

STAYING HOOKED ON A DIRTY FUEL: Why Canadian Tar Sands Pipelines Are a Bad Bet for the United States

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CONFRONTING GLOBAL WARMING

Report

introduction



Larry Schweiger

Tar sands extraction facilities in Alberta, Canada

“America is addicted to oil.”

When President George W. Bush uttered these words in his 2006 State of the Union address, the former Texas oilman acknowledged an imperative as important as any we can imagine for the nation’s future: breaking that crude addiction.

Our addiction to oil has come with an untenable cost: to our national security, to our air and water, and to the ability of our warming planet to support billions of human lives. The recent Gulf Coast crisis, stemming from an exploding offshore drilling rig, is just one more reason to kick our prodigious habit. The United States consumes about one quarter of the world’s oil—around 20 million barrels a day,¹ and imports nearly two-thirds of that—about 13 million barrels per day.² For economic, political, military and ecological reasons, the United States needs to address this addiction—and beat it.

The burgeoning Canadian tar sands industry epitomizes the depths of our addiction. Tar sands are a combination of clay, sand, and bitumen found in great quantities under the boreal forest of Alberta. By employing massive mining operations or energy-intensive underground heating and production techniques, energy companies produce a sludge-like heavy oil that can be further refined into transportation fuels like gasoline or diesel. As this report explains, expanding the mining, processing and refining of these tar sands represents a tragic choice for Canada, the United States, and the world.

British Petroleum's Deepwater Horizon tragedy off the Louisiana coast, which killed 11 men and is an unfolding ecological disaster, is not an argument to expand Canadian tar sands development, as some have argued. The Gulf Coast catastrophe should instead propel us away from a future of diminishing returns and higher costs from "unconventional" fossil fuel extraction, which includes tar sands, oil shale and coal-to-liquids. Moving deeper into tar sands would be taking the country down the wrong path—one that leads to an inevitable dead-end.

The tar sands industry aims to create an extensive web of pipelines to deliver increasing amounts of this Canadian tar sands sludge to refineries in the United States. The U.S. federal government has already approved two dedicated tar sands pipelines and is poised to approve a third. The Canadian company Enbridge's Alberta Clipper pipeline, running from the U.S.–Canadian border in North Dakota, and across Minnesota to Wisconsin, has already been completed. TransCanada's Keystone I pipeline, which the State Department approved in 2009, runs from Alberta to Illinois and on to Oklahoma. TransCanada's proposed Keystone XL pipeline is the third pipeline whose permit application is currently being reviewed by the U.S. State Department. It would cut through America's heartland, running nearly 2,000 miles from Alberta down



Tom Burford

to Port Arthur, Texas, where the tar sands will be refined into transportation fuels.³ Other, shorter pipelines are envisioned to run to refineries around the country. This network of tar sands pipelines would deliver even more pollution to refineries where and the surrounding communities, which are already experiencing health effects.⁴

The proposed Keystone XL pipeline will traverse rivers and carve across prairies, will flow on top of vital aquifers, and threaten farmers, ranchers and wildlife when it leaks or breaks, as it unquestionably will. Building this new pipeline would institutionalize a demand for a product that we do not need—especially if we seize the initiative to wean ourselves from this a fuel that is sullyng our coasts, tearing up our heartland, and

In 2007, an Enbridge pipeline in Clearwater, MN killed two workers, spewing oil, fire, and black smoke 100 feet into the air and into the surrounding neighborhoods.

destroying the health and livelihoods of communities. Current projections are that the new pipeline would not even run close to capacity, raising the question of why the U.S. is even considering this project.⁵

Promoting the growth of the Canadian tar sands industry is a dangerous and foolhardy development. This pipeline system would virtually assure the destruction of swaths of one of the world's most important forest ecosystems, produce lake-sized reservoirs of toxic waste, import a thick, tarlike fuel that will release vast quantities of toxic chemicals into our air when it is refined in the U.S., and emit significantly more global warming pollutants into the atmosphere than fuels made from conventional oil. Communities that live near the tar sands are already experiencing health problems linked to the pollution, and dozens of wildlife species are at risk, including millions of migrating cranes, swans, and songbirds. If Keystone XL crosses our border, it will cut through thousands of miles of sensitive habitat in America's heartland. When the tar sands are refined in U.S. facilities, the

ad·dic·tion [uh-dik-shuhn] – noun

Persistent compulsive use of a substance known by the user to be physically, psychologically, or socially harmful; the state of being enslaved to a habit or practice.

resulting pollution will foul our air and water.

We believe that the U. S. needs clean and renewable energy solutions as we make the inevitable and necessary transition to a post-oil world. Tar sands, as well as other inferior fossil fuels like oil shale, simply should not be part of the equation. Tar sands are a starkly inefficient, polluting, ecologically disastrous and expensive way to power our cars and trucks. Each tar sands pipeline our government approves further increases our dependence on this dirty fuel. These pipelines will become, in effect, a long-term, government-approved pollution

delivery system.

If we allow all these pipelines to be built, we are essentially saying that we are willing to feed our oil habit, even if we know it will harm our air, water, health, prosperity and planet. Agreeing to increase our imports of Canadian tar sands represents the worst kind of addictive behavior: “persistent compulsive use of a substance known by the user to be physically, psychologically, or socially harmful.”

Why then, we ask in this report, is the U.S. poised to allow this expanded pipeline network that will lock our country into an ongoing reliance on the dirtiest of fossil fuels?

It is time to apply every ounce of American ingenuity to finding a technological path to a future that relies far less on oil and other fossil fuels and far more on sources of fuel that are renewable, sustainable, and clean. By applying the talent and technology of America’s best minds and businesses, this country can dramatically improve our environment and accelerate our move beyond a dirty energy economy.

We have arrived at a critical crossroads that will determine whether we can break free from this dependence—or lash ourselves tighter to it. Building new pipelines to import billions of barrels of dirty fuel from Canada is taking the wrong path into increasingly hazardous terrain. We should tell our elected leaders to reconsider.

TOP 5 REASONS NOT TO BUILD TAR SANDS PIPELINES FROM CANADA

1. Will create a massive pollution delivery system of dirty fuel to the U.S. that will lock our country into an extraordinarily damaging and inefficient fuel source for decades.
2. Will detract from the imperative for the U.S. to develop more efficient, cleaner and more productive fuels that are better for our economy, national security, and environment.
3. Will create thousands of miles of new pipelines that cut through sensitive wetlands, cross rivers, threaten aquifers, take farmland out of production, force ranchers and farmers to lose their land, and lead to an inevitable likelihood of spilling or leaking.
4. Will encourage the Canadian government to continue destroying the boreal forest, polluting watersheds and destroying wetlands of vital importance to North American wildlife, including waterfowl and other migrating birds.
5. Will create more air and water pollution in U.S. communities where the pipeline’s tar sands oil will be refined.



