



BELOW THE

ENVIRONMENTALISTS COULD WIN THE KEYSTONE BATTLE

BY DANIEL GROSSMAN / PHOTOGRAPHY BY ALEX S. MacLEAN

In September, my son and I joined about 400,000 protesters marching from Central Park to Midtown Manhattan in New York City for the largest show of concern about global warming yet. All around us, people waved handmade banners emblazoned with slogans such as “There’s no planet B” and shouted chants such as “ExxonMobil, BP, Shell/Take your filth and go to hell!” We danced and sang as if the gathering were a victory party. There was something to celebrate, even if there’s still plenty to

fear. The environmental movement had achieved a major tactical goal. In 2008, the TransCanada oil services company had applied for a permit to build the Keystone XL pipeline. The project would ship 800,000 barrels a day of Alberta tar sands oil over hill and dale to Texas—tens of billions of dollars’ worth per year. A decade earlier, similar international pipelines won swift approval. But this time, concerned scientists and politically active citizens have stymied TransCanada for years. In April, the Obama administration postponed



SURFACE:

AND LOSE THE WAR AGAINST TAR SANDS OIL

ABOVE
Refineries in Texas City, Texas.

OPPOSITE
In Alberta, muskeg is scraped from the surface to reach the tar sands.

a decision indefinitely. Each successive delay has raised the pipeline’s cost. The president has responded to wide and rational public pressure.

But it’s unlikely that many people marching with us in New York had heard that the oil industry had recently achieved a victory of its own, one that probably trumps the campaign against the XL pipeline. The Enbridge pipeline company has won approval of a key link in a second, equally large, pipeline already being built along an alternate route be-

tween Alberta and Texas. Alberta crude could flow through that line later this year. Protesters may have remained unaware that oil and pipeline companies are moving quickly on several other schemes for transporting oil from Alberta to markets in the United States and beyond. They’re beefing up rail lines. They’re proposing and repurposing pipelines to tanker terminals in Vancouver and Saint John, New Brunswick. They’ve even formed plans for laying pipe to a new port in the Arctic Ocean, open only because of global warming!



At its core, the anti-XL campaign was not about a specific pipeline at all. It was about how to keep tar sands oil bottled up in landlocked Alberta. And that's a tough goal to achieve.

To understand why environmentalists had targeted tar sands oil for opposition, I drove five hours north from Alberta's capital, Edmonton, with the renowned aerial photographer Alex MacLean to the industry's booming hub, Fort McMurray. We pulled into the lot of a museum, called the Oil Sands Discovery Centre, at the edge of town. The exhibits, like the museum's name, referred to *oil sands*. News and academic databases show that industry regulators, scientists, environmentalists,

and even officials in the oil business all called the stuff *tar sands* before an industry rebranding in the past decade. An exhibit at the industry-funded museum explained that tar sands are an ore of extra heavy crude oil, bitumen, mixed with water and clay and sand. In its natural state, bitumen is as viscous and sticky as cold molasses, too viscous to pump. Alberta's bitumen is buried under a territory the size of Iowa and is the world's third-largest known oil reserve, after those of Saudi Arabia and Venezuela. Until the late 1960s tar sands were not commercially accessible. However, the depletion of high-quality oil elsewhere and technological advances have turned Alberta's oil into a valuable commodity.

ABOVE
Refinery operations in Alberta. A tailings pond lies in the foreground.

OPPOSITE
An Alberta tailings pond. Skimmers collect oil that floats to the surface atop waste material.

Oil companies dig up near-surface tar sands in open pit mines. Nearby factories siphon the bitumen off and dispense solids, mixed with water, into man-made ponds. These days, Alberta producers get most of their bitumen from such pits. But the goliath scoops and trucks working the mines can't economically dig more than about 200 feet down. And 80 percent of Alberta's tar sands are buried deeper. To obtain oil from these deposits, companies sink grids of closely spaced shafts in the woods and marshes above the oil fields. Pipe fitters plumb the land with miles of ducts hooked to humongous boilers. Superheated steam injected into the pipework liquefies the bitumen, which a corresponding

network of return pipes then draws up to factories on the surface.

Environmentalists, especially in Canada, lament the industrialization of the pine, fir, and birch groves and muskeg marshes of the boreal forests of northern Alberta. Surface mining and its associated facilities have disturbed around 250 square miles of land, an area bigger than seven Mannhattans. I had hoped to see what the companies had done. I'd read about the industry's huge size. But when I got to Fort McMurray I discovered that the mines and plants are difficult to see. Flat terrain affords few uncluttered vistas. Company fences keep unsanctioned outsiders like Alex and me far from the action. —





➤ Fortunately, we quickly overcame these obstacles by literally going over the heads of company guards and PR officials. We'd rented a four-seater Cessna, which we flew 1,000 feet above the mining area. Alex, sitting next to the pilot, shot pictures out an open window. I sat in the back, chilled by cold blasts of the early-spring air. Two contiguous complexes, one owned by the Suncor company and the other owned by the Syncrude company, stretch from horizon to horizon. If teams of giants had mud wrestled there, they couldn't have left a bigger mess. Apart from small green patches of uncut forest, earth tones of brown and gray paint the entire vista.

On a flight south of Fort McMurray, Alex and I circled low above a steel building flanked by steam boilers. Silver pipes emerging from inside carried steam for softening subterranean tar sands. The pipes fanned out to wells drilled into the forest floor. The woods were cut by access roadways, utility corridors, and a network of paths that looked like alleyways chalked in white amid the winter forest's leafless crown. Workers access the forest along these corridors, called seismic lines, and set off explosive charges for probing the structure of the underground deposit. These forest cuts look relatively benign compared to open pit mines. But they disrupt much larger territory than the mines. They frag-

ABOVE
Earth excavated to reach tar sands is cast aside.

