

TAR SANDS FACTS



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The Keystone XL Tar Sands Pipeline Hinders Climate Change Progress

The proposed Keystone XL tar sands pipeline would pump 900,000 barrels of extra-dirty oil daily through the fertile breadbasket of the United States to the Gulf Coast from where it can be exported overseas. The pipeline would hobble the steps the country is making in its ongoing battle against climate change. Americans are already experiencing the consequences of climate change, at home and in their pocketbooks, with more frequent and stronger storms, raging wildfires, and drought. The costs associated with extreme weather events due to climate change will only increase in the coming years. Tar sands will only make these consequences worse.

The Keystone XL tar sands pipeline is a giant step backward. It would expand dirty oil mining practices, discourage investment in a clean-energy economy, and raze virgin Boreal forestland that has the natural capacity to store carbon. The Keystone XL project would lock us into a long-term commitment to an energy infrastructure that relies on extra-dirty oil.



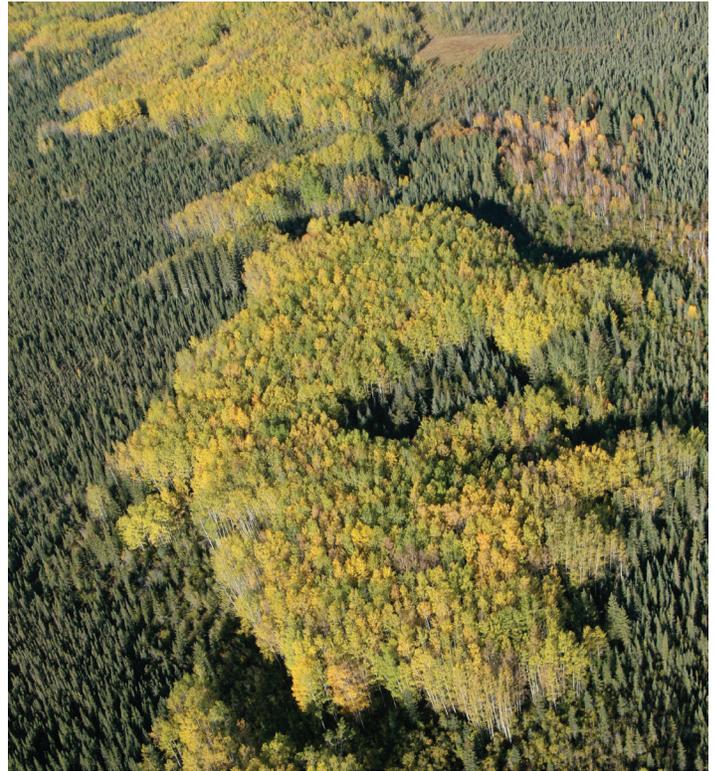
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KEYSTONE XL LEADS TO MORE GREENHOUSE GAS EMISSIONS

Construction of the pipeline would lead to greater demand for tar sands oil. As this demand increases, more energy-intensive methods would be needed to extract the oil. According to the Environmental Protection Agency (EPA), the Keystone XL pipeline has the potential to increase carbon pollution by 27 million metric tons of carbon dioxide.¹ This is the equivalent of seven coal-fired power plants operating continuously or having 6.2 million cars on the road for 50 years.²

Compared to conventional oil, tar sands takes more energy to extract and refine, and therefore its production is three- to four-times more greenhouse gas intensive.³ Tar sands oil ranks among the most carbon-intensive oils on the planet.

TAR SANDS CLIMATE POLLUTION IS ON THE RISE

Approximately 20 percent of tar sands oil is extracted by open-pit mining. The remaining 80 percent, however, can be extracted only by using the even more energy-intensive in-situ process of pumping steam under the ground.⁴

Open-pit mining lays waste to millions of acres of carbon-storing Boreal forest. The Canadian Boreal forest is one of the world's largest storehouses of carbon. To produce just one barrel of oil, these trees are felled, and tons of earth are scooped up by massive backhoes. The oil-laden soil is then loaded into trucks the size of houses and carted off to an extraction plant for initial processing.

While open-pit mining is dirty, in-situ extraction is even dirtier. Meaning "in place" in Latin, in-situ mining generates more than two and a half-times more greenhouse gases as does open-pit extraction.⁵ The in-situ process involves burning natural gas above ground, generating steam, which then is forced into subterranean pipes. The heat emanating from the pipes melts the surrounding bitumen from the sands. The melted material is then pumped up to the surface for further processing. In-situ extraction is the future of tar sands. By 2017, in-situ extraction will be how most tar sands oil is recovered.⁶ From then on, the gulf between the two extraction processes—from dirty to dirtier—will only widen.

KEYSTONE XL UNDERMINES CLEAN ENERGY AND NATIONAL SECURITY

The United States is getting serious about clean energy. Real strides have been made, notably with fuel efficiency standards, and forecasts show that demand for oil in the United States has peaked and will remain flat for the next two decades. Building Keystone XL, however, would eliminate the benefits that efficiency standards will bring to the climate. For example, the standards that would cut greenhouse gas emissions by up to 20 percent by 2018 from medium- to heavy-duty trucks would effectively be neutralized.⁷ Instead of sending these mixed messages, the United States can choose to adopt policies that in 20 years would reduce our oil consumption by 5.7 million barrels per day—twice the oil currently imported from Canada.⁸

Oil coming from a friendly neighbor does not translate into increased energy security. Keystone XL is a pathway for tar sands oil to be exported. TransCanada has confirmed that the purpose of Keystone XL is to enable tar sands to be exported as diesel from the Gulf to take advantage of higher international market prices.⁹

Retired Brig. General Steven Anderson has noted that the "greatest threat to our security is our overreliance on oil."¹⁰ Only clean energy and reducing our demand for oil will detach the United States from the conflict ridden, oil-producing areas of the world and help us address and reduce the threatening impacts of climate change. The proposed Keystone XL pipeline does not move our country in that direction.



