected to begin shipping LNG westward by 2025 or 2026.

LNG Canada boasts that the Kitimat plant will put Canada on the global map of LNG-exporting countries. And while environmentalists argue the timing couldn't be worse for Canada to be expediting another major source of global greenhouse gas emissions (albeit one with CO₂ emissions that are roughly half that of coal), from a purely commercial perspective at least, this Herculean engineering and investment effort seems serendipitous.

Whether seen through a long- or short-term historical lens, huge infrastructure investments like this are the kind of bets bankers have always favoured in Canada—all the way back to the building of the railroads

through these very same mountains. The numbers behind Canada's LNG infrastructure gambit are a banker's delight. Over the past decade, according to the International Energy Agency (IEA), natural gas accounted for almost one-third of the growth in total global energy demand. And the IEA forecasts this increase will continue. Short-term trends for gas are even more expansive. "Russia's invasion of Ukraine has exacerbated the tightening supply of natural gas underway since mid-2021, further pushing up prices for consumers," the IEA reports, while predicting European purchases of Russian gas will drop by more than 55% from 2021 levels by 2025.

North America, says the IEA, is expected to play an outsized role in replacing Russian exports to Europe (where, incidentally, natural gas was recently reclassified in the mid term as a "green" energy source even as the EU strives toward net zero by 2050). Earlier this year, the U.S. became the world's leading LNG exporter.

Canada's imminent arrival as an LNG exporter to Asian markets seems destined, in this context, for commercial success. According to IEA forecasts, the Asia-Pacific region will account for half of all global consumption growth between 2021 and 2025. China, thanks

to expanding industrial production and continuing efforts to switch from coal to natural gas, will be the single biggest contributor to consumption growth in Asia, accounting for more than 75% of its forecasted increase in gas demand.

In Ottawa, forecasters at the Canada Energy Regulator (CER), the federal agency that regulates pipelines, foresee B.C. overtaking Alberta in gas production by 2028. Under existing national energy and environmental policies, CER predicts Canadian natural gas production will grow 40% by 2050. Under a scenario in which environmental policies drive down the consumption and production of carbon-emitting fuels including natural gas, domestic consumption cuts will be fully offset by a forecasted 270% increase in LNG exports—possibly from a new facility on the Atlantic coast, in addition to the Kitimat plant—between 2026 and 2039.

For TC Energy, which owns a sprawling system of gas pipelines across much of Canada and the U.S., as well as a chunk of the Bruce Nuclear Generating Station in Ontario, the push for Canadian LNG exports to new markets in Asia represents a giant hedge. Faced with potentially significant declines in future Canadian gas usage, Ottawa expects LNG exports to keep the Cana-

dian gas business growing for decades.

This future for the gas industry obviously won't please Canadian environmentalists hoping to see meaningful reductions in Canadian fossil fuel production and consumption. A tough fight to hold Canada accountable for its carbon exports—not just for domestic emissions—is well underway.

That fight, argues Dave Sawyer, principal economist for the Ottawa-based Canadian Climate Institute, a think tank that advises the federal and provincial governments on achieving net-zero goals, will best be won through carbon pricing. "Once we've built in carbon pricing, the market will determine how buyers respond," Sawyer says, with the expectation being that sales in Canada will fall as consumers switch to truly green energy sources. "Canadian producers will have to absorb carbon pricing on their balance sheets, cutting into profits, when they sell natural gas internationally. The question will then be whether Canadian natural gas exports can compete with heavy carbon pricing in a net-zero world."

If Canada is indeed set to be a major overseas gas exporter, there's a possible silver lining of sorts, Sawyer adds. As the IEA emphasizes, the increasing use of natural gas in Asia is eroding the use of coal, a far more pernicious environmental threat than gas. Predictably, TC Energy is quick to agree on this point, arguing that Canadian gas exports to Asia through Kitimat could "potentially" reduce global GHG emissions by 60 million to 90 million tonnes per year.

STANDING ON the beach in Kitimaat Village, the hamlet that's home to the Haisla First Nation, Ellis Ross dumps out a bag containing half a dozen salmon heads. He's spent a good part of the day cleaning and fileting fish for smoking in a shed behind his house, which fronts on the village soccer field. Before turning back to check on the smoking process, he scans across the water toward the massive dome of the LNG Canada plant rising in the industrial maze alongside Kitimat Harbour. "This time we got it right," he muses. "We finally got a much fairer deal."

That statement is the culmination of a long journey for Ross, who started his working life beachcombing and running a water taxi before becoming a councillor for the Haisla First Nation in 2003 and chief councillor eight years later. In

◀ Each 60-foot section of pipe weighs 10 tonnes and measures four feet across

▶ Ellis Ross, during a rare day off from his duties as a B.C. MLA, on the beach in Kitimaat Village. Below, the community's new sports facility



2017, Ross won the provincial Skeena riding, which includes Kitimat. He served briefly as minister of natural resources for the B.C. Liberals before the NDP took power. These days, he's the opposition critic for energy and LNG.

