BEFORE
THE DISTRICT COORDINATOR
DISTRICT 7 ENVIRONMENTAL COMMISSION
STATE OF VERMONT

REQUEST FOR JURISDICTIONAL OPINION CONCERNING THE TRANPORTATION OF TAR SANDS OIL THROUGH THE PORTLAND-MONTREAL PIPELINE

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INTRODUCTION

This is a request for a Jurisdictional Opinion submitted to the District 7 Coordinator by the National Wildlife Federation, Vermont Natural Resources Council, Sierra Club-Vermont Chapter, Vermont Public Interest Research Group, 350Vermont, Conservation Law Foundation, Natural Resources Defense Council, Brent and Rona Kinsley, Ron Holland and Laurie Green, Reed Olsen, and Adam Favalaro. This request seeks a determination that converting the Portland-Montreal Pipeline (PMPL) from a conventional crude oil pipeline to a tar sands oil pipeline is a substantial change to an existing development that requires a permit pursuant to Act 250, Vermont's comprehensive land-use planning and development law. This conversion has the potential for significant impacts on wildlife habitat and endangered species, public investments in land and parks, and air and water pollution.

SUMMARY

The Portland-Montreal Pipeline (PMPL) consists of 18-inch and 24-inch pipelines that have transported conventional crude oil for over 60 years from Portland, Maine, northwest through New Hampshire and Vermont, to oil refineries in Montreal, Quebec. In Vermont, the PMPL traverses approximately 40 miles of the Northeast Kingdom, including the Victory Basin Wildlife Management Area, the Victory State Forest, and the Willoughby State Forest. The economy of the Northeast Kingdom depends on preserving these and other unique natural resources.

In 2008, one of Canada's major pipeline companies, Enbridge, Inc., proposed the "Trailbreaker Project" to transport tar sands oil from vast reserves in Alberta, Canada along existing pipelines east to Montreal and then southeast to Portland via the PMPL. From there, tar sands oil would be shipped via tankers to Gulf Coast refineries in the U.S. The key features of

the Trailbreaker Project were: (1) reversing the flow of Enbridge's pipeline system to flow east from Sarnia, Ontario to Montreal, and (2) reversing the flow of the 18-inch PMPL to flow southeast from Montreal to Portland.

Based on characterizations that failed to describe the nature of the oil transported and the associated potential impacts, the Portland Pipe Line Corporation (the "PPL Company"), which owns and operates the PMPL,[1] sought and obtained a jurisdictional opinion in 2008 that was never finalized.[2]

The Trailbreaker project did not go forward as planned in 2008. However, in 2011, Enbridge began implementing the key features of the Trailbreaker project as "Phase 1" of a new project. On November 29, 2012, Enbridge formally applied for permission to reverse its pipeline system to Montreal, increase this system's capacity, and deliver tar sands oil to Montreal.[3] It expects to deliver oil to Montreal through these pipelines in 2014.[4]

Enbridge describes "Phase 2" of its current project as "access markets in Montreal *and beyond*."[5] The PMPL is the only pipeline that could move tar sands oil from Montreal to large tankers for shipment to refineries capable of processing this form of oil. While Enbridge has been guarded in its public statements that connect its present pipeline reversals to tar sands oil, its November 29, 2012 application confirmed that "heavy crude oil is expected to be transported" on the line.[6] "Heavy crude" from Alberta is an industry euphemism for tar sands oil because, compared to conventional crude oil, tar sands oil is denser, heavier, and more viscous.[7]

Due to its weight and density, tar sands oil must be transported at significantly greater pressure than conventional crude oil, which generates greater heat in the pipelines. This leads to higher rates of pipeline corrosion and potential failure.[8] Tar sands oil also has significantly greater greenhouse gas impacts than conventional crude oil.

Because of these characteristics, converting the PMPL to transport tar sands oil poses significant potential impacts to water and air quality, wildlife, natural areas, public investments and scenic beauty. Many of these impacts are illustrated by the catastrophic leak of tar sands oil from an Enbridge pipeline into the Kalamazoo River in 2010, the most damaging and expensive onshore oil spill in U.S. history. Despite spending over $800 million to remediate this release of tar sands oil, the river and its wildlife remain contaminated.[9]

The transportation of tar sands oil rather than conventional crude oil is a substantial change to the PMPL with increased potential impacts that require an Act 250 permit prior to the pipeline conversion.

FACTS

TRANSPORTATION OF TAR SANDS OIL THROUGH THE PMPL POSES SIGNIFICANT POTENTIAL IMPACTS TO THE NORTHEAST KINGDOM

A. <u>The Production of Tar Sands Oil is Increasing Rapidly, and the Pipeline Companies Intend to Ship This Tar Sands Oil East to Montreal and Beyond.</u>

Alberta contains the world's third largest oil reserves, totaling 170.8 billion barrels.[10] Crude bitumen, which is mixed with a diluent to form heavy tar sands oil, comprises 169.3 billion barrels, or over 99% of these reserves.[11]

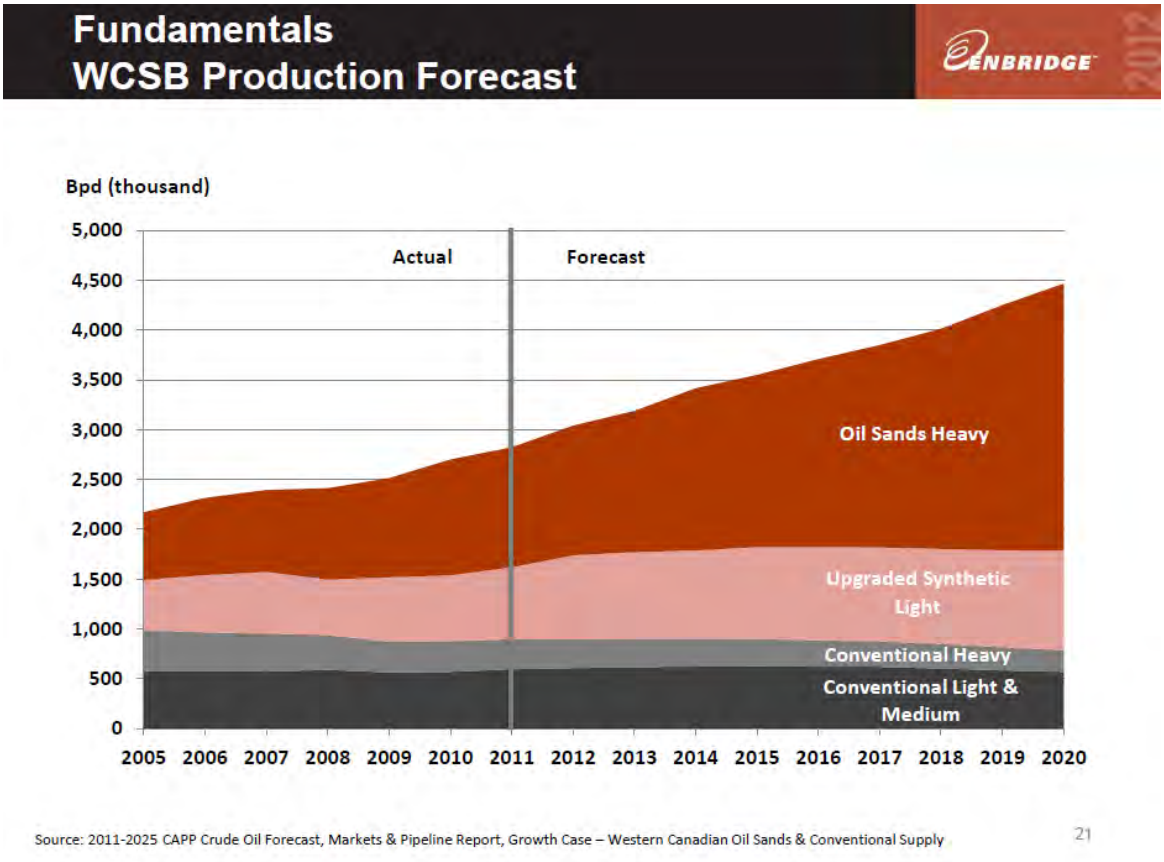
Because tar sands oil cannot be pumped from the ground in its natural state, tar sands deposits are mined or extracted using underground heating. With shallow reserves of tar sands deposits, open pit mining techniques are used. With deeper reserves, in-situ production methods are used, such as steam injection, solvent injection, and firefloods. Some of these methods require large amounts of water and energy for heating and pumping.[12]

After mining, the tar sands are transported to an extraction plant, where a hot water process separates the bitumen from sand, water, and minerals. The extraction and processing

require several barrels of water for each barrel of oil produced. Each barrel of oil requires two tons of tar sands for production.[13]

In 2011, Alberta produced 637 million barrels of tar sands oil, which amounts to 1.7 million barrels per day.[14] According to the Canadian government, tar sands oil production is expected to increase to 3 million barrels per day in 2018 (about 1.1 billion barrels per year),[15] and to 3.7 million barrels of tar sands oil per day by 2021 (about 1.35 billion barrels per year).[16]

