Nuclear Caribou

On the front lines of the new uranium rush with the Inuit of Nunavut

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PAINTINGS BY TONI ONLEY

A CARIBOU CALVING GROUND – *Nunavut, Canada*: June days lengthen and snow melts to reveal tiny bright wildflowers and nutritious lichens. Thousands of pregnant caribou gather in tight circles. They are gaunt and exhausted from their six-hundred-mile migration from the boreal forests of Saskatchewan. They have traversed steep mountains through howling blizzards and crossed raging ice-choked rivers into the subarctic taiga, then in single file trudged on to the arctic tundra to offer the world a new generation. The castanet-clicking of heel bones mixes with groans of delivery. The thrumming of desperate mothers and the bleating of lost calves create a chaotic din that can be heard for miles across the treeless expanse.

This is Kivalliq, a vast region of central Nunavut, the bleak but starkly beautiful Inuit autonomous region of northern Canada. If you are a caribou, it is not a safe place. Fragile cows pace nervously around staggering newborns as winter-starved grizzlies and wolves encircle the herd. A thousand caribou swirl frantically up and down a slope, charging in unison like a flock of shorebirds to escape the bears and wolves. As many as half the calves will be lost in the ferocious predation that follows. In the weeks to come, many more will succumb to insects, disease, and starvation. As few as five of every hundred born in that dramatic seven- or eight-day birthing period will return to this same ground next year to relive this poignant ritual of birth and death.

The Beverly and Qamanirjuaq caribou herds of Kivalliq face an additional hazard, of which they are completely unaware. Beneath their Thelon Basin calving ground, about eighty kilometers west of the town of Baker Lake, is a massive vein of pitchblende, the raw material of uranium oxide (U_3O_8), which is the

feedstock of neutron-rich uranium-235, the essential fuel of nuclear power and a vital ingredient of modern weaponry. Buried deep under the tundra, the low-grade, 100-million-pound Kiggavik-Sissons deposit poses no threat to the caribou.

But if it is mined, and tailings piles and waste ponds are created in the process, as they almost surely would be, the ground, air, and water of this already treacherous place will be contaminated with radioactive wastes. Toxic radionuclides will find their way into the flesh of every animal that eats the vegetation and drinks the water. As it moves up the food chain, radioactivity will concentrate, threatening the food security of the inland "Caribou Inuit," a people for whom the caribou are still, in this modern time, a vital source of food, clothing, and shelter. The Inuit people living along the Thelon River and surrounding Baker Lake have thrived side by side with the Beverly herd for thousands of years.

In 1990, not long after pitchblende was discovered in Kivalliq, the people of the region voted overwhelmingly to ban outright the mining of uranium. Urangesellschaft Canada Ltd., a German mining company that had its heart set on the ore, packed up its drills and bulldozers and fled back to Europe. Uranium at the time was about $7 a pound on the world market. The calculus of mining, milling, and shipping U_3O_8 from Nunavut to Europe at that price was not much better than break-even.

But something happened to change all that. The planet began to heat up, carbon dioxide became recognized as a global threat, and before long the sagging, moribund, but allegedly CO_2-free nuclear power industry was reconsidered. A "nuclear renaissance" was predicted that would expand global production of nuclear power from the current 439 plants operating in 30 countries to over 1,000 by 2025. China and India have each announced plans

to build scores of nukes, a tired old Washington lobby has been rejuvenated, and there is talk of a "hydrogen bonus"—using new nuclear capacity to produce hydrogen, the current dream fuel for a new clean and green economy.

World production of uranium, however, does not even meet present demand. In 2004 world consumption of U_3O_8 was 79,000 tons while global production was just 46,500 tons. The difference was made up with secondary sources (stockpiles, decommissioned weapons, and recycled waste). But those sources are shrinking, and demand is growing for new sources of radioactive fuel. So when U.S. energy policymakers gave serious reconsideration to nuclear in 2007, about the same time as some large mines in Canada and Australia became flooded with groundwater, hedge-fund speculators dove into the market and uranium shot up to $138 a pound, settling back eventually to about half that price, but still almost ten times the $7 low.

Within weeks of the price jump there were thousands of uranium claims staked around the world, hundreds of them in Nunavut. Each claim, a small parcel of land purchased from the government for as low as $5, gives its owner the rights to all minerals beneath it. In most countries a claim owner is required to invest a small sum in the development of the claim in order to retain ownership. One by one newly formed prospecting companies helicoptered supplies into barren, windswept field camps across the Arctic, each staffed with geologists, engineers, pilots, cooks, and as many Inuit helpers as they could recruit. They were either oblivious to the plebiscite that banned mining or hopeful that it would be overturned. One camp opened in 2004, six more the following year. There were eight by 2006, and when I arrived in April of 2008 there were twenty-eight uranium prospectors drilling the tundra of Nunavut.

