

ORDINARY PEOPLE AND MONUMENTAL SELF-DESTRUCTION: EXPANDING CANADA'S OIL PRODUCTION TO 2045 AND THE SEPTEMBER 2021 ELECTION

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In early September, a constituent in the B.C. riding of Fleetwood-Port Kells signed a joint letter to her Liberal Member of Parliament, Ken Hardie, urging him not to support any further spending on the Trans Mountain Pipeline expansion (TMX). She wrote to Hardie three weeks before the September 20, 2021 federal election. In the polite and clearly worded message, explaining the reasons for her expressed concerns, she said that the project “is incompatible with your government’s climate plan” and noted that Canada’s Energy Regulator (CER) has stated that “if your government pursues its current climate plan, Trans Mountain is not needed”.

“Your government’s climate plan” is the Liberal Government’s promise, announced on November 19, 2020 (and now repeated every day as the main selling point for the Liberal government’s climate policy), that Canada will reach “Net-zero emissions by 2050.” Net-zero emissions by 2050 would require, among other major transformations of the world’s major industrial economies, that the global market for oil be reduced to about 50% by 2040 and that total oil consumption decline 75% by 2050. The Liberal government’s other recent climate promise is a new commitment to cut the annual level of Canada’s own emissions 40% to 45% by 2030, (that pledge was made by the Prime Minister on April 22, 2021).

If the Liberal government’s recent emissions reduction promises were truly sincere, and if they were fully implemented, they would have far-reaching implications for how Canada develops its oil and gas industry in the next nine years and over the next three decades. Oil and gas extraction is the largest source of emissions in Canada. We are the world’s 3rd largest oil exporter. What Canada decides to do about the future path of its oil production will have grave consequences.

Absolute candour is required from our elected politicians about their policy intentions for our oil. Honesty is essential to our survival.

The Trans Mountain pipeline was approved by the Liberal government in November 2016 to facilitate the continued expansion of Canada’s oil sands industry. Our government’s ambitious plans to continue oil sands growth were confirmed in a very recent report, entitled *Canada’s Energy Future 2020*, released by the government’s own energy agency (the CER) on November 24, 2020. That report shows that based on our existing energy policies, Canada’s oil production is expected to continue to expand to 2045 – increasing over the next twenty-five years by 2.2 million barrels per day (bpd) above the 2019 production level.

The word “incompatible” was a fair way for this concerned voter to describe the palpable conflict between the Liberal Government’s promised policies on climate and oil. On September 10, 2021. Mr. Hardie responded by email to his constituent:

Many thanks for giving me the opportunity to share some thoughts over the Trans Mountain Pipeline project.

A pipeline is basically a piece of transportation infrastructure – it moves whatever you put in it from one place to another through a system that takes the pressure off other parts of our transport system, including road and rail. The Trans Mountain Line can be used to move many liquid or gaseous products”.

He continued with this remarkable answer:

*Now of course, the focus has been on the fact that the existing line and the expansion will be used for some period of time to transport petrochemicals. Most people have focused on the fact that the use of those petrochemicals has been primarily for energy, which is damaging to the environment and causes climate change. But what if we no longer had to burn petrochemicals for energy? (our emphasis added)**

In what follows, Mr. Hardie gives a rambling answer to his own question. He begins by affirming that by 2035 all new cars and trucks sold in Canada will be electric. He acknowledges that demand for “petrochemical energy” will then drop in Canada and “quite likely around the world”. Based on his own words, he seems to be agreeing with his constituents that the need for oil as a transportation fuel must soon decline. Hardie then offers this strange scenario that explains why the Liberal government will nevertheless proceed with the construction of the \$20 billion TMX project:

A short while ago, I discussed this with Environment Minister Jonathan Wilkinson, and he said that there is serious work being done to shift the use of petrochemicals to other uses. That industry can see where the trends are going. So, for example, in an era where we can 3D ‘print’ a house or create plastic compounds stronger and more resilient than steel, all it takes is a little imagination to see what can and likely will be done if the Trans Mountain Line is used to ship petrochemicals for use in new processes and for new products that contribute very positively to our needs and not destroy our planet. Have a look at this: <https://youtu.be/bj8kZ3lLS5E>