David Dodge/Pembina Institute, www.oilsandswatch.org

Big Oil Pushes for Pipelines: Transporting a Dirty Fuel That Ravages Alberta's Forests and Waters

TAR SANDS DEVELOPMENT

An aerial view of the area around Fort McMurray, Alberta, provides a stark portrait of an addiction. The Athabasca River, snaking through a region once marked by unending vistas of glowing green conifers and populated by woodland caribou, moose, bears and lynx, now demarcates ground zero for what is arguably the most destructive peacetime industrial activity in the history of mankind.

Tar sands development has transformed a landscape of boreal forest and peat lands into a vast oil sacrifice zone. On either side of the river, a series of giant open pit mines, belching processing facilities, and poisonous tailings ponds now line the floodplains and wetlands. The giant toxic tailings ponds have grown large enough to see from space.

Even more troubling, the industrial activity is poised to spread across the landscape like blight. If all the current Canadian tar sands leases are exploited, development is slated to encompass an area the size of New York and New Jersey combined.

The Canadian tar sands industry is, by almost any measure, one of the most wasteful and polluting industries humanity has ever invented. Over the past ten years, commercial tar sands production became increasingly profitable because of rising oil prices and massive infrastructure construction that accelerated the

Vital wildlife habitat in the boreal forest is threatened when tar sands extraction operations come in, clear cut the trees, and begin removing millions of tons of earth.

development's expanding reach. In pursuit of profits that increased with the scaled-up production, energy companies have torn up a province, released countless gallons of toxic sludge into waterways, emitted hundreds of millions of tons of global warming pollutants into the atmosphere, and produced billions of

“The Canadian tar sands industry is, by almost any measure, one of the most wasteful and polluting industries humanity has ever invented.”

barrels of viscous, heavy oil that requires vast amounts of energy to transport and refine into a transportation fuel.

EXTRACTING BITUMEN

Locked in underground pockets of sand, clay and water, tar sands contain bitumen, which is a heavy, black viscous oil that can be extracted, upgraded, refined, and turned into fuel. The Canadian Energy Research Institute estimates that these tar sands contain 1.7 trillion barrels of heavy crude, of which approximately 173 billion barrels are recoverable.⁶

About 20 percent of Alberta's tar sands deposit is close enough to the surface to be dug up using conventional open pit mining



Larry Schweiger



Polluted tailings ponds like this one are commonplace in tar sands extraction and kill thousands of wildlife every year.

techniques.⁷ Using this method, the forest is clear-cut and giant open pit mines carve the layers of tar sands from the earth. These tar sands are trucked to facilities where they are heated into a liquid, and the bitumen is separated from the sand and clay. This process requires substantial amounts of water and energy, and leaves behind a number of toxic byproducts.

Another technique, known as *in situ* production, will be used to target the other 80 percent of tar sands deposits, located deeper in the ground. *In situ* production requires companies to insert pipes into the ground, which are filled with steam to heat up the tar sands and liquify the bitumen. This liquid bitumen is then pumped to the surface much like conventional oil. Although this technique does not result in the same wholesale habitat destruction as strip mines, industry claims that *in situ* mining is a “solution” for tar sands’ environmental problems is overstated.⁸ This process requires substantially more energy than conventional mining, leaving a much larger carbon footprint. *In situ* mining

also fragments the landscape with roads and pumping stations, requires large amounts of water, and still leaves toxic tailings ponds during the upgrading process.

Both open pit mining and *in situ* processes require systems of roads, pads, industrial facilities and tailings ponds that all contribute to the fragmentation and destruction of the boreal forest. The tailings ponds—which are more like giant toxic lakes filled with pollutants like benzene, cyanide, and mercury—stretch across the landscape, threatening human health and wildlife.

THREATENING DOWNRIVER COMMUNITIES

Scientists already have catalogued human health problems among the First Nations people who live downriver.⁹ Studies have raised alarms about increased cancer rates and autoimmune diseases. In the Fort Chipewyan First Nation, where subsistence hunting and fishing is still prevalent, hunters say they have noticed big changes in the game they harvest—including the fact that moose livers are enlarged and white-spotted.

Water from the Athabasca River, their main water source, now leaves brown residue in the pot when they boil it. Fish they depend on are contaminated with high levels of mercury and toxic cancer-causing chemicals.

Because the communities in the vicinity of the mining sites are small, there has been relatively little monitoring of how much the industrial activity has affected human and wildlife health. What is clear is that the process of extracting, upgrading, and refining tar sands requires a suite of chemicals and produces toxic byproducts.

DELIVERY TO THE U.S.

Much the tar sands upgrading to date has taken place in Alberta, but the refining capacity is not high enough for the projected increase in production. That is why the tar sands industry is proposing pipelines to the U.S.: to bring the unrefined heavy crude to refineries in the U.S.

Today, approximately 60 percent of Canadian tar sands fuel is exported to the U.S. Our nation currently imports about 800,000 barrels of this fuel a day, and some project that this could increase fivefold if all the planned pipelines are constructed, world oil supply from conventional oil dwindles, and global demand intensifies.

In Canada, concern and opposition has been rising as the ecological fallout from tar sands production becomes more visible. If the U.S. continues its voracious oil habit and builds these pipelines to support it, we will be contributing to this Canadian calamity for many years to come.

Poisoned Habitat: Wildlife in the Crosshairs

A DESTRUCTIVE BUSINESS

The video footage is heartbreaking: a mallard drake, flapping its wings in muck and beak dripping black gunk, barely keeping afloat in oil sludge.¹⁰ No, not Alaska after the infamous Exxon Valdez spill, or the Gulf Coast wetlands after the BP explosion. It is the result of “normal” tar sands development in Alberta.

Scientists are only beginning to understand the extent of the impacts of Alberta tar sands production on the fish, waterfowl, and forest animals that live in the remote boreal forest that has become the hub of industrial tar sands production. Habitat destruction and fragmentation is expanding rapidly, and even energy companies acknowledge that they are effectively destroying habitat as they go. In a recent report by Cambridge Energy Research Associates,¹¹ the authors quote the energy giant Shell describing the impacts in an application for a mine expansion: “Effectively, a complete loss of soil and terrain, terrestrial vegetation, wetlands and forest resources, wildlife and biodiversity happens for this area for the period of operations.”

This kind of large-scale habitat destruction raises even larger

concerns, because there is so much at stake in this fecund northern wilderness.

The surrounding forest is home to the full complement of wildlife any sportsman would imagine living in the Canadian wilderness: bears, wolves, lynx, and important herds of woodland caribou. The Athabasca River is part of a vital nesting and staging ground for migratory waterfowl, many of which winter in the continental U.S. The Canadian boreal forest provides breeding, nesting or migration stops for more than 300 species of birds—including several species of cranes, shorebirds, and more than a million inland birds.¹²

“Effectively, a complete loss of soil and terrain, terrestrial vegetation, wetlands and forest resources, wildlife and biodiversity happens for this area for the period of operations.”

FULL IMPACTS UNKNOWN

Scientists know very little about the cumulative impacts of tar sands development, says Canadian ecologist Kevin Timoney, because the Canadian government, provincial authorities, and energy companies have not conducted adequate monitoring and testing. Timoney however, has begun documenting a series of harmful effects to wildlife from habitat fragmentation, toxic exposures, and other threats to wildlife.

