NO AIR OF REALITY:

THE B.C. COURT OF APPEAL, CLIMATE CHANGE, IMMINENT PERIL, AND "MORAL CHOICE"

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Almost two years ago, following the decision by the trial judge who rejected our application to raise the defence of necessity, I explained in a brief statement to the court before sentencing why I had taken this path:

> *There are times when we must disobey the law. If we are lucky, we may live our entire lives without being confronted by such a time. I don't believe that, for most people, respect for the law derives from the threat of punishment, even severe punishment. People respect and honour the law because they trust and have confidence in its process. At its best, we have confidence that the law has an extraordinary integrity and capacity to address the most complex and vexing conflicts – ones that often threaten the most vulnerable, those who have little power or influence, or no power at all.*
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> — Address to the Court, March 11, 2019

The unique quality of the law, and of the judicial process as a whole, does not lie necessarily in the specific outcome that it gives to one party or the other – whether one party "wins" or "loses" – but rather its capacity to examine evidence in the most complex and consequential cases and to speak the truth.

For that reason, as Jennifer Nathan told the trial judge in her sentencing statement: "We came to the court for help".

The reason we went to the court for help is because of the rapidly approaching horror of catastrophic changes in the global climate system due to the heating of the earth's atmosphere. That is driven by the cumulative emissions of CO_2 and other greenhouse gases, prominent among them methane, from burning coal, oil, and natural gas. We disobeyed the law only after it had become absolutely clear that our elected political leaders were unwilling to act, and unwilling to speak with candour about the gravity of what is happening.

We sought to raise the necessity defence to engage a full evidence-based examination – in a court of law – to answer whether Canada's planned expansion of oil sands production to 2030 and 2040 (facilitated by the Trans Mountain pipeline) is consistent with Canada's commitment to align its policies to meet the internationally agreed goal of keeping further warming below the 1.5°C threshold or at least within the 2°C limit. Our

proposed evidence shows that Canada's projected expansion of oil production cannot be reconciled with either of those commitments.

The defence of necessity is an ancient but rarely invoked defence in criminal cases. It contemplates that in extraordinary circumstances the law may "excuse" a citizen from criminal liability where they have deliberately disobeyed the law.

Three essential requirements must all be met to establish this rare defence: the accused person must show (1) that at the time they disobeyed the law they were facing an "imminent peril"; and (2) that they had no "lawful alternative" to avoid the peril; and (3) that their act disobeying the law was not "voluntary". The concept of "voluntary" has a special meaning in the law governing the defence of necessity in Canada.

With respect to the first issue, concerning the imminence of the climate peril, in its decision released on September 21, 2020, the B.C. Court of Appeal recites a bare summary – in fourteen closely typed points in a single paragraph – that provides a brief and incomplete description of the evidence we presented to the court two years ago showing the immediacy and magnitude of the climate problem. Our full summary of evidence, which details the findings of climate science and provides extensive data showing unequivocally that global emissions are presently on track to continue rising to 2030, was available to the appeal court judges as part of the adjudicative record. The evidence is found in our 119-page Summary of Proposed Evidence. I reproduce below the brief summary compiled by the Court of Appeal and published in paragraph 85 of its 28-page judgment. This single paragraph is the only substantive discussion of the science evidence found in the entire judgment, with the exception of one other brief reference in paragraphs 4.

[85] In their factum, the appellants have summarized the evidential foundation they sought to tender in support of the necessity defence. According to that summary, the evidence would show that:

- *with the increase in global average temperature now at 1°C higher than the pre-industrial level, Canada's arctic region has already warmed 3°C in the last three decades, resulting in "massive change" to seasonal ice cover in the Arctic Sea;*
- *even if the increase to average global temperature is kept to 1.5°C, approximately one-third of the "present-day mass of glaciers in the high mountains of Asia … will be lost by the end of this century". Glacial melt waters are "essential to water supply, agriculture, and survival of hundreds of millions of people";*
- *with an increase in warming to 1.5°C, "virtually all coral reefs will be gone";*
- *if all countries in the world (including Canada) were to fully implement their Nationally Determined Contributions ("NDCs) under the Paris Agreement to reduce their emissions by 2030, the surface of the earth will still be "irrevocably committed" to warming that will "far exceed" a 2°C threshold;*

- *as such, there must be "a massive transition in energy use" before 2030 if there is any chance of keeping global warming below 2°C;*
- *this transition requires that "all emitting countries" cut their emissions by an average of 25% worldwide. To limit warming to 1.5°C, the annual level of global emissions must decline by 50% below current levels by 2030;*
- *oil accounts for 34% of global CO_2 emissions from burning fossil fuels;*
- *global oil consumption must start to decline by 2020 if the earth's warming is to stay within 2°C;*
- *Canada's oil and gas sector is the country's "largest emitting sector", and the oil sands industry is "by far the largest source of emissions growth in the entire Canadian economy";*
- *notwithstanding the critical need to curb oil consumption, Canada is projected to continue expanding its oil production to 2040;*
- *an expanded Pipeline will materially contribute to that increased production;*
- *a logical consequence of increased oil sands production is a significant growth in Canada's emissions;*
- *increased oil sands production, and the resulting growth in emissions, is irreconcilable with Canada's commitment under the Paris Agreement to achieve a 30% reduction in its emissions by 2030; and*
- *increased oil sands production is also irreconcilable with the "massive transition in energy use" that is required to ensure that, even with full implementation of the Paris Agreement, global emissions are further reduced to the extent necessary to stay within a 2°C warming threshold.*

— Court of Appeal, *Reasons for Judgment*, para 85 (my emphasis added)

In view of the crucial importance of the scientific evidence to understanding the imminence of the climate peril, which is the issue at the heart of this case, an Appendix (starting at page 28) provides a more complete account of the details of the expert evidence and sources we presented to the Court. That evidence explains why we have run out of time to keep the increase in average global surface temperature from rising above the 1.5°C warming limit, and why only massive emissions reductions implemented on a global basis *immediately* could give us any chance of staying within the 2°C threshold.

The Appendix also includes details of the evidence we presented to the Court that explains the salience of Canada's continuing expansion of our oil sands production, and why global oil production (including Canada's production) must very substantially decline over the next ten years to give us even a chance to stay within the higher 2°C threshold.

The atmospheric carbon concentration level

The Court of Appeal in its written Reasons for Judgment omits any mention at all of the most important part of the evidence we presented to the trial judge, which concerns the atmospheric carbon concentration level. The measurement of the atmospheric carbon concentration, and specifically its current *rate of annual increase*, is essential to any careful assessment of the amount of time remaining to avoid an irreversible and catastrophic breakdown of the climate system that supports human life.

The atmospheric carbon concentration level reveals the relationship between (i) the volume of CO_2 released every year from burning oil, coal, and natural gas; (ii) the rising concentration of CO_2 in the upper atmosphere; and (iii) the heating of the earth's surface. The rising atmospheric carbon concentration is driving the ongoing increase in warming. The relationship between the cumulative amount of CO_2 released into the atmosphere and the observed increase in warming is established by the scientific evidence.

The measurement of the atmospheric carbon concentration, showing the rising level of the carbon dioxide concentration in the atmosphere, explains why the remaining time to avoid the most dangerous levels of warming is short and unforgiving. It demonstrates why we are facing an "imminent peril".

By 2017, the concentration level had increased to 405 parts per million (ppm). The summary of evidence we presented to the Court confirms that a carbon concentration level of 450 ppm will lead to warming of 2°C. Our evidence shows that in recent years, up to 2017, the level had been rising by incremental increases of about 2.3 ppm per year.

I reproduce here an extract from the summary of expert evidence we presented to the trial judge on this point:

15.1 The accumulating concentration of CO_2 is measured in parts per million (ppm), indicating the number of CO_2 molecules per million molecules of other gases in the atmosphere.

15.3 An atmospheric carbon concentration level of 450 ppm is broadly equivalent to a 2°C increase in global average temperature. That conclusion is based on the correlation, supported by the scientific evidence, between increases in the CO_2 concentration level and warming of the earth.

15.6 Between 2016 and 2017, the atmospheric carbon concentration level rose by 2.2 ppm, which was slightly less than the 3.0 ppm increase in 2016. The rate of increase has been accelerating, reflecting the persistent growth in the annual level of global emissions from burning coal, oil, natural gas, and cement production. In the 1960s, the global growth rate of atmospheric carbon dioxide was about 0.6 ppm per year. The rise in the global atmospheric CO_2 concentration since 2000 is about 20 ppm per decade (IPCC 2018, Chapter 1 at 1 – 8).

15.7 An unusual characteristic of CO_2, unlike methane for example, is that once the gas is released into the upper atmosphere it does not break down. It has an effective atmospheric residence time of centuries to millennia (IPCC 2018 Chapter 1 at 1-23). It is only removed from the atmosphere when it is absorbed by the earth's surface – by dissolving into the upper ocean (and slowly into the deep ocean) or by biological uptake into forests and plants. … Once we stop massive fossil fuel burning, the incremental increases in the atmospheric concentration will stop. After emissions cease, atmospheric CO_2 will begin to decline, albeit very slowly – only over decades and centuries. From the perspective of the time frame that concerns us, slowing the rise in the concentration level to 2030 and 2035 is crucial.

15.9 Since before the beginning of human life on earth and up to the start of industrialization in about 1780, the CO_2 concentration level was never *higher* than 300 ppm. During the past 12,000 years, from the end of the last Ice Age until the advent of the industrial age, it was stable at about 280 ppm. By 1958, it was 315 ppm. Since then, the level has risen by another 90 ppm.

15.12 In monitoring these issues, scientists add together the warming effect of all the GHGs, principally carbon dioxide, methane, and nitrous oxide. The combined concentration is measured as "CO_2 equivalent" (CO_2eq). The most recent comprehensive studies indicate that if we do nothing, the combined concentration level will exceed 450 ppm CO_2eq by 2030:

> *Baseline scenarios (scenarios without explicit additional efforts to constrain emissions) exceed 450 parts per million (ppm) CO_2eq by 2030 and reach CO_2eq concentrations between 750 and more than 1300 ppm CO_2eq in 2100.*
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> — IPCC, 2014, Summary for Policymakers, SPM 3, p. 8 (emphasis added)

The evidence therefore establishes that, to stay within the 2°C warming threshold, the atmospheric carbon concentration level must be kept below 450 ppm. Based on current global policies, we are on a path to exceed 450 ppm CO_2eq by 2030.