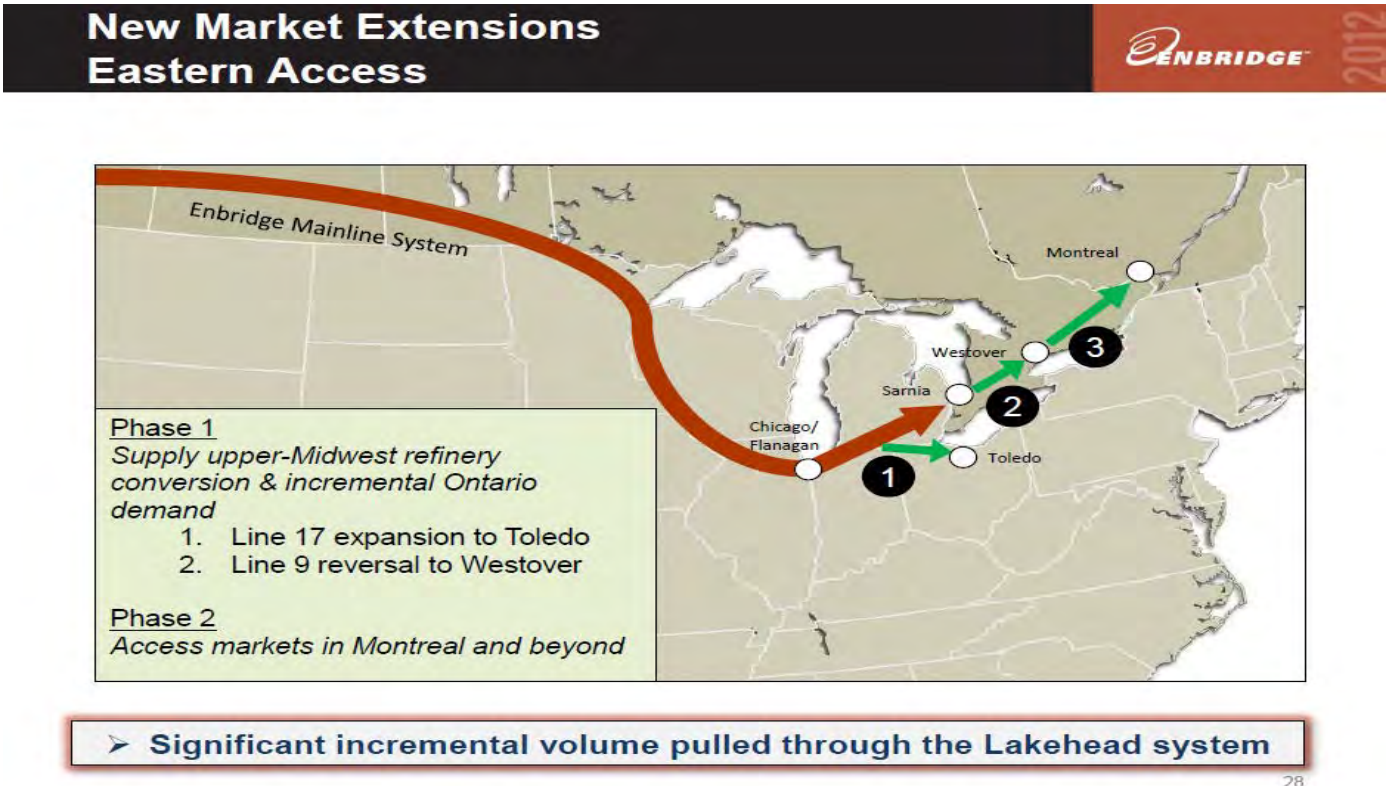
Dramatic increases in the production of tar sands oil are reflected in the chart below, taken from a recent presentation Enbridge made to its investors:[17]



All of this increased production of tar sands oil must go somewhere for processing. The production of synthetic crude, which is derived from "upgrading" bitumen from tar sands and

depicted in the chart above as "upgraded synthetic light," will remain relatively flat since little or no additional upgrading capacity is expected to be built in Canada.[18] As noted by the Canadian Association of Petroleum Producers (CAPP), "[t]ight pipeline capacity as a result of these growing supplies has been one of the major reasons for the discounted prices received by Canadian . . . crude oil producers . . . ."[19] Thus, Enbridge and TransCanada are pursuing pipeline expansion strategies to transport the increasing volumes of tar sands oil, mainly in the form of unrefined diluted bitumen, or "oil sands heavy."[20]

In its recent presentation to investors, Enbridge made clear that it intends for much of this tar sands oil to go east, to Montreal "and beyond."[21]



Montreal has but a single operating refinery.[22] Therefore, in Phase 2 of Enbridge's plan, the tar sands oil must get "beyond" Montreal to the East Coast, where it can be loaded onto tankers. The only pipeline from Montreal to the East Coast is the PMPL.[23]

B. The 2008 Trailbreaker Project Would Have Transported Tar Sands Oil Through the PMPL.

In 2008, Enbridge and the PPL Company proposed the Trailbreaker Project to ship tar sands oil east to Montreal and then to Portland through the 60-year old PMPL. The key features of the Trailbreaker Project were: (1) reversing the flow of Enbridge's pipeline system to the east, from Sarnia, Ontario to Montreal, and (2) reversing the flow of the 18-inch PMPL to the southeast, from Montreal to Portland.[24]

The 2008 Trailbreaker Project encapsulated what Enbridge currently is describing as "Phase 1" and "Phase 2" to get tar sands oil to Montreal and beyond. Further evidence that the Trailbreaker Project included the transportation of tar sands oil comes from (1) the PPL Company's identification of the source of the oil, (2) Enbridge statements to its investors, (3) the

modifications the PPL Company sought to its Portland terminal, which were needed only if tar sands oil was transported, and (4) an upgrade the PPL Company sought to a Canadian pumping station that, again, was needed only if tar sands oil was coming through the Trailbreaker pipelines.

In a 2008 meeting with the District Coordinator, the PPL Company identified the source of the substance to be transported as "AB oil sands," i.e., Alberta oil sands, which are transported as diluted bitumen or the more refined synthetic crude.[25] However, in its letter seeking a jurisdictional opinion, the PPL Company referred only to transportation of "crude oil,"[26] even though tar sands oil and conventional crude oil differ in many key ways.

In a July 2008 earnings call, Enbridge's Executive Vice President of Liquids Pipelines stated that the purpose of the Trailbreaker Project was to move both heavy and synthetic oil.[27] The transport of tar sands oil was further confirmed by the permit that the PPL Company sought and received for its loading facility in Portland for the reversed flow through the PMPL. This permit included the loading of Cold Lake Crude, the same blend of tar sands oil that spilled into the Kalamazoo River, and synthetic crude.[28] Consistent with this application, the Maine Department of Environmental Protection studied the emission rates of Cold Lake Crude and synthetic crude, and found that the short-term emissions from the heavier tar sands oil were higher. Accordingly, the permit specified a Vapor Control System to process these increased emissions from the tar sands oil in compliance with Maine's regulations.[29]

Finally, as part of the Trailbreaker Project, the PPL Company sought approval for a new pumping station on the Vermont-Quebec border. It chose this spot because "[c]ompany engineers had determined that station infrastructure would have to be situated at that spot to

boost the *heavy crude* over the Sutton Mountains on its journey from Montreal to South Portland."[30]

C. The Key Components of the Trailbreaker Project are Being Implemented.

The Trailbreaker Project did not proceed in 2008. However, in 2011, Enbridge reinitiated the first of Trailbreaker's two critical components: it began the process of reversing the flow of its pipeline system east from Sarnia to Montreal.[31] Enbridge refers to this first key component of the Trailbreaker Project as "Phase 1" of their current plans. "Phase 2" is "access markets in Montreal and beyond."[32]

On October 11, 2012, Enbridge filed a pre-application letter with the Canadian National Energy Board (NEB) to reverse its system fully to Montreal. Enbridge stated that, while it "expected" that the flow in these pipelines would be predominately light crude, it would "have the option to nominate and ship *heavy crude oil* to Montreal."[33]

On November 29, 2012, Enbridge filed its application to fully reverse and expand its Sarnia to Montreal pipeline system.[34] In addition to reversing the flow of its pipelines to Montreal, Enbridge also is seeking to increase the flow of this system from 240,000 barrels per day to 300,000 barrels per day.[35] The application confirmed that Enbridge intends to ship tar sands oil to Montreal: (1) it sought approval for a revised tariff to allow for transportation of tar sands oil, (2) it stated that "heavy crude" is "expected to be transported on Line 9," and (3) it asserted that the pipeline will be able to transport tar sands oil safely.[36]

