

# FAIL

HOW THE KEYSTONE XL TAR SANDS PIPELINE  
FLUNKS THE CLIMATE TEST







BOREAL WETLANDS PHOTO: GARTH LENZ





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## HOW THE KEYSSTONE XL TAR SANDS PIPELINE FLUNKS THE CLIMATE TEST

### AUTHORS

Kate Colarulli, *Sierra Club*

Doug Hayes, *Sierra Club*

Courtenay Lewis, *Sierra Club*

Lorne Stockman, *Oil Change International*

David Turnbull, *Oil Change International*

### REVIEWERS

Eddie Scher, *Sierra Club*

Elizabeth Shope, *Natural Resources Defense Council*

Tom Valtin, *Sierra Club*

Daniel Gatti, *Environment America*

### RESEARCH SUPPORT:

Disha Banik, Jenna Overton, Samantha Strom, and James Vandeventer





Friends of the Earth



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Allowing the Keystone pipeline to be built requires a finding that doing so would be in our nation's interest. And our national interest will be served only if this project does not significantly exacerbate the problem of carbon pollution.

—PRESIDENT OBAMA, JUNE 25, 2013



# INTRODUCTION

The Obama administration's decision on the proposed Keystone XL tar sands pipeline is a choice about our climate future. Tar sands are one of the most carbon polluting sources of oil on the planet, and limiting tar sands expansion is critical to fighting dangerous levels of climate change. Climate scientists, energy experts, and even Wall Street and industry analysts agree that the oil industry's plans to expand tar sands development are not possible without this pipeline.

How much oil we use and how carbon-polluting that oil is will have a huge impact on our ability to mitigate devastating climate change. As our nation begins to suffer the impacts of climate change — superstorms, droughts, wildfires, and floods — Americans across all political and geographic divides are demanding climate action and the clean energy that will help our economy transition to a sustainable future.

In his historic climate speech on June 25, 2013, President Obama affirmed that the Keystone XL decision could only be made responsibly in the context of the project's carbon pollution. The answer to the climate test is unequivocal: Keystone XL is a climate disaster. As this report will illustrate, rejecting Keystone XL is one of the most important decisions President Obama can make to protect future generations from devastating climate change.

This report begins with a review of the global carbon context in order to define the term “significantly.” How do Keystone XL's emissions fit into the mandate to reduce global greenhouse gas emissions by 80 percent globally over the next 40 years in order to stabilize the climate at safe levels?<sup>1</sup> Here we find that the science is quite clear: a pipeline that would contribute 181 million metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) each year<sup>2</sup> for 50 years risks blowing our ability to mitigate dangerous levels of climate change. In and of itself, Keystone XL is found to be a significant polluter.

Next the report looks at the upstream implications of Keystone XL. Why is the approval of this pipeline worth billions to the tar sands industry, and why are environmentalists getting arrested to stop it? The report brings

together analyses and reports from the foremost investors and companies working in the tar sands to answer this question. Together these industry experts paint a picture of a landlocked asset that requires massive pipeline expansion to grow. Keystone XL is hailed as a linchpin of further tar sands development. Experts predict that the approval of the pipeline could lead to a 36 percent increase in tar sands exploitation.<sup>3</sup> Suddenly, the uproar over the Keystone XL decision makes sense.

Next the report looks at the climate implications of expanding tar sands production. Tar sands are one of the most carbon-polluting sources of oil on the planet; the U.S. government estimates that oil from tar sands may be 22 percent more carbon-intensive than average oil used in the U.S.<sup>4</sup> The report brings together information not only on the pollution from producing and burning gasoline and diesel from tar sands, but also looks at its byproducts such as petroleum coke and the implications of destroying boreal forest to mine tar sands. This evidence illustrates that further developing Alberta's tar sands must be avoided at all costs to prevent catastrophic greenhouse gas emissions.

In the months since President Obama committed to judging Keystone XL on its carbon pollution, many observers have wondered if there are steps that Canada could take

to mitigate the harm done by Keystone XL. The report illustrates the impact of expanding the tar sands through Keystone XL is too massive to be mitigated.

The report then demonstrates that the Keystone XL would be a pipeline through, not to, the United States. It would deliver tar sands to America's



leading export refineries, providing a major outlet for Canadian tar sands to reach global market. In contrast to recent claims made by the pipeline's proponents, bringing additional supplies of heavy oil into the Gulf Coast will not replace oil from sources like Venezuela. Instead, the pipeline would create a surplus of heavy oil, some of which would be exported in its crude state. If Canadian heavy is forced out to the world market, this will encourage more tar sands development, and release more climate-disrupting pollution.

Finally, this report reviews the conflict-of-interest scandal that has obscured the carbon pollution implications of the pipeline in the Department of State's recent assessments of its environmental impacts. By laying out troubling evi-

dence about the State Department's hiring of a contractor with strong connections to the oil industry to assess the pipeline, we stress the need for an objective and sound analysis of the project's true environmental impacts.

This report cites a large body of scientific evidence and industry expertise demonstrating that Keystone XL is key to unlocking massive expansion of one of the world's most carbon-intensive sources of oil, an environmental Armageddon. The answer to President Obama's Keystone XL climate question is straightforward. Yes, Keystone XL will lead to significant, dangerous exacerbation of climate-disrupting pollution. President Obama said that, "failure to address climate change" would be a betrayal of our children. He must reject Keystone XL.

## TAR SANDS 101

**RAW TAR SANDS** Photo: Mark S. Elliot



### **TAR SANDS (OR BITUMEN) HAS A VERY HIGH CARBON CONTENT COMPARED TO OTHER SOURCES OF OIL.**

Extracting and upgrading oil from tar sands can be as much as 4.5 times more greenhouse-gas-intensive than oil from other conventional North American crude sources.<sup>5</sup> Additionally, during the refining process, 15-30 percent of each barrel of tar sands bitumen becomes a highly polluting byproduct called petroleum coke.<sup>6</sup> The ultimate result is that tar sands bitumen results in significantly more greenhouse gas emissions than conventional oil.

**TAR SANDS ARE A MIX OF SAND, CLAY, WATER, AND BITUMEN, A SEMI-SOLID FORM OF PETROLEUM WITH THE CONSISTENCY OF ASPHALT.** Tar sands deposits are found in the Canadian province of Alberta, under the boreal forest and wetlands in an area about the size of Florida.

**CANADA'S BOREAL FOREST IS ONE OF THE MOST SIGNIFICANT FORESTS ON EARTH FOR PROTECTING BIODIVERSITY, STORING CARBON, AND HELPING TO REGULATE THE CLIMATE.** It represents one-quarter of the Earth's remaining intact original forests and makes up 11

percent of the planet's terrestrial carbon storehouses, not including its tundra and wetlands.<sup>7</sup>

### **TO EXTRACT THE TAR SANDS, OIL COMPANIES OPEN PIT MINE AND *IN SITU* DRILL MILLIONS OF ACRES OF THIS PRISTINE FOREST AND CRITICAL WILDLIFE HABITAT.**

The mining processes are incredibly toxic and destroy this vital global carbon reservoir. Open pit mining requires up to four tons of earth and four gallons of fresh water to produce one gallon of oil, but even then only 75 percent of the bitumen is recovered.<sup>8</sup> *In situ* mining is even more energy intensive, using enormous amounts of natural gas and water to super-heat and inject steam underground to melt and extract tar sands that are too deep for open pit mining.<sup>9</sup>

### **POLLUTED WATER FROM MINING AND REFINING TAR SANDS IS STORED IN TOXIC WASTE PONDS COVERING MORE THAN 68 SQUARE MILES.**<sup>10 11</sup>

These toxic ponds are death traps for the millions of migratory songbirds and waterfowl that nest in the boreal.<sup>12</sup> The ponds leak a billion gallons of toxic water into surrounding waterways each year.<sup>13</sup>

### **TAR SANDS CONTAIN MORE HEAVY METALS AND CANCER-CAUSING CHEMICALS THAN CONVENTIONAL CRUDE**

— on average 11 times more sulfur, 11 times more nickel, and 5 times more lead than conventional crude.<sup>14</sup> These toxins are removed and released into the air and water during the refining process. For transport to refineries, tar sands are mixed with lighter hydrocarbons to create "diluted bitumen," which is liquid enough to be pumped through pipelines at high temperatures. During a spill, the light hydrocarbons evaporate, carrying benzene and other noxious chemicals into the air, and the heavy bitumen sinks in waterways and sticks to soils.