Huge mining companies from around the world with names like Uranor, Areva, and Titan opened community-liaison offices around the territory, promising jobs, partnerships, and royalties to impoverished Inuit villagers. "We want to make sure that we're moving at a pace that is not too intimidating to the people of the region," Titan Uranium president Philip Olson told the territory's leading newspaper, the *Nunatsiaq News*, in 2006. Olson said he received a warm welcome from Baker Lake mayor David Aksawnee and the hamlet council. "People are looking for work," he said of the people who had once voted 90 percent to oppose uranium mining. In truth they are desperate. The unemployment rate in some Nunavut communities is close to 70 percent.

Complicating matters is the fact that the Baker Lake plebiscite was held nine years before Nunavut was Nunavut. This vast area, a landmass the size of California and Alaska combined, used to be part of the Northwest Territories, but land-claim and sovereignty negotiations had been under way between the Inuit and Ottawa since the late 1970s. True autonomy and the complex gazetting of Canada's first and foremost native-governed region were finally achieved on April 1, 1999. At that point, the land ownership of the region became exceedingly complex. The surface of Nunavut remains mostly federal property, administered from Ottawa. However, about 20 percent of the land is owned outright by the Inuit people, who also gained about 2 percent of the territory's subsurface rights. And under those sections lies most of the region's uranium, which means the resource is native-owned, and any potential mineral royalties would become dividends for the twenty-four thousand Inuit of Nunavut, most of whom live in twenty-five small communities on the coastline of the Arctic Ocean.

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URANIUM MINING, NATIVE RESISTANCE,

IN A DINE CREATION STORY, the people were given a choice of two yellow powders. They chose the yellow dust of corn pollen, and were instructed to leave the other yellow powder—uranium—in the soil and never to dig it up. If it were taken from the ground, they were told, a great evil would come.

The evil came. Over one thousand uranium mines gouged the earth in the *Dine Bikeyah*, the land of the Navajo, during a thirty-year period beginning in the 1950s. It was the lethal nature of uranium mining that led the industry to the isolated lands of Native America. By the mid-1970s, there were 380 uranium leases on native land and only 4 on public or acquired lands. At that time, the industry and government were fully aware of the health impacts of uranium mining on workers, their families, and the land upon which their descendants would come to live. Unfortunately, few Navajo uranium miners were told of the risks. In the 1960s, the Department of Labor even provided the Kerr-McGee Corporation with support for hiring Navajo uranium miners, who were paid $1.62 an hour to work underground in the mine shafts with little or no ventilation.

All told, more than three thousand Navajos worked in uranium mines, often walking home in ore-covered clothes. The consequences were devastating. Thousands of uranium miners and their relatives lost their lives as a result of radioactive contamination. Many families

Mineral rights were what Inuit leadership had been striving for during the long and tense land-claim negotiations with Canada's federal government. Sovereignty and autonomy were vital goals, as they are in any native drive for independence, but the wealth of natural resources is also a powerful motivator, particularly in a resource-rich country like Canada, where most of the harvest from indigenous lands has long inured to the benefit of Toronto businessmen and the national treasury.

SHOULD MINING BE ALLOWED to proceed in the Thelon Basin, huge diesel-powered machines and trucks will be shipped by rail to Churchill, Manitoba, then barged almost one thousand kilometers to a yet-to-be-constructed port on Baker Lake. From there they will be driven up a seventy-five-mile all-weather road that is also yet to be built across the migratory route of the Beverly caribou herd. Fuel for the machinery and the mill will be hauled into the site along the same road by diesel-fueled tanker trucks. All electricity at the mining camp will be provided by diesel-powered generators.

Once the mine opens, uranium ore will be extracted from an open pit and refined on site, and the resultant uranium oxide (U_3O_8, aka yellowcake) will be hauled to the Baker Lake port and tug-barged one thousand kilometers back to the railhead at Churchill. In the winter months, when Hudson Bay is frozen, yellowcake packed in fifty-gallon drums will be flown from a yet-to-be-paved airstrip to Toronto, then trucked to Port Hope, Ontario, where most Canadian uranium is shipped to reactors around the world (never, according to national policy, to weapons facilities).