Further, the evidence shows that even if deep emissions reductions were to be implemented globally starting in 2020 and if the annual level of global emissions could be massively reduced by 2030 (by 25% or 50% below the present level), our predicament is that substantial additional CO_2 emissions will still continue to be released every year for another 30 or 40 years, until the world's energy systems altogether cease to be dependent on carbon-based fuel. The annual incremental increases in the concentration level will therefore continue for many years after 2030.

The decision by the trial judge (January 17, 2019)

In the original decision in this case released on January 17, 2019, the trial judge ruled that we could not prove with a sufficient degree of "certainty" that rising global temperatures caused by greenhouse gas emissions will cause any "dire outcome", the words he used to

describe climate change that gravely impacts human societies and the natural systems that support human life.

Paragraph 55 of the written Reasons for Judgment of our trial judge, Affleck J., is the crux of his decision. Affleck J. made a finding that despite our summary of expert evidence from climate scientists, there remains a chance that countries around the world may yet take "societal measures" sufficient "to prevent such a dire outcome":

> *On the evidence the applicants seek to offer, rising temperatures, to a level that is catastrophic to life, is a process that has been happening over many decades. Despite a historical lack of initiative to curb emissions over these same decades, adaptive societal measures may be taken to prevent such a dire outcome. Whether government, private industry, and citizens take these measures is a contingency that takes these changes outside of "virtual certainty" and into the realm of "foreseeable or likely" (Latimer, at para. 29). Thus, it cannot be said that the objective element of the modified objective test is satisfied.*
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> — *Reason for Judgment*, para. 55, p. 3–31 (emphasis added)

The judge therefore found that "there is a contingency" that "societal measures" may be taken in future by governments, businesses, and individuals that will avoid a dire outcome. (A "contingency" is generally defined as a possible but uncertain future event). Based on his conjecture about what societies *might* do in future, the trial judge decided that we had failed to show that serious climate change is a "virtual certainty" – that it is just "foreseeable" or "likely".

On that basis, the trial judge ruled we had failed to establish the first of the two essential requirements to support the defence of necessity. He declared that, based on our proposed evidence, we could not prove that we are facing an "imminent peril".

The decision by the Court of Appeal

At the appeal hearing on July 7, 2020, we argued that there was no evidence in the record to support the trial judge's inference that "societal measures" will be undertaken within the next ten years by the world's industrial countries to achieve the required very deep and rapid emissions cuts, or even that cuts on that scale could be achieved. None of the available evidence shows that countries even intend to make reductions that could remotely close the emissions "gap". All of the studies and reports we cited in our Outline of Proposed Evidence, and in particular multiple "baseline projections", confirm that global emissions are going to continue to rise to 2030, and for many decades after that. Our submission was that the trial judge's inference was therefore a "speculation".

We asked the Court of Appeal to carefully consider the record of available evidence and decide that the trial judge's inference was unsupported by the record.

The Court has refused to decide that issue. Does our evidence show the world is facing an "imminent peril" and that Canada's expanding oil sands production facilitated by this

pipeline will materially contribute to that peril? That is the core question. The Court of Appeal does not answer that question. It is silent about that, apart from summarizing some elements of our evidence in paragraph 85 of their decision.

Instead, the Court of Appeal decided to completely dismiss our appeal on the ground that Jennifer Nathan and I had "lawful alternatives" available to us, apart from disobeying the law. Because "lawful alternatives" were available to us, the Court of Appeal says, we are unable to establish the second essential requirement that must be met before we can rely on the defence of necessity. Because it finds we cannot meet the second requirement, it was unnecessary to decide the first question about whether we could establish that an "imminent peril" exists.

The Court has decided it did not need to look at climate change.

Indeed, the Court of Appeal goes further. It states unequivocally that the defence of necessity in our case would fail "even if" our evidence about climate science and emissions were accepted by the Court:

> *45. In their factum, the appellants submit that the "ultimate" issue for the judge to decide was the objective reasonableness of their belief that the advancing warming of the earth, exacerbated by increased emissions and its resulting impacts, constitutes an imminent peril, "taking into account the objective evidence that they sought to call at trial" (at paras. 6, 60).*
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> *46. However, to advance the defence of necessity, there must be "evidence sufficient to give an air of reality to each of [its] three requirements: Latimer at para. 36 (emphasis added). Consequently, even if the appellants' proposed evidence could support the first element of the defence, the absence of an air of reality to the second requirement was fatal to advancing the defence at trial. The judge concluded that there was no air of reality to the second element and I agree with his conclusion.*
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> — Court of Appeal, *Reasons for Judgment*, para 46 (emphasis added)

In other words, no matter how exigent and catastrophic the impacts of climate breakdown are, and even assuming our "subjective" beliefs about that are consistent with and fully supported by the "objective evidence" of science, the defence of necessity cannot be available because we had "lawful alternatives" to disobeying the law.

On the basis of that reasoning, the Court of Appeal concluded that it had no need to consider the objective science evidence about climate change. It was not necessary, the Court said, to decide whether our evidence about climate change has an "air of reality". An air of reality is a legal test or threshold of proof. If evidence has an air of reality, it means it is sufficiently strong or cogent that a jury, if it heard that evidence, "could" find we are facing an imminent peril. The Court does not decide if our climate evidence has an air of reality.

The "lawful alternatives": six examples given by the Court

Here is the language used by the appeal court judges to describe the lawful avenues they say were available to Jennifer Nathan and me. I have added numbering (in bold) to more clearly identify the six "lawful alternatives", and I have added underlining:

> *[102] They could have* **(1)** *applied to vary or set aside the injunction (arguing, presumably, that in light of the stated peril, Trans Mountain does not meet the test for an injunction under R.J.R. McDonald Inc. v. Canada (Attorney General) [1994] 1 S.C.R. 311).* **(2)** *They could have continued to use the democratic process to voice opposition to the Pipeline, raising the emissions issue and placing pressure on government to withdraw its authorization for the project.* **(3)** *They could have contemplated and potentially marshaled civil litigation as a possible route to challenge the expansion, on constitutional grounds or otherwise.* **(4)** *They could have chosen to protest outside of the prohibited area, effectively sending the same message of "uncertainty about whether the project will ever proceed to completion in view of significant public resistance" that was spoken of in Mr. Gooderham's affidavit.* **(5)** *They could have removed themselves from the enjoined area once informed of the injunction and given an opportunity to move aside.* **(6)** *Finally, the Crown has suggested, the applicants could have chosen to do nothing and let the process unfold, as unpalatable as that may have seemed to them".*
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> — Court of Appeal, *Reasons for Judgment*, para 102 (my emphasis added)

As I will explain in the discussion below, none of these six "lawful alternatives" offered any realistic or plausible prospect of avoiding the peril. The peril is the ongoing expansion of Canada's oil sands production that will be facilitated by the TMX pipeline and will materially contribute to rising global emissions, further driving global heating.

Canada's currently projected expansion of oil sands output is from 3.043 million barrels per day (bpd) in 2018 to 4.105 million bpd by 2030, an increase of a little over 1.0 million bpd over the next decade. The annual level of oil sands emissions (just from the upstream extraction process in Alberta) will increase from 85 million tonnes (Mt) of CO2eq per year to 111 Mt by 2030. The new pipeline capacity provided by TMX (590,000 bpd) combined with another 350,000 bpd of new capacity provided by the new Enbridge Line 3 pipeline to the U.S. will be just enough to transport that additional 1.0 million bpd of new production. Canada's oil sands production had already increased by more than 500,000 bpd in the three years between 2015 and 2018. Global oil production is projected to increase from 97 million bpd to 105 million bpd by 2030. Canada's 1.0 million bpd increase between 2018 and 2030 will be a significant share of that. Canada is a major player in the ongoing rise of global oil production.[1]

[1] For details and sources, including global oil data, see Appendix, "Oil Production: global expansion to 2030" and "Canada's oil production", at pages 33–37.

The summary of evidence we presented to the Court is clear that global oil production must start to decline by 2020, and must be significantly reduced by 2030 if the world is going to have any chance of keeping warming to within the 2°C warming limit, let alone the far more stringent 1.5°C warming threshold.

With respect to the sixth item in the Court's list of "lawful alternatives", it is self-evidently obvious that choosing to "do nothing" is no answer to the peril we face.

"Imminent peril" and "lawful alternatives": the relationship

The fact that the Court of Appeal expressly included "doing nothing" in its list of lawful alternatives can only be rationally explained if the appeal judges took the view that a "lawful alternative" need not be something that offers a chance of avoiding the threatened peril.

It appears that, in their view, a "lawful alternative" comprises any kind of harmless activity – any act or kind of passive conduct – that does not involve disobeying a court order. In that perverse sense, "doing nothing" qualifies as an alternative, even though that passive stance in the present case would not offer any chance of avoiding the climate peril.

That severely limits the defence of necessity. For example, no altruistic bystander could ever have the benefit of the defence if they intervened and broke the law to save the life of another person, if they themselves had the option of standing by and doing nothing.

As I will discuss in more detail below, the other listed "alternatives" similarly offer no realistic prospect of contributing to averting the climate peril. At least not in circumstances where, as here, the evidence shows that the onset of grave and irreversible climate consequences are immediately at hand, and where very grave consequences, still a few years away, are now unavoidable because of the cumulative CO_2 already released into the atmosphere.

The Crown Prosecutor's position was that a lawful alternative is any other "choice" we could have made, apart from choosing to disobey the injunction order. It was the Crown's suggestion (explicitly adopted by the three appeal judges) that we could have chosen to "do nothing".

An important question therefore arises of <u>whether in Canadian law a "lawful alternative" must be one that offers some realistic chance to avoid the peril</u>. If the answer is positive, then it would seem impossible and improper to decide that there were "lawful alternatives" available to Jennifer Nathan and myself, unless and until the Court first makes a determination about the immediacy and magnitude of the climate peril. In other words, the Court would be obliged to determine how much time is available before it could properly assess whether the suggested "lawful alternatives" offer a viable way to avoid the impending harm.