Mr. Hardie’s email invites his constituent to use “a little imagination”. We can imagine these two adults, Hardie and Jonathan Wilkinson, talking about a future use for the TMX pipeline if global demand for oil begins to substantially decline. We might imagine Wilkinson, in his usual pose of sincerity and absolute conviction, assuring the hapless Ken Hardie: “Ken, my friends in the oil sands industry are telling me where the trend is going. Plastics. Plastics all made from our

* Mr. Hardie is confused. Petrochemicals are a category of organic chemicals derived from natural gas liquids (NGL) obtained from natural gas processing plants and oil refinery streams such as naphtha and light gas oil. The current plan is that TMX will carry diluted bitumen. It is not a petrochemical but a form of unprocessed heavy oil. Hardie appears to be suggesting that in the future, when the market for oil as a transportation fuel declines, TMX can be used to ship feedstocks for plastics.

Alberta oil. Not just take-out food packaging and other junk you throw on the beach. We're talking 3D printing of tennis racquets, golf clubs. And houses, Ken. Printing social housing projects by 3D."

While Jonathan drones on with his monologue about the marvelous technological future for the oil sands and plastics, we imagine Ken already pounding out emails to his constituents to "share his thoughts" about a future role for a stranded asset.

But Ken's thoughts are half-baked. Worse than half-baked, they have no air of reality. They are untruthful.

Deep reductions in global oil use required by 2040 and 2050

The principal and most authoritative source for information about the expected future path of Canada's oil production are the series of annual reports issued by the Canada Energy Regulator. These are regularly cited by the government itself and, as we will show in a moment, data from previous *Canada's Energy Future* reports back in 2016 were relied on to justify the government's decision on November 29, 2016, to approve the TMX project.

The Government of Canada's energy agency in its most recent report, *Canada's Energy Future 2020*, shows Canada's oil production increasing from 4.9 million bpd in 2019 to a peak of 7.1 million bpd by 2045. The report also explicitly acknowledges that the currently projected growth of our oil production to 2045 (called the "Reference Case") is inconsistent with the government's new "Net-zero emissions 2050 goal" (the net-zero goal was publicly announced by the Prime Minister on November 19, 2019, just a week before the CER report was published). The CER also published a second scenario (named the "Evolving Scenario") in which future global oil demand grows more slowly than under the Reference Case. The "Evolving Scenario" is supposed to represent what would happen to Canada's oil industry if global oil use increases more slowly (reflecting the impact of more stringent climate policies around the world aimed to limit carbon emissions) which would result in oil prices lower than in the Reference Case. In the Evolving Scenario case Canada's oil production would grow more slowly. The "Evolving Scenario" shows our total oil production rising to only 5.7 million bpd by 2040. But the CER concludes that to meet our new "Net-zero emission by 2050" goal, Canada's oil production will need to decline even more rapidly than shown in the Evolving Scenario:

The Government of Canada has announced commitments to strengthen existing, and introduce new GHG-reducing measures, to exceed Canada's 2030 emissions reduction goal and begin working toward achieving net-zero emissions by 2050.

It is also clear that Canada's more ambitious goals, such as achieving net-zero by 2050, will require a faster transition than we have witnessed historically, and faster than shown in the Evolving Scenario.

— *Canada's Energy Outlook 2020*, Canada Energy Regulator, November 24, 2020, p.62

Therefore, it is clear the government's own energy agency has acknowledged that its most recent growth projections for Canada's oil production are incompatible with the Net-zero emissions by 2050 goal.

That finding by the CER is not surprising. Since at least 2013, multiple comprehensive reports by climate scientists and energy economists, including the IPCC's *Special Report on Global Warming to 1.5°C* released in October 2018, have made it absolutely clear that deep and rapid reductions of oil, coal, and natural gas consumption will be required to avoid the most catastrophic impacts of climate breakdown.