This heavy reliance on fossil fuels is ironic, given the fact that the driving force behind the nuclear renaissance is a claim that nuclear power is a carbon-free energy source. The assertion is that, once up and running, a functioning nuke creates no greenhouse gases and thus contributes nothing to global warming. That part is almost true, but the claim ignores the total environmental impact of nuclear energy, which includes a long and complicated chain of events known in the industry as the "nuclear cycle." The cycle begins with finding, mining, milling, and enriching uranium, then spans through plant construction and power generation to the reprocessing and eventual storage of nuclear waste, all of which creates considerable CO_2. At every stage of the cycle greenhouse gases are released into the atmosphere from manufacturing steel and cement, burning diesel, and, in the circumpolar regions of the planet, by disturbance of the tundra, which releases huge amounts of methane, a particularly potent greenhouse gas.

Even the claim that a functioning nuclear-power facility is CO_2-free is undermined by the fact that an operating plant requires an external power source, and that electricity is almost certain to derive from the burning of fossil fuels. So the frequently repeated notion that nuclear power is a carbon-free energy source is simply wrong. The estimated contribution of atmospheric carbon from the entire nuclear cycle ranges from 5 to 30 percent of an equal power output from fossil-fuel generation, depending on whom you ask and what they're comparing nuclear to.

Of course all this talk of carbon emissions obfuscates the other significant dangers associated with the nuclear cycle. If, for example, one of those barges moving through Hudson Bay should overturn in a storm and a ton or so of yellowcake is released into open water, the western shores of the bay would experience a major insult to their ecosystems that would last for thousands of years. An inland radionuclide spill could be

AND THE GREENER PATH WINONA LaDUKE

are still seeking compensation. The Navajo Nation is still struggling to address the impact of abandoned uranium mines on the reservation, as well as the long-term health effects on both the miners and their communities, many of which suffer astronomical rates of cancer and birth defects.

As a college student, I worked for Navajo organizations, trying to inform their people about the uranium-mining industry and the large corporations—EXXON, Mobil, United Nuclear—that proposed to mine their lands. It was a humbling experience, seeing some of the richest corporations in the world faced by courageous peoples who fought for the two things that mattered to them more than money: their land and their identity. The Navajo people joined with many others across the country who felt that there was a much better way to make energy. In the end, the people did prevail—new mining proposals evaporated as tribal resistance and legal and administrative battles merged with economic forces. Eventually, contracts for uranium were canceled by utilities, which no longer sought to build unpopular nuclear power plants.

Now I feel like I am having very bad déjà vu—only this time nuclear power is seen as the answer to global climate destabilization. In 2005, the Navajo Nation passed a moratorium on uranium mining in its territory and traditional lands, which was followed by similar moratoria

equally horrific, permanently poisoning the drinking water of caribou and Inuit alike, as has been the case near so many former uranium mines around the world. Most of those mines were adjacent to indigenous communities whose members were either unaware of the hazards or so impoverished that they were willing to accept the risks of uranium mining in exchange for some of the profits, even if only a modest hourly wage.

WHAT IS UNFOLDING in Nunavut is emblematic of a worldwide challenge to the sovereignty of indigenous communities in Africa, Asia, Australia, and North and South America, beneath which roughly 70 percent of the world's uranium resources are located. (About two-thirds of prospective uranium deposits in the U.S. are under or adjacent to Native American land.) The demand for U_3O_8 from an industry hoping to grow exponentially over the next two or three decades has driven uranium prospectors to the most accessible deposits. That doesn't necessarily mean places where high-grade ore is close to the surface; more likely, it means under or near the homelands of those least likely to oppose or resist mining: economically desperate and politically marginalized indigenous peoples.

Uranium prospectors and miners meet much stronger opposition from more affluent communities, like the one I visited on my way to Nunavut. Sharbot Lake is a small rural community about sixty miles west of Ottawa. Not far from the lake, Frontenac Ventures, a small uranium-prospecting company (aka a "junior") has staked a few claims, drilled out some core samples, and declared its intention to one day mine the property. That plan is being strongly resisted by two bands of the Algonquin tribe, which has long claimed treaty rights to much of the region. One leader of the Ardoch Algonquin band, Robert Lovelace, has been fined $25,000 and sentenced to a six-month prison term for attempting to block access to the exploration site.

Were the Algonquins fighting Frontenac on their own, they would almost certainly lose, and Frontenac would soon be breaking ground—although perhaps not on claims they have staked directly over Algonquin burial grounds. However, Sharbot Lake is also a popular cottage community and tourist destination for prosperous "settlers" from Ottawa, Toronto, and other urban areas of southern Ontario. They too have been actively opposing the mine. (Incidentally, not one settler has been fined or imprisoned for blockading the road to the site, which many have done.)