In the *Latimer* decision, the Supreme Court of Canada states at paragraph 30:

> *The second requirement for necessity is that there must be no reasonable legal alternative to disobeying the law.* Perka *proposed these questions, at pp. 251-52: "Given the accused has to act, could he nevertheless realistically have acted to avoid the peril or prevent the harm, without breaking the law?* Was there a legal way out?*" (emphasis in original). If there was a legal alternative to breaking the law, there is no necessity. … that requirement involves a realistic appreciation of the alternatives open to a person; the accused need not be placed in the last resort imaginable, but he must have no reasonable alternative.*[2] (underlining added)

Our Factum at paragraph 76 cited the following extract from Justice Dickson's judgment in *Perka v. The Queen*[3], in which he explained that the imminence of the peril serves to "test" whether there were other options open to the defendant to avoid the peril:

> *The requirement that the situation be urgent and the peril be imminent, tests whether it was indeed unavoidable for the actor to act at all. In Lafave and Scott, Handbook on Criminal Law (1972), p. 338, one reads:*
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> > *It is sometimes said the defence of necessity does not apply except in an emergency – when the threat of harm is immediate, the threatened disaster imminent. Perhaps this is but a way of saying that, until the time comes when the threatened harm is immediate, there are generally options open to the defendant to avoid the harm, other than the option of disobeying the literal terms of the law.* (emphasis added)

Both of the above cases appear to clearly indicate that a lawful alternative must be one that offers a way "to avoid the harm". Our position at the appeal hearing, and clearly stated in our written submission, was that a "lawful alternative" in the situation in this case must indeed be one that offers a realistic chance of avoiding the imminent peril. "Doing nothing" could not be a viable alternative, and certainly not if the onset of the climate peril is imminent.

The Court of Appeal in its decision does not explicitly address that point. It merely lists its six suggested "lawful alternatives" at paragraph 102 without any discussion, one way or the other, about whether or how these might contribute to avoiding a "dire outcome".

Lawful alternatives: applying to set aside the injunction

The Court of Appeal is saying that if a citizen disagrees with the rightness or fairness of a judge's injunction order, all the aggrieved person needs to do is apply to the judge and request a hearing before the judge, to request (and show why) the order should be varied or lifted completely. Injunction orders are made at the start of a confrontation or dispute, at the request of one party (in this case by the pipeline owner), to restrain what the other

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[2] *R. v. Latimer*, 2001 SCR 1, paragraph 30

[3] *Perka v. The Queen*, [1984] 2 SCR 232, at p. 251; (1975), 28 C.C.C. (2d) 385 at p. 400.

parties do. In those kinds of ongoing disputes (i.e. a major strike), applications can be made to vary orders, or to lift (remove) an injunction completely. Such applications are not necessarily successful.

But applying to "set aside" an injunction is a legal step that, even if successful in a case of this kind, offers only a very limited remedy – and no avenue to halt the construction of the pipeline.

The fundamental reason is that no judge in the B.C. Supreme Court has any "jurisdiction' (i.e., legal authority) to stop construction of this pipeline, or even temporarily halt it. The project is under Federal jurisdiction and was legally authorized by the Order-in-Council dated November 29, 2016 made by the Federal cabinet, under Federal law.[4] Our trial judge could never question the "rightness" of that Federal authorization. To challenge the Federal Order-in-Council, we would have been obliged to bring an entirely separate legal proceeding, a judicial review case against the Federal Government. For a citizen to attempt to halt the construction of the pipeline in Affleck J.'s courtroom would have been what the law calls a "collateral attack", and it would have been immediately rejected.

All we (or the many other people attempting to act to effectively forestall the climate implications of this project) could do in Affleck's court was to persuade him that he should not issue an injunction, as the pipeline owner sought. A judge has the discretion to grant an injunction. If he were persuaded by us that the pipeline project was going to materially exacerbate grave harm and loss from advancing climate change, and that there was real urgency to halt construction to avoid irreparable loss, in theory he might have declined to issue the injunction (or to "lift" any injunction already in place).

But even then, the pipeline construction would still proceed. The injunction is not essential to proceed with the work. There are still many other provisions under the *Criminal Code* that would allow police to charge people who obstruct roads, etc. The absence of an injunction would simply mean that police efforts to prevent protesters from delaying work on the site would be less efficient.

Those who sought to act to delay or halt the project by, say, blocking a truck entrance to the construction site would still be obliged to break the law. They just would not be disobeying a judge's injunction order. They would be disobeying the *Criminal Code*, enacted by Parliament.

The routine use of injunction orders, and the punitive threat of enforcing those orders by bringing charges of "criminal contempt" against citizens who engage in civil

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[4] The legal authorization of the Trans Mountain expansion (and the foundation of the legal rights held by the pipeline company to proceed with construction work in B.C.) was based on an Order-in-Council issued by the Federal Government on November 29, 2016. The pipeline company applied to the B.C. Supreme Court seeking an injunction order prohibiting people from blocking the work. The injunction order did not authorize the construction work; it merely threatened to punish citizens who interfered with that work.

disobedience, is a powerful tool of intimidation. It effectively "criminalizes" the opponents of these projects.

It is unsound to contend, as the Court of Appeal has done, that an application to set aside the injunction was a "lawful alternative" that had any potential to delay or halt the construction of the pipeline, or forestall the completion of the project and the expansion of Canada's oil sands production.

The judiciary, of course, places great weight and importance on the Court's authority to maintain public order and is guided by the presumption or principle that a judge's order in situations of this kind must be inviolate. Viewed in that way, the Court's proposition is that in this case, before the necessity defence could be successfully raised in a case where an injunction order was already in place, the accused must have first applied to the judge to lift his injunction, presenting evidence of the threatened loss and harm that will be caused if the pipeline project is allowed to proceed.

Injunctions are often temporary orders, made in particular situations to control what contending parties are permitted to do in a dispute, e.g., marriage breakdowns, labour disputes, or orders to disclose documents in legal cases where one party is refusing to disclose documents, and restraining orders (in cases involving threats of violence), and so on. The Courts view orders of that kind as the only means a judge has to manage some kinds of threatened violence or public disorder – for example, in situations of public confrontation. The Crown might give the example of potentially violent and intrusive blockades besetting an abortion clinic, and other situations of that kind.

But in the case of the protests in 2018 at the pipeline terminal adjacent to Vancouver's harbour, which extended over seven months from March to August, there was no violence at all and no threat of violence.

In the context of "lawful alternatives" that might provide a means to halt or delay the construction of the pipeline (and thus curb the ongoing expansion of Canada's oil sands production), applying to set aside the injunction would offer nothing to achieve that goal.

Lawful alternatives: "commence civil litigation to challenge the government"

Seven years ago, in December 2013, I joined other concerned citizens in Vancouver in an effort to use the legal process to challenge the Trans Mountain pipeline expansion project.

In my sworn affidavit included in the evidentiary record in this case, I recount in detail how along with about 50 other Vancouver residents I spoke at a City of Vancouver Council meeting on December 18, 2013 (AB 189, at para 37). I made a submission in support of a Council motion authorizing the City to intervene in the National Energy Board (NEB) hearing to request that the NEB accept and consider evidence about climate change. The motion was brought by two far-sighted members of Vancouver City Council.

I was just one of many citizens who joined this effort, some by letter writing to elected Council members and many others by attending the meeting.

That intervention by the City of Vancouver, actively supported by thousands of citizens, was at the beginning of the three-year inquiry process by the NEB, which culminated in the NEB's report on May 19, 2016, which recommended that the pipeline project be approved. Unfortunately, the NEB inquiry and its final report was completely silent about the carbon emissions that would be generated by expanded oil sands production facilitated by additional pipeline capacity. It refused to consider any evidence about emissions or climate science.

I mention this litigation initiative undertaken by the City of Vancouver because it vividly illustrates how the potential effectiveness of specific efforts to use civil litigation to challenge the climate impacts of these emissions-intensive projects (oil pipelines and B.C.'s LNG industry) must be measured (and assessed by the Court) against the realistic prospects of their success, and also by the remaining time we have to avert the worst consequences of these projects.

If we have already run out of time, or if humanity is already "in the last resort imaginable" (see the Supreme Court of Canada's decision in *R v. Latimer*, cited above at page 10) in face of the impending breakdown of the climate system, then it becomes highly questionable whether civil litigation is truly a "lawful alternative". It all depends on the timing.

In December 2013, City Council voted unanimously to intervene in the NEB inquiry. The City became an official Intervenor in the NEB inquiry and it immediately made a formal application requesting that the panel accept and consider evidence about the emissions implications of the oil sands expansion that would be facilitated by the new pipeline.

On July 23, 2014, the NEB rejected the City of Vancouver's request.

The City appealed the NEB refusal, and the Federal Court of Appeal dismissed Vancouver's appeal on July 23, 2014 (AB 78, Outline Part 8 at para 8.3). So the NEB did not consider climate.[5]

Following the release of the NEB's report recommending approval of the pipeline in May 2016, the City of Vancouver then commenced a judicial review action asking the Federal Court of Appeal to over-turn the Order-in-Council because the NEB had failed to take

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[5] The NEB and the Federal Court decided that the NEB's jurisdiction did not require that it examine the emissions implications of the pipeline. The very limited scope of the NEB's environmental examination of the pipeline project (allowing it to exclude climate science) was the deliberate choice of the Trudeau Government. After assuming power from the Harper Government in October 2015, the Trudeau Government had the legislative powers and opportunity to amend the law to require that the NEB look at emissions and climate before the inquiry ended, and chose not to do so.

into account the impact of climate change on future oil demand. The Federal Court of Appeal dismissed that application on August 30, 2018.

Therefore, as much as any individual citizen could do, I (along with many others) applied my efforts to bring about and support a "civil litigation" challenge to the pipeline expansion by means of supporting the effort by the City of Vancouver to do exactly that. The challenge was on behalf of the Vancouver residents. Our objective in late 2013 was to compel the NEB to conduct an inquiry into the emissions implications of proceeding with the TMX project. That would have required expert evidence from climate scientists and energy economists, evidence about the lethal consequences of growing emissions from increasing global oil consumption, the significance of Canada's share of those future increases, and evidence of losses already unfolding in Canada and elsewhere from climate breakdown, and about the future loss and suffering if we continue on this path.

The application made to the NEB, put forward by the City of Vancouver and lawyers on its behalf, requested that the NEB examine whether the planned expansion (and specifically the continued expansion of Canada's oil production) could be consistent with the emissions reductions essential to stay within the 2°C warming threshold.

In the end, that attempt to use the legal process was blocked first by the NEB, and then by the Federal Court of Appeal.