Some of these effects have gained public notice. In 2008, 1,600 ducks perished when they landed in a tar sands mine tailings pond operated by Syncrude. Originally, the company downplayed the numbers, and it took several years and a prosecution to bring the extent of the damage to light. A lawsuit is pending against Syncrude.

Timoney estimates that even 1,600 substantially underestimates bird mortality from this event—and many others that remain undocumented. In an article published in the *Open Conservation Biology Journal*, Timoney laid out a disturbing case that tar sands development has led to a permanent loss of at least 58,000 birds—and possibly as many as 400,000.¹³

The Syncrude tailings pond deaths were the result of the birds becoming mired in oil, despite companies' efforts to shoo birds away from their toxic tailings ponds using noise cannons and scarecrows. The Cambridge Energy Research Report states that, “the surface layer of bitumen found

Thousands upon thousands of ducks and other waterfowl die every year when they land in the vast and heavily polluted tailing ponds near tar sands development.



Todd Powell/Alberta Sustainable Resource Development

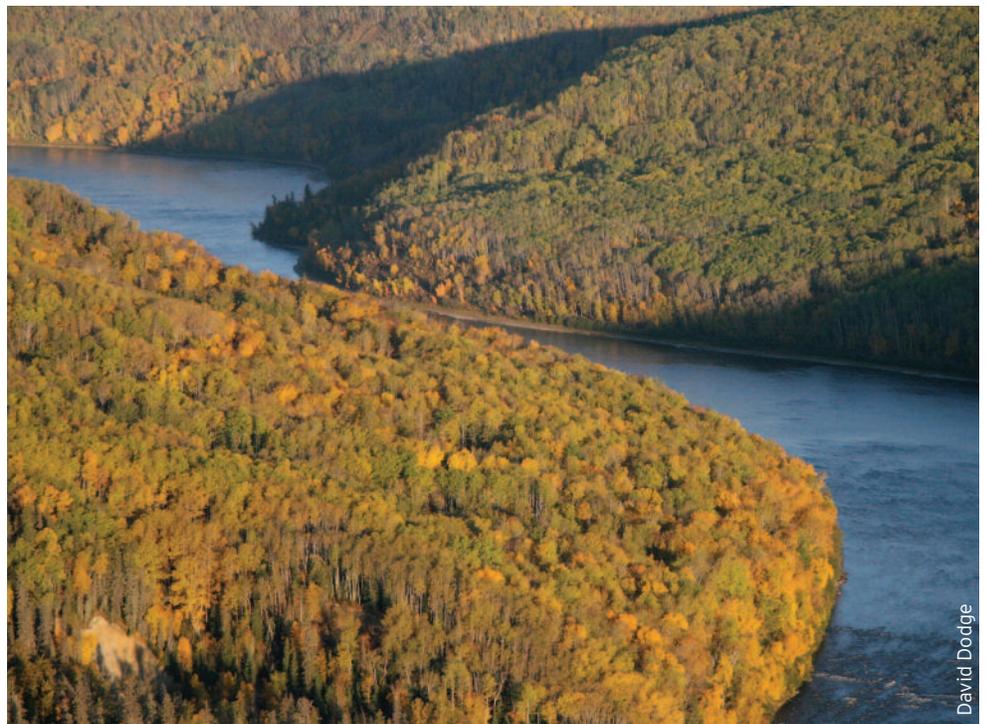
Pristine forest and waters are destroyed and polluted for the development of dirty tar sands. Below: Tar sands mining operations are guarded like military bases so it is very difficult for scientists to fully account for how many animals, like moose, die in the toxic tailing ponds every year.

on most tailings ponds is an acute threat to wildlife.”

Timoney says there are other dangers as well. He and others have documented at least 43 other bird species—waterfowl and shore birds, birds of prey and gulls—that have died from tar sands-related development. Timoney also made a Freedom of Information and Protection of Privacy request of the Alberta Sustainable Resources Development, which disclosed that 27 black bears, 67 deer, 31 red foxes, 21 coyotes and unspecified numbers of moose, muskrats, beavers, voles, martens, wolves and bats had also perished on tar sands operations between 2000 and 2008.



Even more disturbing, Timoney discovered that those reported numbers came from the energy companies themselves, suggesting an under-reporting of some significance. “The numbers of dead animals reported to government,” he wrote, “underestimated true mortality



because they were derived from ad hoc reporting by companies rather than from a scientifically valid and statistically robust sampling design.”

In another study, Timoney analyzed data from government and industry sources that revealed strong evidence of chemical contamination in the Athabasca River. Specifically, the levels of known cancer-causing chemicals were as high as in industrial zones in the United States. Elevated levels of mercury and other heavy metals were also present. A government report from the Regional Aquatics Monitoring Program determined that more than seven percent of river fish showed growth abnormalities, which Timoney says is “high.”

AN EXPANDING THREAT

There is every reason to believe this problem will only worsen. According to Environmental Defense Canada, tar sands tailings ponds already have a surface area of 50 square miles, twice the size of Manhattan. These contaminated tailings ponds have already leaked into the nearby waterways, and projections are they will triple in size.

This spells more trouble for wildlife, especially migrating birds. According

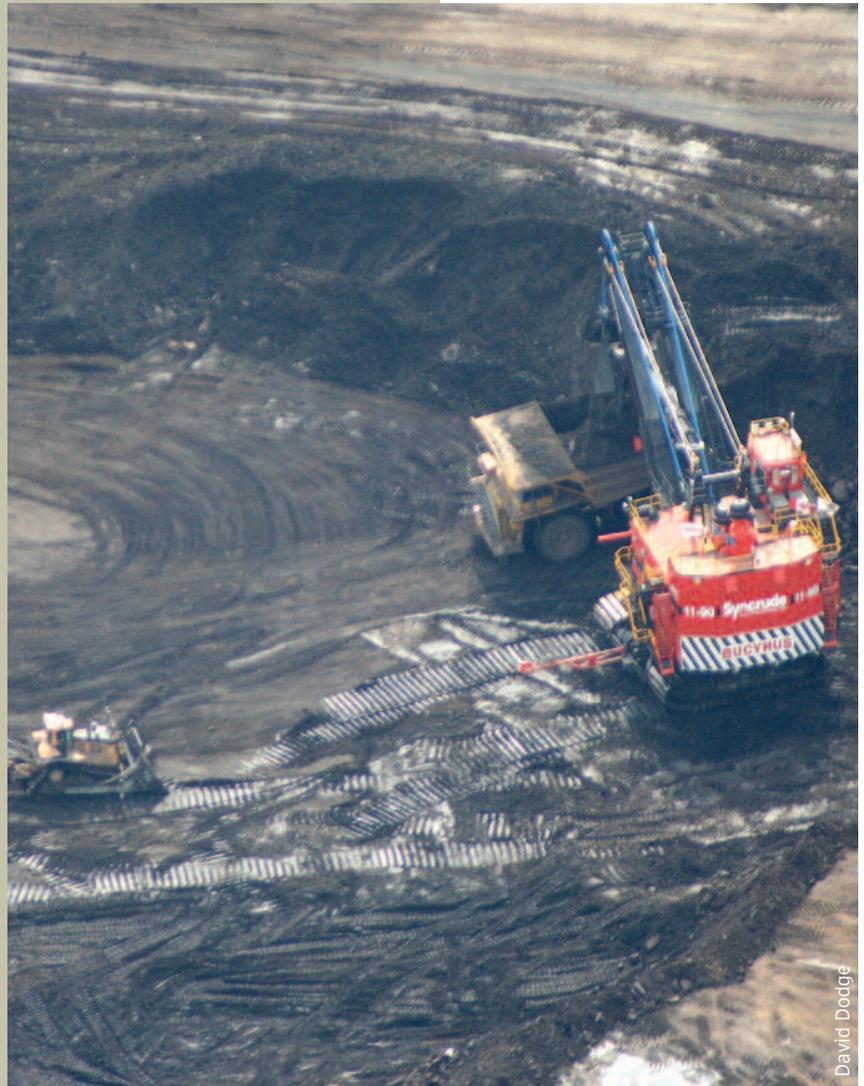
to Colleen Cassady St. Clair and Robert Ronconi from the University of Alberta's Faculty of Science, “spring migration is a particular problem in northeastern Alberta, when the warm-water waste from oil sands mines are the only open water—the natural bodies are still frozen. When waterfowl land in these ponds, they may ingest oil and their plumage may become oiled with waste bitumen, potentially preventing birds from flying or leading to lost insulation and death from hypothermia.”¹⁴