Very recently, on May 18, 2021, the International Energy Agency (IEA), an inter-governmental agency comprised of the world's leading industrial countries (including Canada) issued a major report providing the most detailed analysis yet of what "net-zero" means for oil production. In *Net-Zero by 2050: A Roadmap for the Global Energy Sector*, the IEA warns that oil production is going to have to decline sharply and very quickly to give us a chance to meet a "net-zero by 2050" climate goal. To have a 50-50 chance of keeping the increased warming of the earth's atmosphere to less than 1.5°C, global oil consumption must decline 50% below the 2019 level by 2040. That would require cutting oil use worldwide from 98 million bpd (the 2019 level) down to 40 million bpd within the next 20 years. To stay within the 1.5°C temperature threshold, oil consumption worldwide must further decline to 24 million bpd by 2050.

In a dramatic departure from its past approach, the new IEA study calls for *an immediate halt to any further expansion of global oil production* and deep reductions in oil consumption by 2040 on a scale that is unprecedented. For Canada, the world's 4th largest oil producer, this report has enormous implications. The IEA report is found at <https://iea.blob.core.windows.net/assets/4719e321-6d3d-41a2-bd6b-461ad2f850a8/NetZeroBy2050-ARoadmapfortheGlobalEnergySector.pdf>

Any significant cutback now in Canada's ambitious plans to expand our oil production to 2045 will mean that the TMX pipeline project will not be economical, and it will not be required. Both the CER 2020 report and a related report issued by the Parliamentary Budget Officer (PBO) admit that the 540,000 bpd of additional pipeline capacity provided by the TMX expansion project (now owned by the Government of Canada) "will not be needed" if Canada's oil output is even slightly reduced below the Reference Case level: see PBO report *Trans Mountain Pipeline – Financial and Economic Considerations – Update*, December 8, 2020.

Why do our political leaders remain silent about this readily available information?

Petrochemicals and plastics

The hapless Mr. Hardie informed his constituent that as an alternative future use, the TMX project can be used to transport "petrochemicals" that will be in high demand to make plastics.

The new IEA report clearly explains that to meet the net-zero goal, 70% of the 24 million bpd of global oil production remaining by 2050 will have to be used in applications where the fuel is not combusted and so does not result in any direct CO₂ emissions. Oil will have a very limited role as

transportation fuel by 2050, except for aviation. It is true that a substantial share of the dramatically reduced amount of oil production in 2050 will be used for chemical feedstocks – for plastics, lubricants, and asphalt. Therefore, some oil in future will be used for petrochemicals (and some will be used to make plastics). But the amount is a very small fraction of overall global oil production levels in 2021 – much less than 24 million bpd.

Canada's long-term future as an oil supplier faces another difficulty.

Canada is at present the world 4th largest oil supplier, and 3rd largest exporter. But as global oil consumption sharply declines to 2040, world oil prices will sharply decline. Energy economists (including Canada's Mark Jaccard and many others) are unequivocal in their assessments that as global production declines (if the world's major industrial countries do act quickly to reduce carbon emissions), Canada's oil producers will face a *disproportionate drop* in their share of the global market. The reason is that because of the relatively high costs of production per barrel in Canada's oil sands (due to the high capital costs of extracting unconventional oil from the bitumen deposits in Alberta) we are one of the world's highest-cost oil suppliers. Lower-cost suppliers will take an expanding share of declining global demand as world oil prices fall.

Canada can expect to supply only a very small share of future declining global oil demand, assuming oil use does in fact decline to meet the climate threat. An analysis published in *Nature* on September 8, 2021, compares the sharp decline of production for Canada's oil sands compared to other large producers (U.S., Middle East, Russia, etc.) that would be needed to keep the temperature increase below 1.5°C. It concludes that 84% of the 49 billion barrels of Canadian oil sands proven reserves would have to be left in the ground (“unextractable”) to allow a 50% probability of limiting warming to 1.5°C. Only 8 billion of Canada's proven reserves remain marketable in that scenario. That is only about eight more years of oil sands production in Canada at current levels of output (3.1 million barrels per day in 2019): Welby, D., Price, J., Pye S., and Paul Ekins “Unextractable fossil fuel in a world.” *Nature* 597, 230-234 (2021): <https://doi.org/10.1038/s4158-021-03821-8>.