It should be added that no individual, whether a resident of Vancouver or anywhere else, could ever afford to pursue a legal challenge of the kind undertaken by the City of Vancouver between 2014 and 2018 – done in two stages, initially before the NEB and in Federal Court (2014) and then in the judicial review action brought in 2016 in Federal Court after the NEB recommended approval. That path of litigation would cost a private person many hundreds of thousands of dollars. Based on my past experience as a lawyer handling complex litigation, a rough guess is that kind of legal intervention by the City, if undertaken by a private individual, would have cost easily something in the order of $500,000 to $800,000. Among other things, the City was obliged to engage expert witnesses, to have lawyers attend hearings for lengthy periods, prepare legal submissions, and review extensive documents and expert reports.

It is a fantasy to suggest that ordinary citizens in Canada could financially support complex legal action of that kind.

But the fundamental flaw in proposing that civil litigation would be a "lawful alternative" is the problem of time. The most promising time for starting effective civil litigation was back in 2014 and perhaps as late as 2016. Through all those years, apart from the City of Vancouver's legal intervention, Jennifer Nathan and I (and thousands of others) were also engaged in the political process to forestall approval of the pipeline project. I return to the political process below.

From the perspective of the actual course of events by 2017 and 2018, the Court's suggestion that civil litigation is a "lawful alternative" is largely divorced from reality.

Regrettably, any substantial civil litigation directed against the Government of Canada would take about three years just to get to trial. That is the reality of the civil litigation process. That doesn't include appeals, which can easily extend the timeline to five years. Even achieving formal legal remedies at the successful conclusion of civil litigation against the Federal Government would not immediately alter the pathway of Canada's emissions. Additional time, measured in years, would then be required for the government to develop and implement new and more stringent carbon reduction policies.

The leading example of using civil litigation to compel changes in government climate policy is the Dutch case *Urgenda Foundation v. The State of the Netherlands*.[6] The final decision in that case was released by the Supreme Court of the Netherlands on January 20, 2020. It compels the Dutch government to make significant changes to its climate policy. That case went to trial in 2015. It was started by a group of 800 Dutch citizens several years earlier and required long preparation time before the trial. The claimants were successful at trial. But the government appealed, and the decision of the Hague Court of Appeal was not pronounced until 2018. The plaintiffs were successful, but the government again appealed to the country's highest court. It all took about seven years.

The important *Juliana* case in the U.S. has already been under way for five years. It also is a civil litigation case challenging the American government on its climate policy failures. The U.S. government has brought multiple "strike" applications, arguing that the case has no possible foundation in American law. The case at present is bogged down at the U.S. Federal Court of Appeal level by the government's procedural tactics. The plaintiffs have already developed a comprehensive body of expert evidence from leading climate scientists in the U.S. The case is well funded by an amazing structure of support organizations. But five years have already gone by for the *Juliana* case.

Consider, therefore, the timeline of climate breakdown. The measure that counts is the steady rise of the atmospheric carbon concentration. In 2014, when the City of Vancouver began its intervention in the NEB inquiry, the atmospheric concentration was 397.2 ppm CO_2. By 2017, it was 405 ppm. By 2019 it had reached 409.8 ppm. Since the beginning of 2016, as I have noted above, the annual level of Canada's oil sands production has increased by more than 500,000 million bpd.

Globally, all countries combined are emitting about 40 billion tonnes ($GtCO_2eq$) of GHGs every year. In October 2018, the *IPCC Special Report in Warming 1.5°C* warned that the remaining carbon budget to stay within the 1.5°C warming limit is only 420 $GtCO_2eq$. That amount is being depleted at the rate of 40 $GtCO_2eq$ every year. In its report published on October 8, 2018 (exactly two years ago), the IPCC pointed out that the carbon budget for 1.5°C will be entirely used up within ten years, based on current annual emissions levels.

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[6] *Urgenda Foundation v. The State of the Netherlands*, Supreme Court of the Netherlands (January 13, 2020); *Urgenda Foundation v. The State of the Netherlands*, the Hague Court of Appeal (October 9, 2018) 200.178.245/01; *Urgenda Foundation v. The State of the Netherlands*, Hague District Court (June 24, 2015).

Shutting down civil litigation: "strike motions"

The "lawful alternative" of civil litigation is exceedingly expensive. It also takes years to conduct complex litigation of that kind, and time is working against us. Despite all that, civil litigation is essential. In Canada, three remarkable cases are currently underway – two cases against the Federal Government, and one against the Government of Ontario.

In all three cases, governments are using all their formidable legal resources (including teams of lawyers on public salary) to shut down these cases.

Federal Court: the *Cecelia LaRose* case (commenced October 25, 2019)

Cecelia LaRose v. Her Majesty the Queen in Right of Canada and the Attorney General of Canada is a claim on behalf of sixteen young Canadians who live in communities all across the country. The litigation is a comprehensive claim alleging that the conduct of our national government, by authorizing new emissions-intensive projects (that continue to increase our emissions particularly in the oil and gas sector) and the government's failure to adopt meaningful carbon reduction policies in other economic sectors is infringing upon the rights of the young claimants under Section 7 of the *Charter of Rights and Freedoms*, their rights to "life", "liberty", and "security of the person". The claim therefore is founded on the plaintiffs' constitutional rights.

The claim gives details of the adverse impacts of climate change, already occurring, in the young plaintiffs' communities in many different regions of Canada and pleads the impending and severe harm and loss that will occur over the next few decades. Among the key elements of the legal basis of the claim, the case alleges that the Federal Government's actions (and its inaction) by conferring supposed economic "benefits" on some Canadians (i.e., those who benefit from the ongoing growth of carbon-intensive industries) and leaving others – mainly the youngest generation – exposed to bear the full burden of climate breakdown, is a breach of the fundamental rights of the plaintiffs. The Federal Government's conduct is therefore "arbitrary" and "disproportionate" in the way it is infringing upon the rights and interests of the young claimants.

The case will rely on expert evidence from climate scientists who will prove that the effect of Canada's current policies is to commit the young plaintiffs to living in a world where the increase in average global surface temperature will exceed 3°C, a catastrophic outcome for all humanity and for natural systems that support life.

The case has already been under way for one year, commenced on October 25, 2019.

On September 30 and October 1, 2020, the young plaintiffs were obliged to fight for two days in Federal Court against a motion by the Attorney General of Canada to dismiss their case. It was a motion initiated by the Government of Canada. In reality the motion was brought at the behest of Justin Trudeau and his cabinet members, including Joyce Murray M.P., the Liberal Member of Parliament from my own Vancouver Quadra constituency, and also by Jonathan Wilkinson, who is Canada's Minister of the

Environment and the Member of Parliament for North Vancouver. That aggressive legal strategy is also condoned by all elected Liberal Members of Parliament.

The motion is known as a "strike motion". The government lawyers contend that even if all of the pleaded facts in the Plaintiff's Statement of Claim are true, their claim has no possible basis in Canadian law. In other words, even if it is true that Canada's existing policies offer no chance at all that we can contribute to reducing global emissions, and even if it is true that if we continue on the present path the plaintiffs and their communities during the next few decades will be destined to bear a terrible burden of loss, which will be irrevocable and worsen for the generations after, there exists no legal remedy against the government.

That is what the Government of Canada's lawyers told the Federal Court during a two-day hearing on September 30 – October 1. When it comes to what our own government chooses to do about emissions, according to the government lawyers, there is nothing that the courts can do to stop it. Climate policy is immune to any legal challenge based on Canada's Charter of Rights or on the public trust doctrine relied on by the young Plaintiffs. During the Court hearing, the Plaintiffs' lawyer aptly summarized the government's legal position: the government's climate change policy is a "Charter-free zone".

That is the formal legal position of the Canadian government. The hearing has concluded. The plaintiffs in the *LaRose* action are waiting to see what the federal Court judge decides.[7]

Federal Court: *Dini Ze' Lho'Inggin v. AG Canada* (commenced February 10, 2020)

The Plaintiffs in a second important Canadian climate case are Wet'suwet'en House Groups of the Likhts'amisyu Clan who live in their territories in northern British Columbia, in the area of Houston, the Morice River and Suskwas River watersheds, in the Clore River watershed and in the vicinity of Francois Lake. Based on Section 7 of the Charter and other constitutional law grounds, this civil action challenges the Federal Government for its failure to take effective action to reduce Canada's annual GHG emissions. It pleads specific, well-founded allegations about the serious harms and losses already impacting the Plaintiffs and the natural systems in their territory, including wildfires, forest insect infestations, a decline in forest food animals, and a decline in the salmon fishery that was the heart of their food security. It details very grave anticipated future losses as warming increases, from drought, floods, longer wildfire seasons, and the increased frequency and severity of heat waves. Again, just five months after the Plaintiffs issued their claim, the Government of Canada on July 28, 2020, filed a "strike motion" to shut down their action. Just as in the *Cecilia LaRose* case, Canada asserts that the Wet'suwet'en claim is not "justiciable".

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[7] The statement of claim in the Cecelia LaRose case can be found at: https://davidsuzuki.org/wp-content/uploads/2019/10/Statement-of-Claim-2019-10-25-FILED.pdf

On September 10, 2020, the the Wet'suwet'en claimants filed their written submission to answer the "strike motion" brought by the Trudeau Government. The government's legal position that there is no possible basis in Canadian law that could support the plaintiffs' claim, *even if the facts they allege (about climate change and the unfolding impacts on their land and lives) are true*.

Canada's position is that there is simply no remedy in Canadian law that provides any basis to challenge the Government of Canada on how it handles climate policy, or regarding its approval of projects that are increasing emissions (and in particular in this case Canada's approval of emissions intensive LNG projects in northern B.C.).

Canada says that the Plaintiffs' claim is "speculative".

At present the Plaintiffs in the Wet'suwet'en case are also waiting to see what the Federal Court judge decides. Even if the judge decides that their case should be allowed to proceed, the government can appeal that decision to the Federal Court of Appeal. Any prospect of getting this case to trial is at best several years away.

Ontario Superior Court of Justice: *Sophia Mathur v. Her Majesty the Queen in Right of Ontario* (commenced November 25, 2019)

This is a third major climate action, brought by seven young Ontario residents against the Ontario government, alleging that the provincial government's inadequate carbon reduction policies will lead to terrible and irreversible loss and harm over the coming decades. They also seek remedies under Section 7 of the *Charter*. Their Statement of Claim, 31-pages in length, meticulously sets out details of the rising concentration of CO_2 and other GHGs in the atmosphere; the massive reductions in greenhouse gas emissions that would be needed by 2030 to avoid the most serious outcomes; and explains the unfolding impacts in the northern Ontario landscape, including more frequent and severe wildfires, heat waves and floods, and increased risk of infectious diseases.