Even though there has been very little study of the effects of tar sands development on wildlife, the indications are that this development is releasing a potentially devastating onslaught on Canadian and internationally-migrating animals. As ecologist Timoney put it: “The effects of these pollutants on ecosystem and public health deserve immediate and systematic study. Projected tripling of tar sands activities over the next decade may result in unacceptably large and unforeseen impacts of biodiversity, ecosystem function, and public health. The attention of the world’s scientific community is urgently needed.”

A FOUL FUEL: TAR SANDS' EXPANDING IMPACTS

The problems with tar sands stem from its scale, as well as the unavoidably damaging processes necessary to extract, process and deliver its end product.

- To produce a barrel of oil from tar sands using conventional strip mining, it requires digging up about four tons of earth.¹⁵
- To produce a barrel of oil from tar sands, it requires at least three barrels of water.¹⁶
- A barrel of oil made from tar sands produces two to three times more carbon dioxide than conventional oil.¹⁷
- Producing a barrel of oil from tar sands using *in situ* underground heating of the deposits requires even more energy than open pit mining and produces even more global warming pollutants.¹⁸
- Producing oil from tar sands requires creating tailings ponds that contain toxic and cancer-causing chemicals, including benzene, cyanide, arsenic, and mercury.¹⁹
- Tailings ponds already extend more than 50 square miles, and leak one billion gallons per year, according to Environmental Defense Canada. The ponds are often adjacent to the Athabasca River, Canada's ninth-largest waterway, and a key wildlife corridor.²⁰
- Upgrading tar sands into transportation fuels produces nitrogen oxides and sulfur dioxide, which affect air quality and are key culprits in creating acid rain and ozone smog pollution.
- Besides the high greenhouse gas emissions from the production and burning of tar sands fuel, the world is losing vast swaths of the boreal forest, a vital "sink" of carbon dioxide—a place where this warming gas is absorbed.
- Cleaning up after the tar sands production appears to be a low priority for energy companies. As Larry Schweiger, president and CEO of the National Wildlife Federation wrote recently, "People should be skeptical of anyone who claims they can rip apart an ecosystem and put it back together again." Only 0.2 percent of Alberta's mined tar sands have been certified by the Alberta government as reclaimed since operations began some 40 years ago.



Mining for bitumen after the forest has been clear cut.

PROPOSED KEYSTONE GULF COA



MT: Pipeline expansion goes through some of the best pronghorn antelope habitat in North America. Pronghorn are a unique American species whose movements are very sensitive to roads and human activity.

BLM



MT: Yellowstone River is the longest of the Missouri Headwaters rivers that is still free-flowing (undammed). The river is of vital use for fishermen, recreationalists and, is a major irrigation for agriculturalists/ranchers.

BLM



NE: The Ogallala Aquifer is one of the world's largest aquifers and covers areas in South Dakota, Nebraska, Wyoming, Colorado, Kansas, Oklahoma, New Mexico and Texas. Some portions of the aquifer are so close to the surface that any pipeline leak would almost immediately contaminate a large portion of the water.

BLM



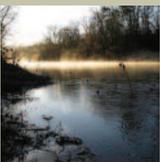
NE The Platte River is an important stop-over site for migratory Whooping cranes as well as Sandhill cranes that also use the area as a nesting site. A spill in the Platte River would despoil this important stopover site and contaminate the birds' food supply for decades.

Andrea Westmoreland



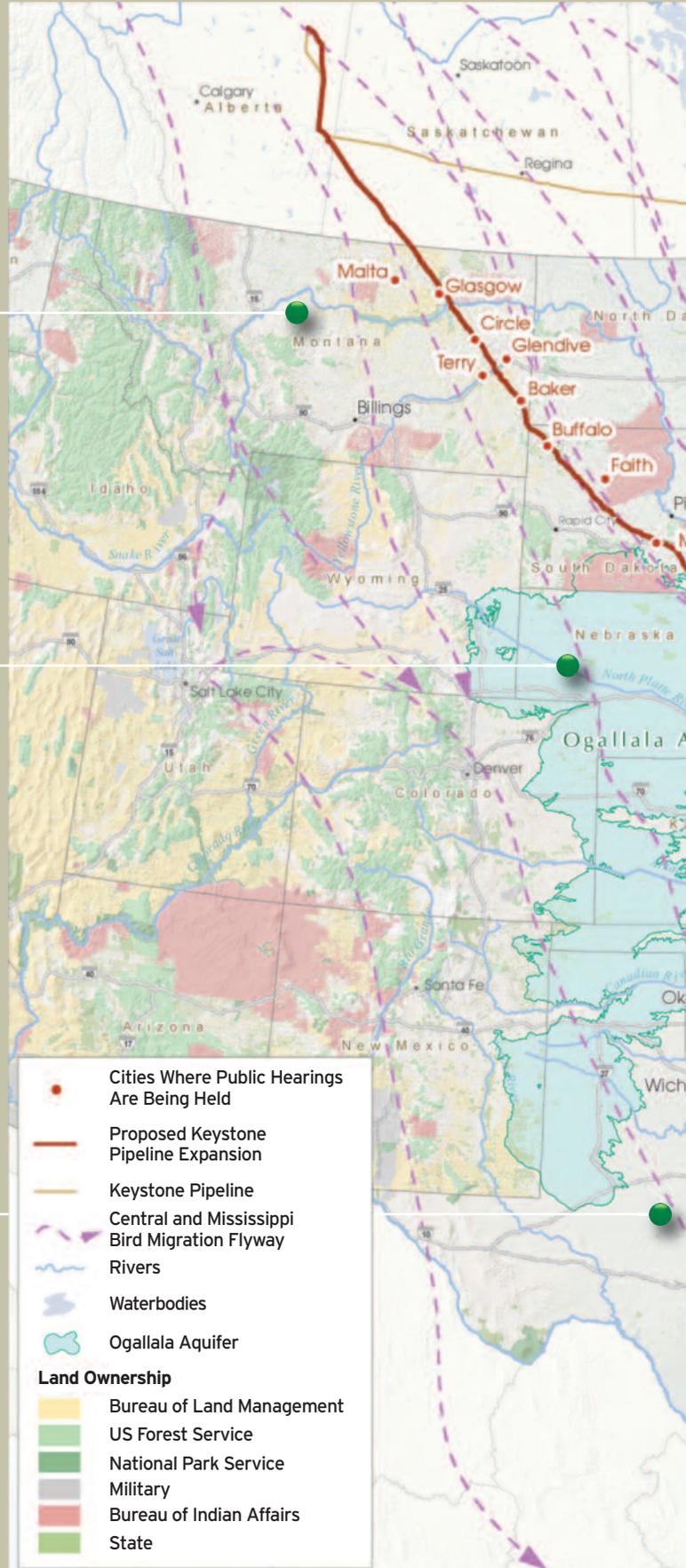
TX: Higher levels of pollutants like ozone, carbon monoxide, and fine particulates will be injected into communities surrounding refineries in Houston and Port Arthur. These pollutants are very harmful to human health.

