

Next Frontier for Dangerous Tar Sands Cargo: The Pacific Northwest

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The West Coast is the next frontier of the tar sands invasion. Desperate for routes to get their crude oil from land-locked Alberta, Canada to refineries and export markets, the tar sands industry has its sights set on British Columbia, Washington, Oregon, and California as possible solutions. Taking advantage of proposed pipelines and terminals, existing rail lines, barges, tankers, and refineries, this expansion could inundate the West Coast with carbon-intensive fuels, while its rivers, ports, and coastline facilitate export to international markets.¹

The tar sands extraction process wreaks havoc on the surrounding environment, but the danger doesn't stop there. One of the world's dirtiest fuels, this thick, flammable crude is remarkably treacherous to transport. By pipeline, rail, or tanker, tar sands brings high risks of explosive accidents and disastrous spills that are nearly impossible to clean.

This tar sands invasion has major ramifications for the entire West Coast. It requires a strong response from decision-makers who must recognize the critical links between proposed tar sands infrastructure and strong comprehensive climate policies, lowering oil consumption, and expanding clean transportation solutions.



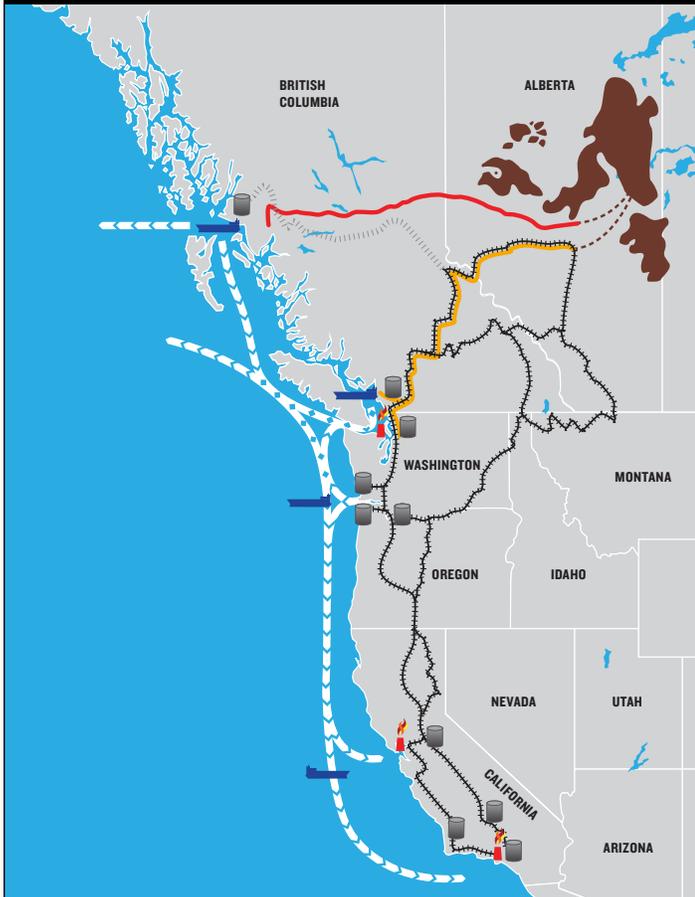
THE CUMULATIVE THREATS OF A TAR SANDS INVASION OF THE WEST COAST

In 2013, refineries in Washington and California processed only 100,000 barrels of tar sands crude oil per day (bpd), representing about 3 percent of the region's daily capacity. Now, a recent analysis by the Borealis Centre shows that the amount of tar sands processed in these refineries could grow eight-fold, totaling 800,000 bpd by 2040. California refineries are the key to this projected increase, and surrounding fenceline communities would bear the brunt of the environmental impact. Across the region, fuel stocks would become more carbon-intensive, leading to annual increases

in carbon emissions of up to 26 million metric tons—more than four times the annual carbon emissions of Seattle.

But available heavy oil refining capacity is only half the story. Proposed pipelines and rail terminals could dramatically increase the amount of tar sands transported through the region. Using barges, tankers, trains, and pipelines, the tar sands industry could access export and storage capacity totaling almost 4 million bpd, a six-fold increase over the 690,000 bpd export and storage capacity existing in the region today. If this were to happen, at least 2,000 additional barges and tankers would be loaded at British Columbia, Washington, and Oregon ports, leading to unprecedented quantities of oil traversing the region's critical waterways and coastlines. With the West Coast's heavy crude refining capacity around 800,000 bpd, this surge in transport could transform the region into a conduit for the tar sands industry's international export goals.