TAR SANDS OIL AND CLIMATE CHANGE: BUSTING THE MYTHS

MYTH-BUSTING: Contrary to claims that tar sands is similar to emissions from conventional oil, climate pollution emissions from tar sands are higher than emissions created by conventional crude oils and other heavy crude oils.

FACT: Claims that tar sands greenhouse gas emissions are similar to conventional oil are not telling the full story and are cherry-picking how they make the comparison using the very dirtiest of conventional oil and the lowest emission of the tar sands production processes.¹¹ Multiple independent studies, including one by the U.S. Department of Energy, have shown that tar sands is significantly more greenhouse gas intensive than many other heavy oils, including conventional.¹²

MYTH-BUSTING: Tar sands exports to overseas markets via other pipelines is highly unlikely in the next five to ten years despite Canadian government and industry arguments that tar sands will be developed through other means if Keystone XL is not approved.

FACT: There are current barriers that make exporting tar sands to overseas markets impossible in the near term and highly unlikely over the medium- to long-term.¹³ Alternative pipelines to Canada's West Coast are in the very early stages of the regulatory process. There is no commercial support for the Enbridge Northern Gateway pipeline and significant legal opposition from Canadian First Nations who have the legal ability to stop or significantly delay pipelines due to their constitutionally rights.¹⁴ There is also significant public opposition to off shore tankers that would carry tar sands due to extraordinary public opposition.

MYTH-BUSTING: An industry-wide, integrated system of carbon capture and storage (CCS) technology in the tar sands is not right around the corner despite Canadian government claims that CCS will offset growing carbon emissions from tar sands.

FACT: Despite claims of industry, as of March 2011 there were no carbon capture and storage systems operating for either tar sands extraction or processing operations. While two projects are in the works, nothing is up and running. Furthermore, Canada lacks regulations that could bring these technologies to scale. For there to be an incentive to implement CCS, the federal and/or provincial governments must put a price on emissions five-times higher than previously proposed.¹⁵ Alberta's climate plan assumes CCS will result in 139 megatonnes of reductions by 2050, but current projects would barely make a dent in that baseline number.¹⁶

MYTH-BUSTING: Alberta and Canada are laggards when it comes to battling climate change and do not have effective plans to address the growing greenhouse gas emissions from tar sands.

FACT: Alberta has weak climate policies and weak future emissions-reduction targets. For example, tar sands companies can forgo on-site emission reductions by paying \$15 per tonne into a fund that reinvests the money into emissions-reduction projects. It is clear, though, that the emission reductions are much smaller than actual reductions by the tar sands operators.¹⁷ Canada has said that it will not meet its international climate commitments and tar sands remain a significant source of greenhouse gas emissions that are increasing steadily. This is causing Canada to gain an international reputation for undermining clean energy and efforts to fight climate change around the world.¹⁸

MYTH-BUSTING: Greenhouse gas emissions from tar sands production are going up—not down.

FACT: The Canadian government claims reductions in emissions per barrel of oil, but the total amount of heat-trapping gases released into the atmosphere by the industry has soared due to rising production. This matters for climate change. Carbon intensity has remained roughly the same over the last five years, according to Canada's federal government. This is because energy efficiency and fuel-switching improvements have already been secured. Environment Canada has acknowledged that the trend of decreasing emissions intensity "may be reversed in recent years."¹⁹ The projected tripling of tar sands production between now and 2025 means total emissions continue to rise.²⁰ Additionally, it is unlikely industry can make any additional improvements to the efficiency of the extraction process.²¹



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- 4 The Pembina Institute, "Mining vs. In Situ: What is the highest environmental impact on oil?" May 27, 2010, <http://www.pembina.org/pub/2017>.
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- 12 U.S. Department of Energy, National Energy Technology Laboratory, "Development of Baseline Data and Analysis of Life Cycle Greenhouse Gas Emissions of Petroleum-Based Fuels," DOE/NETL-2009/1346 (November 2008), p. 12, table 2-4 (showing that the average for Canadian crude oils to be 17 percent higher on a well-to-wheels basis compared with the US average); U.S. Department of State, "Final Environmental Impact Statement for the Proposed Keystone XL Project, Appendix: life-cycle greenhouse gas emissions of petroleum products from WCSB oil sands crudes compared with reference crudes," p. 33, August 27, 2011 (finding Canadian oil sands is 17 percent higher than U.S. conventional oil and still higher than other heavy crudes such as from Venezuela and Mexico); Adam Brandt, "Upstream greenhouse gas (GHG) emissions from Canadian oil sands as a feedstock for European refineries," Department of Energy Resources Engineering, Stanford University, January 18, 2011 (finding average GHG emissions from tar sands are 23% higher than the average fuel currently used in Europe).
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