None of this information is new. A study published three years ago by three Canadian energy economists (“Global carbon budgets and the viability of new fossil fuel projects”, *Climate Change*, Mark Jaccard, James Hoeffle et al. May 2018) shows that to keep future atmospheric heating within a 2°C threshold, global oil demand would have to decline to 85 million bpd by 2025, to 79 million bpd by 2035, and to 69 million bpd by 2045 (those levels are well above the more draconian reduction to stay within a 1.5°C limit). This May 2018 study by Mark Jaccard explained that due to the combination of (1) already relatively high production costs in Canada's oil sands, (2) high additional production cost increases that will be required to pay for the deployment of future carbon-reduction technologies in that emissions-intense industry (i.e., CCUS technology), and (3) the declining world price of oil, Canada's oil sands has an extremely low likelihood of being able to be profitable and expand in a scenario designed to keep warming below 2°C (Jaccard refers to that as the “450 Scenario”). The Jaccard study concluded that there is less than a 5% probability that oil sands investments, and therefore new pipelines, would be economically viable over the next three decades under the 2°C carbon budget.

Ken Hardie's answer to his inquiring constituent giving his bizarre justification for the continued construction of the TMX does not have any foundation in truth. It is untethered from reality.

The Liberal government's six-year story about oil sands expansion

Let us go back just six years, to the Trudeau government's decision to proceed with the construction of the TMX pipeline. The approval process for the project by the National Energy Board (its name has since been changed to Canada Energy Regulator) was started by the Harper government in 2013, but when the Liberals took power in late 2015 the hearings had not been completed.

The scale of the expected future growth of Canada's oil sands production was set out in a report published by the National Energy Board (NEB) on January 27, 2016, *Canada's Energy Future 2016: Energy Supply and Demand Projections to 2040*. The NEB concluded that global oil consumption, especially in Asia, would likely continue to grow for at least another twenty-five years. Based on that projection of increasing oil demand worldwide for several more decades, the NEB forecast that Canada's oil sands production would increase from the 2014 level of 2.4 million barrels per day (bpd) to 4.8 million bpd by 2040 – an expected doubling of production.

In October 2016, the NEB published an update (titled *Canada's Energy Future 2016 Update*) that lowered the NEB's projections due to some uncertainty at that time about future oil prices. The *Update* forecast that Canada's oil sands production would reach 4.3 million bpd (instead of 4.8) by 2040, which was nevertheless a 72% increase above the 2015 level of 2.5 million bpd. Taking into account an additional 1.4 million bpd of conventional oil production, the *Update* projected that Canada's total crude oil output would reach 5.7 million bpd by 2040, up from 4.0 million bpd in 2015.

The October 2016 *Update* report estimated that by 2030 oil sands production would reach 3.967 million bpd (almost exactly identical to the projected 3.936 million given in CER's most recent November 24, 2020 report). For six years this Liberal government – and the Canadian oil industry – have consistently based the claim that TMX is necessary on the grounds that global oil demand will continue to grow to 2040 and beyond, and that Canada's oil production will grow.

The final version of the “upstream emissions assessment” for the Trans Mountain pipeline released on November 25, 2016 (*Review of Related Greenhouse Gas Emissions Estimates for the Trans Mountain Expansion Project*) adopted the NEB's October 2016 *Update* forecast that oil sands production will increase from the 2014 level of 2.3 million bpd to 3.967 million bpd by 2030, and to 4.3 million bpd by 2040: see *Report*, November 25, 2016, s. B.2.1 at p. 21, “Canadian Oil Supply Growth.” The *Review* document was cited and relied on by the Trudeau cabinet when it approved the construction of the TMX project on November 29, 2016.

When it was approved in 2016 the entire rationale for the TMX project, economically, politically, and legally (in the text of the formal Order-in-Council that authorized the project) was based on the premise of growing world oil demand to 2040 and beyond.

But it was approved without any inquiry into the emissions implications – and the climate implications – of approving a project that would facilitate the continued growth of our oil sands production for another 30 years.