**THE PROPOSED KEYSTONE XL PIPELINE WOULD TRANSPORT TAR SANDS 1,700 MILES FROM ALBERTA, CANADA THROUGH THE HEARTLAND OF AMERICA AND THE OGALLALA AQUIFER TO REFINERIES AND INTERNATIONAL EXPORT PORTS ON THE U.S. GULF COAST.**



# THE GLOBAL CONTEXT FOR MAKING THE KEYSTONE XL DECISION

## U.S. EMISSIONS MUST SWIFTLY GO DOWN, NOT UP, TO AVOID CATASTROPHIC CLIMATE CHANGE

President Obama's test for Keystone XL reflects an understanding that our nation's — and the world's — best interests are entirely tied to our efforts to stave off the worst effects of climate change. With climate impacts growing worse every day, decisions regarding energy must be taken with climate change in mind. Some have suggested Keystone XL be compared to conventional oil pipelines when assessing its impact, but the president has it right: Keystone XL should be judged based on how it impairs our ability to adequately address climate change.

The International Energy Agency (IEA) has recently warned that we must keep some 66 percent of proven

fossil fuel reserves in the ground in order even to have a chance of stabilizing our climate below two degrees Celsius of warming,<sup>15</sup> the globally-recognized safe limit of warming. Other financial and climate analysts such as The Carbon Tracker Initiative have suggested that 80 percent of proven fossil fuel reserves must remain in the ground to have a serious chance of staying within this limit.<sup>16</sup>

These estimates are in the context of a large body of science showing that global greenhouse gas emissions must be reduced swiftly by 80 percent globally over the next 40 years in order to stabilize the climate at sustainable levels, with U.S. emissions being reduced to near zero in that time frame in order to achieve this goal. President Obama, in the Copenhagen Accord and other internation-

**SUPERSTORM SANDY** Photo: NASA Goddard Space Flight Center via Creative Commons





al agreements and statements, has committed the United States to achieving this goal of stabilizing global warming as far below 2°C as possible.<sup>17</sup>

When looking at the climate cost of building the Keystone XL pipeline, it is vital to consider the pipeline not in the context of where we find ourselves today, but in the context of where we need to be during the lifetime of the pipeline in order to have a stable climate. The question should not only be how much worse it would be to use tar sands over the next 50 years compared to using conventional oil; the question that climate protection demands we ask is how much oil of *any* type we can use in a world where oil demand is consistent with our commitment to limiting global warming to less than 2°C. The answer to that question, according to the IEA and climate scientists, is: significantly less oil than we use now. Any analysis that assumes oil demand is greater than what is safe for the climate is denying the facts of climate change – and any project that locks in decades of dependence on a high-carbon source of oil is a climate disaster.

The Keystone XL tar sands pipeline is a project that will carry and emit at least 181 million metric tons of carbon

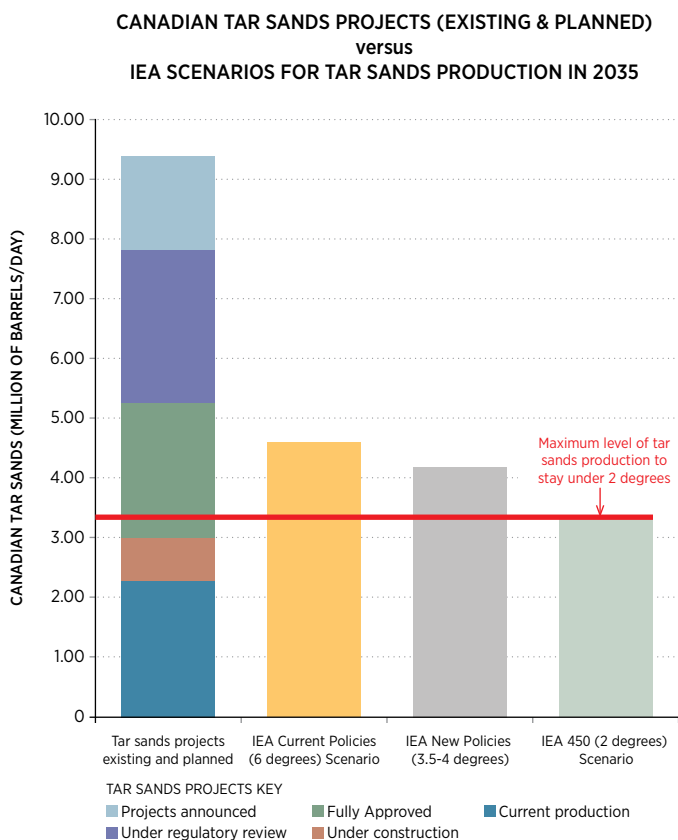
dioxide equivalent (CO<sub>2</sub>e) each year, according to Oil Change International’s report, “Cooking the Books: How the State Department Analysis Ignores the True Climate Impact of the Keystone XL pipeline.”<sup>18</sup> This is a conservative figure, based on industry analysis of the carbon emissions associated with current tar sands production, but the estimate is equivalent to the annual emissions of 51 coal-fired power plants. This estimate includes the extraction, processing and pipeline transportation emissions, and the combustion of all the products refined from the tar sands that will be delivered, including petcoke.<sup>19</sup>

As further stated in the Oil Change International report, “The case for rejecting all major new fossil fuel infrastructure could not be clearer. The IEA asserts that 81 percent of its carbon budget is “already locked-in with the existing energy infrastructure.”<sup>20</sup> This means that we have likely already locked in the emissions that we can afford in order to achieve an 80 percent chance of success [of limiting climate change to below 2 degrees Celsius of warming globally].”

*Scientific American*, in a January article entitled “How Much Will Tar Sands Oil Add to Global Warming?” reports, “The amount of CO<sub>2</sub> locked up in Alberta tar sands is enormous,’ notes mechanical engineer John Abraham of the University of Saint Thomas in Minnesota, another signer of the Keystone protest letter from scientists [sent to the president in January 2013]. ‘If we burn all the tar sand oil, the temperature rise, just from burning that tar sand, will be half of what we’ve already seen’ — an estimated additional nearly 0.4 degree C from Alberta alone.” The article continues, “As it stands, the oil sands industry has greenhouse gas emissions greater than New Zealand and Kenya — combined. If all the bitumen in those sands could be burned, another 240 billion metric tons of carbon would be added to the atmosphere and, even if just the oil sands recoverable with today’s technology get burned, 22 billion metric tons of carbon would reach the sky.”<sup>21</sup>

In a world constrained by the realities of climate change, the proper measure of any project’s climate impact should be based on whether the project meets our commitment to minimize the real dangers of climate change. On this basis, the total, cumulative amount of carbon released by the project into the atmosphere should be weighed against the amount of carbon the world, the United States, and the tar sands industry, respectively, can afford to burn in a stable climate. The question this report will address is whether Keystone XL will significantly increase carbon pollution within the context of the Obama’s administration’s commitment to stabilize climate change.

**CANADIAN TAR SANDS PLANS WOULD BE THREE TIMES THE CARBON LIMIT SET BY IEA** *Chart: Oil Change International*





# KEYSTONE XL IS A LINCHPIN FOR TAR SANDS DEVELOPMENT

If policymakers accept the warnings from climate scientists that countries need to rapidly reduce their greenhouse gas emissions, logic follows that the most carbon intensive sources of oil, like Alberta's tar sands, must be left in the ground. It is also critical for policymakers to acknowledge that the development of tar sands is far from inevitable. The following industry and financial analysts highlight that the Keystone XL pipeline is absolutely critical to the expansion of tar sands development in landlocked Alberta, because it would provide the industry with a major low-cost connection to export markets and world oil prices. Whether or not to open the Keystone XL floodgates is a decision that will directly affect the rate of tar sands extraction in coming decades. Therefore, the dangerous levels of greenhouse gas emissions that would result from developing Alberta's tar sands is directly linked to the approval of the Keystone XL pipeline.