No one I spoke to in the area, Indian or settler, or later in Ottawa believes that Frontenac, which is rumored to have spent more money on lawyers than on exploration, will ever be able to mine uranium near Sharbot Lake, even if Canadian courts continue to suppress and imprison First Nation opponents, which they have. Six more leaders from a nearby mine site are now serving time in a Canadian prison.

on Hopi and Havasupai lands, where mines are proposed adjacent to the Grand Canyon. "It is unconscionable to me that the federal government would consider allowing uranium mining to be restarted anywhere near the Navajo Nation when we are still suffering from previous mining activities," Joe Shirley Jr., Navajo Nation president, explained at a congressional hearing on opening uranium mines in the Grand Canyon area. To the north, the Lakota organization *Owe Aku* (Bring Back the Way) is an intervener in a Nuclear Regulatory Commission hearing to allow the Canadian corporation Cameco to expand its Crow Butte uranium mine, just over the Nebraska border from the reservation.

I recently traveled to Australia, the country with the largest known uranium reserves in the world. In my Sydney hotel room the television broadcaster summarized Australia's economic strategy: "We dig it up, and they buy it." The mining industry, in a world bent upon combusting and consumption, looks to be very healthy. Australia's uranium mines include the Beverley Mine, which is in the territory of the Kuyani and Adnyamathanha peoples. Olympic Dam (operated by BHP Billiton—the largest mining corporation in the world) is the country's second-largest uranium operation and is in the traditional territory of aboriginal people as well. In fact, most major mining operations in Australia are within aboriginal territory. These are some ancient civilizations—resilient in the face of a deep history of genocide and destruction, which continued well into the twentieth century. Aboriginal people did not even get the right to vote until 1967. Due to their relative isolation in the outback, many of these tribes have

If history is a fair indicator, it will be communities like Sharbot Lake, not Baker Lake, that are able to keep the miners at bay.

CANADA IS THE WORLD'S largest producer of uranium, meeting about one-third of world demand. It is followed closely by Australia and Kazakhstan. Together these three countries produce over half the world's supply. However, while uranium has been found in every province and northern territory of Canada, the entire Canadian yield currently comes from five large, open-pit mines in northern Saskatchewan, where the ore grade is unusually high (up to 20 percent U_3O_8 as opposed to 1 to 3 percent in most deposits) and resistance to mining is unusually low.

Some provincial governments, notably those of British Columbia and Nova Scotia, have legislated outright bans on uranium mining. And the Ottawa City Council recently voted eighteen to one to urge the Ontario premier to temporarily ban all uranium prospecting in Canada's capital city watershed. British Columbia's ban is particularly surprising, as the provincial government is avowedly pro-business and pro-mining. Moreover, Vancouver, its major city, is headquarters to some of Canada's largest mining companies and host to the stock exchange where most of the country's juniors raise their capital. Other provinces, like New Brunswick and Nova Scotia and the Inuit region of Labrador, have moratoria on uranium exploration and mining presently in place.

Fear of uranium is not unfounded in Canada, as some of the world's largest public-health catastrophes have occurred near Canadian uranium mines. Take for example Elliot Lake, north of Lake Huron, where uranium mining began in 1955. Home of the Serpent River First Nation of the Anishinaabeg people, the Elliot Lake area once hosted eleven uranium mines—eight of them owned by Rio Algom, a subsidiary of the giant Rio Tinto company of England—as well as a one-product chemical plant that made sulfuric acid to leach uranium from its ore.

In 1975 a power failure at one mine caused a 500,000-gallon radionuclide spill into McCabe Lake. In the years that followed, other mines flooded and were closed down. By 1990 the entire area, including at least ten major lakes, was permanently contaminated with radioactive mining effluvia, 165 million tons of it. The hunting, fishing, and gathering grounds of the Serpent River Anishinaabeg were lost forever, and fifty-five miles of the once pure and bucolic Serpent River waterway was turned into a massive dead zone. As a direct consequence of the spills, a thriving native community of over twenty-five thousand aboriginals has since declined to fewer than one hundred.

Closer to Nunavut, on the east arm of Great Slave Lake, is the remote Dene village of Lutsel K'e. In human terms, Lutsel K'e still deserves its name, which means "small fish." In 1996 the population was 304; by 2006 it had grown to 318. The people of Lutsel K'e remain widely outnumbered by caribou, which, as with the inland Inuit, are the most important material and spiritual aspect of their culture. But small as it may be, the village of Lutsel K'e is a vital center in the vast Dene First Nation, which reaches from the Mackenzie Valley to the Western Yukon and from provincial borders up to the Arctic.