Tar Sands Pathways to the North American West Coast



LEGEND

- Proposed Northern Gateway Pipeline
- Proposed TransMountain Pipeline
- Rail Lines
- Tanker
- Tanker Pathways
- Tar Sands Deposits
- Terminal Area
- Refinery Area

THREATS TO THE PACIFIC NORTHWEST

■ **Refining:** Washington's five oil refineries currently process 630,000 bpd of crude oil, including approximately 60,000 bpd of tar sands. Residents in the Anacortes area have already lived with a decade of tar sands refining in their backyard—a reality likely to be prolonged indefinitely if pipeline expansions and new rail offloading terminals move forward. Refining tar sands poses serious threats to nearby communities, including increased levels of highly toxic fugitive emissions; heavy emissions of particulate, metals, and benzene; higher risk of refinery accidents; and the accumulation of petroleum coke (a coal-like, dusty byproduct of heavy oil refining linked to severe respiratory impacts). Taken together, these risks expose communities to a range of potential health impacts that can affect eyes, skin, the nervous system, and the respiratory system.

■ **Oil Terminals:** Presently, there are seven operating crude-by-rail terminals in Oregon and Washington with a daily handling capacity of 360,000 bpd.² These existing terminals—some of which are new—have facilitated massive growth in crude-by-rail traffic through the region. Now, proposals for six new or expanded terminals have been made public. Taken together, these six additional terminals³ will increase the Northwest's crude-by-rail capacity to 651,000 bpd—far beyond the region's current demand. In addition, nearly all are designed to eventually handle tar sands crude, suggesting that if these projects move forward, the Northwest could see substantial quantities of tar sands moving on its rails for decades to come.

■ **Water:** The pipeline and terminal proposals aimed at the West Coast could lead to the addition of 2,000 tankers and barges navigating the Northwest's coasts and rivers. For Washington and Oregon, this means fully loaded oil tankers and barges navigating to and from ports between Ferndale and Tacoma, along Washington and Oregon's iconic coasts, and up and down the Columbia River between the Portland/



Vancouver metro area and Astoria. Estimates place as many as 800 new oil tankers in the Salish Sea and southern Puget Sound over 2010 levels. In Grays Harbor, the proposed Hoquiam terminals could lead to increased tanker and barge traffic of 300-400 vessels per year. Finally, on the Columbia River, the proposed Tesoro/Savage terminal and the Global Partners terminal expansion would increase Columbia River tanker and barge traffic by at least 520 vessels per year. On the Columbia River, this could mean that major segments are “shut down” on a daily basis by the Coast Guard as it enforces its crude oil vessel exclusion zone.

The threat this amount of oil poses to the Northwest’s waters is unmistakable. Major rivers support eastern Washington and Oregon’s massive agricultural sector; act as major transport corridors; drive the region’s tourism industry; and provide tribes and others with a critical source of income from salmon, steelhead, and other fish. A tar sands spill could cause tragic and substantial impacts to the region’s rivers and coast, leading to dangerous long-term contamination, costly cleanup, and significant economic harm.

■ **Rail:** Rail lines owned by Union Pacific and Burlington Northern Santa Fe crisscross Washington and Oregon, connecting each state to Canada via border crossings north of Bellingham and Sand Point, Idaho. Currently, small amounts of tar sands crude is finding its way by rail into the Northwest, traveling south to the Columbia River before turning north toward Washington’s refineries or south along the Deschutes or Willamette Rivers to reach California markets. These trains are increasingly loaded as unit trains—mile-long trains loaded with a single commodity—carrying 3 million or more gallons of tar sands crude oil.