An idea has taken root in some American policy circles that Canadian tar sands production will be expanded at the same rate whether or not the Keystone XL pipeline is built. For example, an August 2013 IHS CERA Insight paper contends that "even if the Keystone XL pipeline does not move forward, we do not expect a material change to oil sands production growth" due to likely investments in alternatives like other pipeline projects and crude delivery by rail.<sup>22</sup> This view is not shared by experts who observe the industry on a daily basis. In fact, the Keystone XL presidential permit decision is so important precisely because it has critical implications for the rate at which tar sands are extracted. As the Royal Bank of Canada puts it, "President Obama's ultimate decision on the Keystone XL pipeline constitutes a watershed event for Canadian oil producers—and the shape of oil sands growth."<sup>23</sup>

In 2012 the western Canadian oil industry filled 3.2 million barrels per day (bbl/d) of pipeline capacity of which 2.2 million bbl/d [KC1] came from the tar sands. By 2030, they hope to have expanded to fill 7.8 million bbl/d of which 6.6 million bbl/d will come from the tar sands.<sup>24</sup> Existing pipeline capacity can transport 3.6 million bbl/d and the Canadian Association of Petroleum Producers predicts they will run out of pipeline capacity by 2014.<sup>25</sup> Andrew Potter,

an analyst for the Canadian Imperial Bank of Commerce, similarly commented that "pipeline capacity of the Western Canadian Sedimentary Basin could effectively be full in the 2014 time frame."<sup>26</sup> Herein lies the importance of new pipelines. Profitable expansion of supply depends on the industry's ability to get the new product to market. Pipeline space for tar sands is being further constricted by the boom in U.S. tight oil production. In fact, the profitability of several of the new extraction projects currently being constructed may be threatened by lack of pipeline capacity. According to a recent TD Economics report entitled, "Pipeline Expansion is a National Priority," "Canada's oil industry is facing a serious challenge to its long-term growth. Current oil production in Western Canada coupled with the significant gains in U.S. domestic production have led the industry to bump against capacity constraints in existing pipelines and refineries. *Production growth cannot occur unless some of the planned pipeline projects out of the Western Canadian Sedimentary Basin (WCSB) go ahead.*"<sup>27</sup>

To reach its target level of Canadian oil production (7.8 million bbl/d by 2030 according to the Canadian Association of Petroleum Producers' latest forecast), the industry needs to add 4.2 million bbl/d of takeaway capacity at the very minimum. There are currently five proposed pipeline projects: Enbridge's Northern Gateway (525,000 bbl/d), Kinder Morgan's Trans Mountain expansion (590,000 bbl/d), the expansion of Enbridge's Alberta Clipper (120,000-350,000 bbl/d), TransCanada's Keystone XL (830,000 bbl/d), and the newest proposed project, TransCanada's Energy East (1,100,000 bbl/d). To reach the needed 4.2 million bbl/d (likely a low estimate given local demand and the likelihood that pipelines will not often run at full capacity), every one of these projects must be built out to close to maximum capacity and Keystone XL, as one of the largest planned pipes, is an absolute must for industry expansion plans. Each alternative pipeline must undergo its own permitting process and environmental review; and none will come online within the next couple years. In fact, there is considerable evidence to suggest that alternative pipeline projects are unlikely to occur due to mounting public opposition. In short, alternative transport options are anything but inevitable.<sup>28</sup>



The most notorious of potential West Coast pipelines is Enbridge's proposed Northern Gateway, which would transport 525,000 bbl/d of tar sands crude from Edmonton, Alberta, to Kitimat, British Columbia. Enbridge hopes to have Northern Gateway in operation between 2017 and 2019,<sup>29</sup> however, the project is encountering fierce opposition from First Nations and the British Columbian public, and many observers are doubtful it will be built. Polling shows that 80 percent of British Columbians support banning the crude oil tankers in British Columbia's coastal waters, which would be essential for Northern Gateway (for transporting extracted tar sands to processing refineries).<sup>30</sup> The relatively conservative British Columbia government, led by Liberal Party Premier Christy Clark, has formally opposed the project as it stands, based largely on the risks of coastal oil spills, and has laid out five conditions that would need to be met before the province would support Northern Gateway.<sup>31</sup> Whether or not these conditions are achievable is unclear. Furthermore, more than 60 affected First Nations bearing aboriginal rights and title have come forward to oppose the pipeline and any additional tanker traffic.<sup>32</sup> First Nations, especially those on unceded territory, have constitutionally-granted legal authority to determine what crosses their lands. As a result, their opposition rep-

resents a considerable barrier to the likelihood of Northern Gateway going forward. The *Globe and Mail* stated that First Nations "have the constitutional clout to put up insurmountable obstacles for the proposed Northern Gateway — namely, a messy legal debate around unsettled land claims along the route that will likely be decided by the Supreme Court of Canada."<sup>33</sup> Northern Gateway is over a year-and-a-half away from a federal government decision.<sup>34</sup> In the unlikely event that the Northern Gateway project is approved, such a decision will likely be contested in courts for many years by concerned British Columbians and legally powerful First Nations.

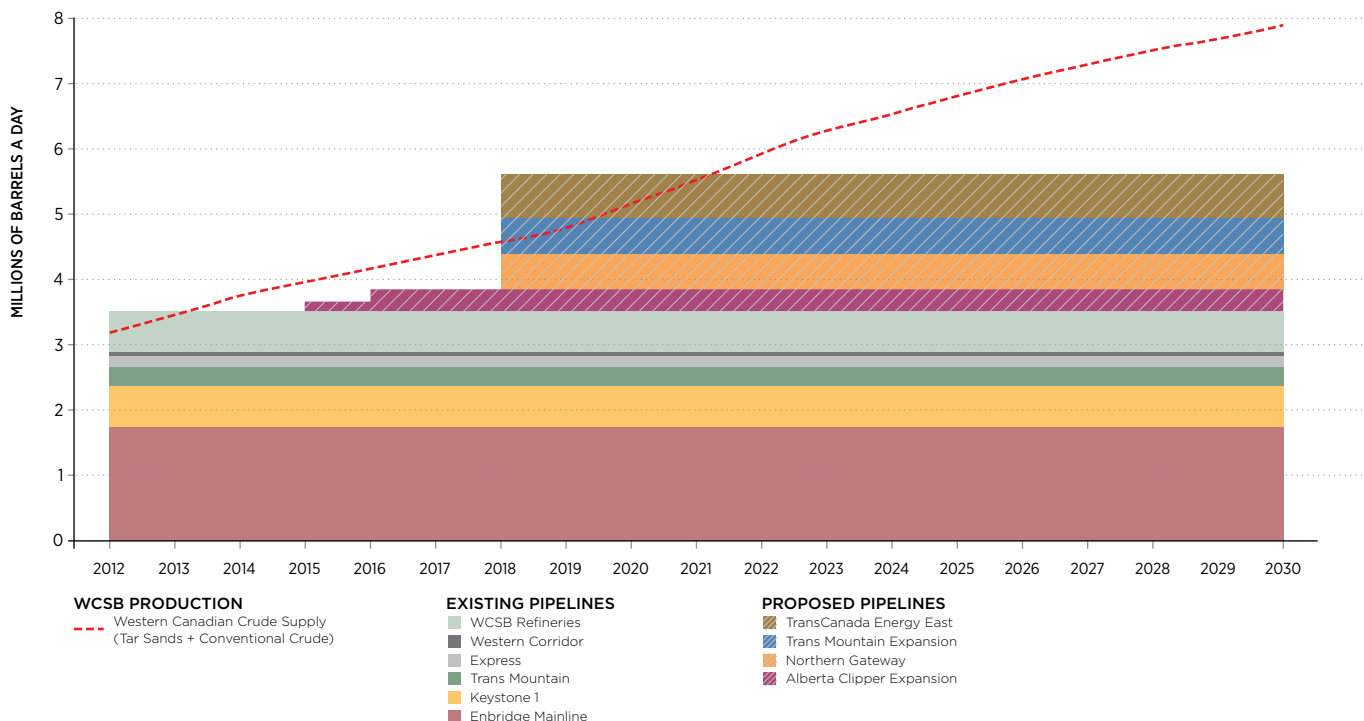
Kinder Morgan has proposed an expansion of its Trans Mountain pipeline to the West Coast, although the company does not expect to submit its application to Canada's National Energy Board until late 2013.<sup>35</sup> The application would take 15 months for the government to review and then at least two years to build. The soonest possible operational date would be 2017.<sup>36</sup> The Department of Energy's 2010 "Keystone XL Assessment," prepared by EnSys Energy & Systems, Inc., acknowledges the many obstacles faced by these potential pipelines: "Extensive work would be required with various organizations, including the [Canadian

**PIPELINE CAPACITY V. TAR SANDS/WCSB CRUDE** Chart data: Natural Resources Defense Council

## PIPELINE AND TAR SANDS CAPACITY

WESTERN CANADIAN SUPPLY FORECAST (WCSB) VERSUS TAKEAWAY CAPACITY WITHOUT KEYSTONE XL

The Keystone XL tar sands pipeline is a critical part of the industry's plan for tar sands oil production expansion. In the unlikely event that all new proposed pipelines were built, industry would be unable to meet projected supply takeaway needs without Keystone XL.



SOURCES: CAPP, *Crude Oil, Forecasts, Markets and Pipelines*, June 2013; Goldman Sachs, *Getting oil of Canada: Heavy oil differs expected to stay wide and volatile*, June 2013

National Energy Board], Port Metro Vancouver and First Nations groups before the project could go ahead. Permits would be required for expansion. In addition, agreements with landowners along the route may have to be renegotiated. These requirements could possibly delay or stop the project...<sup>37</sup> Furthermore, Kinder Morgan's proposal would require dredging the Vancouver harbor and changing regulations to allow increased tanker traffic, which both face intense opposition.<sup>38</sup> In fact, the Trans Mountain expansion faces longer odds now that British Columbia has opposed the Northern Gateway pipeline, due to concerns with increased risk of spills from tanker traffic.