otaco/flickr



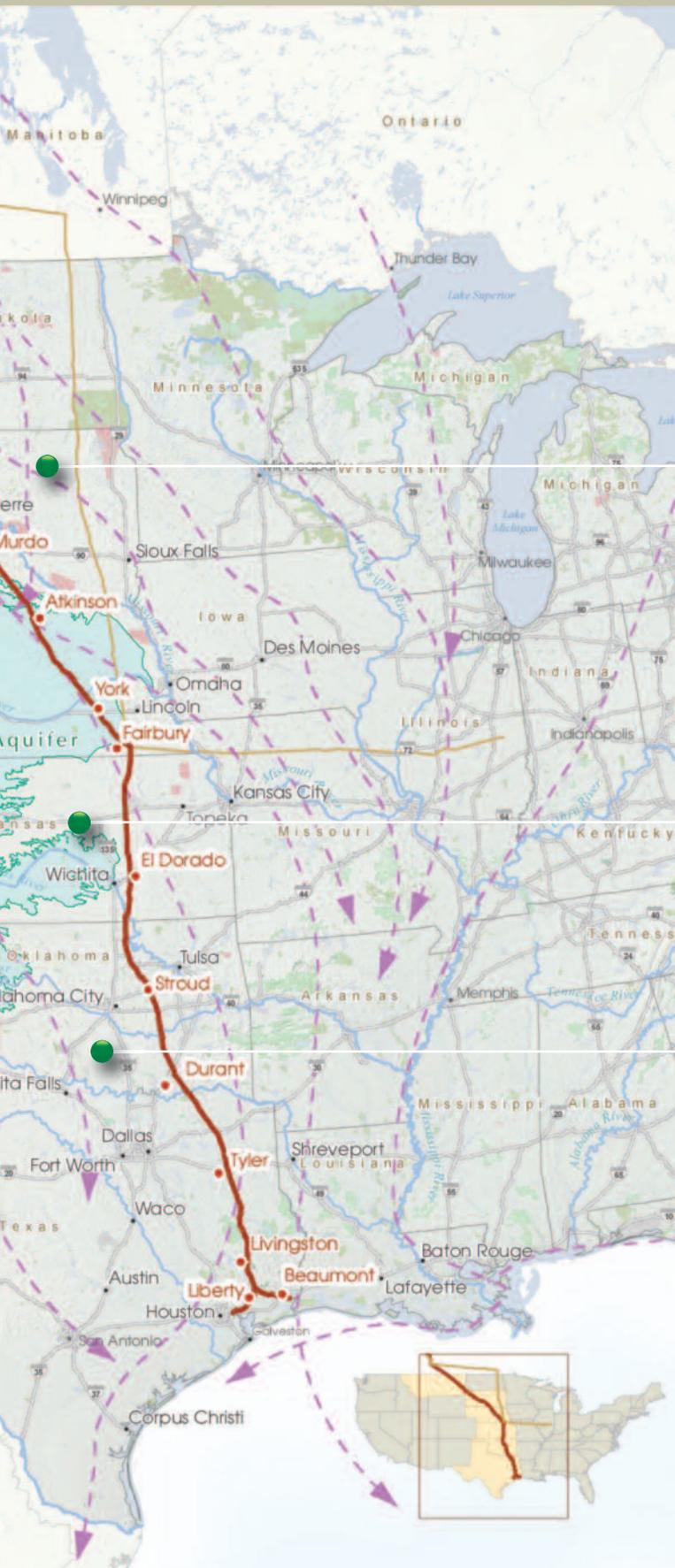
TX: The Neches River is the last river left in East Texas whose natural values are still relatively intact, including abundant wildlife, clean water, scenic river vistas, and forests. A pipeline through the river would permanently alter this landscape.

Charlie Llewellyn



Data Source: XL Pipeline Data: digitized and georeferenced from TransCanada Maps

ST PIPELINE EXPANSION PROJECT



Map prepared by GreenInfo Network May 2010. www.greeninfo.com



USFWS

SD Shortgrass prairie regions, through which the pipeline passes, are important for the Mountain Plover—a rare species that has been proposed for listing as an Endangered Species.



London Looks-Flicker

SD The pipeline route tracks the Central and Mississippi Flyways, and cuts through prairie potholes which are critically important nesting and migratory staging areas for many ducks, including pintails and mallards. Construction of the pipeline would significantly disturb these areas; spills and leaks would contaminate their feeding and nesting habitats.



BLM

KS: The pipeline crosses the Milford Wildlife Area, which is managed by the Kansas Department of Wildlife and Parks (KDWP). Wetlands in the area that could be devastated by future pipeline construction or oil contamination from a leak or spill.



Konrad P. Schmidt

KS: The pipeline also crosses through native prairies and may affect critically designated habitat for the federally threatened Topeka Shiner.



Alan Vernon

OK: The highly endangered Interior Least Tern breeds inland along the Red River, along with many other river systems. They depend on shallow waters with an abundance of small fish. Oil spills in these waters would devastate their foraging habitat, further stressing this species.



USFWS

OK: The pipeline would cut through the Deep Fork Wildlife Management Area, an 11,900 acre haven for game and non-game species, including bobwhite quail, turkey, bobcat, and bald eagles. It is one of the only public hunting areas in the state.

Pipelines Are (Almost) Forever: Locking the U.S. Into A Dirty Future

The only feasible way to transport large quantities of heavy oil to the U.S. is through pipelines. The current Keystone I and Alberta Clipper pipelines are not yet filled to capacity, and critics say that additional capacity

may not even be necessary for years, if at all.