Ontario's government brought a "strike motion" in the *Maher* case on July 13, 2020. The plaintiffs in that case are now waiting to see if they will be allowed to proceed.

The common theme in all three of these cases is that the two governments involved (Canada and Ontario) take the legal position that even if the claims are based on evidence that is true, and even assuming these civil litigation claims fairly describe what will be proven in court, and even accepting that the evidence shows we are on a path that will bring unspeakable loss and harm – indeed catastrophic and irrevocable breakdown of the climate system – there is no proper legal foundation in Canadian law to support these claims.

Yet our Court of Appeal says that civil litigation offers a "lawful alternative" to avoid the harm.

Lawful alternatives: "continue to use the democratic process"

It is helpful to re-state here the language used by the Court of Appeal in paragraph 102 of its judgment:

> *They could have continued to use the democratic process to voice opposition to the Pipeline, raising the emissions issue and placing pressure on government to withdraw its authorization for the project.*

The Court approvingly notes the trial judge's reference to Canada's "robust democracy".

But the Court of Appeal's statement about the "democratic process" is not based on the evidentiary record in this case. It is an aspirational statement about how things should work in a democratic society. It bears no relation to the evidentiary record of events during the past seven years.

In looking at the abilities of Canadians citizens to meaningfully question and "pressure" the Government of Canada on the issue at the heart of this case (growing oil sands emissions to 2030 and after), the robustness and effectiveness of the "democratic process" depends on the rigour, transparency, and integrity of the regulatory process. The "politics" and decision making relating to the TMX project since 2013 have been enmeshed in a legal structure of boards, agencies, inquiries, and panels that, during the past seven years, have led us to this point. The decisions that will drive our oil and gas industry to 2030 have already been taken.

In truth, the integrity of the decision making process – and the capacity of citizens to be informed and participate – is dependent on the honest and timely disclosure of crucial information to citizens, and on having a rigorous environmental review process which would scrutinize the emissions implications (both domestically and globally) of the TMX pipeline expansion *before* its construction was authorized on November 29, 2016.

The evidentiary record clearly shows that the growth of oil sands emissions driven by this project is inconsistent with Canada achieving sufficient emissions reductions by 2030 to make any material contribution to global efforts to avoid a catastrophic outcome.

The record also shows that Canada's planned oil sands expansion to 2030 (as one of the world's largest oil suppliers) is inconsistent with the required reduction of global oil consumption essential to keep the rise in the earth's average surface temperature to within the 2°C warming limit.

The effectiveness of the "democratic process" – on a matter involving these very complex and consequential emissions questions – was therefore dependent on having a well designed environmental review process, and a legal culture that might have compelled the full scrutiny and disclosure of the emissions implications of this project, starting back in 2013 and continuing through the three years of the NEB inquiry, to the final decision in 2016 to approve the project in November of that year.

Our legal culture failed Canadians. The evidentiary record in our appeal fully documents that failure.

I have mentioned above the abject failure of the NEB inquiry. It refused to consider any evidence about climate science or emissions. And the Federal Court of Appeal, as I have noted, declined in October 2014 to allow an appeal from the NEB's refusal. Five years of intervention and litigation by the City of Vancouver, and by several other groups of citizens, were unsuccessful in efforts to get the NEB to consider the climate problem.

A second review process, Environment Canada's upstream emissions assessment (called the *Review of Related Greenhouse Gas Emissions Estimates for the Trans Mountain Expansion Project*), was belatedly created by the Trudeau Government in March 2016. It quickly, within two months, produced a draft report published on May 19, 2016. It also failed to answer the most elementary question about whether the planned expansion of oils sands emissions driven by this pipeline project could be reconciled with our emissions reduction commitments.

The upstream emissions review (the so-called "upstream emissions review") was not a public process. It was an entirely closed process. It held no hearings. Only the pipeline company was allowed to participate or submit documents. There was no public participation or public access. There was no media access. There was no opportunity for cross-examination or public questioning. It kept no record of its proceedings. It was not independent.

Opportunities for citizens to "raise the emissions issues" and "put pressure on government" might have been accommodated during those two review processes. But both the NEB inquiry and Environment Canada's "upstream emissions review" were deliberately designed to exclude that opportunity.

A third process, the *Ministerial Panel* on the Trans Mountain Pipeline, was a final government "process" that was appointed in the summer of 2016, shortly before the government's final decision approving this project was made. Members of the public were permitted to attend a series of public meetings in Alberta and British Columbia, to express their concerns about what issues and evidence had been overlooked, or inadequately dealt with, during the first two processes – or to express their approval of the project. But the three panel members had no powers to call evidence, or to make findings, or draw any conclusions about the emissions implications of the project. Its mandate was to listen to members of the public. It was not allowed to make any recommendations.

To its immense credit, and despite its complete lack of any formal inquiry powers, the Ministerial Panel found a way to make a series of significant findings. The Panel said this at page 46 of their report:

> *Our role was not to propose solutions, but to identify important questions that, in the circumstances, remain unanswered.*

The first "high-level question" that "remains unanswered", according to the three panel members, was whether the growth of emissions that will result from building the Trans Mountain pipeline can be reconciled with Canada's climate change commitments, which include our 2030 reduction target. In its report released on November 1, 2016, the panel stated the unanswered question this way:

> *Can construction of the new Trans Mountain Pipeline be reconciled with Canada's climate change commitments?*
>
> — *Ministerial Panel Report*, November 1, 2016, p. 46.

The Ministerial Panel unanimously concluded that this important question "remained unanswered".

The Ministerial Panel's report was delivered to the government four weeks before the Government of Canada formally authorized the construction of the project. The government offered no public comment on the unanswered question.

For thousands of citizens in British Columbia, the Ministerial Panel was the only process that offered them any avenue to make substantive comments on the emissions implications of the project. It all came to nothing.

The evidentiary record in our case provided the Court of Appeal with detailed references to each of these three failed processes.

Many of us were fully engaged in that political process. In 2016, I made a formal and detailed written submission to Environment Canada's upstream emission assessment following the release of its deeply flawed draft report in May 2016, and an oral and a written submission to the Ministerial Panel in late August 2016. Hundreds and thousands of other opponents of the project were similarly deeply engaged in the political process. Thousands signed petitions and challenged local MPs at their constituency meetings.

We continued to be engaged through 2017, even after the Government announced its final decision to authorize the pipeline on November 29, 2016, hoping to persuade our Members of Parliament to re-consider their support for the project. By early 2018, construction was about to start. In May 2018, the government bought the pipeline, signifying that there would be no turning back. We had exhausted the political process.

The horse is out of the barn. Two major pipelines (TMX and Enbridge Line 3) are now under construction. They will provide the additional 1 million bpd of pipeline capacity that will enable Canada's expanded output to 2030.

Now, let us pause to consider the catastrophic implications of that pathway.

The evidentiary record is unequivocal that the annual level of all global emissions must be cut by 50% by 2030 to have a 66% chance of limiting future warming to less than 1.5°C, and by 25% within the next ten years to keep warming below the 2°C limit. The evidence is clear that delaying the start of those cuts until 2025, or even 2023, will

unfortunately leave us fatally short of those goals. The reason is that every additional year the atmospheric carbon concentration is continuing to rise, and those incremental increases are irreversible. Multiple "baseline" studies presented to the Court show that currently projected global emissions to 2030, based on existing energy policies, will increase the annual level of GHG emissions by about 6% by the end of the coming decade. They are still going "up" when they should be coming "down".

I think it is fair to say we have been placed in the "last resort imaginable".

We have run out of time to start the required deep emissions reductions. As the evidentiary record shows, since at least 2013 the IPCC and other authoritative expert sources have repeatedly affirmed that to have a decent chance to avoid a dire outcome, very deep emissions reductions on a global basis must start by 2020 and be sustained every year after that for the next three or four decades. We have left it too late.

The Court's supposition that, as a "lawful alternative", citizens who are alarmed by the emissions implications of this pipeline expansion might now use the "democratic process" to "put pressure on government to withdraw authorization for the project" completely belies that evidence, which is unchallenged in this case.

On the issue of Canada's expanding oil sands production, by the spring and summer of 2018 we had run out of time to rest our hopes on the "democratic process" to halt this unfolding catastrophe.

"You had a choice": the meaning of "moral choice"

The Court of Appeal has ruled that when we disobeyed the law, we had a "choice". We could have moved off the road (I was seated on an aluminum chair alongside four other citizens). We did not move off the road.

Jennifer Nathan did the same six months earlier, in March 2018. On that occasion, there were fifty-eight citizens standing on the road. It was a calm and peaceful gathering under mixed rain and snow. They declined to move off the road.

Because we had a "choice", the Court says, we cannot successfully raise the defence of necessity at a trial. Having a "choice" is fatal.

And so, in the Court of Appeal's view, there was no need for it to consider the main ground of our appeal, which turns on the question of whether the trial judge was wrong in drawing his inference (which we say was a speculative inference unsupported by evidence) that there exists a "contingency" that measures may be taken in future by governments to avoid a catastrophic climate outcome. Even assuming it is true that we are facing a dire climate peril (as the objective scientific evidence demonstrates we are), that is irrelevant to the outcome of our case. It is irrelevant because, says the Court, in these circumstances we could have chosen to obey the law.

The concept of choice was given a lengthy and subtle analysis by Justice Dickson in his judgment in *Perka v. The Queen*, a decision of the Supreme Court of Canada in 1984. The *Perka* case is the foundational statement of the current law in Canada governing the defence of necessity, and is certainly the most thoughtful judicial consideration of what "choice" means in this context.

At the start of his judgment in the *Perka* case, Justice Dickson observed that the defence of necessity is an "ill-defined and elusive concept". The defence has only rarely been invoked in Canadian courts, and it has never been successful.

The case of *R v. Latimer*: the importance of the "objective evidence"

Accordingly, we have only limited guidance from existing cases on the precise scope of the defence of necessity. One relatively recent major decision, *R v. Latimer* (decided by the Supreme Court of Canada in 2001), dealt with an anomalous and tragic case of a man who killed his severely disabled daughter because he believed, without foundation, that she was facing a life of intense pain that was going to worsen in future years and become ever more severe and unbearable. The accused sought to raise the defence of necessity to the criminal charge of first-degree murder against him. However, the medical evidence was that his daughter's condition in fact was stable and her pain was not going to worsen.