Tar sands opposition continues to grow in Western Canada. In the past year, there have been anti-tar sands rallies in 70 communities across British Columbia with more than 12,000 people participating.<sup>39</sup> Many conservative political and intellectual leaders in Western Canada are now calling for a 'time-out,'<sup>40</sup> and oil industry commentators and federal cabinet ministers who historically have been boosters of West Coast pipelines have become less vocal in their support.<sup>41</sup> It is notable that one of the first public energy decisions made by the newly elected conservative party in British Columbia was to reject Northern Gateway. Major opposition from nearly every municipality in British Columbia's lower mainland creates additional uncertainty for Kinder Morgan's Trans Mountain Expansion. CIBC, a major Canadian financial services firm, now estimates that there is a 50 percent probability that the West Coast proposals by Enbridge and Kinder Morgan will not be built before 2020.<sup>42</sup>

In addition to the western-headed pipelines, the industry has proposed Keystone XL and Alberta Clipper which would carry tar sands south. Alberta Clipper is a 36-inch diameter pipeline which extends from Hardisty, Alberta to Superior, Wisconsin and is twinned with the Southern Access pipeline which runs in reverse. The project is an expansion of the existing Alberta Clipper line from the current capacity of 450,000 bbl/d to 570,000 bbl/d and then to 800,000 bbl/d. Alberta Clipper crosses the international border and as such is subject to the Presidential Permit process. A multi-state Great Lakes coalition has already formed opposing this expansion and some observers, such as Steven Paget, a Calgary-based analyst at FirstEnergy Capital Corp., have suggested that Alberta Clipper will face similar levels of opposition as Keystone XL.<sup>43</sup>

The pipeline proposal to carry tar sands to the east coast of Canada will face its own hurdles and multi-year time frames before final decision. TransCanada's newly-proposed Energy East pipeline project could carry 1,100,000 bbl/d of oil from Hardisty, Alberta through Saskatchewan, Manitoba, Ontario, and Québec to St. John's, New Brunswick, where it

would be refined and exported. It would involve the conversion of 1,864 miles of the TransCanada Mainline gas pipeline and the construction of an additional 870 miles of pipeline. TransCanada predicts that it will file a pre-application for Energy East in late 2013.<sup>44</sup> The pipeline will need support from six provincial governments, and intense opposition is anticipated from Canadian environmental groups and native leaders. Pierre-Olivier Pineau, a management professor at the HEC Montreal business school with expertise in energy, recently stated, "Politically, TransCanada's challenge in Québec is so big that this project just won't happen. ... It will be perceived as risky, with negative consequences for the environment."<sup>45</sup>

Uncertainty, legal barriers, public opposition, and multi-year regulatory approval processes surround all of the proposed alternatives to Keystone XL. Certainly none of these projects will come online in the short-term. In fact, the State Department's Draft Supplemental Environmental Impact Statement (draft SEIS), which analyzed transportation alternatives to Keystone XL, acknowledges that "other proposed WCSB pipeline projects, including the Enbridge Northern Gateway project to Kitimat, British Columbia, and the Kinder Morgan Trans Mountain pipeline expansions to the Canadian West Coast... are being reviewed, but face significant opposition from various groups, and they may continue to be delayed."<sup>46</sup>

Goldman Sachs summarizes the situation as follows: "Essentially, there are three main directions Western Canadian crude oil can flow once the limited amount of Western Canadian refining demand is satisfied ... We see significant challenges with all three proposed directions. Regulatory, environmental, and local community opposition has increased in recent years, which is currently delaying planned pipeline projects to the south and west and we suspect will ultimately impact flows to the east (planned projects to the east are at an earlier stage and have yet to meet with resistance, but we think this will change)."

Goldman Sachs adds, "TransCanada's proposed Keystone XL pipeline from Hardisty, Alberta, to Port Arthur and Houston, Texas, is the most meaningful of the future planned projects and one that is especially important in both ensuring adequate takeaway capacity from Canada but also direct access to significant heavy crude oil demand in the U.S. Gulf Coast."<sup>47</sup> Royal Bank of Canada, a major investor and analyst of the oil sands industry, predicts "Canada's oil sands growth is likely to be temporarily deferred in the event that Keystone XL is not approved. Our analysis would suggest that up to 450,000 bbl/d or one-third of oil sands growth could be deferred in the 2015-17 timeframe."<sup>48</sup>



Out of desperation the oil industry is looking to move tar sands by rail. However, the economics alone are leading many analysts to conclude that rail will not allow the industry to reach their expansion goals. Tar sands are significantly more expensive to move by rail than conventional crude. Part of this expense is the distance. Tar sands are located in an extremely remote part of the world currently lacking extensive rail lines.<sup>49</sup> Additionally, due to the dense chemical makeup of tar sands, they are particularly heavy and require specialized rail off-loading terminals, on-loading terminals, and heated rail cars to keep them liquid.<sup>50</sup> In fact, the density of tar sands means that trains moving tar sands are able to carry nearly 30 percent less crude than trains moving conventional crude.<sup>51</sup> All of these factors dramatically increase the cost of transporting tar sands by rail. Shipping a barrel of tar sands from Alberta to the U.S. Gulf Coast is currently costing tar sands producers \$31 a barrel.<sup>52</sup> Moving it by pipeline costs \$8 to \$9.50 a barrel.<sup>53</sup>

Tar sands producers also have much tighter margins than conventional oil producers. Tar sands crude is a lower-value commodity than light crude. In addition, it has significantly higher production prices. With break-even production costs for tar sands ranging from \$60 a barrel to over \$100 a barrel—and increasing each year—new tar sands projects cannot profitably bear significantly greater transportation costs associated with rail.<sup>54</sup> Despite pricing incentives, currently only about 1 percent of Canadian tar sands crude production is shipped to the Gulf by rail.<sup>55</sup> Goldman Sachs sums up the rail transport situation by concluding: “We expect rail to play an increasingly important role in accessing U.S. markets; however, given the long distances and higher cost of rail, we believe pipeline

capacity growth is critical in Canada and the key to sustainably removing congestion in the system.”<sup>56</sup>

So what are the financial implications of being landlocked and lacking access to market? Investors are finding the idea of financing new tar sands development projects a lot less attractive. In Goldman Sachs’ view, “In the event that either the Keystone XL newbuild or Alberta Clipper extension (or both) encounter further delays, we believe risk would grow that Canadian heavy oil/oil sands supply would remain trapped in the province of Alberta, putting downward pressure on Western Canadian Select [WCS] pricing on both an absolute basis and versus West Texas Intermediate [WTI].”<sup>57</sup> This view is echoed by others in the oil sands investment community. Standard and Poor’s warns, “Should pipelines be delayed or cancelled, we believe the credit profiles of companies that have a lot of heavy crude oil in their product mix will deteriorate. ... New export pipelines are necessary to alleviate bottlenecks from increasing production and are key elements in the relative economics of Canadian heavy crude compared with U.S. conventional production.” Enbridge’s CEO, Al Monaco, has expressed frustration that the longstanding price discount of tar sands crude oil compared to world benchmark prices (currently around \$30) is unsustainable, stating, “If we can’t attract world prices, then we will ultimately curb energy development.”<sup>58</sup>

The quotes to the right further demonstrate the significance that industry and financial analysts have placed on the Keystone XL for getting tar sands oil out of Alberta. These statements directly contradict “inevitability” arguments that state that Alberta’s tar sands will be developed at the same rate with or without the Keystone XL.

**SYNCRUDE FACILITY, FORT MCMURRAY, ALBERTA** Photo: Doug Hayes





TOXIC WASTE WATER PHOTO: GARTH LENZ

# KEYSTONE XL IN THEIR OWN WORDS

“We’re trying to get the pipelines in as fast as we can. ... Of course, I’m concerned [about the impact of bottlenecks on prices].”

BRUCE MARCH, CHIEF EXECUTIVE OFFICER, IMPERIAL OIL, “OIL SANDS PRODUCERS FIGHTING FOR PIPELINE SPACE,” **BLOOMBERG NEWS, OCTOBER 11, 2012**

“Canada needs pipe — and lots of it — to avoid the opportunity cost of stranding over a million barrels a day of potential crude oil growth.”

CIBC, “OIL INDUSTRY FACED WITH ‘SERIOUS CHALLENGE’ AS PIPELINES FILL UP, TD WARNS,” **FINANCIAL POST, DEC 17, 2012**

“Unless we get increased [market] access, like with Keystone XL, we’re going to be stuck.”<sup>59</sup>

RALPH GLASS, ECONOMIST AND VICE PRESIDENT, AJM PETROLEUM CONSULTANTS, “WITHOUT KEYSTONE XL, OIL SANDS FACE CHOKE POINT,” **THE GLOBE AND MAIL, JUNE 8, 2011**

“Canada’s oil industry is facing a serious challenge to its long-term growth. Current oil production in Western Canada coupled with significant gains in U.S. domestic production has led the industry to bump up against capacity constraints in existing pipelines and refineries.”