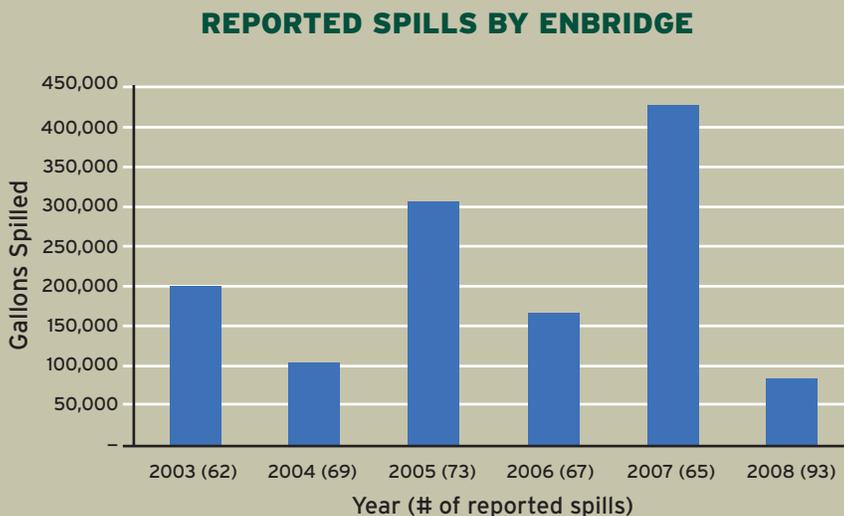
Now, TransCanada has proposed building a new 2,000-mile-long pipeline to carry heavy crude to refineries on the Gulf Coast. The

Keystone XL project would wend through Montana, South Dakota, Nebraska, Kansas, Oklahoma and Texas.

This three-foot diameter pipeline expansion is projected to carry as much as 900,000 barrels a day of thick crude oil under high pressure.²¹ The current proposal asks for exemptions from existing law that would lower the standard for pipeline safety to allow thinner pipe, a detail that worries many residents whose land will be traversed by the pipeline.

At public meetings in rural communities along the pipeline corridor route, hundreds of citizens have expressed dismay and concern at the process. They have raised unanswered questions about safety, fairness, jobs, tax revenue, and the thoroughness of the environmental assessment. Concerns include how the pipelines will be managed in case of spills, whether landowners will be responsible for damages, and the feasibility of building and maintaining a stable and safe pipeline above critical aquifers and near lakes and rivers.

What follows are two voices from the pipelines' front lines.



Enbridge, a Canadian company responsible for 8,500 miles of pipelines crisscrossing the U.S. and Canada, reportedly spilled close to 1.3 million gallons of heavy crude in 400 separate spills between 2003-2008. The number and volume of these spills could potentially be higher, given that no independent verification exists.

Oil and Water Don't Mix: Pipelines over a Nebraska Lifeline

On Ben Gotschall's family ranch in the Sandhills region of Nebraska, the water table is so close to the surface that the family simply sticks pipes into the ground to form artesian wells. They don't need pumps or windmills; the clean water bubbles to the surface from the Ogalalla Aquifer underneath. For the Gotschalls and most of the state of

Nebraska, not to mention the seven other states where water needs are supplied by this massive, underground pool of water, the Ogalalla is about as important as anything gets. The aquifer feeds the mixed grass prairies where Gotschall grazes his cows, provides drinking water for two million people, and waters more than a quarter of the

irrigated land in the U.S. The water, and not the heavy oil potentially passing through it in the proposed Keystone XL pipeline, is what puts the bread in America's breadbasket. "The water under the ground is the lifeblood of this place," Gotschall says. "And there's nothing but sand between the pipeline and the aquifer."

Fourth-generation Nebraskan rancher Ben Gotschall is very skeptical about the safety of the proposed Keystone XL pipeline and the effects that it will have on his family's land.

Gotschall is a fourth-generation Nebraska rancher, and his dad runs the family's certified organic dairy operation that raises grass-fed cows just a couple miles from where the pipeline is slated to go. "Which, in my opinion," says the 29-year-old, "is close enough." He and many ranchers and farmers across the heartland are deeply concerned about the proposed Keystone XL pipeline, especially after the Deepwater Horizon spill in the Gulf exposed lax oversight, arguments over accountability, and an unsettling relationship between the industry and its regulators.

At meetings convened by the U.S. State Department in nearby Nebraska towns, Gotschall has not left reassured. Pipeline representatives repeatedly claimed the chance of a spill is small, and the amount of oil that could leak would be tiny. Gotschall is skeptical. "How long will it take for them to detect a leak?" he wonders, much less stop it before the oil leaches into the sand—and directly into the aquifer. He's heard officials say that the maximum leak would be limited to a few barrels, which Gotschall says is laughable. If the pipeline is flowing at its projected capacity of 900,000 barrels per day, he calculates, that would mean they would have to detect, locate, and fix the leak in less than a second. "We all know it's not *if* a leak happens, it's *when*," says Gotschall. "I just don't buy their safety assurances."

He has good reason to be skeptical. Despite promises that spills will be rare and small, the industry's record speaks for itself. As an editorial in the *Nebraska Journal Star* pointed out, "A 2006 rupture dumped 270,000 gallons on Alaska's North Slope. About 50,000



Timmy Samuel/Starbelly Studios

gallons oozed from a cracked pipeline in Wisconsin in 2007. About 210,000 gallons of crude spewed from a pipeline in central Minnesota last year." Add to that a series of other spills and leaks this year alone, including 126,000 gallons of crude that leaked in North Dakota's Pembina County in January. According to a report by the Natural Resources Defense Council, Enbridge "has been responsible for spilling more than four million gallons of hazardous liquids (primarily crude oil); between 2003 and 2008, Enbridge pipeline accidents were responsible for 13 fatalities, 29 injuries and \$633 million in property damage."²²

Gotschall worries that the environmental assessments done so far also gloss over the fact that Nebraska experiences significant seismic activity in several parts of the state where the pipeline may be installed. In 2002, a 4.3 magnitude earthquake shook the state, and as recently as 2009 a 3.7 magnitude tremor hit, according to the United States Geological Survey.²³ "We have earthquakes here," Gotschall says. "They don't have an earthquake mitigation plan."

Whether from spills, sabotage or earthquakes, Gotschall says the impacts of Canadian tar sands heavy crude oil leaking into the sandy soils of

"We all know it's not if a leak happens, it's when. I just don't buy their safety assurances."

the region are too gruesome to imagine. He understands that the country needs energy, but believes there are many better ways to produce it. Nebraska has the third best wind potential of any state in the country, and he believes that agriculture can wean itself of much of its dependence on fossil fuels by changing its practices to include more grass-fed dairy like his family does. That would free up vast acreage for cropland to be used for biofuels production instead of growing corn for cattle.