Because tar sands oil is different from conventional crude, refineries must have special equipment such as cokers and hydrocrackers to process it. These are major, expensive refinery modifications, which refineries undertake only if they anticipate a steady supply of heavy crude like tar sands oil. Suncor's refinery in Montreal is configured to process some heavy tar sands

oil, but it is not fully adapted for it.[37] The Irving Oil refinery in Saint John, New Brunswick is configured to process heavy tar sands oil, and at least one further East Coast refinery, in Delaware City, is spending $1 billion to modify its equipment to process tar sands oil, with completion expected by 2016.[38]

Neither of these two refineries, however, is connected to Montreal by pipeline. The most economically viable option for moving tar sands oil from Montreal to either refinery is via large ocean tankers from Portland fed by the PMPL.[39] TransCanada also has determined that this is a feasible option for shipping tar sands oil to China and other international markets.[40]

Finally, the PPL Company has indicated its willingness to convert the PMPL to transport tar sands oil from Montreal to Portland, as it proposed in 2008. In October 2011, two months after Enbridge initiated its current reversal project from Sarnia to Montreal, representatives of the PPL Company met with Maine Governor LePage and the Canadian Consul General to discuss "oil sands development."[41] At a panel discussion in Randolph, NH, in November, 2012, the President of the PPL Company, Larry Wilson, stated that "we are looking at every possible opportunity to use our assets," and that, while he believed that any reversal of the PMPL would transport light crude, he would not rule out transporting tar sands oil.[42] Furthermore, in December, 2012, the PPL Company once again publicly confirmed that it is keeping all options open and will "continue to seek all opportunities to maximize the use" of its resources.[43]

D. <u>TransCanada's Eastern Mainline Oil Pipeline Proposal Will Send Additional Tar Sands Oil to Montreal and Beyond.</u>

Like Enbridge, TransCanada is looking to open access to eastern markets for western Canadian tar sands oil. It has proposed the Eastern Mainline project, which is a combination of converting its existing natural gas pipeline and new construction along predominantly existing

right-of-ways, to transport tar sands oil from Alberta to Montreal.[44] TransCanada estimates that the Eastern Mainline capacity could reach one million barrels per day.[45]

Like Enbridge, TransCanada asserts that the Eastern Mainline initially will feed Eastern Canadian and U.S. eastern seaboard refineries, which are predominantly configured for light sweet crude oil.[46] However, TransCanada admits that "there's obviously the potential to take heavy crudes offshore or even potentially to see some capital investment in those eastern refineries to allow them to run the heavier Alberta [tar sands] crudes."[47]

Moreover, the Eastern Mainline project will result in a significant surplus of oil in Montreal given refinery capacities in Quebec and Enbridge's line reversal project. It is far easier for Enbridge or TransCanada to connect to the PMPL to reach tankers in Portland than to construct 220 km of pipeline necessary to link Montreal to tanker ports in Quebec City.[48]

Given the realities of the growing supply of tar sands oil and the multiple pipeline projects and expansion intended to get that oil to Montreal, a proposal to transport tar sands oil through the PMPL and the Northeast Kingdom in Vermont is inevitable.

E. Tar Sands Oil is Substantially Different from Conventional Crude Oil, with Significantly Greater Impacts and Potential Impacts.

Tar sands oil is a different substance, with much greater impacts and potential impacts than conventional crude oil. Tar sands oil is denser, heavier, more viscous, more toxic, and more corrosive. It requires greater pressure to transport, which creates high temperatures in the pipelines, and tar sands oil is more damaging and difficult to contain if it is released into the environment. Tar sands oil also causes significantly greater greenhouse gas emissions and climate impacts than conventional crude oil.

1. *Tar sands oil is sand impregnated with bitumen and diluted with other hydrocarbons.*

Tar sands oil is derived from sand that is impregnated with viscous, extra-heavy oil known as bitumen.[49] Bitumen is the valuable component of tar sands because it can be refined into liquid fuels.[50] Because it is so viscous and heavy, tar sands oil must be diluted with lighter hydrocarbons before it can be pumped through a pipeline, creating a substance known as diluted bitumen or "dilbit," also known as "heavy crude," "oil sands heavy," and "tar sands oil."[51]

2. *Tar sands oil is denser, heavier, more viscous, more toxic, more corrosive, and has a higher total acid number than conventional crude oil.*

Because of its composition, tar sands oil is substantially different than conventional crude oil. Compared to crude oil, tar sands oil is (1) significantly denser, (2) extremely heavy, (3) more viscous, (4) more toxic, with higher concentrations of heavy metals and sulfur, and (5) has a high Total Acid Number.

The following table summarizes key characteristics of tar sands oil compared to conventional crude oil (West Texas Intermediate):[52]

Characteristic	**Tar Sands Oil**	**Conventional Crude**
Density (gravity)	19-21 API	39.6 API
Acidity (total acid number)	0.8-4.3	0-0.3
Viscosity	201 Centistokes (cST)	5 cST
Sulfur Content	2.5%-4.5%	0.3%-0.5%
Heavy Metals	Vanadium, Nickel, Arsenic, others	Negligible

In comparison to conventional crude oil, tar sands oil is approximately twice as dense, 40 times more viscous, contains sulfur content 5-10 times higher, contains higher total acid concentrations, and contains higher concentrations of heavy metals.[53] Tar sands oil's

"combination of chemical corrosion and physical abrasion can dramatically increase the rate of pipeline deterioration."[54]

3. Tar sands oil is transported at greater pipeline pressure and heat.

Because of its density and viscosity, tar sands oil requires greater pressure to pump it through pipelines, which results in greater heat and friction. Again, the following table summarizes the pressure and heat needed to pump tar sands oil as compared to conventional crude:[55]

Characteristic	**Tar Sands Oil**	**Conventional Crude**
Pipeline Temperature	Up to 158º F	A few degrees above soil temperature
Pipeline Pressure	Up to 2160 psi	<800 psi on average

This pressure and heat increases the risk of pipeline failure and a corresponding need for pipeline maintenance. Sixty years ago, the PMPL was designed and built to carry conventional crude oil. This pipeline never has transported tar sands oil.

4. Tar sands oil is more damaging and difficult to clean when it leaks into the environment.

The density, viscosity, acidity, and toxicity of tar sands oil make it substantially more damaging and difficult to contain and clean up when it is released into the environment.

Conventional crude oil can be contained, skimmed, absorbed, or consumed because it typically floats on water.[56] Because tar sands oil is so much heavier, much of it sinks and sticks to the substrate.[57] Moreover, heavy oil exposed to sunlight forms an even stickier substance that is difficult to remove from rocks and sediment.[58] In addition, the various toxic substances in tar sands oil bioaccumulate in humans and wildlife, so their harmful impacts continue with time.[59]

The substantially greater impacts of tar sands oil on the environment are illustrated by the spill of more than one million gallons of tar sands oil from an Enbridge pipeline near the Kalamazoo River in Michigan in July 2010.[60] The heavy bitumen sank to the river bottom, coating wildlife, rocks and sediment.[61] At the time of the Kalamazoo spill, Enbridge's CEO denied that the pipeline was carrying tar sands oil.[62] As investigations began to reveal that the substance was indeed tar sands, the CEO finally admitted that the leak was tar sands oil.[63]

The cleanup of this tar sands spill is far from complete.[64] Cleanup costs are at $800 million and rising, making Kalamazoo by far the most expensive pipeline oil spill in U.S. history.[65] The Kalamazoo spill demonstrates that tar sands oil is unusually damaging and difficult to remediate if it leaks or spills into the environment.

5. *Tar sands oil is much more greenhouse gas intensive and results in more significant climate impacts than conventional crude oil.*

Utilizing tar sands oil results in much greater greenhouse gas emissions and climate impacts than conventional crude oil. There are two primary reasons for these increased climate impacts: (1) the heaviness and viscosity of tar sands oil requires more energy and resource-intensity for extraction, and (2) its chemical composition requires more refining to yield consumable fuels.[66]

Accordingly, the greenhouse gas emissions from tar sands oil are up to 111% greater than the average crude oil refined in the U.S., on a well-to-tank basis; and up to 20% greater on a well-to-wheel basis.[67]

The huge volumes of tar sands oil that are available, combined with its vastly greater greenhouse gas emissions and climate impacts, mean that exploitation of these tar sands en masse will be, in the words of one of America's most prominent climate scientists, "game over" for the climate.[68] If operated at full system capacity, i.e. both the 24-inch and 18-inch lines are

reversed, the PMPL could transport 219 million barrels per year of this greenhouse gas-intensive fuel source.[69]

F. Vermont's Northeast Kingdom is Pristine, Beautiful, and Dependent Upon its Abundant Natural Resources.

The Northeast Kingdom has attracted worldwide recognition for its beauty and pristine environment. Travel sites describe Vermont's Northeast Kingdom as "revered by residents and visitors alike for its lovely countryside, abundant natural resources and the preservation of traditional landscapes and lifestyles that have made the Vermont experience one to be cherished."[70]