TD ECONOMICS, “OIL INDUSTRY FACED WITH ‘SERIOUS CHALLENGE’ AS PIPELINES FILL UP, TD WARNS,” **FINANCIAL POST, DEC 17, 2012**

“‘Oil sands projects display some of the highest break-evens of all global upstream projects,’ the firm said. ‘The potential for wide and volatile differentials could result in operators delaying or cancelling unsanctioned projects.’”

WOOD MACKENZIE INTERNATIONAL ENERGY RESEARCH FIRM, “CRUDE GLUT, PRICE PLUNGE PUT OIL SANDS PROJECTS AT RISK,” **THE GLOBE AND MAIL, JUNE 2, 2012**

“What’s critical to producers is to secure export capacity. The proposed Keystone XL pipeline and expansions of the Enbridge system are all necessary to accommodate the near-term forecast production growth.”<sup>60</sup>

**STANDARD AND POOR’S:** “FOR CANADIAN CRUDE OIL PRODUCERS, GROWTH IS COMING DOWN THE PIPELINE **JUNE 18, 2013**

“The shortfall in takeaway capacity is absolutely going to weigh on realized prices for the Canadian producers over the near term on both heavy and light oil... but especially heavy oil, which is at a pretty substantial discount to WTI right now. ... It’s a challenging market for Canadian upstream crude producers.”

CHRIS FELTIN, ANALYST, MACQUARIE RESEARCH, “FULL PIPELINES TO CUT INTO CANADIAN OIL PRODUCERS’ PROFITS,” **REUTERS, JANUARY 14, 2013**

“Robert Schulz, a business professor at the University of Calgary, stated: ‘It’s fair to say that development has already slowed because of the discount. ... Companies are certainly going to wait and see what the decision on Keystone is before moving ahead with development.’”<sup>61</sup>

“KEYSTONE PIPELINE DECISION MAY INFLUENCE OIL-SANDS DEVELOPMENT.” **BLOOMBERG BUSINESSWEEK, MARCH 7 2013**



# KEYSTONE XL WOULD LEAD TO TAR SANDS EXPANSION AND CLIMATE DISRUPTION

As outlined above, industry experts all agree that Keystone XL is vital to the industry’s plans to expand tar sands development. Without Keystone XL, tar sands oil will continue to face difficulties reaching the refineries and ports necessary to get the oil onto the global market, where it can be sold.

So, if building Keystone XL will lead to increased tar sands development, the question becomes: What will increased tar sands development mean for the climate? And the answer to that, as outlined above, is abundantly clear – the impacts will be devastating.

As the Pembina Institute explained in “The Climate Implications of the Proposed Keystone XL Oilsands Pipeline”, “Filling Keystone XL with oil sands will cause a 36 percent increase from current oilsands production, for which the higher upstream emissions alone will be equivalent to the annual emissions from 6.3 coal-fired power plants or over 4.6 million cars.”<sup>62</sup>

Oil Change International’s “Cooking the Books” report adds that the pipeline would be responsible for 6.34 billion metric tons of CO<sub>2</sub>e, greater than the 2011 total annual carbon dioxide emissions of the United States.<sup>63</sup>



Representative Waxman and Senator Whitehouse, in their letter to the White House on Keystone XL, concluded that, “Based on the administration’s estimates, over the project’s minimum lifespan, the additional carbon pollution from Keystone XL will impose an estimated \$71 billion in costs” associated with climate impacts.<sup>64</sup> Some estimates put that number over \$100 billion per year.<sup>65</sup>



Even the Canadian Association of Petroleum Refiners admitted in 2012 that “[if] the only pipeline projects to proceed were the ones in operation or currently under construction” then tar sands production would slow.<sup>66</sup> According to the CAPP report, without new pipelines the production of oil from tar sands would slow by 0.6 million bbl/d by 2020, and by 2.5 million bbl/d by 2030. That means that even by the oil industry’s own calculations and conservative estimates for lifecycle tar sands emissions,<sup>67</sup> expanding pipeline capacity would increase total global warming emissions (in CO<sub>2</sub>e) by over 130 million metric tons annually by 2020. That is the equivalent of 37.1 average U.S. coal fired-power plants’ annual emissions. By 2030, oil industry estimates of increased production from Canadian tar sands because of greater pipeline capacity would add over 545 million metric tons of global warming emissions, the equivalent of over 154 coal-fired power plants’ annual emissions.

In short, constructing Keystone XL will lead to tar sands industry expansion, and tar sands industry expansion will significantly exacerbate climate pollution.

## KEYSTONE XL WOULD RELEASE 181 MILLION METRIC TONS OF CO<sub>2</sub>E EACH YEAR: EQUIVALENT TO THE ANNUAL EMISSIONS OF 51 COAL-FIRED POWER PLANTS Chart: Oil Change International

kgCO <sub>2</sub> e/bbl	KXL Full Cap bbl/Day	KXL bbls/year	Metric tons CO <sub>2</sub> e/year	 Passenger Cars Equiv.	 Coal Plant Equiv.
598	830,000	302,950,000	181,164,100	37,742,521	51

## TAR SANDS RELEASE SIGNIFICANTLY MORE CARBON POLLUTION THAN AVERAGE U.S. CRUDE

Tar sands release significantly more carbon pollution than the average crude oil used in the U.S. Developing projects that are even more carbon polluting than the fuels that are *already* warming the planet dramatically restricts our chance of fighting dangerous climate change. While the Obama administration has made admirable strides in reducing oil consumption through policies such as vehicle fuel efficiency standards, Keystone XL would undermine these gains due to the high carbon intensity of tar-sands derived fuels. This section details why tar sands have much greater climate implications than the State Department has acknowledged.

The State Department's draft Supplemental Environmental Impact Statement (draft SEIS) concluded that wells-to-wheels emissions from tar sands-derived crude may be 17 percent higher than emissions from the average crude oil consumed in the U.S. However, it also acknowledges that this number does not include emissions from byproducts like petroleum coke, a carbon-intensive fuel that also has major climate impacts (see Petroleum Coke section below). The State Department recognizes that including these additional sources could raise tar sands' incremental emissions to 22 percent above conventional oil.<sup>68</sup> In light of climate scientists'

**BEFORE: ATHABASCA BOREAL FOREST** Photo: Garth Lenz







warnings that our current fossil fuel consumption habits are already disrupting our climate, 22 percent more emissions than average is unacceptably high.

In addition, emissions from indirect land use changes have not been included in the State Department's estimates of Keystone XL's greenhouse gas emissions.<sup>69</sup> The development of Alberta's tar sands would result in the destruction of one of the best carbon stores on the planet — the 1.2-billion-acre Canadian boreal forest, which captures and stores almost twice as much carbon as tropical forests per unit area.<sup>70</sup> Canada's boreal forest is estimated to store 186 billion tons of carbon,<sup>71</sup> which Greenpeace notes is "an amount equal to 27 years' worth of carbon emissions from the burning of fossil fuels worldwide."<sup>72</sup> Because of the boreal forest's incredible capacity to store — and release — carbon, 29 climate scientists wrote to the State Department that the climate impacts of Keystone XL would be "amplified by the loss

of carbon storage capacity as the boreal forest is removed to access this resource."<sup>73</sup>

A 2011 National Academy of Sciences study noted that currently approved tar sands mines in Alberta are expected to destroy enough peatland habitat to release an additional 11.4 - 47.3 million metric tons of stored carbon into the atmosphere.<sup>74</sup> Industry is legally compelled to return this land to a "productive" state.<sup>75</sup> However, the Pembina Institute reports that only one percent of land disturbed by Canada's tar sands mining has been reclassified "reclaimed,"<sup>76</sup> and the National Academy of Sciences study predicts, "contrary to claims made in the media, peatland destroyed by open-pit mining will not be restored."<sup>77</sup>

In addition, the State Department's draft SEIS' inclusion of petroleum coke in its estimates of tar sands' larger incremental emissions underplays the major carbon impacts of this byproduct, a fuel which *Scientific American* has said may be the dirtiest fossil fuel on the planet.<sup>78</sup>

# PETROLEUM COKE IS A MAJOR SOURCE OF ADDITIONAL CARBON POLLUTION

As with other emissions that the Keystone XL pipeline would release, the State Department’s draft SEIS reflects an explicit decision to discount emissions associated with the petroleum coke (or petcoke) for which Keystone XL would be responsible. Petcoke is an extremely dirty and carbon-intensive oil-refining byproduct that is commonly used as fuel in coal-fired power plants and other industry processes, and is responsible for some 10 percent more carbon dioxide than low-quality coal on an energy equivalent basis.<sup>79</sup>