Gotschall is especially frustrated with arguments that importing tar sands from our northern neighbors is a great idea because Canada is a "friendly nation." That doesn't exactly ring true to him these days. "Putting an oil pipeline that may leak into my drinking water doesn't sound like a friendly nation to me," he says. "That's akin to an act of war in my book."

Bitumen Across the Big Missouri: A Montana Rancher's Perspective

Just below the confluence of the Milk River and the Missouri River in northeastern Montana, Don Brown tends cows and wheat crops on the ranch where his grandfather homesteaded when he came to the New World from Ireland. The 12,000 acres he owns and leases provide habitat for some of the biggest mule deer found in those parts, as well pronghorn herds migrating in the fall and a way station for various migrating birds, including Sandhill Cranes on their way back and forth from Canada. He's been treated to the sight of 50 pair of sharp-tailed grouse dancing on his property, which he hopes will someday be stewarded by his grandson who is about to graduate high school—the fifth-generation Brown working this rolling piece of prairie.

What Brown had never counted on was a pipeline slicing through his property. If current plans go through, the Keystone XL pipeline will bisect several of his pastures, a plan that Brown says he doesn't entirely oppose if he can just get some assurances that don't seem to be forthcoming.

Brown, a soft-spoken 74-year-old who calls himself a "hay-shaker," says he has a slew of unanswered questions about how this pipeline will affect his operations—and those of

fellow ranchers and farmers along the heartland corridor.

For starters, he wonders how the TransCanada company that is behind the oil pipeline will safely lay pipe in the sandy, unstable soils around the Missouri River and near the famous Missouri Breaks. "It's hard to even dig a post hole that'll stay straight," Brown says.

Safety "is a big factor" for Brown and many ranchers in Montana who have worked with the Northern Plains

“Nothing about the recent disaster in the Gulf has reassured rancher Don Brown that the energy companies will step up or the government will clean up a spill quickly.”



Resource Council to organize into the Northern Plains Pipeline Landowners Group (NPPLG). The landowners are especially worried that the company has applied for variances that will allow them to use thinner pipe and lower safety standards than if it were running through an urban area. The NPPLG is concerned about liability issues, about compensation for loss of land or property values, and about whether promises of new local jobs and increased tax revenue will materialize. In particular, they object to the application by TransCanada to the U.S. Department of Transportation that calls for their area to be considered "low consequence" for an

The Missouri River is one of several waterbodies in Montana that could be severely impacted by the proposed Keystone XL pipeline.

ENDANGERING THE GREATER SAGE-GROUSE



In 2010, Greater Sage-Grouse became a “candidate” for being added to the federal Endangered Species list due to their widespread declines across the prairie and sagebrush habitats of eleven western states. This species is uniquely sensitive to habitat disturbance, which will occur through the construction and operation of Keystone XL, particularly near traditional breeding grounds known as “leks.” For example, sage-grouse populations decline in conventional oil and gas fields wherever more than one well pad per square mile (with associated roads and power lines) are installed in otherwise excellent habitat. If built, Keystone XL would pass near an estimated 40 sage-grouse breeding leks in Montana and South Dakota as it traverses an estimated 165 linear miles of high quality habitat.

oil spill, and therefore eligible for safety exemptions.

Brown notes that he’s worked on pipelines, as well as in copper processing plants in Butte, and says he and his group just want a fair deal that will protect their land and their families. “There is so much coming at us,” he says, right as most ranchers in the area are more concerned with their branding operations than with reading through thousands of pages of appendices and report language. “Hay-shakers don’t have the time or expertise to digest all that,” he says.

They have digested the fact that the pipeline owners appear to be asking a lot of landowners along the pipeline corridor, without much compensation. It’s not clear to Brown and others, for example, who is liable for leaks on private property, nor whether landowners will be compensated for lost production or reduced property values. According to a study for the real estate industry by Robert Simons, pipeline leaks have a sharp effect on real estate values. “Some leaks may be abrupt, while others may go

Disturbance during pipeline construction, particularly during springtime breeding and nesting periods, will be harmful to reproduction in the short-term. However, new roads and power lines built to service and operate the pipeline will fragment otherwise undisturbed habitat in perpetuity, and will likely result in a much larger footprint on the habitat. Related species, such as Greater Prairie Chickens also are strongly affected by the habitat fragmentation of roads and power lines, and populations can be expected to be impacted across Nebraska and Kansas.

undetected for a long period of time,” he writes. “Once contamination has been detected, property values of affected residences can decrease markedly.”

Brown says that nobody has made it clear to him who might be responsible for a spill, and nothing about the recent disaster in the Gulf has reassured him that the energy companies will step up or the government will clean up quickly. Even without a leak, his land broker told him that a pipeline easement on his ranch could cut the land value by 30 percent. “I don’t need that,” Brown says.

Brown worries that he and his fellow landowners along thousands of miles of pipelines are going to be left with “torn up roads and land, and end up with an easement all the way to Texas.” At community meetings around the state, landowners, ranchers and farmers who would not normally ally themselves with conservation causes are asking that their concerns be addressed. “If they’re going to force this on us,” Brown says, “we want the very best we can get.”

Tar Sands' Carbon Footprint: the Climate Change Connection

A WARMING PLANET

James Hansen is arguably the most well-respected and prescient climate scientist in the world. Working for NASA, he was one of the first government scientists to publicly warn of the effects of climate change. In the late 1980s, he predicted many of the impacts of a warming world that researchers around the world have now measured and documented: the warmest global average temperatures on record have occurred in the past 20 years; the first decade of the 21st century was the warmest on record; even April 2010 was the warmest April on record. Glaciers and ice caps have been receding and melting, shifts in the climate have forced animals to migrate earlier and plants to flower sooner, and sea level is rising. Since Hansen first warned Congress about climate change in 1988, the global scientific community has gathered enough evidence to state that it is "unequivocal" that the planet is warming and its climate is being altered, and humans are contributing to these observed changes in part through the burning of fossil fuels.

So when Hansen recently wrote in the British paper *The Guardian* that "the tar sands of Canada constitute one of our planet's greatest threats," it is worth taking notice.

A DOUBLE-BARRELED THREAT

Hansen points out that tar sands are a "double-barreled threat" to our planet's climate systems. The first problem is that burning carbon-based fuels emits carbon dioxide into the atmosphere. Because of the nature of this greenhouse gas, it traps the sun's heat as it is reflected from the earth's surface, and in turn warms the planet below. Burning gasoline made from



conventional oil has long been seen as a major culprit in this process, but as Hansen points out, "producing oil from tar sands emits two-to-three times the global warming pollution of conventional oil."

That's just one part of the problem. Canada's boreal forest serves as a living net to capture and store carbon dioxide, through the absorption of CO₂ by trees. Hansen calls this "one of the best carbon-reduction tools on the planet." When the boreal forest is cut down for tar sands development, two things happen: One, we lose the stored carbon in the forests and wetlands. Second, we lose the forest's ability to absorb new CO₂.

FROM BAD TO WORSE

Future tar sands production is likely to make a bad situation worse. Much of the remaining tar sands extraction will likely be done through *in situ* methods. Since this method requires

companies to heat the subsurface with steam, it is even more energy-intensive—and therefore emits more greenhouse gases—than mined tar sands.