Ross's baptism in politics started in 2004, when the Haisla—whose territorial lands and waters include the town of Kitimat and its harbour—went up against a pulp and paper mill that was polluting the local water and damaging the Haisla fishery. The Haisla signed an environmental agreement, says Ross, but the company never cleaned up, and eventually it closed its local operation. But the experience gave the Haisla a shot of confidence. "Before that," he says, "the government and corporations would listen to our complaints and know there would be no consequences."

Since then, Ross has helped hammer out numerous agreements wringing concessions from the pulp and paper, aluminum and energy companies that feed on cheap electricity from the nearby Kemano hydro dam. Historically, all these companies made minimal efforts to address Indigenous exclusion and severe poverty—let alone the fact that they operate on Indigenous territorial lands. Ross's fights have largely been over employment, and he says he

took a tough approach: "I wasn't satisfied with vague agreements and promises. I wanted to see real numbers, real percentages and real proof."

These tactics proved highly effective when LNG Canada proposed building the Kitimat plant in 2015. Not long before company officials came knocking, the Haisla had successfully helped lead a fight against Enbridge Inc.'s Northern Gateway bitumen pipeline, which would have resulted in intensive tanker traffic through their traditional waters—and brought tremendous wealth. Learning from Enbridge's mistakes, LNG Canada realized its success would depend on working collaboratively with Indigenous communities.

The deal between LNG Canada and the Haisla promises employment for band members and guarantees royalty payments to the band's government. On a walking tour around the village to see its new school, band office, sports facilities and housing, Ross argues these benefits have already been appreciable. "We've gone from being one of the poorest bands in B.C. to being one of the wealthiest," he emphasizes. The Haisla are now vigorously pursuing co-ownership of their own LNG facility, he adds. "Without a doubt," he says, "we've turned things around."

While the CGL pipeline runs across the territorial lands and waters of dozens of First Nations, only the Haisla can boast direct benefits on the scale their agreement with LNG Canada represents. Behind TC Energy's claim that the CGL project will generate \$1.4 billion in economic activity for Indigenous and local businesses, few of the communities along the pipeline route can expect much more than a scattershot of short-term construction jobs alongside injections of cash for bands that have signed agreements with the company.

Glenn Bennett, chief of the Kitselas First Nation in Terrace, B.C., takes a measured view of the project's pros and cons. Amid the short-term boom in Terrace, and with the construction of a large base camp about 40 minutes from town that services pipeline workers in the mountains, Bennett has done his best to promote Indigenous employment and economic development. Even so, he clearly mourns the project's environmental impacts. "The pipeline in one section near here follows the route of one of my late father's traplines," he says, "and it leaves a big footprint. It disturbs wildlife and the environment."

The boom in Terrace has, in many respects, made life more difficult for the members of the Kitselas people, Bennett reflects. "The cost of living is much higher now. Rents have gone sky-high, and house costs are approaching \$1 million." Still, Bennett doesn't diminish the value of the Impact Benefits Agreement the Kitselas negotiated with TC Energy. "It's helping to pay for our new community centre. Right now, we have to rent a gym. And we desperately need a detox centre. These things don't come cheap."

But Bennett, whose 23-year-old daughter is a labourer on the CGL project, is disappointed with the job opportunities created for the Kitselas.

"We don't want the low-paying jobs like security and janitorial and housekeeping. But that's what our people are being put into. We want the trades jobs. I think we kinda missed the boat there."

For now, though, Bennett continues to think his support for the project was the right decision. He's mindful that some First Nations, including the Wet'suwet'en to the east of Terrace, have been riven by internal struggle between community members who very publicly and determinedly oppose the project, and those who support it with equal conviction. "In this day and age, you have to be supportive," Bennett muses while acknowledging that the dilemma facing the Wet'suwet'en and other Indigenous communities is based on deep concerns about environmental impacts and further erosion of territorial control. "These projects don't come along that often," Bennett gently observes. "You have to try to find a balance. We're not going anywhere."

At some of the protest sites—especially the one near Houston, where millions of dollars in equipment was destroyed and pipeline workers put at risk last February—the tension has been extreme, notes Kai Nagata, communications director for Dogwood, a Victoria-based political action group. (No arrests were made in that case, but other land defenders and anti-pipeline activists have been arrested.)

Nagata, who lives near Hazelton, B.C., in a region where several other gas pipelines are now in discussion, says he views the extensive police and private security operations in support of the gas industry as "an armed occupation" of the traditional territories of the Gitksan and Wet'suwet'en.