Male Dene elders around Great Slave Lake have painful memories of the Great Slave uranium mines from which they, as young men, carried radioactive ore on their backs in burlap sacks through long dark tunnels. Not only have scores of former miners since succumbed to cancer and other related afflictions, the caribou they eat still have detectable traces of uranium and other radioactive isotopes in their tissue—partly the fallout from atmospheric testing of nuclear weapons and partly a conse-

had few interactions with outsiders. That is, until recently.

Kakadu is the longtime home to the aboriginal Mirrar people, as well as a recent intruder: British-based Rio Tinto. In the 1970s, Kakadu's Alligator River System became the focal point of Europe's uranium demands. Built right in the center of the Mirrar homeland, the Ranger Uranium Mine is one of the largest uranium mines in the world. But the Ranger mine is also in the center of Kakadu National Park, one of just twenty-five UNESCO World Heritage sites in the world designated on the basis of both cultural and ecological significance. Kakadu includes over 190 major aboriginal rock-art and sacred sites.

The Ranger Uranium Mine opened in the early 1980s, after much protest from the Mirrar people, who made it clear that they opposed the mine. Rio Tinto has assured Australians, UNESCO, and the aboriginal owners that it is operating under "world's best practices" of uranium mining, a term some would argue is an oxymoron. Meanwhile, radioactive groundwater contamination is reported to be spreading through the park. A 2004 incident allowed a number of workers to drink, ingest, and shower in heavily contaminated water, with a large amount spilling out of the site itself. And in 2006, Cyclone Monica delivered extreme rainfall, causing the radioactive containment ponds to fill. The company responded by lifting tailings dams, redirecting runoff into streams, and using the contaminated water for irrigation.

In 1999, Jacqui Katona, a Djok aboriginal woman, and Yvonne Margarula, a Mirrar woman, won the Goldman Environmental Prize for their struggle to oppose development at Jabiluka, another mine proposed for Kakadu National Park. Yvonne explained that an agree-

quence of drinking contaminated water and eating lichen that still gets a pretty good buzz from a Geiger counter. And just offshore, in the sediment of the second-largest inland lake in Canada, among other post-mining heavy metals are uraniferous granites, the coarse, sandy radioactive effluvia of uranium extraction. So the Dene are naturally resistant to renewed mining in their area and are vigorously opposing Ur-Energy's request to begin prospecting for uranium at Screech Lake, about two hundred kilometers east of Great Slave. Michael Vanleeuwan, a thirteen-year-old Screech Lake boy, made a plea before the Dene Tribal Council. "If the caribou die, we die too," he told his elders who are pondering the project. "If we eat sick caribou, we become sick too."

Vanleeuwan's elders are aware of big uranium's trail of broken promises from Australia to Kazakhstan. Dene representatives have attended two international conferences on the subject of uranium mining on indigenous lands, the first in Salzburg, Austria, in 1992, where delegates exchanged experiences with uranium mining and issued a declaration opposing it on indigenous lands worldwide. The second meeting, held in December 2006 in Window Rock, Arizona, was hosted by the Dine Navajo of New Mexico and Arizona, who are close linguistic (and almost certainly genetic) relatives of the faraway Dene of northern Canada. At Window Rock, where delegates dedicated themselves to a nuclear-free future, the Dene witnessed the devastating health and economic injuries suffered by the Dine as a result of America's first uranium boom.

From the early 1940s to the late 1970s, during the height of the Cold War, when arming its nuclear arsenal was a high priority for American defense, over eleven hundred small uranium mines were opened on and adjacent to Navajo land in Arizona and New Mexico. Nearly 4 million tons of uranium were extracted by about fifteen thousand Navajo miners. Mining was unregulated then, and mine safety rarely considered. Like the miners of Great Slave Lake, hundreds of Navajo miners contracted cancer, while massive spills left huge tracts of land unlivable for centuries. Today, about five hundred unclosed mine shafts, tailing piles, and storage ponds remain ecodisasters in waiting, and a large section of the reservation is still a massive Superfund site.

In 2005, when they heard the words *nuclear renaissance*, the Navajo Tribal Council, by a vote of sixty-three to nineteen, passed the Dine Natural Resources Protection Act, forbidding future uranium prospecting or mining on or adjacent to Navajo land. But in May 2006, the Nuclear Regulatory Commission (NRC) granted Hydro Resources Inc. (HRI) of Lewisville, Texas, permission to open four in-situ leach mines near Church Rock, New Mexico, site of the worst radionuclide spill in American history, a single event that contaminated every well fifty miles downstream and left one of every four wells on Navajo land radioactive.