Let us not forget. The crucial questions we are now asking our Members of Parliament could have been fully answered six years ago, before the Liberal government approved the two pipelines (TMX and Line 3) on November 29, 2016. By about 2023, when they are both completed, these two pipelines will provide 960,000 bpd of new capacity. The government based its authorization of the TMX project on a multi-volume report by the National Energy Board (NEB), which recommended on May 19, 2016, that the project proceed. The NEB's report was portrayed to the Canadian public as a thorough environmental review. It did examine the risks of oils spills in B.C.'s tidal waters and the threats to salmon at river crossings, etc. It claimed to be exhaustive, and Canadians were assured the project was safe. But it *did not look at climate and the emissions implications*. It was clear then that TMX would operate for 40 years.

Early on, in January 2016, the Liberal government made a fateful decision that “upstream emissions” released into the atmosphere at oil sands production sites in Alberta (as well as the much larger volumes of “downstream emissions” released after our oil is exported and burned as fuel in foreign markets) should not be included within the scope of the environmental inquiry. Accordingly, the NEB inquiry excluded all evidence about greenhouse gas emissions and all scientific evidence about the impact of emissions on the climate system. TMX was approved without answering the fundamental questions.

The story begins to collapse: Jonathan Wilkinson, Minister of Environment

Like startled minks, Liberal Party politicians, both the little ones and the big ones, are now thrown off balance by the stark contradiction between the Liberal government's newly announced climate plan (“Net-zero emissions by 2050”) and the government's determination to proceed with the construction of the \$20 billion TMX pipeline.

In the case of the stumbling Mr. Hardie, he dimly acknowledged that to meet our climate goals after 2035 oil demand will have to begin to “drop here at home and quite likely around the world”. But like a fast-talking salesman he quickly rallied and assured his constituent on September 10 that the \$20 billion pipeline can nevertheless profitably be used in future to transport feedstock for petrochemicals that will be used to make plastics – “plastics ... stronger than steel”.

By chance, two days earlier (on September 8, 2021), Liberal Minister of Environment and Climate Change Jonathan Wilkinson was asked during an online election debate moderated by UBC's Kathryn Harrison to provide his explanation for how Canada's new climate plan can be squared with oil sands expansion and the government's commitment to proceed with the TMX project.

Wilkinson began by acknowledging the obvious. Oil, he said, is “primarily a transportation fuel”. He acknowledged that the use of “internal combustion engines will have to be phased out by 2050”. But in his answer to this core question, he said nothing at all about the significance of the 2030 emissions reduction targets or any need to reduce oil consumption by 2030. Indeed, immediately after his reference to internal combustion engines and 2050, he then went on to say:

however, there will be demand for oil for the next 20 to 30 years

Mr. Wilkinson said firmly (even reassuringly) that there will be demand for oil for the next 20 to 30 years, but he artfully avoided saying whether it will be *growing demand* or *declining demand*. The difference for humanity is fundamental. For the world it is the difference between a catastrophic climate outcome and a fair chance for a livable future for the world's children.

As we pointed out above, the IEA says global demand must decline by 50% within the next 20 years and 75% by 2050 to give us even a 50-50 chance to achieve a “net-zero emissions by 2050” goal. Wilkinson skips over all that.

Mr. Wilkinson very deftly avoided touching on whether he accepts that global oil demand must start to sharply decline now, or whether he has any views at all about whether the future path of oil production matters or when deep cuts might become necessary.

With respect to the TMX pipeline, he equivocated by saying that “a pipeline is a transportation mechanism” and it is “better than dangerous rail” and – offering a justification for the TMX project – he said that we need to “expand markets to Asia to enable [a] better price for our product”.

Highlighting his “less dangerous than rail” argument, Wilkinson omitted to mention the primary reason why pipelines are preferred by the oil industry: the costs of shipping oil by pipeline are at least \$10 per barrel cheaper than rail. Wilkinson knows that very well. The subject of the cost advantage of pipeline transport was exhaustively discussed during the pipeline approval process in 2016. Lower shipping costs allow economically marginal extraction projects to become economically viable. Pipeline availability allows the industry to develop projects *that would otherwise remain unprofitable*. Since July 2014, when world oil prices fell far below the very high prices above \$100 per barrel that prevailed up to that time (they have never returned to those levels), the importance of lower pipeline shipping costs has become even more crucial for the future growth of Alberta's industry. Wilkinson knows very well why pipelines are “better” than rail. He skipped the most important part of why pipelines are “better”.