This surge in crude-by-rail comes with many concerns. Like the rest of the country, the Northwest’s rail infrastructure is aging and prone to serious failures. Towns and cities across the region were built around rail, and major business districts, residential areas, and schools often lie within sight of the tracks, placing huge populations at immediate risk of harm from a derailment and the strong potential for release of toxic chemicals, explosions, and fires.⁵ Meanwhile, rail infrastructure is often located in immediate proximity to critical waterways, increasing the likelihood of a derailment and spill into water. This possibility is seriously concerning, especially since it was recently revealed that neither Washington nor Oregon emergency responders have been notified, trained, or resourced to respond to a spill of tar sands.⁶





Oil and Water Don't Mix: Marine Tar Sands Spills

The best-known spill of tar sands into water occurred in 2010 in a tributary of the Kalamazoo River. Following the rupture of an Enbridge tar sands pipeline, more than 800,000 gallons of diluted bitumen eventually found its way into the Kalamazoo. Responders struggled to contain the heavy bitumen, which sank beneath the water's surface and evaded conventional spill response measures that are designed to contain lighter, floating oil. More than four years later, the price tag for cleanup is well beyond \$1 billion—and the tab is still open. Meanwhile, the surrounding community suffered a slew of health impacts, including hundreds of hospitalizations for cardiovascular, dermal, gastrointestinal, neurological, ocular, renal, and respiratory illnesses.

In addition to this lack of preparedness for and understanding of containing tar sands spills, review of cleanup measures has also revealed that some response activities may have actually worsened the spill's impacts. Subsequent studies have only raised the level of concern regarding tar sands and water. An Environment Canada study concluded that a spill into salt water is likely to lead to a combination of floating and sinking oil due to the presence of wave mixing energy and higher levels of sedimentation.⁴ Other studies have shown that oil dispersants—the chemicals often sprayed on offshore oil spills to aid in oil decomposition—do not work at all on tar sands.

STEMMING THE FLOW OF TAR SANDS TO OREGON AND WASHINGTON

To counter these numerous threats, decision-makers must ensure policies and regulations are in place to slow the influx of dirtier fuels like tar sands while phasing out heavy use of all environmentally harmful fuel sources. Generally, this will require policies that prevent new tar sands infrastructure from being built and reduce dependence on oil through low-carbon transportation and energy solutions such as electric vehicles, renewable fuel sources, and clean fuels. Oregon and Washington can accomplish this by adopting some of the following policy solutions:

- Strengthen environmental review of new oil infrastructure projects, including an assessment of both the direct impacts as well as all cumulative impacts related to upstream production and downstream consumption.
- Reject new tar sands-related infrastructure.
- Stop tar sands tanker traffic until federal officials understand the unique risks associated with tar sands spills and how to respond to them.
- Adopt, implement, and strengthen existing or proposed low-carbon fuel policies.
- Work with California and British Columbia to develop and harmonize low-carbon transportation solutions for the region.
- Ensure state- and region-wide carbon emissions are further limited through mechanisms that incentivize polluters to make additional cuts to their emissions.
- Improve alternative and mass transportation solutions within and between Oregon and Washington.
- Expand community programs that encourage more walkable and bike-able streets and access to transit.
- Push for electric vehicle policies that support rapid deployment of vehicles, encouraging a strong utility role and grid support capabilities around vehicle electrification.

Endnotes

- 1 Unless otherwise noted, the information in this fact sheet is based on Swift, A., Axelrod, J., and Droitsch, D., "West Coast Tar Sands Invasion," NRDC, April 2015. [\[Link TK\]](#)
- 2 These include BP Ferndale, Phillips 66 Ferndale, Tesoro Fidalgo, U.S. Oil and Refining Tacoma, Global Partners Clatskanie, Arc Logistics Portland, and Alon Portland.
- 3 These include Shell Anacortes, U.S. Development Hoquiam, Westway Hoquiam, Imperium Hoquiam, NuStar Vancouver, and Tesoro/Savage Vancouver.
- 4 Government of Canada, "Properties, Composition, and Marine Spill Behavior, Fate, and Transport of Two Diluted Bitumen Products from the Canadian Oil Sands," Government of Canada, November 30, 2013, www.ec.gc.ca/scitech/6A2D63E5-4137-440B-8BB3-E38ECED9B02F/1633_Dilbit%20Technical%20Report_e_v2%20FINAL-s.pdf.
- 5 Mikulka, J., "Tar Sands by Rail Disasters: The Latest Wave in the Bomb Train Assault," Desmogblog.com, March 9, 2015, www.desmogblog.com/2015/03/09/tar-sands-rail-disasters-latest-wave-bomb-train-assault.
- 6 Schick, T., "Big Trainloads of Tar Sands Crude Now Rolling Through NW," *Oregon Public Broadcasting*, February 9, 2015, www.opb.org/news/article/tar-sands-crude-oil-moves-through-northwest-in-mile-long-trains-as-spill-planning-lags/.