Because of its unique environment, the National Geographic Society named the Northeast Kingdom the most desirable place to visit in the United States and the ninth-most desirable place to visit in the world.[71] No longer just for Vermonters, the Northeast Kingdom was listed in the *New York Times* bestseller *1,000 Places to See Before You Die*. "[W]hen fall's riotous palette of red, orange, yellow, and gold cloaks these hills, you might feel as if you've happened upon a very well-kept secret."[72]

The Northeast Kingdom features diverse wildlife, large undeveloped areas, and vast woodlands.[73] It contains over 200 lakes and ponds and numerous state parks, public lands, and wildlife management areas including the Victory State Forest, Victory Basin Wildlife Management Area, and Willoughby State Forest.[74] The Victory Basin WMA is described by the Watershed Management Division of the Vermont Department of Environmental Conservation as an "ecologically spectacular area."[75] It includes the Victory bog, which is "one of the best examples of a lowland bog in [Vermont], [and] also shrub swamp, sedge meadow, and stands of black spruce, which are home to a number of boreal bird species."[76]

Willoughby State Forest is home to rainbow trout, lake trout, brown trout, landlocked salmon, yellow perch, peregrine falcons, and many other species.[77] It also contains special wildlife habitats, including a deer wintering area that is critical to the winter survival of the white-tailed deer.[78] Twenty species of birds known to occur in Willoughby State Forest have been or are considered conservation priorities by the State of Vermont, the Partners in Flight Working Group, or both.[79]

Because almost every aspect of life in the Northeast Kingdom depends upon its natural resources, these resources "have intrinsic scenic and economic values that require careful consideration when making planning decisions."[80] For these reasons, the goals and strategies of the Northeast Kingdom Regional Plan emphasize the area's natural resources and tourism industry. The recreation goals state that "public access to water bodies should be protected," and "a variety of year-round and seasonal, indoor and outdoor recreation opportunities should be available for residents and visitors."[81] Further, the Plan's historic, cultural and scenic resource goals focus on preserving the rural traditions of the Northeast Kingdom. Finally, the Northeast Kingdom has a regional goal of "assist[ing] communities to preserve and maintain . . . rural and scenic landscapes."[82]

G. <u>The Requestors are Vermont Citizens and Organizations Who May Be Affected by the Transportation of Tar Sands Oil.</u>

The individuals and organizations submitting this request are Vermont citizens and groups who may be impacted by the transportation of tar sands oil through the PMPL. These requestors include:

Brent and Rona Kinsley are Vermont citizens whose farm in Orleans County is traversed by the PMPL.

Ron Holland and Laurie Green own two properties in Caledonia County, both of which are traversed by the PMPL.

Reed Olsen and Adam Favalaro co-own and operate Four Acre Farm LLC in Caledonia County. The pipeline passes through this land, which Olsen and Favalaro lease.

The National Wildlife Federation ("NWF") is the nation's largest conservation advocacy organization and education organization. Founded in 1936, NWF is a non-profit organization with its headquarters in Reston, Virginia and affiliate organizations in over 45 states and territories, including Vermont. NWF's mission is to inspire Americans to protect wildlife for our children's future. NWF and its approximately one million members, including around 4,500 in Vermont, are committed to protecting wildlife and wildlife habitat from the dangers of dirty fuels like tar sands, and in ensuring climate change impacts are mitigated by turning away from fossil fuels and towards clean, renewable energy sources.

The Vermont Natural Resources Council is Vermont's leading nonprofit environmental education and advocacy organization. For 50 years, with the support of and in service to over 5,000 members, VNRC has worked to promote policies and practices that serve as the foundation of the state's economy — clean, abundant fresh water, working farms and forests, wild, majestic places, thriving communities and a clean, green renewable energy future.

The Sierra Club Vermont is state chapter of one of the oldest and largest grassroots environmental organizations in the country, with 1.4 million members and supporters nation-wide. The Vermont Chapter is led by some of our most dedicated volunteers, with a base of 2,776 members state-wide. One of Sierra Club Vermont's primary goals is to help lead the transition to clean, sustainable fuels while reducing our greenhouse gas emissions. High-carbon fuels like tar sands are incompatible with the sustainable future we work toward.

Vermont Public Interest Research Group (VPIRG) is a non-profit public interest organization with over 20,000 members and supporters in Vermont, and a mission of promoting and protecting the health of Vermont's people, environment, and locally-based economy. For nearly forty years, VPIRG has worked on issues related to protecting Vermont consumers and promoting renewable energy sources, both of which have been among the organization's highest priorities since our founding in 1972. The interests which VPIRG seeks to address include all the potential impacts upon the people of Vermont and VPIRG's members that arise from the reversal of the Portland-Montreal Pipe Line for the purpose of transporting tar sands oil. Specifically, we have a particular interest in preventing the potentially disastrous climate consequences of exploiting tar sands oil, as well as in the numerous environmental and public health risks associated with piping highly corrosive material through a sixty-two year old pipeline running through some of Vermont's most environmentally sensitive areas.

350Vermont is an independent state-based organization supporting the global mission of 350.org. 350.org is building a global grassroots movement to solve the climate crisis. 350Vermont mobilizes a local movement aimed at achieving bold solutions that lift up Vermonters and reduce local carbon emissions.

The Conservation Law Foundation (CLF) is a non-profit, member-driven environmental advocacy organization dedicated to protecting the people, environment, and communities of New England. CLF has, as part of its long standing clean water program, worked to protect the water resources of New England from pollution. As part of its long standing, sustainable, clean energy programs, CLF has advocated for reducing air and water pollution and greenhouse gas emissions from our power supplies. CLF has thousands of members across the Northeast, including members in the Northeast Kingdom region of Vermont, who are users of the natural resources

directly affected by the use of the Portland-Montreal Pipe Line for transportation of tar sands oil. CLF has actively participated in Act 250 proceedings to protect Vermont's resources and has been involved in legal, regulatory, and legislative processes regarding fossil fuel use and transportation for more than a decade.

Natural Resources Defense Council (NRDC) is a national nonprofit environmental organization with more than 1.3 million members and online activists, including more than 28,000 members and online activists in Vermont, New Hampshire and Maine – the states the PMPL traverses. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. Fighting climate change is a critical component of NRDC's work.

ARGUMENT

CONVERTING THE PMPL TO TRANSPORT TAR SANDS OIL IS A SUBSTANTIAL CHANGE THAT REQUIRES AN ACT 250 PERMIT.

Act 250 requires a permit for any "substantial change" in a pre-existing development such as the PMPL.[83] The Natural Resources Board (NRB) defines "substantial change" as "*any* change . . . which *may* result in a significant impact with respect to any of the criteria specified in 10 V.S.A. Section 6086(a)(1) through (a)(10)."[84] The Vermont Supreme Court has affirmed that any change in use that carries a potential significant impact requires an Act 250 permit.[85] While this determination is fact-bound, it "does not require an in-depth review of possible impacts, but simply a determination that significant impacts *may occur*."[86]

The NRB and the courts have refined this definition of "substantial change" into a two-part test: (1) whether there is a cognizable change to the preexisting development, and (2) whether this change has the potential for significant impact under one or more of the ten Act 250

criteria.[87] Conversion of the PMPL from a conventional crude oil pipeline to a tar sands oil pipeline meets these tests and requires a permit under Act 250.

A. Transportation of Tar Sands Oil is a Cognizable Change from Past Transportation of Conventional Crude Oil.

A "cognizable" change is any physical change.[88] Past cases indicate that minimal changes are cognizable. For example, the installation of antennas that would be visible only through openings in a church's existing bell towers was found to be a cognizable change even though it carried no potentially significant impacts.[89]

Conversion of the PMPL to a tar sands oil pipeline easily meets the "cognizable" change standard because there will be a physical change in the substance being transported through the pipeline and a physical change in the pipeline's operating parameters of pressure and temperature. In addition, the PPL Company identified several construction projects necessary for converting the PMPL to a tar sands oil pipeline in its 2008 Jurisdictional Opinion request. The work included purging the pipeline, replacing various pipeline valves, reconfiguring pump station valves and piping connections, and replacing certain pipeline segments that had previously been reinforced to manage pipeline integrity.[90]

Transportation of tar sands oil also is a cognizable change in use from the past transportation of conventional crude oil because tar sands oil is a significantly different substance that subjects pipelines to higher temperatures, pressures and corrosion, with greater potential impacts than conventional crude oil. Available evidence suggests that tar sands oil pipelines leak more than conventional crude oil pipelines: "[b]etween 2007 and 2010, pipelines transporting diluted bitumen tar sands oil in the northern Midwest spilled three times more oil per mile than the national average for conventional crude oil."[91]

B. Transportation of Tar Sands Oil is a Substantial Change because it has the Potential for Significant Impacts Under Multiple Act 250 Criteria.