And, immediately after his words about “dangerous rail” and “Asia”, he said that the government plans to “*cap emissions*” in the oil sands with “*five-year binding reductions*”. But he offers no details about what the cap will be, or what the required reduction might be, say, by 2030. It is important to emphasize that he was speaking about “capping” emissions from oil sands extraction activities – but not about capping production.

On the matter of “capping” emissions, we note during the past six years, until a few days ago during this election campaign, the Liberal government has never expressed any intention to “cap” emissions in the oil sands. The oil sands industry for fifteen years has been Canada's largest source of industrial emissions and in many years the fastest growing source. Instead, Mr. Wilkinson stood by silently during the four years between 2015 and 2019 while our oil sands emissions rose from 72 Mt in 2015 to 83 Mt in 2019, a rise of 11 Mt – while production increased by 600,000 barrels per day. Now, in the middle of an election campaign, Wilkinson suddenly promises to cap oil sands emissions – with “binding five-year reductions”. Even if there is any real basis for this new talking point, the actual implementation of an “emissions cap” and any true impact on our emissions growth will be at least three or four years away.

Why didn't Wilkinson unveil an emissions cap plan six years ago? Or why not ten months ago, after the "net-zero emission by 2050" was announced in November 2020? And this is just a sketch of an intention. There is no extant plan or even a target for 2025, let alone 2030 or 2040.

Immediately after his new promise of "*five-year binding emissions reductions*, Wilkinson became bolder and made an overarching declaration that there will be no further *significant expansion of oil production*. We quote his precise words below. He prefaced his statement about the future path of oil production by assuring us that the promised reduction in oil sands emissions (the five-year binding reductions) will reduce "emissions intensity". As we will see in a moment, reducing "emissions intensity" is something completely different than reducing oil production. Emissions intensity is a very technical subject, and during the past 15 years it has often been misused to give a false picture of environmental progress in the oil sands. But Wilkinson loves to talk about technology. Here is what he said:

This is going to drive improvements in emissions intensity for sure but it will result in no significant further expansion of oil production in this country and so for those who say the pipeline is about significant expansion of oil production it's just not true.

He is not saying that in the coming years there will be any *reduction* of Canada's oil production.

Reducing *emissions intensity* per barrel will not by itself halt the further expansion of production in the oilsands, or even slow down the rate of expansion. During the past 30 years, reductions in "emissions intensity" have never curbed the growth of production and have not even prevented massive increases in the annual level of emissions, year after year.

We need to look carefully at exactly what Wilkinson is saying. He is making a bold claim that "improvements in emissions intensity" will "result in no significant further expansion of oil production". In his Zoom performance he was like a carnival barker, shifting effortlessly from one talking point to another.

Misleading use of "emissions intensity" data by politicians and industry

Wilkinson in this context is speaking about promised new technological improvements in oil sands production methods that, he says, will reduce the emissions intensity of oil sands production (i.e., reduce the amount of CO₂ emissions released during the extraction process of each barrel of oil).

Emissions intensity is measured in kilograms of carbon dioxide per barrel of crude oil (kg CO₂). Oil sands emissions intensity in the oil sands extraction process in Canada has declined since 1990 from 116 kg CO₂ per barrel in 1990 to 80 kg CO₂ per barrel in 2019 (those are averages for all oil sands producers): see *National Inventory Report*, April 15, 2021. For a small number of the most efficient oil sands producers, emissions intensities have now been reduced as low as about 67 kg CO₂ per barrel. Politicians and industry leaders like to speak about reductions in carbon intensity per barrel as evidence of the industry's environmental prowess.

But the experience in Canada going back to 2005 and 1990 shows that as long as the total number of barrels being produced continues to grow (and the CER report confirms that the future

plan is to continue increasing the number of barrels until 2045) the incremental gains achieved by reducing *the amount of emissions from each barrel* will be offset by the increase in total number of barrels produced. Total emissions have continued to grow year-after-year, despite improvements in carbon intensity.

It is true, the average emissions intensity of Canada's oil sands production has dropped by an average of 36 kg CO₂ per barrel since 1990. But the government's own data tells the true story of what happened. Oil sands production increased from 1.064 million barrels per day in 2005 to 3.1 million bpd in 2019 – a *tripling* of production – and the annual level of oil sands emissions more than *doubled*, increasing from 35 million tonnes (Mt) in 2005 to 83 Mt in 2019.