Therefore, there was no "imminent peril", the court found. There was no pressing need to intervene and end her life (and in any event, the Court concluded that for other good reasons the necessity defence could never apply in those circumstances). The *Latimer* case offers nothing to help refine our understanding of the meaning of "choice" in a case of necessity. The accused's daughter was in fact not facing any excruciating or immediate threat. There was no evidence of a threatened peril that might conceivably have justified his choice to kill her.

The *Latimer* case did, however, introduce into the law of necessity a clear distinction between an accused person's "subjective" beliefs and whether their beliefs were reasonably based on "objective" evidence. Latimer's beliefs about his daughter's medical future were unsupported by objective medical evidence.

Our defence has never relied on "subjective evidence". The threat in our case is a real one, abundantly supported by the objective scientific evidence set out in the adjudicative record.

As I will explain below, careful consideration of the objective evidence about climate change is an essential preliminary step in order to make a proper determination about whether, in the circumstance of our case, our decision to disobey the law was a "choice", in the legal sense.

Justice Dickson's judgment in *Perka v. The Queen*: the concept of "moral choice"

In *Perka*, Justice Dickson defines a highly restricted concept of the "residual defence of necessity", which he says is "conceptualized as an "excuse" – not as a "justification":

> *Conceptualized as an "excuse" however, the residual defence of necessity is, in my view, much less open to criticism. It rests on a realistic assessment of human weakness, recognizing that a liberal and humane criminal law cannot hold persons to the strict obedience of laws in emergency situations where normal human instincts, whether of self-preservation or altruism, overwhelmingly impel disobedience.*
>
> — *Perka v. The Queen*, [1984] 2 S.C.R. 232, at 248 (emphasis added)

Dickson acknowledges the fundamental point that, in criminal law, normally a voluntary action that breaches the law will attract criminal liability. An involuntary act does not result in criminal liability. However, he introduces a crucial distinction, or a qualification, about the meaning of "voluntariness" in the defence of necessity. He states that, in a case involving the defence of necessity, the accused person need not show that his conduct was involuntary in order to be excused from criminal liability.

> *Literally this voluntariness requirement simply refers to the need that the prohibited physical acts must have been under the conscious control of the actor. Without such control, there is for the criminal law, no act. The excuse of necessity does not go to voluntariness in this sense.*

He elaborates on that distinction by introducing the hypothetical example of a "lost alpinist":

> *The lost alpinist who, on the point of freezing to death, breaks open an isolated mountain cabin is not literally behaving in an involuntary fashion. He has control over his actions to the extent of being physically capable of abstaining from the act. Realistically, however, his act is not a "voluntary one. His "choice" to break the law was no true choice at all … this sort of involuntariness is often described as "moral or normative involuntariness".*
>
> — *Perka v. The Queen*, at 249 (emphasis added)

Dickson discusses the theoretical roots of this idea of "morally involuntariness". He refers to the writings of noted legal scholars of that time, almost forty years ago, including George Fletcher, *Rethinking Criminal Law* (1978). According to Fletcher, the absence of an opportunity to make a true choice should excuse liability. Dickson J.'s quote (at page 249 of his judgment) includes this sentence from Fletcher:

> *This principle of respect for individual autonomy is implicitly confirmed whenever those who lack an adequate choice are excused for their offence.*

These words do not speak of a person's *incapacity to choose*. It speaks of the lack of an *adequate choice*.

The discussion by Fletcher (but adopted by Dickson) incorporates, as its starting point, the idea that a system of law should as much as possible respect the "individual autonomy" of citizens. That, of course, does not mean that the law must allow citizens to casually substitute their own ethical values in place of the lawful rules that proscribe criminal conduct. But this underlying notion of respect for individual autonomy requires that we ask very searching questions when we say to an accused; *"You had a choice. You could have done nothing"*.

The inquiry must assess whether "doing nothing" (i.e., standing back and obeying the law) was, in the circumstances of our case, "an adequate choice". In the *Perka* case, Dickson using the hypothetical example of the lost Alpinist clearly states that choosing to obey the law and die (rather than break into the cabin) was "no true choice at all".

Consider in addition to the example of the "lost Alpinist" another instance, which is not hypothetical:

On the Northwest Coast of British Columbia, a mother and father in the early 1940s were compelled by law to surrender their young child to be transported to a residential school. They knew, from what they had seen in their community during the preceding decades, that this would lead to years of separation and deprivation, and abuse, and the stripping away of language and culture, and for many of the children disease and early death. The parents decided to defy the law, and hide their child away. Let us imagine that, charged criminally by government prosecutors, they raised the defence of necessity (of course, in fact, the law did not come to their rescue at all). We would likely all agree that, in those dire circumstances, the option that the mother and father had to obey the law and surrender their child was "no true choice at all."

The underlying point is that there are circumstances, however rare, when the letter of the law directs that that we act in a way that cannot possibly be reconciled with our humanity – or requires that a citizen stand aside and "do nothing", when our humanity requires that we act.

Justice Dickson introduced into Canadian law the concept of "moral or normative involuntariness," ascribing it to human conduct in circumstances of that kind. It promised a nascent thread of inquiry that might help our society contend with a momentous challenge, when the iron hand of the law finds itself unable to reconcile its own inflexible demands with the horror of a terrible wrong mandated by the law itself.[8]

[8] In this case, "the law itself" refers to the Order-in-Council dated November 29, 2016, that authorized the Trans Mountain Project. It recklessly authorized the pipeline expansion without any inquiry into the emissions and climate implications of the project.

Dickson sketched out an ample vision of the defence. He explicitly includes within the scope of the defence of necessity situations where a person, acting out of "altruism", breaks the law to come to the aid of another person in danger. In the hypothetical example of "the lost alpinist," the defence of necessity could therefore also apply to a kind stranger, motivated by compassion, who intervenes and breaks into the cabin to save the man's life.

Immediately following his discussion of "normatively involuntary" conduct and in explaining the rationale for when the law "ought not to punish", Dickson J. approvingly states:

> *Such a conceptualization accords with our traditional legal, moral and philosophical views of what sorts of acts and what sort of actors ought to be punished. In this formulation it is a defence which I do not hesitate to acknowledge and would not hesitate to apply to relevant facts capable of satisfying its necessary prerequisites.*
>
> — *Perka v. The Queen*, at 250 (emphasis added)

In 2020 we are facing the momentous threat of unfolding climate breakdown. If our Courts are to be guided by Justice Dickson's conception of "moral involuntariness" in deciding whether the defence of necessity could apply in our case, it seems essential that the Court would be bound to make a careful determination about the scale, nature, and immediacy of the climate threat (is it an "imminent peril" and how bad will it be?) before the Court can venture any evidence-based ruling on whether our conduct to disobey the injunction order was indeed a "choice". Would a "liberal and humane" society expect citizens to stand by and "do nothing", in face of what is now happening?

The Court of Appeal has instead decided that our conduct disobeying the injunction was not "morally involuntary", but it did so without making any determination about the imminence and character of the unfolding peril and altogether ignoring the objective evidence.

Conclusion

In the discussion above, I have pointed to multiple aspects of the available expert evidence, all of it confirming the rapid advance of the destabilization of the earth's climate and the resulting destructive impacts on natural systems that support human life. The evidence shows that the rising trajectory of global emissions – currently projected to continue increasing to 2030 and beyond – is overwhelmingly driven by expanding oil, natural gas, and coal consumption. Canada is the world's 10th largest emitter and is among the top six crude oil suppliers.

If that fatal trajectory is not immediately broken, by the time children now aged 3 or 4 years old reach Grade 8 – which will be in 2030 for many of them

– the atmospheric carbon concentration of greenhouse gases, according to the uncontested expert evidence we presented to the Court, will have already reached 450 ppm CO_2eq. Before they get into high school children across the world will be committed to live in a world where average surface temperature will exceed 2°C above the pre-industrial level and indeed, according to the evidence, will be on a path to 3.2°C.

Justice Dickson J. describes the kind of circumstances that would make disobeying the law unavoidable and therefore "morally involuntary":

> *The requirement that the situation be urgent and the peril be imminent, tests whether it was indeed unavoidable for the actor to act at all. In Lafave and Scott, Handbook on Criminal Law (1972), p. 338, one reads:*
>
> > *It is sometimes said the defence of necessity does not apply except in an emergency – when the threat of harm is immediate, the threatened disaster imminent. Perhaps this is but a way of saying that, until the time comes when the threatened harm is immediate, there are generally options open to the defendant to avoid the harm, other than the option of disobeying the literal terms of the law – the rescue ship may come. The storm may pass; and so the defendant must wait until the hope of survival disappears.*
>
> *At a minimum the situation must be so emergent and the peril must be so pressing that normal human instincts cry out for action and make a counsel of patience unreasonable.*
>
> — *Perka v. The Queen*, at 251 (emphasis added)

Before it could properly decide whether we had a "choice", in the sense of moral choice or "true choice", the Court was bound to decide, after taking into account all the available objective evidence of climate science, whether the peril of climate change is "so pressing" that it cries out for action and makes a counsel of patience unreasonable.

For Jennifer Nathan and myself, being convicted or not convicted of criminal contempt of court means nothing to us, one way or the other. "Winning" or losing the appeal is beside the point.

The great loss, the severely disappointing loss, is the failure of the B.C. Court of Appeal to answer the terrible question presented to them in this case, which is whether the summary of evidence we presented to the trial judge, almost two years ago in December 2018, establishes that there is an "air of reality" to our contention that we are now facing an "imminent peril" caused by global heating; and that the expansion of oil sands production facilitated by the Trans Mountain pipeline will materially contribute to escalating loss and suffering across the world. They chose not to answer that question. That failure by the Court is lamentable.

We are back where we were in 2014, when Canada's National Energy Board refused to consider climate science and the emissions implications of this pipeline project. So far, all of our institutions have failed us.

APPENDIX: DETAILS OF THE EVIDENCE AND SOURCES WE PRESENTED TO THE COURT

The judgment of the Court of Appeal released September 21, 2020, provides virtually no detailed reference to the evidentiary material we presented to the trial judge in December 2018 and which was included in the adjudicative record for our appeal. For any person interested in the substance of the central issue in this case – climate change, and the role of expanding oil sands production as a driver of climate change (and the Trans Mountain Pipeline as a facilitator of that expansion) – I have prepared this Appendix to describe some of the important parts of the evidence.