Now the Navajo are suing to stop them. It is the first time that any U.S. community has challenged NRC approval of a uranium mine. In May 2008, the case went before the U.S. 10th Circuit Court of Appeals in Denver, where two of the three judges hearing the case expressed open disbelief that a federal agency would approve a project that seemed almost certain to contaminate the sole source of drinking water for almost fifteen thousand people and could release gaseous radionuclides into air that already exceeds federal radiation limits. HRI and the NRC deny the danger. The court is expected to rule on the petition in December 2008.

HRI President Paul Willmott argues that the proposed in-situ leach technology "represents an acceptable and safe alternative to traditional mining methods historically used to recover uranium in New Mexico." In-situ leach mining never breaks ground.

ment to open the mine "was arranged by pushing people, and does not accurately reflect the wishes of the aboriginal people who own that country." In 2005, after a long and heated battle, the Mirrar people fought off the proposal to open a uranium mine at Jabiluka. But now, with demand for uranium on the rise, the threat is once again looming on the horizon.

With some 16 percent of Australian land controlled by aboriginal people and with many of the mine sites in the aboriginal heartland, the upcoming pressure on communities to buckle to the largest mining companies in the world will be daunting. Coinciding with the proposed ramp-up of the nuclear industry is the negotiation of land settlements for a number of these aboriginal first nations. If history is any indicator, many of these land-rights settlements will mirror what happened in Alaska, where the Alaskan Native Claims Settlement Act—promoted by oil companies that deemed it necessary to negotiate some agreements between themselves and aboriginal people—established Alaskan Native corporations, which today create a complex set of divided loyalties and communities. This is perhaps best illustrated by the case of the Gwich'in people, who find themselves not only opposing oil companies that want to drill in the Arctic National Wildlife Refuge, but also Alaskan Native corporations, whose income has derived from the exploitation of the land and its resources.

There is another prophecy that is relevant to this story, though. Ojibwe legends speak of a time when our people will have a choice between two paths: one path is well worn and scorched, but the second path is not well traveled and it is green.

Instead, carbonated water (sometimes accompanied by sulfuric acid) is pumped into the ore body, where it dissolves uranium, which is drawn back up to the surface. There U-235 is separated out in an on-site refinery and the solvent is reprimed and pumped back into the ore body. In-situ recovery is certainly preferable to creating tunnels or an open pit from which radon gas and other radioactive emissions will be released into the air and possibly the water as well. The problem is it doesn't always work. Some eighty spills have been recorded at an in-situ mine near Douglas, Wyoming, as well as numerous pond leaks, well-casing failures, and "excursions" of radioactive water into drinking-water aquifers. Of over 200,000 gallons of spilled and leaked mining fluids, fewer than 3,700 have been recovered. Similar though smaller-scale events have occurred at in-situ mining sites in Colorado, Texas, Nebraska, South Dakota, and Australia.

At this point it is difficult to argue that any method of mining uranium is completely safe.

ONCE TOUTED as an energy source "too cheap to meter," nuclear power eventually became, according to *The Economist*, "too costly to matter." Wall Street investment bankers long ago backed away from underwriting nuclear energy and still won't touch it, nor will venture capitalists anywhere in the world. In 1985 *Forbes* described the nuclear industry as "the largest managerial disaster in history." That's not the sort of publicity any industry needs.

Without finance capital the entire global nuclear industry has become reliant on government support. In some countries, like France and China, the government underwrites the entire nuclear program, whereas in less socialist countries like the U.S., government support comes in the form of generous subsidies, loan guarantees, and tax incentives to for-profit companies like Westinghouse, Bechtel, Exelon, Entergy, and the Shaw Group, along with direct government investment in research and development, insurance, and fuel processing.

The American nuclear industry, which now supplies about 20 percent of U.S. electrical energy, has already received over $145 billion in direct and indirect subsidies. That number will look small if the U.S. government commits itself to a full nuclear renaissance, as the cost of nuclear construction is now three times what it was in 2001 when *The Economist* called nuclear power "too costly to matter"—and that's a conservative estimate. An Areva-designed Evolutionary Power Reactor (the current rage) sells for between $3 and $4 billion, twice the price of a coal plant producing the same kilowatts. But throw in American construction costs, delays, overruns, and interest, and American taxpayers are looking at something closer to $8 or $9 billion per plant.

Never mind, said President Bush, who authorized $50 billion in loan guarantees to the nuclear industry, while the Energy Policy Act of 2005 offered an additional $13 billion in new subsidies.