The transportation of tar sands oil through the PMPL carries potentially significant impacts to multiple Act 250 criteria that are relevant to siting and other land use considerations. In particular, transportation of tar sands oil may impact scenic and natural beauty, natural areas, and wildlife habitat (Criterion 8); public investments (Criterion 9K); local and regional plans (Criterion 10), and water and air quality (Criterion 1).[92]

Due to its heaviness and other chemical characteristics, tar sands oil sinks and coats rocks and other substrates, rendering it extremely difficult to clean or remediate. Due to its acidity and toxicity, tar sands oil releases have potentially catastrophic implications for water resources and aquatic life. There were significant impacts on wildlife as a result of the Kalamazoo spill, where approximately 4,000 animals were impacted by the spill and required care before being released back into the environment.[93] For all of these reasons, a release of tar sands oil is terribly expensive – the Kalamazoo spill already is the most expensive onshore spill in U.S. history, and the cleanup costs are at $800 million and rising.[94] This does not include the costs associated with damages to natural resources.

In addition, the transportation of tar sands oil results in a much hotter pipeline, which raises a host of potential thermal impacts that require careful study and consideration. Pumping tar sands oil results in pipeline temperatures in the range of 130-160 degrees Fahrenheit.[95] Because the PMPL runs through sensitive habitats that remain frozen for much of the year, these high temperatures could carry negative impacts to microclimates, streams, soils, and associated plant and animal life.

A significantly hotter pipeline can also substantially increases the rate of corrosion.[96] By transporting tar sands oil, there is a "greater potential for failure from: 1) increased temperature

increasing corrosion rates, and/or 2) additional pressure cycling from changes in crude oil type."[97] Further, "corrosion rates, especially selective corrosion rates can increase substantially, affecting cycling induced threat evaluation, if operating temperatures increase from past operations because of crude changes."[98]

An increase in the rate of corrosion on a 60-year old pipeline significantly increases the risk of pipeline failure. Consequently, large segments of pipeline will likely need excavation and replacement, which has the potential for significant impacts related to Act 250. These include:

- Reduction in soil quality due to topsoil and subsoil mixing with removal of topsoil during construction;
- Contamination of soils through fuel spills, etc.;
- Construction dewatering may introduce deleterious substances to watercourse and reduce groundwater levels;
- Contamination, silt and sediment transfer into the adjacent watercourse may affect fish habitat;
- Potential for silt and sediment to enter wetlands as a result of excavations;
- Dewatering within a wetland may reduce water levels within the wetland and thereby impacting aquatic and terrestrial habitat;
- Sensory disturbance (i.e., noise) to wildlife;
- Potential of wildlife mortality to occur as a result of the use of heavy equipment for moving materials on and off the Project site;
- Increased air contaminants and greenhouse gases from construction vehicles; and
- Increased fugitive dust emissions as a result of excavation activities occurring during the construction and decommissioning phases of the project.[99]

1. *Transportation of tar sands oil via pipeline through the Northeast Kingdom may have an undue adverse effect on rare and irreplaceable natural areas (Criterion 8).*

To grant a permit, the proposed activity must not have an "undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas."[100] A "natural area" is one that (1) contains an identifiable type of ecological community where (2) natural conditions predominate over human influences.[101] Examples of rare areas include community types that occur infrequently in Vermont and usually occur further south; areas that host rare plants; and areas that present a valuable educational and scientific resource.[102]

A "natural area" need not be specifically listed as an officially designated natural area in Vermont to be considered a natural area under this criterion; rather a "natural area" may be defined as an area in which natural conditions predominate over human influences.[103] The environmental board has found that bogs and wetlands qualify as "rare or irreplaceable natural areas."[104]

The PMPL traverses three state-managed areas that are "natural areas:" the Victory Basin WMA, the Victory State Forest and the Willoughby State Forest. One mile of the PMPL runs through the Willoughby State Forest in an area deemed critical for wintering white-tail deer.[105] The PMPL runs through approximately 6 miles of the Victory State Forest and Victory Basin WMA. The Victory Basin WMA is home to a 20-acre ecological community classified as a "boreal bog."[106] Similarly, stands of red spruce and balsam fir provide "critical wintering habitat" for white-tailed deer.[107] The WMA also has "valuable wetland habitat for a variety of wildlife including muskrat, mink, otter and raccoon."[108] As noted above, state environmental officials consider the Victory WMA to be an "ecologically spectacular area."[109]

The Willoughby State Forest is similarly home to several ecological communities including forested wetlands, northern hardwood forests, red spruce-hardwood forests, shrub and herbaceous wetlands, and lowland spruce-fir forests.[110] Willoughby State Forest is also home to special wildlife habitats including white-tailed deer wintering areas and beaver influenced ecosystems, wildlife movement corridors, and key mast areas.[111] Natural conditions overwhelmingly predominate human influences on these state-managed forests and wildlife management area. Indeed, they offer exceptional recreational experiences for that very reason.

These rare and irreplaceable natural areas are also valuable scientific and educational resources. For example, a professor at Norwich University has studied the ecology of the Canada Jay at the Victory Basin WMA for the past two decades.[112] The Willoughby State Forest also provides edge-of-range habitat to species that range into Vermont but not beyond.[113] Of these, the great-crested flycatcher bird is at the northern extent of its range.[114] While there are other rare and irreplaceable natural areas potentially impacted by the PMPL, these three suffice to trigger Act 250 jurisdiction.

2. *Transportation of tar sands oil through the Northeast Kingdom, including Victory Basin WMA, Victory State Forest and Willoughby State Forest, may destroy or significantly imperil necessary wildlife habitat (Criterion 8).*

"Necessary wildlife habitat" means "concentrated habitat which is identifiable and is demonstrated as being decisive to the survival of a species of wildlife at any period in its life including breeding and migratory periods."[115] The habitat need only be critical to the survival of a portion of the population which is dependent on the identified habitat.[116] In considering the public loss, the loss of deer habitat undermines the "opportunity for the public to hunt and to observe deer," and undermines the "intangible benefit of knowing that the deer exist."[117]

Each of the three areas discussed above are home to "necessary wildlife habitat," such as wintering habitat for white-tailed deer. "Winter survival of deer depends upon these special habitats to provide both cover for thermoregulation and access to food resources for increased energy demands."[118] Other populations that exist within these areas are dependent on wetland habitat including muskrat, raccoon, otter, mink and beavers.[119] Beaver ponds within the Victory Basin WMA also provide several bird species with habitat for nesting, feeding, or both.[120] These species include great blue heron and bitterns, wood, black and mallard ducks, and hooded and common mergansers.[121] These populations are at risk of losing this habitat in the event of a tar sands oil spill, pipeline construction activities, or both. In addition, the remedial actions taken to remove the tar sands oil, including submerged oil, may also damage critical wildlife habitat. As a result of the Kalamazoo spill, Enbridge attempted to remediate submerged oil through dredging, excavation, and aeration.[122]

3. Transportation of tar sands oil through the Northeast Kingdom may significantly impact Vermont's public investments in state lands (Criterion 9K).

Act 250 Criterion 9K provides that a development must not "unnecessarily or unreasonably endanger the public or quasi-public investment in the facility, service, or lands, or materially jeopardize or interfere with the function, efficiency, or safety of, or the public's use or enjoyment of or access to the facility, service, or lands."[123] The purpose of Criterion 9K includes promoting recreational interests and protecting the scenic and natural qualities of public lands.[124]

Criterion 9K applies to developments that are "adjacent to governmental and public utility facilities, services, and lands, including, but not limited to . . . parks, hiking trails and forest and game lands . . . ."[125] Here, as discussed above, the PMPL runs next to and through several state-owned lands that represent substantial public investments. The State of Vermont purchased the Victory Basin WMA in 1969 to preserve its "large deer wintering area and unique

wetland complex."[126] Since 2008, the Victory Basin WMA has also been part of Vermont's efforts to restore the population of the spruce grouse, which was placed on Vermont's endangered species list in 1988.[127] Between 2008 and 2010, the Vermont Fish and Wildlife Department (VFWD) introduced 134 spruce grouse to the Victory Basin WMA for species recovery.[128] In 2012, VFWD finalized its recovery plan for the spruce grouse with the Victory Basin WMA playing a critical role.[129] VFWD is seeking to establish a sub-population of spruce grouse there to "reduce the likelihood of a serious impact to the overall population" from "a catastrophic weather, fire, insect or disease event."[130] The VFWD selected the Victory Basin WMA because of its:

> abundance of suitable habitat and large acreage of State ownership. The VFWD and [Vermont Department of Forests, Parks and Recreation] manage softwood stands on their lands in Victory Basin to provide contiguous functional winter shelter for white-tailed deer, including a distribution of vegetative age classes that will ensure replacement shelter for overmature stands. This management plan dovetails well with habitat needs of spruce grouse.[131]

Similarly, the State of Vermont has invested considerably in the Willoughby State Forest, which the PMPL runs both adjacent and through. The Willoughby State Forest is home to lands classified by the Vermont Agency of Natural Resources as "highly sensitive" and "unique and special," among others. "Highly Sensitive Areas" have "uncommon or outstanding biological, ecological, geological, scenic, cultural, or historic significance where those values are preserved and protected. Human activities and uses should be minimal and regulated to protect the exceptional features on the landscape."[132] "Unique and Special Areas" have "unique or special resources where management objectives consider protection and/or enhancement of those resources."[133] Although these areas do not require the same level of protection as highly sensitive areas, "activities should be compatible with and [] not detract from the primary objective of protection and/or enhancement of the unique or special resources."[134] The PMPL

runs through or adjacent to both Highly Sensitive and Unique and Special Areas within the Willoughby State Forest.