This is an outline of aspects of the detailed evidence-based narrative that lies behind the very superficial account provided by the Court of Appeal in paragraph 85 of its judgment. Of course, there is no rule that says the Appeal Court was bound to recite the evidence that a convicted offender relies on in her appeal. Obviously, if the Court decided that it did not need to even consider the exigency of climate change and regarded it as irrelevant to decide our guilt, it was free to choose to ignore the scientific evidence altogether.

In our view, the story told by the evidence is the only important part of the case.

The magnitude of emissions reduction required by 2030

In understanding the extreme urgency to act to avoid the most serious and irreversible consequences of climate breakdown, the key point concerns the massive scale of the emissions reductions that must be achieved within the next ten years, by 2030, by all major emitting countries. Canada is the world's 10th largest emitter.

Two principal sources of the evidence on this point that we presented to the Court when we filed our case on November 22, 2018, are the *UN Emissions Gap Report 2017*, published on November 23, 2017, and the IPCC *Special Report on Global Warming to 1.5°C* published on October 7, 2018. They provided the most recent data available at the time we were preparing our case.

According to the *UN Emissions Gap Report*, global CO_2 emissions released from burning coal, oil, and natural gas (and including emissions from cement production) were 36.2 billion tonnes of CO_2 in 2016 (abbreviated as 36.2 $GtCO_2$). Total emissions, including methane (a major source of which is from oil and gas processing and production), nitrous oxide, and other greenhouse gases amounted to 51.9 $GtCO_2eq$ in 2016. Emissions from burning fossil fuels comprise about 70% of that total. Based on current policies, total global emissions are projected to continue to increase to an annual level of 58.9 $GtCO_2eq$ by 2030.

Further, even if all countries (including Canada) were to fully implement the emissions reduction commitments they made under the December, 2015 Paris Agreement (referred

to as their Nationally Determined Contributions or "NDCs"), total emissions are projected to increase to 55.2 $GtCO_2eq$ by 2030 – still a 6% increase above the 2016 level.

The UN report published in late 2017 concluded that to keep warming within the 2°C limit, the annual level must be reduced to 41.8 $GtCO_2eq$ by 2030. That would require a 25% reduction of emissions on average by all countries within the next ten years. The IPPC *Special Report* in late 2018 affirmed that analysis. It concluded that to keep the temperature increase within the more ambitious 1.5°C warming limit, total global emissions would have to be cut to an annual level in the range of 25-30 $GtCO_2eq$ by 2030. Meeting the 1.5°C goal would require that the annual level of emissions be reduced by 50% within the next ten years. Newly available data confirms that the actual level of global emissions continued to rise during the period between 2016 and 2018: see recent *UN Emissions Gap Report 2019*, published November 23, 2019.

Based on the above data showing that emissions will rise to 55.2 $GtCO_2eq$ by 2030 (even after assuming that all countries fully implement their NDCs), and taking into account that the annual level must be reduced to 41.8 $GtCO_2eq$ just to stay within the 2°C warming threshold, the 2017 report calculated that the emissions gap to stay within 2°C is 13.4 $GtCO_2eq$. The "emissions gap" represents the magnitude of the required reductions to meet the 2°C goal.

Based on the *IPCC Special Report* findings, the emissions "gap" to stay within the 1.5°C limit is in the order of 25 -30 $GtCO_2eq$.

The *UN Emissions Gap Report* explained the crucial importance of what happens in the next ten years:

> *Looking beyond 2030, it is clear that if the emissions gap is not closed by 2030, it is extremely unlikely that the goal of keeping warming to well within 2°C can still be reached. Even if the current NDCs are fully implemented, the carbon budget for limiting global warming to below 2°C will be about 80% depleted by 2030. Given the currently available carbon budgets, the available carbon budget for 1.5°C will already be well depleted by 2030.*
>
> — *The Emissions Gap Report* 2017, Executive Summary, p. xvii (emphasis added)

The report left no doubt that the full implementation of all the NDCs by 2030 was insufficient to put the world on an emissions pathway consistent with keeping warming "well below 2°C". The emissions reduction commitments made by Canada and other countries in Paris in 2015 are not enough:

> *Full implementation of the unconditional NDCs and comparable action afterwards is consistent with a temperature increase of 3.2°C by 2100 relative to pre-industrial levels.*

We are presently on a path to warming of 3.2°C.

Our evidence also documented that during the past twenty years, the annual level of global emissions has continued to increase every year and has never achieved any absolute decline even for a single year, save in 2009 immediately after the global financial crisis when economic growth abruptly but briefly declined in most industrial countries.

Our evidence also notes that the world's total energy supply – that is energy obtained from all sources for use in industry, transportation, generating electricity, heating buildings etc. – is 81% dependent on oil, coal, and natural gas (the balance is hydro-electric power, nuclear, and renewables). In consequence, given our present overwhelming dependence on fossil fuels, virtually all economic growth drives increased consumption of oil, coal, and natural gas – which in turn drives the ongoing growth of emissions.

Therefore, the only means to achieve the deep emissions cuts needed to close the huge "emissions gap" requires a massive transition in energy use before 2030. Consumption of oil, coal, and natural gas is the source of 70% of all global CO_2 emissions, and the still growing use of those fuels is the dominant source of rising emissions. The consumption of oil, coal, and natural gas must therefore within the next decade be dramatically reduced.

Oil production: global expansion to 2040

One main source of evidence we provided to the Court to show that global oil consumption must start to decline by 2020, is the International Energy Agency's (IEA) *World Energy Outlook 2015* report, released in November 2015. At that time, and up until 2017, the IEA published annually what it called its "450 Scenario" which presented an analysis showing the scale of the reductions in oil, coal, and natural gas use that would have to be achieved by 2040 to give the world a 50% chance of keeping warming below 2°C. In the case of oil consumption, the IEA's study concluded that oil production would need to decline from a projected 93.7 million barrels per day (bpd) in 2020 down to 74.1 million bpd by 2040 (together with a much deeper and faster reduction of global coal consumption). Since 2013, the IEA has consistently affirmed that oil production (and coal production) would have to start declining no later than 2020 to give us even a modest 50% chance of meeting the 2°C goal.

Here is a summary of the IEA's future outlook published in 2015, included in the record of evidence we presented to the Court:

Figure A: IEA oil production scenarios: projections (in millions bpd)

	2014	2020	2040
Current Policies Scenario	90.6	97.5	117.1
New Policies Scenario	90.6	95.9	103.5

450 Scenario	93.7	74.1

Source: *World Energy Outlook 2015*, Table 3.1, p. 114 and Annex A pp.582-583.

The IEA's "Current Policies Scenario" represented the expected trend of crude oil production if the world economy continues its current pattern of oil use (a "business-as-usual" scenario). The "New Policies Scenario" was also a business-as-usual projection, but slightly more optimistic. It incorporated all existing carbon-reduction policies adopted as of mid-2015 in countries around the world, but also took into account "other relevant intentions that have been announced, even when the precise implementation measures have yet to be fully defined" (*World Energy Outlook* 2015, p. 34).

Our evidence presented to the Court explained that in 2017 the IEA abandoned its claims that the 450 Scenario provided adequate guidance to avoid warming that will exceed 2°C. Among other defects, the IEA's 450 Scenario ignored entirely the 1.5°C goal. Moreover, a 50% chance of avoiding the peril was not a serious basis for dealing with the problem. The IEA did not immediately publish a new scenario that might show more realistically the scale of the reductions in oil use that would be needed. The evidence was nevertheless unequivocal that oil production must begin to fall by 2020.

Yet the IEA's baseline projections ("business-as-usual" projections), which depict expected future oil production based on current policies and taking into account future economic growth, have consistently shown that oil demand is going to continue rising to 2040. The New Policies Scenario projected that global demand would rise to 95.9 million bpd by 2020 and continue to grow to 103.5 million bpd by 2040. All recent oil demand projections published by Canada's NEB have also shown that global demand will increase to 2040.

Approximately 70% of total GHG emissions are the result of burning coal, oil, and natural gas (the data below also includes emissions generated from cement production). The summary of evidence we presented to the Court, based on reported emissions data for the year 2016, confirmed that the three fuel sources together accounted for 36 billion tonnes of CO_2 emissions annually (out of the total GHG emission of 51.9 $GtCO_2eq$ in 2016). As these figures show, emissions from fossil fuels are the main source of all human caused emissions. Oil consumption worldwide accounts for 34% of all global emissions from burning fossil fuels

Figure B: Fossil fuels (and cement) – share of global CO_2 emissions ($GtCO_2$) in 2016

Source	**Percent**	**$GtCO_2$**
Coal	40%	14.5
Oil	34%	12.5
Gas	19%	7.0

Cement	6%	2.0
Total		36.0

Source of data: Global Carbon Budget 2017.

The record of evidence, including the IEA's analysis, confirms that any plausible solution must include immediate and sharp reductions in oil production and consumption, and even deeper cuts in coal production.

While the available evidence shows natural gas consumption is expected to continue rising until 2030 (in part because it is being widely substituted for coal in electricity generation as coal-fired plants are being shut down), recent studies are clear that even natural gas use must begin to decline by the end of this decade. Because natural gas use is going to continue growing, the need to immediately reduce oil consumption is even more critical.

Deeper cuts required in global oil production: new evidence

More recent evidence has become available since our initial hearing in the B.C. Supreme Court in December 2018 that highlights the much more drastic cuts required in global oil production. This new evidence, which I will summarize here, was not included in the record of evidence available to the Court of Appeal in our case. But it is helpful in understanding the gravity of our situation.

The IEA's new report entitled *World Energy Outlook 2019* was published in November 2019. It provides new projections of global oil production to 2030 and 2040 affirming that, under current policies (including Canada's existing policies), total global oil supply is now expected to rise from 96.9 million bpd in 2018 to 105.4 million bpd by 2030, and increasing to 106.4 million bpd by 2040.

Oil production is still growing. The business-as-usual projections in the new November 2019 report confirm that global oil production is growing much faster than had been expected four years ago, when the IEA published its 2015 report.

The IEA report also sets out the results of its new "Sustainable Development" Scenario, a mitigation scenario developed by the IEA to estimate the magnitude of the *reduction* in global oil use that would be necessary to give us a 66% chance of limiting the ongoing warming of the earth to less than 2°C. The Sustainable Development Scenario is developed on the basis of assumptions about the reductions in future fossil fuel use that would be sufficient to limit the rise of global surface temperature to below 1.8°C with a 66% probability, or 1.65°C with a 50% probability.