Given commonly held estimates, the Keystone XL pipeline would transport enough tar sands to produce 15,000 tons of petcoke each day.<sup>80</sup> Over any given week of operation the pipeline would be responsible for enough petcoke to fill the Washington Monument, and over the course of its lifetime would fill over 80 Empire State Buildings worth of petcoke.<sup>81</sup> This amount of petcoke would account for 16.6 million metric tons of CO<sub>2</sub> each year, the greenhouse gas emissions equivalent to adding some 3.5 million cars to the road each year or nearly 5 average-sized coal plants. The Oil Change International January 2013 report entitled “Petroleum Coke: The Coal Hiding in the Tar Sands,” concluded, “Including these emissions raises the total annual

emissions of the pipeline by 13 percent above the State Department’s calculations.”<sup>82</sup>

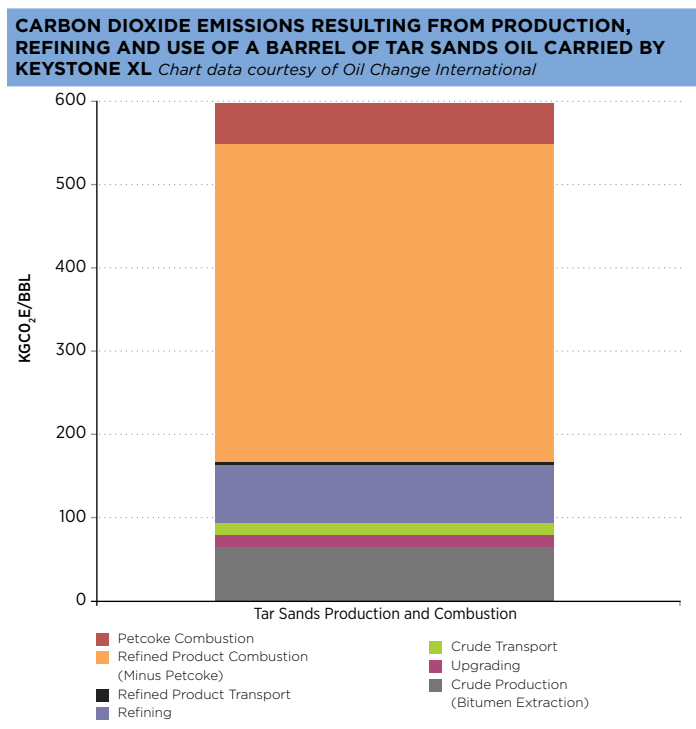
The United States and Canada both export millions of barrels of petcoke each year.<sup>83</sup> The year 2012 set the annual record (184.17 million barrels) for the United States, and April 2013 was the second-highest month for petcoke exports in the country’s history.<sup>84</sup> The primary recipient of U.S. petcoke exports is China, where it is likely combusted in coal-fired power plants.<sup>85</sup>

The State Department’s most recent environmental assessment of the Keystone XL pipeline asserted that emissions associated with petcoke from Keystone XL were negligible because the substance is a byproduct and would either sit stockpiled near refineries or simply replace coal on a one-for-one basis. Unfortunately, neither scenario is the case.

Petcoke is being shipped to coal-fired power plants around the world, resulting in the prolonged financial viability of these coal plants that might otherwise be priced out of operation, while simultaneously resulting in higher carbon emissions. As noted in comments submitted to the State Department, “The January Oil Change International report cites Alberta ERCB data for 2011 that shows a marked decrease<sup>86</sup> in the stockpiling of upgrader-produced petroleum coke from 75 percent in 2010 ERCB to 50 percent in the 2011 data. It also cites industry sources which note that exports of petroleum coke from the west coast of Canada to Asia have been increasing.”<sup>87</sup>

Further, the State Department’s assessment that petcoke is used at a one-for-one basis in replacing coal ignores the favorable pricing given to petcoke on the market, due to the fact that it is a byproduct that refineries seek to sell quickly. The discounted pricing can save coal-fired power plants hundreds of millions of dollars per year and thus serve to support the economics of coal-fired generation over other sources.<sup>88</sup>

Simply put, the massive emissions associated with Keystone XL’s petcoke, calculated to be some 16.6 million metric tons of CO<sub>2</sub> each year, cannot be ignored and serve to substantially increase existing estimates of Keystone’s climate footprint.





## SUGGESTIONS THAT CANADA CAN “MITIGATE” ITS EMISSIONS ARE UNFOUNDED

President Obama has raised the question of whether the massive emissions from tar sands can be mitigated or offset by Canadian regulations. Evidence and history show that Canada’s mitigation efforts could *not* make up for Keystone XL’s major climate impacts.

In a July interview with the *New York Times*, President Obama said of the proposed Keystone XL pipeline, “I’m going to evaluate this based on whether or not this is going to significantly contribute to carbon in our atmosphere. And there is no doubt that Canada at the source in those tar sands could potentially be doing more to mitigate carbon release.”<sup>89</sup>

The president’s statement has led to speculation that he may be inclined to approve the Keystone XL pipeline if Canada can convince the United States that it will reduce emissions at tar sands extraction sites. The *Toronto Star*,

for example, recently declared, “Canada’s ability to control pollution from the oilsands will sway U.S. President Barack Obama’s high-stakes decision on building the Keystone XL pipeline.”<sup>90</sup>

However, any promises by Prime Minister Stephen Harper’s government to reduce the emissions from Canada’s tar sands should be judged against its failure to live up to its climate commitments to date. Canada’s federal government has consistently missed its own targets to regulate Canada’s oil and gas sector.<sup>91</sup> The province of Alberta has a nominal greenhouse gas reduction strategy for its tar sands industry — the Specified Gas Emitters Regulation (SGER) — but its carbon pricing mechanism, as the Pembina Institute details, “is too weak to provide an incentive for oilsands operators to meaningfully reduce greenhouse gas emissions.”<sup>92</sup> The SGER effectively means

**CANADIAN ACTIVISTS PROTESTING THEIR GOVERNMENT’S TAR SANDS POLICIES** Photo courtesy of Alex Doukas





tar sands operators only have to pay 18-to-22 cents to produce a barrel of oil — far too weak a penalty to prompt emission reductions.<sup>93</sup> A recent study has compiled extensive evidence showing that fewer than one percent of environmental violations in Alberta's tar sands region are actually enforced with fines or other enforcement mechanisms.<sup>94</sup> Tar sands, meanwhile, are Canada's fastest-growing source of greenhouse gas emissions.<sup>95</sup> Even though it has a relatively small population, Canada is already one of the top 10 greenhouse gas-emitting countries in the world.<sup>96</sup> In 2011, the Canadian federal government's own peer-reviewed reports forecasted that emissions from tar sands would be triple 2005 levels by 2030.<sup>97</sup>

Prime Minister Harper's administration has shown an unwillingness to take serious action on climate change, and even actively undermines its own government's climate programs and research. The Canadian government has lobbied against international initiatives to reduce greenhouse gas emissions from fuels, including the European Union's Fuel Quality Directive, and California's low-carbon fuel standard.<sup>98</sup> Greenpeace Canada obtained internal government documents listing "environmental NGOs" and "Aboriginal Groups" as "adversaries" in the Harper government's mission to increase the export of tar sands.<sup>99</sup> Prime Minister Harper's government has drastically cut funding for government research on climate change, ended the government's National Roundtable on the Economy and Environment, and cut support for research programs like the Canadian Foundation for Climate and Atmospheric Science.<sup>100</sup> The Canadian government's elimination of climate research and its muzzling of federal scientists' ability to speak to the public about their find-

ings has led IPCC lead author (and member of British Columbia's Legislative Assembly), Andrew Weaver, to declare, "We have a crisis in Canada ... in terms of development of information and science to inform decision-making. ...What we have replaced that with is an ideological approach to decision making."<sup>101</sup>

Proponents of the Keystone XL pipeline say that accepting tar sands from America's northern neighbor would increase national security,<sup>102</sup> but the fact that Canada's government under the Harper administration has an atrocious climate record undermines the argument that supporting their energy policies is in America's best interests. American military experts have called climate change one of the greatest threats to America's national security.<sup>103</sup> Even Secretary of State Kerry has declared climate change to be "a growing threat to global stability, human security, and America's national security."<sup>104</sup> The Harper government's record gives no reason to hope that it would be able or willing to implement any meaningful emission-reduction strategies.