The Northeastern Vermont Development Association Regional Plan, adopted in 2000, and several town plans recognize the environment and the Northeast Kingdom's rural character are "critical to creating a healthy economy for the Northeast Kingdom."[135] This includes contributions to the economy from recreation and tourism.[136] Indeed, one town's plan recognizes the Willoughby State Forest as a "crown jewel" among state-owned lands.[137] Vermont has placed at the top of its priority for stewardship of Willoughby State Forest recreational use and natural resource protection.[138]

Converting the PMPL from a conventional light crude oil pipeline to a tar sands oil pipeline potentially endangers Vermont's investment in the Victory Basin WMA and the recovery plan for the endangered spruce grouse as well as Vermont's investment in the Willoughby State Forest.

4. Transportation of tar sands oil through the Northeast Kingdom will not conform with the local town and/or regional plans (Criterion 10).

To grant a permit, a commission must find that the development "is in conformance with any duly adopted local or regional plan…under chapter 117 of Title 24. In making this finding, if the district commission finds applicable provisions of the town plan to be ambiguous, the district commission, for interpretative purposes, shall consider bylaws, but only to the extent that they implement and are consistent with those provisions, and need not consider any other evidence."[139]

The transportation of tar sands oil fails to conform to the Northeast Kingdom's Regional Plan. This Plan highlights the Kingdom's scenic and recreational resources, and its goals and strategies focus on tourism, responsible development, environmental awareness, and

maintenance of its intrinsic beauty. The Plan is not ambiguous and recognizes that preserving scenic resources brings economic benefits through increased property values and tourism.[140] Specifically, one of the goals outlined in the Plan calls for the preservation of the Northeast Kingdom's scenic resources.[141] Tar sands oil poses substantial risks to all of these values and is inconsistent with the Plan's vision for the Northeast Kingdom.

5. *Transportation of tar sands oil through the Northeast Kingdom may result in undue water or air pollution (Criterion 1).*

Before granting a permit, a commission must find that the proposed activity: "Will not result in undue water or air pollution. In making this determination it shall at least consider: the elevation of land above sea level; and in relation to the flood plains, the nature of soils and subsoils and their ability to adequately support waste disposal; the slope of the land and its effect on effluents; the availability of streams for disposal of effluents; and the applicable health and environmental conservation department regulations."[142] A permit will not be granted if the commission finds that the proposed activity will violate the rules of the board relating to significant wetlands.[143] Even if a wetland is not deemed "significant," it may still have value under this criterion.

The Northeast Kingdom emphasizes its pristine streams, lakes, and wetlands. The PMPL traverses approximately 40 miles of the Northeast Kingdom, and crosses the Connecticut River, the Missiquoi River, Crystal Lake tributaries, and multiple other streams, lakes, and wetlands, including those within the Victory Basin WMA, the Victory State Forest and Willoughby WMA. The transportation of tar sands oil would carry potential impacts to all of these water resources in the event of a spill or construction activities.

Transportation of tar sands oil poses significant risks to air quality and air pollution, both through releases and through its vastly more significant greenhouse gas emissions and climate

impacts. If a release occurs, the lighter, volatile components of tar sands oil are uniquely toxic, and the Kalamazoo spill caused significant air pollution issues.[144]

Even if no spills occur, the production and use of tar sands oil results in far higher greenhouse gas emissions than conventional crude oil. Given the enormity of the tar sands reserves and their unusually severe climate impacts, continued development of the tar sands would be catastrophic for our planet, including the Northeast Kingdom.[145]

C. Precedent Supports the Assertion of Act 250 Jurisdiction Over the Transport of Tar Sands Oil.

In *Spaulding's Fuels,* the former Environmental Board issued declaratory ruling that the installation of underground fuel storage tanks was a "substantial change" to a pre-existing development due to the potential significant impacts on Act 250 criteria.[146] In reaching this conclusion, the Environmental Board relied on (1) information on storage tank leaks, and (2) that petroleum products once spilled into the environment are "extremely difficult to recover."[147] Therefore, the fuel tanks raised potential Criterion 1 impacts and the project required an Act 250 permit.[148]

Both of these factors are present in the conversion of the PMPL to tar sands oil. Because tar sands oil pipelines are more likely to leak and are more difficult to clean up than conventional crude oil, converting the PMPL to a tar sands oil pipeline is a substantial change that has the potential for significant impacts on several Act 250 criteria.

In *Village of Ludlow,* the Village proposed changes to its sewage plant that were similar to the changes needed to reverse the flow of the PMPL: the replacement of pumps, addition of tanks, replacement of parts controlling pumping, and addition of oxidation ditches, all on the plant's existing 2.8-acre site.[149] The Board found that these modifications were a substantial

change because they resulted in potential significant impacts under several Act 250 criteria, including water and air quality, aesthetics, additional traffic and noise, and increased growth.[150]

Likewise in *Tudhope Sailing Center*, the Board held that adding a diesel-powered ferry service to a sailboat-only marina was a substantial change with potential impacts under multiple Act 250 criteria, including air pollution and aesthetics.[151] Like the change to transportation of tar sands oil, the change in the use of the marina to include a different type of boat that would cause new or different impacts required a permit under Act 250.

CONCLUSION

The 2008 Trailbreaker project to transport tars sands oil through the PMPL, the large increases in production of tar sands oil, and the ongoing implementation of plans to reverse existing pipelines to transport tar sands oil to Montreal and beyond make transport of tar sands oil through the PMPL overwhelmingly likely. Any conversion of the PMPL to transport tar sands oil would raise significant potential impacts under multiple Act 250 criteria and would require a permit as a substantial change to a pre-existing development. The District 7 Coordinator should issue an opinion asserting Act 250 jurisdiction over any such proposal.

Respectfully submitted this 29th day of January, 2013.

BY: Douglas A. Ruley

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[1] The ultimate corporate parents for the PMPL are Exxon Mobil Corporation and Suncor Energy Inc., both of which are invested substantially in tar sands oil production. *See* ExxonMobil, *SEC Annual Report,Form 10-K: Exxon Mobil Corporation* 12 (Feb. 24, 2012) *available at* http://www.sec.gov/Archives /edgar/data /34088/000119312512078102/ d257530d10k.htm (last visited Jan. 24, 2013) (demonstrating that ExxonMobil holds a 69.6% interest in Imperial Oil Ltd., which controls 76% of Montreal Pipe Line Ltd.). The Portland Montreal Pipe Line (PMPL) is directly owned by the Portland Pipe Line Corporation (PPLC) in the U.S. and Montreal Pipe Line Limited (MPLL) in Canada. *Portland-Montreal Pipeline,* About Us (2006), http://www.pmpl.com/about.php (last visited Jan. 24, 2013). The PPLC is a wholly-owned subsidiary of MPLL, and MPLL is owned by McColl-Frontenac Petroleum Inc. of Toronto, Imperial Oil Limited of Toronto, and Suncor Energy Inc. of Calgary. McColl-Frontenac is a wholly-owned subsidiary of Imperial Oil. *SEC Annual Report,Form 10-K:Imperial Oil Ltd.* 29 (Feb. 25, 2011) *available at http://www.imperialoil.ca/Canada-English/Files/2010_10k.pdf* (last visited Jan. 28, 2013). Exxon Mobil has a 69.6% interest in Imperial Oil. Suncor has a 23.8% ownership interest in the PMPL. This leaves Imperial with a 76.2% share in the company and means that the PMPL is 53.26% held by Exxon Mobil. Put simply, 76.2% of the PMPL is owned by Exxon Mobil and its Canadian subsidiary, Imperial Oil. Suncor, *SEC Annual Report, Form 40-F: Suncor Energy, Inc.* 22 (March 1, 2012) (discussion PMPL ownership interest), *available at* http://www.sec.gov/Archives/edgar/data/3113 37/000104746912001967 /a2207617z40-f.htm (last visited Jan. 24, 2013).

[2] *Jurisdictional Opinion #7-265*, Natural Resources Board (Sept. 4, 2008), *available at* http://www.nrb.state.vt.us/lup/jo/2008/jo7-265.pdf (last visited Jan. 24, 2013).

[3] Enbridge, Inc, *Line 9B Reversal and Line 9 Capacity Expansion Project, Application to the Canadian National Energy Board* [hereinafter *Line 9B Reversal Application*] (Nov. 29, 2012), *available at* https://www.neb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/ 92263/790736/890819/890501/A3D7I1_-_Line_9B_Reversal_and_Line_9_Capacity_ Expansion_Project_Application.pdf?nodeid=890345&vernum=0 (last visited Jan. 23, 2013).