As part of its "Beyond Gas" campaign, Dogwood successfully pressured the B.C. government to roll back an esti-

mated \$1.2 billion in annual subsidies for natural gas fracking in northeastern B.C. However, Nagata argues the gas industry has "spectacular" ambitions for new drilling and pipelines in the province's north. He points to the 2021 B.C. Supreme Court ruling that sides with the Blueberry River First Nation. As the ruling notes, the constant approval of energy projects is akin to a "death by a thousand cuts" that has reached a "tipping point" where industrial activity has infringed on Blueberry's treaty rights.

Opposition to B.C.'s gas fracking and pipeline boom has solidified the long-time alliance between environmentalists and Indigenous activists, and has brought to the foreground divisions between modern elected Indigenous leaders and traditional non-elected ones in many communities, Nagata says.

Of the more than 30 Indigenous entities consulted by Coastal GasLink, all 20 along the project route with elected leaderships have signed agreements with TC Energy. But the CGL project, and the plans for more of its kind in northern B.C., continue to generate intensifying objections regarding the environmental harms, contribution to global carbon emissions and routing through unceded Indigenous territories.

This past March, TC Energy and its partners in the CGL took a telling step toward possibly cultivating greater Indigenous buy-in by announcing the signing of option agreements to sell a 10% equity interest in the pipeline to Indigenous communities across the project corridor. That move—whether it results in a firm Indigenous ownership stake or not—signals the terrain is shifting for resource companies working on Indigenous territories in Canada.

"For years we have watched industry and governments generate revenues from the operations of their projects, while we live with the impacts," Justin Napoleon, chief of the Saulneau First Nations, said at the time. "This investment in Coastal GasLink will finally start to shift the landscape, aligning industry and Indigenous peoples' interests."

FOR THE SMALL cities of Terrace and Kitimat, Coastal GasLink and LNG Canada are spurring booms on a scale not seen since the building of Canada's first national railway in the 1880s and the Alcan complex 70-odd years later.

Return tickets for the 100-minute flight from Vancouver to Terrace, which

serves as the main transportation and supply hub for the region, have run as high as \$1,100. Hotel rooms and rental cars in the city—a once-sleepy railway town that straddles the Skeena River 240 kilometres east of Prince Rupert—are highly priced and highly coveted.

Kitimat mayor Phil Germuth describes the arrival of CGL and LNG Canada with glee. "We're on the world map all of a sudden," he enthuses. Two new hotels have been quickly built, he says, alongside a new swimming pool for the community. "Industry pays 70% to 80% of our tax revenues," he crows. And the boom's good for local hockey, too. "We're a town of 8,500 people with two covered ice surfaces," Germuth beams.

When Enbridge's Northern Gateway pipeline was put to a local plebiscite, it drew just 42% support. LNG Canada's proposal never went to a vote, but Germuth believes the community stands behind it. "I think people could see that LNG has a huge future here as a job creator, unlike Enbridge," he says, before throwing in the claim that because Kitimat's heavy industries are largely powered by access to hydroelectric power,

"the LNG we'll produce here will have the lowest carbon footprint on Earth."

Nor does the mayor overlook the centrality of local Indigenous buy-in for the project. "LNG Canada deserves huge credit for bringing the Haisla First Nation and the District of Kitimat governments together," he says. "There's a lot of people out there who would like to kill this project. But not here in Kitimat. There are very few people here who oppose LNG. Very few."

So will Germuth's dream of a new dawn for Kitimat—which was once the ultimate company town when it was carved from the Haisla's traditional lands by Alcan 70 years ago—come to pass? And will it be the export locomotive for a new lease on life for Canada's natural gas industry?

The answer to that question right now rests largely in the hands of Carlos Pardo, the man in charge of Section 8 of the CGL pipeline. Getting it through the mountains and down to Kitimat by the end of next year is possibly the toughest job in the country right now.

Exactly how tricky Pardo's job is becomes clear on a gondola ride up the

side of the mountain near a place called Cable Crane Hill. Built by the Austrian company LCS Cable Cranes, systems of its type have been built for pipeline construction projects in many of the most daunting mountain ranges on Earth, from Austria to Brazil to Mexico and New Zealand.

The gondola's control room is in a custom trailer perched on the edge of a cliff in a setting oddly reminiscent of the cabin in Charlie Chaplin's *The Gold Rush*. Austrian native Matthias Mähr, one of the mechanics tasked with running the system, has travelled with it around the world. Asked to rank the Canadian project's mountaineering ambitions in comparison with what he's seen elsewhere, Mähr is emphatic. "It's No. 2," he declaims. "Behind ours in Austria."

But Mähr's assessment doesn't sit right with Mel Johnson, VP of engineering and construction for CGL, who happens to be on hand. "So, how big was your pipe size in Austria?" Johnson asks with a twinkle in his eye.

Sure enough, the Canadian pipe proves to be bigger. ●



◀ Across the Kitimat River is LNG Canada's natural gas storage tank, which will be one of the largest in the world, at 225,000 cubic metres