Improvements in carbon intensity have never halted the growth of total oil sands emissions and certainly did nothing to slow the growth of production. At best, it has slightly reduced the rate of growth of oil sands emissions.

The delusion of “net-zero oil sands production”

Moreover, all of the talk by politicians about “emissions intensity” of oil sands production relates solely to the amount of emissions per barrel (a relatively small share of the total “life-cycle emissions” of each barrel of oil) that are released into the atmosphere at the extraction sites and initial processing in Alberta, before it is shipped by pipeline to the U.S. markets where most of the refining takes place, and where the refined products, gasoline and aviation fuel etc., are ultimately burned as fuel in vehicles.

Total life-cycle emissions for all types of oil produced around the world range from a low of about 450 kg CO₂ per barrel up to a high end of about 650 kg CO₂ per barrel. Canadian oil sands are at the higher end of that range, above 550 kg CO₂ per barrel. Given that oil sands extraction emissions average 80 kg CO₂ per barrel, they account for less than 15% of the total life-cycle emissions released by each barrel we produce. They are a fraction of the total.

No amount of further technological improvements in the oil sands industry, not even large-scale adoption of Carbon Capture, Utilization, and Storage technology (CCUS) at oil sands production sites, will substantially lower the total life-cycle emissions from oil sourced from Canada's oil sands. Over 85% of the life-cycle emissions occur after the extraction process is completed. Our national emissions accounting (i.e., the numbers reported annually by the government to Canadians) does not count that 85%. Our politicians do not talk about that 85%. Wilkinson is silent about the “downstream emissions” from our oil exports.

One of the sensational new talking points coined by our government and industry is “net-zero oil sands production” (the phrase appears prominently in the CER's *Canada's Energy Future 2020* report published on November 24, 2020). This concept envisions that, by 2050, all of the greenhouse emissions generated from the oil sands extraction process in Canada (which amounted to 83 million tonnes (Mt) in 2019) will somehow be completely eliminated, or will be effectively “removed” by massive deployment CCUS technology that will capture all the CO₂ generated at the production sites and sequester it deep underground, where the gas (compressed

to an almost liquid form) would need to be safely confined for hundreds of years or a thousand years to prevent it from escaping back into the atmosphere.

CCUS is a prohibitively expensive technology. It has never yet anywhere in the world proved to be economically viable for large-scale, industry-wide installation and it would add another massive cost to Alberta's already high cost per barrel operations. A group of Canada's five largest oil sands producers recently claimed (in their *Pathways to Net-Zero initiative*, July 2021) that by 2050 oil sands producers will be able to successfully cut their annual level of emissions by 68 Mt, of which about 36 Mt (52% of the entire amount of the promised future emissions reductions) will be "captured" by CCUS. They claim that this ambitious plan will allow us to maintain high levels of oil sands production for another 30 years and simultaneously dramatically cut emissions. Alberta has called for \$30 billion in Federal spending and tax incentives this decade to subsidize this scheme. Oil sands producers estimate the costs will be in the order of \$75 billion over the next 30 years.

But even if all that envisioned technological and financial re-making of the oil sands industry over the next 30 years has any air of reality, based on this fantastical vision by 2050 Canada will still be exporting to other countries something in the order 4.2 million bpd of oil sands production – 1.1 million bpd more than what we were doing in 2019. We will still be exporting a full 85% of the total life-cycle emissions from our oil sands output. According to Wilkinson, most of those emissions will be released into the atmosphere somewhere in Asia.

In his comments to his audience during the public debate on September 8, Wilkinson was assuring his audience that anticipated future improvements in emissions intensity per barrel will be so substantial (lowering emissions per barrel far below the current average of 80 kg CO₂) that high levels of oil sands production will be able to continue for another 20 or 30 years without any further increase in the total amount of oil sands emissions, and that in the future there will be "binding reduction" of *emissions* in Alberta during the production process. Part of his vision, unmentioned, is a vast scheme to deploy CCUS technology in Alberta on an enormous scale. But he ignores the other approximate 470 kg CO₂ of greenhouse gas emissions released downstream by each barrel we export.