There is an alternate economic future for indigenous peoples, and it too is green. In order to stabilize carbon emissions in the United States, the country will need to produce around 185,000 megawatts of clean new power over the next decade, which could mean up to 400,000 domestic manufacturing jobs. The Intertribal Council on Utility Policy estimates that tribal wind resources alone represent 200,000 megawatts of power potential. In fact, Native American nations are some of the windiest places in the country.

The Rosebud Lakota put up the first large native-owned windmill in 2003, a 750-kilowatt turbine right in the middle of the reservation. The Turtle Mountain Ojibwe just erected a 660-kilowatt wind turbine; ten more megawatts are planned for Rosebud; and the White Earth Anishinaabeg have several projects under way in Minnesota. Proposals for up to 800 megawatts of power for northern Plains states are being put forth by the Intertribal Council on Utility Policy. There's also a 50-megawatt project on lands held by the Campos and Viejas bands of Kumeyaay people in Southern California, and a 500-megawatt project in which the Umatilla Tribe of Oregon is a partner. Boston-based Citizens Energy is working with a number of tribal communities in the U.S. and Canada to bring green power from the reserves to the grid.

In the U.S., native communities have an opportunity to lead the way to a green future. We have a chance to create a just energy economy in the most wasteful and most destructive country in the world. We need help, though. Insuring that climate-change legislation does not reboot the nuclear industry will be a critical part of supporting native struggles to choose the green path over the scorched one.

MEANWHILE, SENTIMENTS HAVE been shifting in the vast, open expanses of Nunavut, where opposition to uranium mining is not nearly as loud or intense as it was in 1990. In September 2007, Nunavut Tunngavik Inc., the corporation created following the land settlement to manage Inuit-owned lands and subsurface rights, effectively overturned the ban on uranium mining. Both its president, Paul Kaludjak, and first vice president, James Eeetoolok—once a stanch opponent of uranium prospecting—now wholeheartedly support the idea of opening the territory to uranium miners, as do the rest of the directors. When land-use or economics are at issue, Nunavut Tunngavik Inc., known to most Inuit as NTI, is arguably more powerful than the government of Nunavut.

The allure is real and almost irresistible. An economic analysis of Areva's Baker Lake project, prepared by NTI, shows that revenues from "a low-profit mine might pay royalties of $35 to $40 million and a high-profit operation would be expected to pay royalties of up to $80 or $90 million over the life of the mine." To thousands of Inuit facing hard times, that kind of money sounds good. And this is just one of what could be a dozen or more large uranium mines operating in the region.

There are other factors contributing to the shift among the Inuit. Urangesellschaft, the private, German-based company that first sought to mine the Kiggavik-Sissons deposit, had been a public-relations disaster. In dealing with the Baker Lake community, the company's representatives were rude, condescending, and dismissive. The Inuit disliked them immensely. Areva, on the other hand, is French, government-owned, and has cordial, longstanding relationships with mining communities in northern Saskatchewan and elsewhere around the world. In 2004 the company opened a community-relations office in Baker Lake and has made generous donations to the regional caribou defense group, the Beverly and Qamanirjuaq Caribou Management Board, to survey and monitor the Beverly herd. In its literature, Areva consistently repeats the sentiment that if the community does not support a uranium mine, it won't happen. And that could still be the outcome.

Today, the most outspoken opposition to uranium mining can still be heard in the Baker Lake area, where the Caribou Inuit continue to fear disruption of their food supply and leaders fear that the long-term consequences of radioactive contamination are not being considered. The people with whom I spoke seemed confused and uncertain about Areva's assurance that the caribou would be protected. "We feel rushed," said Joan Scottie, who voted against Urangesellschaft in the 1990 plebiscite and remains skeptical of Areva's claims of newer, worker-safe, eco-friendly mining technologies. "We're not as opposed to the mine as we were back then, but we don't want to be forced by our leadership to accept something that could endanger the health of our caribou. If something happens to them, we'll have nothing left but welfare."

For its part, NTI has gone beyond mere approval of new projects. In January 2008 it negotiated a partnership with Vancouver-based Kaminak Corporation for a uranium mine proposed at Angilak, along the Thelon River west of Baker Lake. If U_3O_8 is mined at Angilak—and there is an estimated 11.6 million pounds of high-grade ore under its claims—NTI will receive one million shares of the mining company and its choice of either a 25 percent interest in the mine or 7.5 percent of the profits. Either way, if that deposit proves out and Kaminak breaks ground, NTI, which was created to protect the land claims of the Inuit, will become a de facto mining company, one that will suddenly be reaping millions in royalties from the mining of uranium beneath tribal lands. Like Areva and other companies, NTI has assured the Inuit people that nothing will be done without their approval.