[4] *Id*. at 23.

[5] Enbridge Energy Partners L.P., *New Market Extensions Eastern Access,* EEP Day 2012, 28 [hereinafter EEP Day Presentation] (March 7, 2012), http://www.enbridgepartners.com /WorkArea/downloadasset/15545/2012-03-EEP-Day-Presentation-Combined.aspx. (distinguishing its Line 9 reversal application to the Canadian National Energy Board, which described "Phase 1" as the reversal of the Line 9 pipeline between Sarnia, Ontario and North Westover, Ontario and "Phase 2" as the reversal between Westover and Montreal).

[6] *Line 9B Reversal Application*, *supra* note 3, at 50.

[7] Although Canada produces some conventional heavy crude oil, the quantities are less than 20% of total heavy crude oil produced in Canada; the rest (more than 80%) of Canadian heavy oil is tar sands oil. EEP Day Presentation, *supra* note 5. Further, CAPP forecasts that conventional heavy crude supplies will diminish over time while tar sands oil will grow

significantly. *Id*.; *see also* Canadian Association of Petroleum Producers, *Crude Oil Forecast, Markets & Pipelines* 8 (Jun. 2012), *available at* http://www.CAPP.ca/getdoc.aspx?DocId =209546&DT=NTV (last visited Jan. 23, 2013).

[8] Letter from Richard Kuprewicz, Accufacts Inc., to Steven Guilbeaut, Equitterre 9 (Apr. 23, 2012), *available at* https://www.neb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/92263/706191/706437/770258/791368/810944/C-4-4D_-_Accufacts_Report_-_A2S4Z0_.pdf?nodeid=810954&vernum=0 (last visited Jan. 20, 2013).

[9] National Transportation Safety Board, *Pipeline Rupture and Oil Spill Accident Caused by Organizational Failures and Weak Regulations* (Jul. 10, 2012), *available at* http://www.NTSB.gov/news/2012/120710.html.

[10] Alberta Energy, *Facts and Statistics*, http://www.energy.gov.ab.ca/OilSands/791.asp (last visited on Jan. 23, 2013).

[11] *Id.*

[12] Energy Resources Conservation Board, *Production & Reserves, Energy Resources Conservation Board, available at* http://www.ercb.ca/learn-about-energy/energy-in-alberta/production-reserves (last visited Jan 23, 2013).

[13] *Id.*

[14] Energy Resources Conservation Board, *supra* note 12.

[15] Alberta Energy, *Oil Sands, available at* http://www.energy.gov.ab.ca/OurBusiness/oilsands.asp (last visited Jan 23, 2013).

[16] Energy Resources Conservation Boar, *supra* note 12.

[17] EEP Day Presentation, *supra* note 5, at 21.

[18] Canadian Ass'n of Petroleum Producers, *supra* note 7, at 9 (stating that tar sands oil is sometimes diluted with synthetic crude to create a product known as SynBit to reduce viscosity).

[19] *Id*. at 22.

[20] Due to its weight and density, tar sands oil also is called "heavy crude oil" or, as in the chart above, "oil sands heavy." Because much tar sands oil comes specifically from the Cold Lake region in Alberta, tar sands oil also is known as "Cold Lake Crude."

[21] EEP Day Presentation, *supra* note 7. TransCanada, the proponent of the Keystone XL pipeline, also intends to ship tar sands oil to Montreal. *TransCanada Management Discusses Q3 2012 Results – Earnings Call Transcript*, Seeking Alpha (October 30, 2012), http://seekingalpha.

com/article/962871-transcanada-management-discusses-q3-2012-results-earnings-call-transcript?page=8&p=qanda&l=last.

[22] *Shell confirms closure of Montreal refinery*, CBC News (June 4, 2010), *available at* http://www.cbc.ca/news/canada/montreal/story/2010/06/04/mtl-shell-closes-montreal-refinery.html.

[23] *See* Chris Gillies, *Portland Pipe Line Corporation & Montreal Pipe Line Limited Crude Oil Quality Group Presentation* 4 (Jun. 18, 2009), *available at* http://www.coqa-inc.org/061809 Gilles.pdf.

[24] Enbridge, Inc., *Trailbreaker*, *available at* http://web.archive.org/web/20100407093815 /http://www.enbridge.com/usgulfcoast/trailbreaker/ (last visited Jan. 23, 2013).

[25] Kristen Sultan, Handwritten Notes from Meeting with Portland Pipe Line Corporation Representatives (July 11, 2008).

[26] Letter from Colen Peters, on behalf the Portland Pipe Line Corporation, Pierce Atwood, and Downs Rachlin Martin, to Kristen Sultan. (July 24, 2008).

[27] *Enbridge Energy Partners, L.P. Q2 2008 Earnings Call Transcript*, Seeking Alpha (July 30, 2008), *available at* http://seekingalpha.com/article/87978-enbridge-energy-partners-l-p-q2-2008-earnings-call-transcript?part=single.

[28] State of Maine Dep't of Environmental Protection, *Departmental Findings of Fact and Order Air Emission License NSR Amendment #1* (Aug. 25, 2009).

[29] The PPL Company extended this permit in 2011, but apparently the permit expired on August 25, 2012. *Id.* It is a simple matter to re-apply for the same permit.

[30] Elizabeth McGowan, *Plan to Build East Coast Gateway for Canada's Oil Sands Hits Legal Snag*, Inside Climate News (Mar. 20, 2012) (emphasis added), *available at* http://inside climatenews.org/news/20120319/montreal-maine-oil-sands-pipeline-east-coast-enbridge-quebec-court-national-energy-board-environmentalists?page=show.

[31] Enbridge Pipelines Inc., *Application for Line 9 Reversal* (Aug. 8, 2011).

[32] EEP Day Presentation, *supra* note 5.

[33] Letter from Chantal Robert, Enbridge Energy, Inc., to Sheri Young, Secretary of the Board, National Energy Board 2 (Oct. 11, 2012), *available at* https://www.neb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/92263/790736/875479/873171/A3C2H4_-_Letter_to_NEB_-__Line_9B_Reversal_Pre-Application_Information.pdf?nodeid=873172&vernum=0.

[34] Enbridge Pipelines Inc., *Line 9B Reversal and Line 9 Capacity Expansion Project*, 18 (Nov. 29, 2012).

[35] *Id*.

[36] *Id*. at 18, 50.

[37] *See* Canadian Association of Petroleum Producers, *2011 Petroleum Refineries in Canada* (Aug. 2, 2012), http://membernet.capp.ca/SHB/Sheet.asp?SectionID=&SheetID= 263 (Showing Suncor has hydrocracking capacity); *see also* Canadian Parliament, House of Commons, Standing Committee on Natural Resources, *Current and Future State of Oil and Gas Pipelines and Refinery Capacity in Canada* 18 (May 2012) (referencing statement of John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc.), available at http://publications.gc.ca/collections/collection_2012/parl/XC49-1-411-02-eng.pdf (last visited Jan. 13, 2013).

[38] PBF Energy, *PBF Announces Major Project at the Delaware City Refinery* (Dec. 21, 2011), *available at* http://www.pbfenergy.com/sites/default/files/PBF%20News%20Release%20Clean%20Fuels%20Dec%202011_0.pdf; *see also* David Campbell, *How the oil sands stretch all the way to New Brunswick*, The Globe and Mail (Sep. 10, 2012, 2:10 PM), http://www.theglobeandmail.com/report-on-business/economy/economy-lab/how-the-oil-sands-stretch-all-the-way-to-new-brunswick/article620832/.

[39] *See* Canadian Parliament, House of Commons, Standing Committee on Natural Resources, *Current and Future State of Oil and Gas Pipelines and Refinery Capacity in Canada* 18 (May 2012), *available at* http://publications.gc.ca/collections/collection_2012/parl/XC49-1-411-02-eng.pdf (last visited Jan. 23, 2013) (While it is possible to ship oil from Montreal north on the St. Lawrence River, this route is more expensive than shipment via large tankers from Portland, Maine.).

[40] Carrie Tate and Nathan Vanderklippe, *TransCanada Eyes an East Coast Export Alternative*, The Globe and Mail (Oct. 3, 2012), *available at* http://www.theglobeandmail.com/globe-investor/transcanada-eyes-an-east-coast-export-alternative/article4587622/ (last visited Jan. 23, 2013). Many Asian refineries are already configured to process heavy sour crudes like tar sands oil. International price of oil is generally set by the "Brent" benchmark, which has been as much as $25 per barrel higher than the U.S. benchmark, "West Texas Intermediate." Canadian Parliament, House of Commons, *supra* note 38, at 13.

[41] E-mail from Drew Cobbs to Patricia Aho and Lynn Boutilier (Oct. 10, 2011).