In the unlikely scenario that Canada did implement a more rigorous emissions-reduction plan for its tar sands development, the fact that the Keystone XL pipeline could increase tar sands development by 36 percent,<sup>105</sup> means Keystone XL would be a sort of Pandora's box that could help to unleash rampant tar sands development. With or without emissions-reduction strategies from Alberta and Canada's federal government, from a climate perspective it is indefensible for the U.S. government to approve this project, in light of the future implications it would have for accelerating the growth of one of the most polluting fuels on the planet.



## KEYSTONE XL OPENS NEW MARKETS FOR TAR SANDS, INCREASING EMISSIONS

Oil industry proponents claim that Keystone XL would increase U.S. energy independence, but the reality is that Keystone XL is a pipeline *through*, not *to*, America. Keystone XL would deliver tar sands to America's leading export refineries. These refineries exported 60 percent of the gasoline they produced in 2012.<sup>106</sup> What does this mean for the climate? The Keystone XL pipeline would provide the first major direct outlet for Canadian tar sands to easily reach the global market. By providing such an avenue for exports, the pipeline will incentivize increased tar sands production and exports of highly carbon-intensive oil to the rest of the world and encourage further use of oil from tar sands around the world, thus contributing to climate-changing greenhouse gas emissions.

Keystone XL's export reality was even reflected in the State Department's own analysis when it stated in the March 2013 draft SEIS that, "...almost half of PADD 3 refined products go to the domestic market"<sup>107</sup> "PADD 3"

is the industry name for the Gulf Coast refining region, and this statement acknowledges explicitly that more than half of the oil products from the region go to the export market.

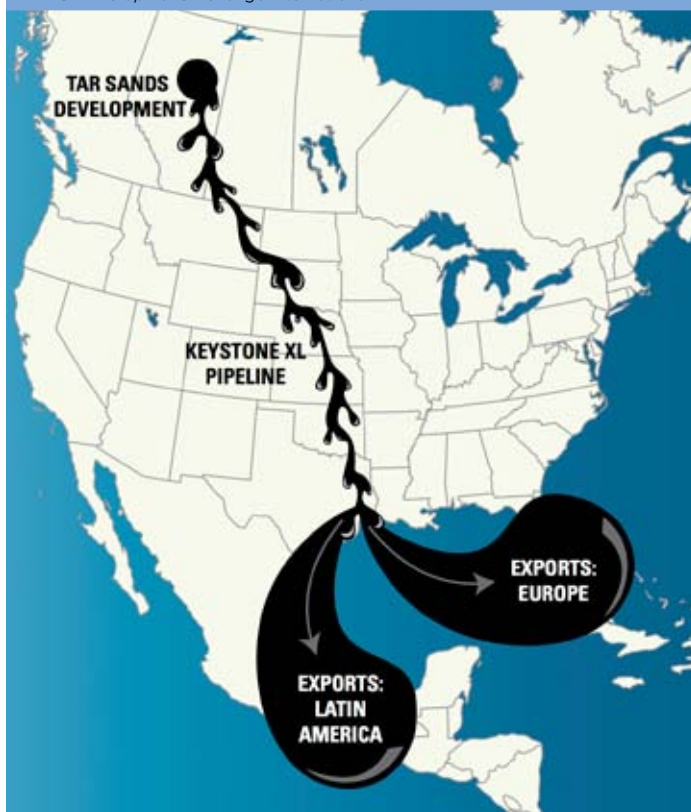
The U.S. Gulf Coast is at the center of a U.S. refined product export boom that has grown by more than 120 percent since 2007,<sup>108</sup> accounting for 74 percent of all U.S. refined product exports in 2012.<sup>109</sup> Many of the refineries closest to the proposed terminus of Keystone XL — refineries in Port Arthur, Houston, Texas City and Lake Charles, Louisiana — are exporting the majority of their production and have plans to expand exports even further.<sup>110</sup>

The refining industry is open about the motivations behind their recent expansions. The Motiva Port Arthur refinery, owned by Shell and Saudi Aramco, recently completed an expansion making it America's largest refinery, with a total capacity of 600,000 bbl/d. At the plant's official opening in May 2012, Shell's CEO Peter Voser told journalists that "clearly exports are part of (the) thinking."<sup>111</sup>

**TAR SANDS EXTRACTION, ALBERTA** Photo: David Dodge, The Pembina Institute



**KEYSTONE XL WILL SERVE REFINERIES SET ON EXPORTING THE OIL ABROAD** Graphic: Oil Change International



Financial analysts have also chimed in. An analyst at Bank of America-Merrill Lynch told the Investor Daily that, “The bulk of the Motiva plant’s production is — like a growing share of refinery capacity along the Gulf Coast — geared for export (...) (w)e can export gasoline and diesel to northwest Europe cheaper than they can produce it locally”.<sup>112</sup>

The burgeoning export trade in refined products from these refineries means that Keystone XL will enable tar sands producers to access international markets beyond the United States via these refined product exports. This increases the market for tar sands crude beyond the United States.

Additionally, it now looks increasingly likely that tar sands crude would be exported from the U.S. Gulf Coast unrefined because the pipeline will likely result in a surplus of heavy oil on the Gulf Coast.<sup>113</sup> Huge shifts in the North American oil market are resulting in a Gulf Coast refining market that is very different than the one that was envisaged when this project was first proposed more than five years ago. An influx of U.S. domestic oil at discounted prices is changing the demand for heavy oil at Gulf Coast refineries. This is in addition to the expansion of existing pipelines bringing crude south from Cushing, Oklahoma.

On top of this, it appears that there has been an overestimation of the extent to which U.S. Gulf Coast-located

refineries owned by national oil companies that produce their own heavy oil will buy Canada’s heavy oil. These companies include Venezuela’s Citgo, Mexico’s Pemex, and Saudi Arabia’s Saudi Aramco refineries. Many analysts now say that around 50 percent of Gulf Coast heavy oil capacity is committed to these nationally-owned suppliers.<sup>114</sup>

The result is that by bringing additional supplies of Canadian heavy oil into the Gulf Coast, Keystone XL will not *replace* oil from sources like Venezuela but will actually create a surplus of heavy oil on the market. In that case, some of the Canadian supply will have to be exported in its crude state.

Esa Ramasamy, Editorial Director for Oil Markets at Platts, said the following about the likelihood of Canadian tar sands exports from the U.S. Gulf Coast if Keystone XL is built:

*There is a limit to how much (heavy crude) the Gulf Coast refiners can soak up. (...) Bear in mind that U.S. Gulf Coast refiners, it takes them only 3 to 5 days to ship crudes from Colombia, Venezuela into the U.S. Gulf Coast and less than 3 days from Mexico to the Gulf Coast. So U.S. Gulf Coast refiners sit in a very ideal location where they can pick and choose their most economic crudes that offer them the best netbacks. ...The U.S. refiners will not always use Canadian crudes. When the Canadian crudes rise in price they will look at other alternatives, and force the Canadian crudes to move out of the Gulf Coast. The Canadian crudes cannot go back up into Canada again. They will have to go out.*<sup>115</sup>

This analysis of how Gulf Coast markets function, from one of the country’s top oil market observers, is in complete contrast to everything the State Department, TransCanada, and various Keystone XL pipeline proponents have been telling the public.

Far from there being a shortage of heavy oil supply to the Gulf Coast that Keystone XL will ameliorate, there will be a surplus. Rather than backing out heavy oil supply from Latin American and Middle Eastern suppliers, Canadian heavy crude will be forced out to the world market because those suppliers will compete with Canada for market share.

This complex reality of the Gulf Coast oil market is in stark contrast to the simplified and convenient rhetoric of the pipeline’s proponents. Keystone XL will serve to not only imperil communities along its route but to fuel exports of tar sands oil to countries around the world. These exports will encourage more tar sands development and thus more climate-disrupting pollution.



# THE STATE DEPARTMENT'S ENVIRONMENTAL IMPACT STATEMENTS ARE CRITICALLY FLAWED

President Obama may ultimately base his evaluation of Keystone XL's climate impacts on the environmental analysis prepared by the State Department. It is therefore critical that this report is accurate and objective. Throughout the debate, the Obama administration has maintained a public commitment to base its decision on the facts. The State Department has repeatedly failed its mandate to produce a thorough, unbiased evaluation of the pipeline's impacts. The integrity of Keystone XL's Environmental Impact Statement is a foundational issue that must be resolved before the Obama administration reaches a decision on whether to grant a Presidential Permit.