"We will support a mine only if the uranium is used for peaceful purposes, and only if it will benefit the Inuit," promises James Eeetoolok. "No unacceptable impacts will be permitted," says Areva Project Manager Barry McCallum. And "Nunavummuit [the Inuit people of Nunavut] will be consulted during the development of our uranium mining plan," assures Nunavut's Economic and Transportation Minister David Simailak.

Despite such assurances, the Beverly and Qamanirjuaq Caribou Management Board's stated concerns about potential adverse effects on the caribou and their calving grounds have been ignored. In fact the management board was deliberately left out of the loop when NTI's revised uranium policy was circulated for community approval. So the Caribou Inuit naturally wonder whether the corporation that represents their economic interests can also fairly represent their environmental interests, or for that matter their very survival. Or they wonder, as one elder whispered to me in confidence, whether "NTI has placed itself and the people it represents in an untenable conflict of interest."

TO GET A BETTER SENSE of what is at stake for the Inuit, I visited Sheila Watt-Cloutier, former president of the Inuit Circumpolar Conference and a nominee for the Nobel Peace Prize won by Al Gore. Because she has traveled the world, she has a unique perspective on the environmental injustice being inflicted upon her people by the resource-hungry, energy-driven economies south of the circumpolar region.

Her modest Iqaluit home is perched on the shoreline of Frobisher Bay, still frozen solid in May. As we chatted about Inuit culture and circumpolar politics, I watched hunters and fishermen heading down the sparkling, sunlit Frobisher ice field

in dog sleds and snowmobiles. One was driven by her son-in-law, Qajaaq Ellsworth, who was taking her only grandson hunting. Sheila beamed with pride, but was apprehensive about the future of Inuit culture, as technology and industry offer their alluring enticements. She is opposed to neither, but is concerned about the speed of their approach, as her people experience the jarring transition, shared by so many natives around the world, from a traditional, land-based culture to a modern, wage-based economy.

"As someone who was raised in a dog-team culture who now flies to Africa in jumbo jets, I know firsthand the effects of technological culture—something which your folk had four hundred years to adapt to—on people being asked to absorb the same experience in less than a generation. It's very disrupting—shocking in fact. Add to that a ruined economy in a society plagued by substance abuse and suicide, and even uranium mining begins to seem appealing."

She is reluctant, at first, to speak out against uranium, even though the Inuit Circumpolar Conference advocates a nuclear-free Arctic. It is the younger generation, she tells me, along with the elders, who are most concerned about the impact of uranium mining on Inuit society. "My generation, which was educated in government schools, is more assimilated than the generations before and after us, and in some respects too open to outside influence."

Eventually she agrees to discuss, ever so cautiously, what is clearly a sensitive topic in Nunavut. "Mining is the easy way out," she says. "And we're moving too quickly to embrace it. It could run counter to everything we are trying to recover in our culture. We need to step back and ask ourselves what kind of society we are hoping to create here. Will we lose awareness of how sacred the land is, and our connection to it? And what will become of our hunters? Hunting is how Inuit men build character. How is character built in a mine? How do we train skilled hunters to adjust to menial work?" She pauses for a moment and watches the hunters headed down to Frobisher Bay, then turns back for one last question: "Do we want to lose the wise culture we have relied on for generations?"

The answers to these questions are of vital consequence to not just the Inuit but the whole world. Even if the expansion of the U.S. nuclear industry is delayed by economic troubles here at home, that won't likely stop China, India, and other developing nations from expanding their nuclear programs. No matter what form it takes, one thing seems clear: if the nuclear renaissance is going to happen, indigenous people will bear a considerable proportion of its ill effects. ❧

Support for this article was provided by the Lintilhac Foundation.

Before Fort Clatsop

There are shadows a flag casts, and places
that shadow does not reach. This stretch of beach
kept sacred by winds and winter

and the hands that reach down to it,
discovers the waves by their crashing, the ice
by its cracking, the human voice by its wail

and song. This is a land of edges,
worn away stone. Here, we long
for that other shore that pulls like thread

through broken skin and sore muscle.
If we follow the river it takes us back
to a world of salmon and root.

If we stay we will be beaten by weather,
but there will be salt. What is it that leads us
always to the mouth?

It is so quiet I hear shells shake beneath my feet.
I wake from sleep and there is fur growing over my bones.
Lay your head on my shoulder.

Tomorrow we will all decide. For now,
we restless paw at each other, imagine dust
and sunlight and a land that echoes us back.

—*Michelle Bonczek*