[42] Barbara Tetreault, *Pipeline CEO Says No Current Plan To Move Tar Sands Oil On Line*, Berlin Daily Sun, Nov. 20, 2012, http://www.berlindailysun.com/index.php?option=com_conteco&view=article &id=43567:pipipeli-ceo-says-no-current-&catid=103:local-news&Itemid=442.

[43] *December 2012: An Updated Message to Our Communities*, PMPL, http://www.pmpl.com/current_events.php (last visited Jan. 24, 2012).

[44] *Eastern Mainline Oil Pipeline Proposal*, TransCanada Investor Days, 38 (Nov. 11, 2012), http://www.transcanada.com/docs/Investor_Centre/INVESTOR_DAY_2012_PRESENTATION.pdf.

[45] *TransCanada Management Discusses Q3 2012 Results – Earnings Call Transcript, supra* note 20.

[46] *Id*.

[47] *Id*.

[48] Canadian Ass'n of Petroleum Producers, *supra* note 7, at 28.

[49] Alberta Energy, *What is Oil Sands?*, http://www.energy.alberta.ca/OilSands/793.asp (last visited Jan. 28, 2013).

[50] *Id.*

[51] *About Tar Sands*, Oil Shale & Tar Sands Programmatic EIS, http://ostseis.anl.gov/guide/tarsands/index.cfm. (last visited Jan. 22, 2013).

[52] This table was constructed from numerous sources, including: The Engineering Toolbox, *Fluids, Kinematic Viscosities*, http://www.engineeringtoolbox.com/kinematic-viscosity-d_397.html (last visited Jan. 24, 2013); Environment Canada, Emergencies Sciences and Technology Division, Oil Properties, *Athabasca Bitumen*, http://www.etc-cte.ec.gc.ca/databases/OilProperties/pdf/WEB_Athabasca_Bitumen.pdf (last visited Jan. 24, 2013); Environmental Science and Technology Centre, Oil Properties Database, *West Texas Intermediate* (2010), http://www.etc-cte.ec.gc.ca/databases/Oilproperties/pdf/WEB_West_ Texas_Intermediate.pdf (last visited Jan. 23, 2013); Canadian Association of Petroleum Producers, *TAN Phase III Project Update* 7 (March 25, 2008); Keith A. Couch, James P. Glavin & David L. Shapiro, *The Impact of Bitumen-Derived Feeds on the FCC Unit*, UOP LLC a Honeywell Company (2008), *available at* http://www.uop.com/wp-content/uploads/2011/03 /UOP-FCC-Bitumen-Processing-case-study.pdf (last visited Jan. 23, 2013); Crandall, et al., *Oil Sands Products Analysis for Asian Markets* 102 (Pulvin & Gertz, Inc., 2005), *available at* http://www.energy.alberta.ca/Petrochemical/pdfs/products_analysis_ asian_markets.pdf (last visited Jan. 24, 2013); Gareth Crandall, *Non-Conventional Oil Market Outlook* 4 (2002), *available at* http://www.docstoc.com/docs/1029829/Non-conventional-Oil-Market-Outlook (last visited Jan. 24, 2013); National Petrochemical and Refiner's Association, *Question 50, 2008 NPRA Q&A and Technology Forum: Answer Book*. (April 20, 2009).

[53] A. Swift, *Identifying Safety Issues With Diluted Bitumen Pipelines* 5 (NRDC, July 2012), *available at* http://onlinepubs.trb.org/onlinepubs/Dilbit/Swift072312.pdf.

[54] Natural Resources Defense Council, *Tar Sands Pipeline Safety Risks* 6 (February 2011), *available at* http://www.nrdc.org/energy/files/tarsandssafetyrisks.pdf.

[55] The sources for this table include: *Joint Rates, Rules and Regulations Tariff Applying on Petroleum Products*, Colonial Pipeline Company (March 27, 2008), *available at* http://docs.google.com/viewer?a=v&q=cache:AjCOfgP6boQJ:www.colpipe.com/pdfs/Supp%25203%2520FERC%252088Conocophillips.xls.pdf+Colonial+pipeline+specifications+temperature+F&hl=en&gl=us&pid=bl&srcid=ADGEESgnFL1hSRhw0o7f2KD7gH93MxUboEdKoHcMCsuAoNnlm6mjQ4pythJTZbtUm-r6UYUwZYH_h0MYZQQO4BdoBg4Rr8M_zqBi3bTq3ZLdMkB9GXA6-N5uaLMi0PL2Fg1r_Ybqpepl&sig=AHIEtbSA8D1IC4mXOq-mUgRrY4MMBRo6XA. (Click the "plain HTML" link to be redirected to document); *Keystone Pipeline, United States of America*, Net Resources International, http://www.hydrocarbons-technology.com/projects/keystone_pipeline/ (last visited Jan. 24, 2013); United States Department of State, *Draft Environmental Impact Statement, Keystone XL Oil Pipeline Project, Appendix L: Pipeline Temperature Effects Study* (April 16, 2010), *available at* http://keystonepipeline-xl.state.gov/archive/dos_docs/deis/appendices/index.htm.

[56] *How do you clean up an oil spill?*, University of Delaware Sea Grant Program (2004), http://www.ceoe.udel.edu/oilspill/cleanup.html.

[57] *Tar Sands Oil Spill in Kalamazoo River in Michigan the Most Expensive Onshore Oil Spill in History*, Motley News and Photos (July 11, 2012), http://motleynews.net/2012/07/11/tar-sands-oil-spill-in-kalamazoo-river-in-michigan-the-most-expensive-onshore-oil-spill-in-history/.

[58] Natural Resources Defense Council, *supra* note 52, at 7.

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[92] Vt. Stat. Ann. tit.10, § 6086(a)(1, 8, 10).

[93] *See* National Transportation Safety Board, *supra* note 61, at 63 (A wildlife response center was established with the cooperation of Enbridge, the U.S. Fish and Wildlife Service, and the Michigan Department of Natural Resources and the Environment. The response center cared for and released about 3,970 animals—of 196 birds treated, 52 were not released).

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[101] Re: Barre Granite Quarries, LLC and William and Margaret Dyott, #7C1079 (Revised)-EB, Findings of Fact, Conclusions of Law, and Order at 56 (Dec. 8, 2000) (citing Re: Leo and Theresa Gauthier, #4C0842-EB, Findings of Fact, Conclusions of Law, and Order at 11 (Jun. 26, 1991)).

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[103] Re: Leo and Theresa Gauthier and Robert Miller, No. 4C0842-EB, Findings of Fact, Conclusions of Law, and Order (Vt. Envtl. Bd., June 26, 1991).

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[105] *Willoughby State Forest Management Plan*, *supra* note 78, at 7, 20, 76.

[106] Vermont Fish & Wildlife Department, *Victory Basin Wildlife Management Area* 1, [hereinafter *Victory Basin Wildlife Management Area*] *available at* http://www.vtfishandwildlife.com/library/maps/Wildlife%20Management%20Areas/St%20Johnsbury%20District/Victory%20Basin%20WMA.pdf (last visited Jan. 24, 2013).

[107] *Id*.

[108] *Id*.

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[110] *Willoughby State Forest Management Plan, supra* note 78, at Figure 8.

[111] *Id*. at 76.

[112] Wildlife Management Area Report, Vermont Fish & Wildlife Department, 2 (2012).

[113] *Willoughby State Forest Management Plan*, *supra* note 78, at 23.

[114] *Id*. at 24.

[115] 10 V.S.A. § 6001(12).

[116] Re: Southview Associates, No. 2W0634-EB, Findings of Fact, Conclusions of Law, and Order 7 (Vt. Envtl. Bd., June 30, 1987), *aff'd* In re Southview Associates, 153 Vt. 171, 569 A.2d 501 (1989).

[117] *Id*. at 10

[118] *Willoughby State Forest Management Plan*, *supra* note 78, at 76.

[119] *Victory Basin Wildlife Management Area*, *supra* note 106.

[120] *Id*.

[121] *Id*.

[122] National Transportation Safety Board, *supra* note 61, at 63.

[123] 10 V.S.A. § 6086(a)(9)(K).

[124] Re: Dept. of Forests, Parks, and Recreation (Phen Basin), #5W0905-7-EB, Memorandum of Decision 5 (Vt. Envtl. Bd., July 15, 2004).

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[129] *Id.* at 8.

[130] *Id.* at 12.

[131] *Id*. at 8.

[132] *Willoughby State Forest Management Plan*, *supra* note 78, at 13.

[133] *Id*.

[134] *Id*. at 15.

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[136] *Id*. at 8.

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[139] 10 V.S.A. § 6086(a)(10).

[140] Northeastern Vermont Development Association, *supra* note 73, at 74.

[141] *Id*.

[142] 10 V.S.A. § 6086(a)(1).

[143] 10 V.S.A. § 6086 (a)(1)(G).

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[149] Village of Ludlow, Decl. Ruling No. 212, 1989 WL 231260, *2 (Vt. Env. Bd. Dec. 29, 1989).

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