OPPOSITE
Networks of pipe inject steam belowground and pump bitumen back to the surface.

PREVIOUS SPREAD
Terraces of open pit tar sands mines.

ment the forest into disconnected pieces, making it inhospitable to some wildlife species. Scientists have concluded that seismic lines have made Alberta's woodland caribou more vulnerable to wolves. Caribou numbers have plummeted in the past decade, in part owing to the forest fragmentation that Alex and I saw.

The destruction of Alberta's forest is only one of many reasons why environmentalists oppose tar sands mining. With each passing year, there is more evidence that Earth is going to suffer a climate catastrophe unless we use less fossil fuel. Environmentalists have focused on Alberta's tar sands oil as just the sort of fuel best left untapped.

Much of the infrastructure needed to access these deposits has not yet been built. Also, tar sands are much more energy intensive to dig up than conventional oil. Before your car has even burned the gallon of gas made from tar sands oil you put in the tank, an extra quart of fuel was consumed just to get it out of the ground.

A few months after my trip to Alberta, I took a Greyhound bus to the proposed destination of the Keystone XL pipeline, one of the densest collections of refineries in the world, on the Texas Gulf Coast. Texas oil crackers process 25 percent of U.S. oil. Texans burn a lot of that fuel themselves, more fossil fuel than any other state. ➤





→ I met up with Alex again, and we toured airspace above refineries in Texas City, the Houston Ship Channel, and Port Arthur, each within easy flying distance from Houston. With Alex piloting our rented Cessna, we stared straight down the stack of one refinery and got a good whiff of the tarry stench.

Houston's 26-lane Katy Freeway, the world's widest road, symbolizes in one stretch of concrete and asphalt the outsized carbon footprint of the surrounding state and country. The freeway serves Houston's Energy Corridor, the headquarters of BP America, Citgo, and ConocoPhillips. The Port Arthur Refinery, North America's biggest proces-

sor of crude oil, blankets a three-square-mile plot in steel scaffolding that props up millions of feet of pipe and scores of stacks, some billowing with black smoke and occasionally releasing great balls of fire.

If the TransCanada pipeline company ever builds its XL line, an umbilical cord of steel 36 inches wide will connect Port Arthur to Alberta. Alberta oil producers hope to double current tar sands production by about 2020. The XL would carry a major fraction of the increase. But, because it would cross the international border, the pipeline needs approval from the president. Activists have made opposition to the XL a central focus of their

ABOVE
Petcoke, a tar sands by-product, piles up at the Pine Bend refinery near Minneapolis.

OPPOSITE
A pipeline segment awaits assembly near Hardisty, Alberta.

PREVIOUS SPREAD
The deforested edge of an open pit mine.

movement to slow climate change. They've been joined by actors such as Robert Redford, music celebrities such as Neil Young, and elder statesmen such as Jimmy Carter. Hundreds of people, including notables such as the former NASA climate scientist James Hansen and the former president of the civil rights group NAACP Julian Bond, have been arrested during civil disobedience actions. Tens of thousands more people have pledged to do likewise if the Obama administration approves the project.

While the oil industry continues to lobby hard for approval of TransCanada's Keystone XL, it's also quietly drawing up plans B and C and several oth-

ers. TransCanada's competitor Enbridge recently exploited a loophole in U.S. pipeline rules and got permission to import 120,000 additional barrels a day of Alberta crude. The company's Alberta Clipper line already ships 450,000 barrels a day of oil from Alberta to Superior, Wisconsin, where it hooks into a pipeline network supplying Great Lakes refineries. Enbridge had hoped to approximately double shipments to Wisconsin, but the company ran into Keystone-like delays. So Enbridge officials devised a workaround. They're going to shunt oil from the Clipper just north of the border into a parallel pipeline with underutilized capacity. This pipeline won government approval in the 1960s. Once across



the border, the company will divert the oil back into the Clipper, cleverly increasing Enbridge's ability to ship Alberta crude to the United States without the otherwise required presidential approval. The State Department signed off on the plan last August.

Two competing pipeline builders, Kinder Morgan and Enbridge, have proposed constructing pipelines to ship Alberta's oil to tanker terminals in Vancouver. TransCanada is planning to lay down 2,900 miles of pipe linking Alberta to ports in Quebec and New Brunswick. That line would carry almost 50 percent more oil than the company's stalled Keystone XL project.

Canada's oil industry is building up its ability to ship tar sands in train tankers, what supporters call "pipeline by rails." Such shipments from Alberta have grown dramatically in the past year. TransCanada President and CEO Russ Girling says that his engineers have drawn up blueprints for a "rail bridge" across the border, again circumventing governmental approval required for pipelines.

Robert R. "Bob" McLeod, the premier of Canada's Northwest Territories, has a suggestion, in case some or all of the planned pipelines and rail renovations are delayed or canceled. In a swing through Washington, D.C., this past September, he offered—

ABOVE
BP's Whiting Refinery
in Whiting, Indiana.

OPPOSITE
The Katy Freeway
in Houston.

FOLLOWING SPREAD
The Houston Ship
Channel.

to anyone who would listen—to build an Arctic tanker port in the Northwest Territories, just above Alberta. "If we can't go south, and we can't go west, and we can't go east," he told officials all over Washington, "we have no choice but to go north." Last year, Alberta hired an Arctic services company to study the feasibility of such a project. The report, released this past September, warns that today sea ice prevents tankers from traveling most Arctic routes in winter. The long-term picture, though, is rosy. Because of climate change, the report's authors conclude, "more favorable conditions for shipping will almost certainly continue to develop." The document does not mention that the oil industry itself is causing the warming. ●

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