And his assurance that there will be "no significant expansion" of Canada's oil production directly contradicts the government's own story to the broader public and to industry's supporters during the past six years (including just nine months ago in the CER's 2020 report). Mr. Wilkinson's government has repeatedly affirmed that Canada is planning a very significant expansion of its oil production through to 2045. As we have seen, the most recent Reference Case projection tells us that Canada's total oil production will continue rising through to 2045 – up from 4.9 million bpd in 2019 to 7.1 million in 2045 (a 44% increase over the next twenty-five years). That is "significant expansion".

Over the past ten months Mr. Wilkinson has had ample opportunity to offer some public comment about the CER 2020 report and about the future of oil sands production. He has avoided every opportunity to explain how that kind of very substantial expansion of oil production (a projected 2.1 million bpd increase between 2019 and 2045) can be reconciled with his talk about "net-zero emissions by 2050". On that, the Minister has been completely silent.

A few days before Wilkinson's performance, on September 5, 2021, Joyce Murray (Liberal member of Parliament for Vancouver Quadra) during an online Zoom debate with Devyani Singh, the Green Party candidate, offered her own interpretation of how the Liberal government's climate plan will approach the problem of oil and gas sector emissions:

We are capping oil sands production and it will need to step down to net zero by 2050 ... a 5- year plan to reduce their production

Of course, she must have been confused. The Liberals have offered no promises to halt the growth of oil sands *production*. She surely mixed up her talking points. She could only have meant that the government plans to put an upper limit on the annual level of oil sands *emissions*. But for an MP who claims to be especially knowledgeable about climate change and climate policy, it was dismaying to watch her flounder – and mislead her constituents.

Having offered to her audience a non-existent policy that promises to reduce oil production, Murray successfully avoided saying anything at all about how Canada's well-documented plans to continue expanding our oil sands production to 2045 can be reconciled with "net-zero emissions by 2050". Nor did she explain why we need the Trans Mountain pipeline if production is now going to "step down" at 5-year intervals.

Conclusion

None of these three individuals has anything truthful to say about our predicament, which at its heart is the fundamental incompatibility between Canada's ambitions to continue the expansion of our oil sands production and the world's need to halt the escalation of carbon emissions and the heating of the earth.

Canada is currently on a pathway to continue increasing our oil sands production to 2045. After his six years of silence, Canada's Environment Minister now furtively utters the words that there will be "no further significant increase of oil production". But there remains a complete absence of any acknowledgement by Wilkinson, or by any of his cabinet colleagues, or by the Liberal MPs who support this government, that a very deep decline of global oil consumption (and a deep decline of Canada's share of the world's oil production) must occur by 2030, and that much deeper reductions will have to be repeated every year for another 20 years after that. Soft promises that there will be "no further significant increase" will not help us. Without acknowledging the truth, all the talk about "net-zero by 2050" is delusion and it is deceitful.

The purpose of the TMX pipeline is to provide 540,000 bpd of additional shipping capacity to supply global demand, which our government leaders continue to insist will remain at high levels for "another 20 or 30 years". That is the refrain, repeated by Mr. Wilkinson on September 10, 2021. None of these people have the courage to say we can't continue to do this for another 20 or 30 years.

Hannah Arendt in her 1963 report on the Eichmann trial, subtitled *A Report on the Banality of Evil*, examined the coded language and evasive usages (she called them "language rules") that facilitated and eased the participation of otherwise ordinary people in the commission of terrible

crimes against humanity. She revealed the euphemisms, the code words, the strategic silences and evasions that shrouded the great crime.

Arendt of course does not suggest evasive language itself explains the crime. Evasive language helps block our compassion and understanding. The explanation, she wrote, lies in the “sheer thoughtlessness – something by no means identical with stupidity”. In part, she writes, it was “a lack of imagination”, an unwillingness or inability to see the implications of our individual actions. There was a “reluctance to make judgments in terms of individual moral responsibility”. A failure “to consult the voice of conscience”. She observes “such remoteness from reality and such thoughtlessness can wreck more havoc than all the evil instincts taken together.”