What's even more troubling is that tar sands represent a move towards poorer quality fuels. By opening a market for high carbon liquid fuels, we are capitulating to intransigent energy companies who are also planning on bringing oil shale, American tar sands in Utah, and coal-to-liquids fuels to the market.

The cumulative effects of increasing tar sands production, Hansen and other experts warn, essentially dooms us to a planet with a heavier blanket of carbon dioxide cloaking our atmosphere. As carbon dioxide levels increase, so will the planet's transformation into a less hospitable place.

Just Say No to Bitumen: Pursuing Better Alternatives

"America is addicted to oil," President Bush told the country nearly five years ago. "The best way to break this addiction is through technology," he said. "Since 2001, we have spent nearly \$10 billion to develop cleaner, cheaper and more reliable alternative energy sources. And we are on the threshold of incredible advances."

While some of that research is indeed ongoing, our federal policies continue to tilt towards oil, with massive subsidies, tax breaks, military expenditures and industry support for exploration, production, transportation and refining of petroleum products. By contrast, "alternative energies" receive a pittance, even as their potential grows and the costs of our oil addiction literally are leaking in our Gulf Coast communities.

The first steps on the path to an energy future that uses substantially less oil are in front of our eyes already. U.S. consumption of oil has actually declined, and the recent recession

showed how possible it is to begin lowering our consumption by simple conservation. Off-the-shelf technology around the world can give us much more fuel-efficient vehicles, and a move to more electric and natural-gas powered cars, buses and trucks is already underway. Biofuels made from algae and other crops show great promise. A recent National Wildlife Federation report, "Growing a Green Energy Future: A Primer and Vision for Sustainable Biomass Energy" outlines a series of important energy sources. Investments in better public transportation systems are a no-brainer to reduce our dependence on oil.

We need to speed up the production and research into alternatives to oil, rather than pursuing ever-lower quality crude oil. Canadian tar sands represent

the most commercially viable of all the "unconventional fuels," which include oil shale, coal-to-liquids, and even tar sands deposits in Utah. All of these are dirtier compared to oil. Each of them relies on polluting, energy-intensive processes, and none of them represent a leap forward towards developing a clean, sustainable energy source of the future. If we can stop encouraging tar sands by building more pipelines, we can finally get serious about pursuing the innovations of the future.

President Barack Obama, taking up on his predecessor's comments, also recognized that America has an oil problem. "What will we do about our addiction to foreign oil?" he has asked. "We need a much bolder and much bigger set of solutions. We have to make a serious nationwide

SANDHILL CRANE & THE PLATTE RIVER



The central Platte River valley, a green oasis in an otherwise semi-arid region on the edge of Nebraska's Sandhills, is a critical stopover for migratory water birds that travel on the Central Flyway from the Gulf Coast to Canada, including one of North America's largest cranes, the Sandhill Crane.

One of the most beautiful natural phenomena in the U.S. is the annual congregation of the sandhill cranes. For about a month each March, over 500,000 sandhill cranes converge on the Platte River to rest and eat before they finish their migration to their northern breeding grounds. The cranes forage along the riverbanks, eating aquatic plants, animals and insects, and nearby corn fields, and then sleep on the sandbars.

The proposed Keystone XL pipeline would cut across the Platte River, just east of the sandhill cranes' stopover site. A spill in or near the river or the surrounding fields would not only contaminate the water and its banks, it would contaminate the birds' food supply for decades.

commitment to developing new sources of energy and we need to do it right away. Right now.”

After the Deepwater Horizon explosion, Obama stood in front of the microphones in the Rose Garden and said, “We know that our dependence on foreign oil endangers our security and our economy. And the disaster in the gulf only underscores that even as we pursue domestic production to reduce our reliance on imported oil, our long-term security depends on the development of alternative sources of fuel and new transportation technologies.”

The Administration has a tremendous opportunity to leave a legacy of innovation in the energy sector. Whether we seize this momentous political and economic opening to move

this country far enough—or fast enough remains to be seen. Louisiana shrimpers, Montana ranchers, Nebraskan dairymen, coastal residents threatened by sea rise, consumers and businesses stressed by volatile energy prices, and citizens from coast to coast who understand the need for profound change are all waiting for presidential leadership to combat the enormous power of Big Oil to maintain the status quo for as long as possible.

The word “addiction” comes from a Latin word meaning “a giving over, surrender.” Agreeing to import Canadian tar sands for decades by building new pipelines is nothing more than surrender to our oil addiction. Promising new technologies can and should be pursued that increase our independence, not from foreign oil or



Julie Sibbing

even North American oil, but from oil itself.

Approval of the Keystone XL pipeline and other tar sands delivery systems is not the way to break our oil addiction. As NASA scientist James Hansen wrote, “Now is a critical moment in the history of our planet. The U.S. and Canadian governments must agree that the unconventional fossil fuels, tar sands and tar shale, will not be developed.”

Recommendations: Getting off of Dirty Fuels and Ushering in A New Energy Policy

1. CANCEL CONSTRUCTION OF TAR SANDS PIPELINES.

Keystone XL and others that are in the planning phase would deepen the U.S. addiction to dirty fuels and keep us dependent for decades.

2. DON'T GIVE DIRTY FUELS A PASS.

International agreements like the climate treaty currently being negotiated should NOT exempt tar sands from greenhouse gas reduction targets. In addition, the U.S. should end tax breaks for refineries that take tar sands while certainly resisting any new tax breaks or incentives for dirty fuels.

3. PASS COMPREHENSIVE CLIMATE AND ENERGY LEGISLATION IN THE U.S.

Comprehensive energy and climate legislation has the one ingredient that is absolutely essential for any energy bill: holding oil companies

and other corporations across the economy accountable for doing their fair share to reduce pollution. Less pollution means more clean energy and more clean energy jobs. Less pollution means galvanizing the investment we need to deploy clean energy and clean transportation alternatives.

4. MAKE CARS MORE FUEL

EFFICIENT. We need to safeguard the recent and historic agreement made under the Clean Air Act, between automakers, environmentalists, California and the federal government that greatly improves vehicle fuel economy and cuts transportation greenhouse gas emissions. The new standards will cut oil consumption by 1.8 billion barrels—and all parties are looking to move quickly to extend that program beyond 2016 and enhance oil savings further.

5. TIME FOR ELECTRIC CARS.

We need to take vehicle electrification seriously. Starting October 2010, virtually every major automaker will start selling familiar vehicles that fuel at the equivalent of about 75 cents a gallon by plugging into the electric outlet in the garage. Today we depend on petroleum for 95 percent of transportation fuel. With action now, that debilitating strategic dependence can be fundamentally undermined.

6. INVEST IN RAIL AND MASS

TRANSIT. High speed rail, transit and freight projects boost local and regional economic development and cut oil use and pollution. These projects also improve our quality of life, modernize our cities, and drive job growth in domestic manufacturing, infrastructure construction and operation.

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