At the beginning of the permitting process, the State Department was faced with the task of selecting a contractor to write the draft EIS for Keystone XL. The Department chose Cardno-Entrix from a list of contractors recommended by TransCanada.<sup>116</sup> Serious allegations of conflicts-of-interest between the State Department, TransCanada, and Cardno-Entrix arose. The subsequent Office of Inspector General investigation found numerous contractual and financial relationships between Cardno-Entrix and TransCanada that had not been disclosed (e.g., Cardno Entrix had prepared at least four EISs for TransCanada pipelines and conducted contract work for TransCanada), but decided that none created actual conflicts of interest. However, the Office of Inspector General criticized the State Department for failing to do its due diligence before hiring Cardno-Entrix, and required State to redesign its conflict-of-interest screening process.<sup>117</sup>

After the Obama administration rejected the first Keystone XL proposal in early 2012, TransCanada reapplied for a Presidential Permit. The State Department put out a Request for Proposals to third-party contractors to prepare a draft Supplemental Environmental Impact Statement (SEIS). It selected a firm called Environmental Resources Management (ERM). The draft report released in March 2013 concluded that Keystone XL would not have significant environmental impacts.<sup>118</sup>

The problems with the SEIS were severe enough to raise questions about ERM's objectivity. In April 2013,

“If the Surgeon General was replaced with a tobacco executive — would you trust them if they told you cigarettes are safe?”

*ROBIN MANN, BOARD MEMBER, SIERRA CLUB*

a number of public interest groups including the Sierra Club, Oil Change International, Friends of the Earth, and others asked the State Department Office of the Inspector General to investigate the agency's hiring of ERM. This request was based on ERM's failure to disclose information about its relationships with the oil industry in its application to prepare the environmental report. For example, ERM answered “no” when asked if it had any “direct or indirect” relationships “with any business entity that could be affected in any way by the proposed work.” Yet in the period 2009-2012 the firm was working for more than a dozen of the largest energy companies involved in the Canadian tar sands that stand to benefit if Keystone is built, including ExxonMobil, Shell, Chevron, ConocoPhillips, Total, and Syncrude.<sup>119</sup> ERM has also been involved since at least 2011 in the Alaska Pipeline Project, a joint venture of TransCanada and ExxonMobil.<sup>120</sup> As the Sierra Club explains in a letter to the State Department,<sup>121</sup> ERM is a member of the American Petroleum Institute and appears to be significantly engaged in the business of researching oil infrastructure projects. ... As a national trade association, API's stated mission is “to influence public policy in support of a strong, viable U.S. oil and natural gas industry.” API has been a steadfast advocate of Keystone XL and has continuously pressured the Obama administration to approve the project.

For a second time, it appears that the State Department failed to verify its contractor's conflict-of-interest statements. Even more alarming, the State Department posted ERM's technical proposal on its website, including the conflict-of-interest questionnaire that ERM filled out, but redacted the professional biographies of the ERM contractors working on the KXL evaluation. These biographies, and the relationships they reveal, show ERM's

failure to disclose its contactors' relationships with TransCanada and other companies that would benefit from the pipeline. For example, ERM's Deputy Project Manager on the project has worked on three previous pipeline projects for TransCanada, and has consulted on projects for ExxonMobil, BP, and ConocoPhillips, all of which stand to benefit from KXL.<sup>122</sup>

At the time of printing this report, the State Department Office of Investor General had publicly confirmed the launch of an inquiry into the conflict of interest allegations regarding ERM.<sup>123</sup>

In addition to problems with ERM and the State Department's process for drafting the EIS, the quality of the analysis was also called into question by the Environmental Protection Agency (EPA) in an April 22, 2013, letter to the State Department. The EPA, which has official consulting responsibilities on the project, gave a poor rating ("Environmental Objections - Insufficient Information") to the quality of the draft SEIS. The EPA found that the draft SEIS "does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified ... additional information, data, analyses, or discussion should be included in the final EIS." For example, the EPA letter stated that "the discussion in the [draft] SEIS regarding energy markets, while informative, is not based on an updated energy-economic modeling effort." The EPA letter took particular issue with the State Department's climate analysis that downplayed the impacts as insignificant. The letters reads, "To place this difference [between tar sands emissions intensity and conventional crude] in context,

we recommend using monetized estimates of the social cost of the GHG [greenhouse gas] emissions from a barrel of oil sands crude compared to average U.S. crude. If GHG intensity of oil sands crude is not reduced, over a 50-year period the additional CO<sub>2</sub>e from oil sands crude transported by the pipeline could be as much as 935 million metric tons."<sup>124</sup>

Other experts have also challenged the quality of ERM's analysis. On April 2, 2013, 29 prominent climate scientists submitted a letter to the State Department, "we have reviewed the Draft Supplemental EIS, and find its assertions to be without merit in many critical areas." The letter went on to say, "despite the claims of the EIS that the environmental impacts are minor these assertions are not supported by the science ... our scientific judgment is that the actual and potential environmental damage are sufficiently severe to reject the Keystone XL pipeline proposal in order to protect the climate human health and the multiple ecosystems this project threatens."<sup>125</sup> The letter refuted numerous key claims in ERM's draft SEIS.

ERM's review is flawed in other critical areas. Its draft SEIS argues that Keystone XL would have little effect on tar sands production based on the assumption that other potential projects — pipelines and rail — will materialize to meet the needed capacity to export increased tar sands.<sup>126</sup> This assumption, which has been debunked by financial investors and oil industry analysts<sup>127</sup> is explored in depth elsewhere in this report. It is also significant that the draft SEIS fails to account for the increased risks of a spill from a tar sands pipeline,<sup>128, 129</sup> ignores low-income and minority communities who will be disproportionately affected by Keystone XL,<sup>130</sup> and fails to address the threat this dangerous pipeline continues to pose to the Ogallala Aquifer.<sup>131, 132</sup>

The widely-criticized analysis of the latest EIS, combined with ERM's attempt to conceal its oil industry ties, strongly suggest that the environmental analysis is biased. To quote *Businessweek*, the "secrets, lies and missing data"<sup>133</sup> surrounding Keystone XL's environmental impact statement have led observers to discount the current draft SEIS and look elsewhere for reliable information about the project.

In the absence of an objective and accurate environmental review by the State Department, this report joins the voices of climate scientists, faith leaders, elected U.S. officials, environmental groups, social justice advocates, and government accountability groups that have pressed the State Department to ensure that its Final Environmental Impact Statement faithfully takes note of the wealth of data that has highlighted the Keystone XL's risks to the climate and communities across North America.

“Secrets, Lies, and Missing Data: New Twists in the Keystone XL Pipeline”

**BLOOMBERG BUSINESSWEEK, JULY 11, 2013**

“State Dept. Hid Contractor’s Ties to Keystone XL Pipeline Company”

**MOTHER JONES, MAR 21, 2013**

“State Department Watchdog Probes Keystone XL Review”

**CHRISTIAN SCIENCE MONITOR, AUG 15, 2013**

“State Dept. IG Looking into Conflict of Interest Allegation in KXL Review”

**POLITICO, AUG 15, 2013**





FORT MCMURRAY, ALBERTA. PHOTO: KRIS KRÄG

## CONCLUSION: WE CAN DO BETTER

President Obama has told the public that he will reject the Keystone XL tar sands pipeline if it would “significantly exacerbate the problem of carbon pollution.” The answer to the president’s Keystone XL climate challenge is clear: the Keystone XL pipeline is a linchpin to tar sands development, and increased tar sands development would be disastrous for the climate. The president must reject the pipeline.

This report has demonstrated the urgent need for policymakers to take immediate steps to reduce the development of fossil fuels. Analysts have said we must leave 66 to 80 percent of carbon in the ground to have a chance at maintaining a safe climate.<sup>134</sup> There is no justification for increasing the development of a source of oil that U.S. agencies say could be 22 percent more carbon-intensive than average oil used in the U.S.<sup>135</sup> When the impacts of exporting petroleum coke and destroying the boreal forest’s carbon storing capacity are also fully taken into account, the incremental emissions of oil from tar sands compared to conventional oil are even greater.

In light of President Obama’s commitment to fight climate change and reduce America’s oil use, it is logical that his administration would reject a project that would be directly responsible for a significant increase in climate emissions. As this report has highlighted, experts—from climate scientists to energy specialists, Wall Street analysts to the oil industry itself—agree that the Keystone XL is a critical piece of the tar sands puzzle.

As Congressman Waxman and Senator Whitehouse articulated, “If the climate change effects of the Keystone XL pipeline are not considered to be significant, it is unclear whether there is any individual project in the United States that would ever be considered significant.”<sup>136</sup> Individually, leaders around the world must assess whether specific projects under their jurisdiction can be said to be “significant.” If all of them decide that their country’s emissions are a drop in the bucket, then why should any government reject a new fossil fuel project? However, if countries like the United States recognize that major projects like Keystone XL will determine the future development of the world’s dirtiest resources,

then we will stand a chance of successfully combating the terrible threat of irreversible climate change. In his second Inaugural Address, President Obama said America must be a world leader on the “path towards sustainable energy sources.”<sup>137</sup> This leadership begins when President Obama turns a page on the era of climate disrupting fossil fuels. President Obama must reject the Keystone XL tar sands pipeline.





# ENDNOTES

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