To achieve those goals, the IEA's new mitigation scenario concludes that global oil consumption must be cut to 87.1 million bpd by 2030 and decline further to 66.9 million bpd by 2040, in order to meet the more ambitious goals of that scenario.

But based on the IEA's up-dated business-as-usual scenario (now called the "Stated Policies Scenario" but identical to the former "New Policies Scenario"), global oil output is now projected to increase to 105.4 million bpd by 2030 and further increase to 106.4 million bpd by 2040. Figure C below shows the contradiction between the planned expansion of oil output and the reduction in output that would be required to limit the increase in the earth's average surface temperature to 1.8°C:

Figure C: ***World Energy Outlook 2019*: oil production scenarios: projections (in millions bpd)**

	2017	2018	2025	2030	2035	2040
Current Policies Scenario				111.5		121.0
Stated Policies Scenario	95.1	97.7	103.5	105.4	106.0	106.4
Sustainable Development Scenario				87.1		66.9

Source: *World Energy Outlook 2019*, Table 3.1, p. 132 and Annex A, Table A.1 p.672–673.

This contradiction shows the reckless path we are currently on. As I will explain below, the Government of Canada's most recent published data shows that Canada is on a path to increase its oil production by 1.0 million bpd between 2018 and 2030.

Yet the available evidence shows that on a global scale we need to cut production from 96.9 million bpd in 2018 down to 87.1 million bpd by 2030 – an absolute reduction of about 10 million bpd over the next decade.

Even a 10 million bpd reduction in oil consumption by 2030 will not get us close to achieving the much larger reductions needed to stay within the 1.5°C warming limit.

Canada's oil production

We presented to the Court a summery of evidence about Canada's oil production based on multiple sources, all published by the Government of Canada itself and by its agencies, including by the National Energy Board (NEB).

Data showing Canada's projected oil sands growth to 2030 was published by our own government almost three years ago, in *Canada's 3rd Biennial Report* published on December 29, 2017:

Figure D: Oil sands emissions and production figures from *Canada's 3rd Biennial Report*

	2005	2015	2020	2030	change 2015-2030
Emissions	35	71	89	115	**+44 Mt CO_2eq**
Production	1.065	2.526	3.361	4.236	**+1.719 million bpd**

Source: *Canada's 3rd Biennial Report to UNFCCC* (December 29, 2017), Table 5.9

The above table, reproduced from the record of evidence in our case, was the most recent data available at the time we filed our case in November 2018. It showed that Canada was projecting that oil sands production would increase by 1.7 million bpd between 2015 and 2030. The Government of Canada's data acknowledged that this planned oil sands production expansion would be accompanied by a 44 Mt CO_2eq increase in annual emissions from that industry.

Other evidence that we presented to the Court, which I will not reproduce here, established that, based on this expansion, the oil sands industry would be the largest source of new emissions growth in Canada over the next decade.

New evidence from several Government of Canada sources provides an updated picture of the emissions implications of continuing to expand oil sands output to 2030.

This new evidence, which I summarize below in Figures E and F, was not available to be included in our case. The purpose of including the more recent material in this Appendix is that it clearly shows, two years after we began this litigation, that Canada's oil and gas industry (accommodated and enabled by the Federal Government) is continuing to follow a path that will very substantially increase our oil production and related emissions.

Figure E reproduces oil and gas sector emissions data published in *Canada's Fourth Report on Climate Change*, released on January 2, 2020. (In the record of evidence we filed in our case in November 2018, we included a similar table based on the Government of Canada's data from 2015). The data in Figure E are updated to 2017. The *Fourth Report on Climate Change* is Canada's official report to the United Nation Framework Convention on Climate Change. Table A2.1 at page 118 of that report provides oil and gas emissions data from 2005 to 2017, and sets out annual emissions for each sub-sector. The data confirm that the oil sands sub-sector since 2005 has accounted for all of the increase in oil and gas sector emissions up to 2018. Oil sands production is also projected to account for all of the emissions growth in the oil and gas sector to 2030.

Figure E: Canada's Oil and Gas Sector: Emissions by sub-sector (million of tonnes of CO_2eq)

	2005	2015	2017	2020	2030	Change 2005-2030

Natural Gas Production and Processing	57	52	50	45	38	**-19 Mt**
Conventional Oil Production	30	36	31	32	28	**-2 Mt**
Oil Sands	36	71	81	94	110	**+75 Mt**
Oil and Natural Gas Transmission	12	10	10	10	10	**-2 Mt**
Petroleum Products (Refining)	22	21	22	23	23	**1**
Natural Gas Distribution	1	1	1	1	1	**0**
Total	**158**	**192**	**195**	**206**	**213**	**+55 Mt**

Source: *Canada's Fourth Biennial Report* (January 2,2020), Table A2.1, page 118.

Figure F below provides both production and emissions data for the oil sands sub-sector, covering actual production and emissions up to 2018 and also includes the Government of Canada's most recent projections to 2030. The production numbers on the bottom line are in millions of barrels per day (bpd):

Figure F: ***Canada's oil sands production and emissions data 2005-2030***

	2005	**2015**	**2016**	**2017**	**2018**	**2030**
Emissions (Mt)	37	74	75	80	84	110
Production (millions bpd)	1.065	2.523	2.546	2.822	3.043	4.105

Source: Emissions data from the *National Inventory Report 1990-2018: Greenhouse Gas Sources and Sinks in Canada*, April 20, 2020, and *Canada's Fourth Biennial Report*, January 2, 2020. Production data from *Canada's Energy Future 2019, Supply and Demand Projections to 2040*, Canada's Energy Regulator, December 3, 2019.

The new data, compared to the earlier 2017 data we presented to the Court (see Figure D above), project a slightly lower level of oil sands output by 2030: the new production number is 4.1 million bpd, compared to the 4.236 million bpd number given in 2017.

Similarly, the new data show that oil sands emissions by 2030 are expected to increase to 110 Mt, compared to 115 Mt in the 2017 report.

But there has been no substantial change in Canada's ambitions to continue to expand oil production.

The lower emissions number reflects a slightly lower production level – and does not indicate any new emissions reduction policies or technological advances in that sector. The lower production number reflects a more pessimistic outlook for long-term oil prices. Alberta's oil sands industry, compared to other global oil suppliers, is a relatively high cost producer. Accordingly, expected lower oil prices over the next decade have resulted in some lowering in expected production growth in Canada.

But what is significant is that, despite increased uncertainty about long-term oil prices (and notwithstanding pressing climate policy concerns), the Government of Canada's reports and industry plans show no signs of any significant curb on future production.

The production data in Table F is taken from *Canada's Energy Future 2019, Supply and Demand Projections to 2040*, a report released by Canada's Energy Regulator (CER) on December 3, 2019 (CER is the successor to the previously named NEB). A link to the data sets that provide the detailed production figures is found at https://apps.cer-rec.gc.ca/ftrppndc/dflt.aspx?GoCTemplateCulture=en-CA

The emissions data in Table F for the years 2005 and 2015-2018 is reproduced from the *National Inventory Report 1990-2018: Greenhouse Gas Sources and Sinks in Canada*, published April 20, 2020. The projected emissions for the oil sands sector in 2030 are taken from *Canada's Fourth Biennial Report* (January 2, 2020).

The new data, which was not included in our summary of evidence presented to the Court, confirm that during the three-year period, through 2016 to 2018, oil sands emissions increased by 10 million tonnes (Mt), accompanied by a production increase of 520,000 barrels per day. It also shows that over the period 2018 to 2030, the annual level of emissions from the oil sands industry is projected to increase by another 26 Mt.

Therefore, taking 2015 as a base year, Canada's oil sands production is expected to increase by about 1.5 million bpd to 2030, and the increase in the annual level of emissions in that industry will be about 36 Mt, above the 2015 level.

This expansion cannot be reconciled with the Government of Canada's professed climate commitment, in two ways:

Canada is not on track to achieve its own NDC to cut our domestic emissions by 30% below the 2005 level by 2030, which is the commitment Mr. Trudeau promised in Paris in December 2015. We are the world's 10th largest emitter. Canada's commitment is to reduce our emissions to 513 Mt by 2030. The 2005 level was 730 Mt. Canada's most recent emissions report released by the Federal Government in April 2020 shows that, for 2018, Canada's total emissions were 729 Mt. After 13 years, we had achieved a total reduction of 1.0 Mt.

The second contradiction, more consequential even than our domestic failure, is that we are set on expanding oil sands production by 1.0 million bpd by 2030 (along with similar expansionary plans by the other leading oil producers including the United States) at a time when the unchallenged evidence is that global oil production must be reduced by at least 10 million bpd between now and 2030, and that is just a minimal goal to limit the warming increase to 1.8°C.

The rising atmospheric carbon concentration level and warming

The evidence we presented to the Court about the rising atmospheric carbon concentration level explains why the timeline to arrest any further expansion of oil production – and to achieve deep cuts in our consumption of oil, coal, and natural gas – is brief and unforgiving. Like a great ship at sea, the peril is fast approaching and, even after we begin to turn away from impending catastrophe, it will take time to achieve a transformation of our energy systems sufficient to avoid the worst impacts of climate disequilibrium.

The relentless increase in the atmospheric carbon concentration every year (now rising by about 2.5 parts per million (ppm) CO_2 each year, as I will show below) explains our predicament. The uncontested scientific evidence is that an atmospheric concentration of 450 ppm CO_2 will irrevocably commit us to warming of 2°C.

The carbon concentration level in 2019 reached 409.8 ppm CO_2. When we prepared our summary of evidence for this case in the summer of 2018, the most recent available evidence was from 2017, documenting that it had reached 405 ppm that year. In 2014, when the City of Vancouver challenged the Government of Canada's NEB inquiry imploring it to consider evidence about climate change (it refused to do so), the atmospheric concentration was 397.2 ppm.

When we prepared our summary of evidence for this case, the published record of findings by atmospheric scientists had concluded that the concentration level was increasing at 20 ppm per decade (IPCC 2018, Chapter 1 at 1-8), an average rise of 2.0 ppm every year. That was based on a decade-long period before the publication of that report, back to 2008 and 2009 when the annual increases ranged between 1.59 ppm and 2.02 ppm. Based on the more recent results reported for the six years immediately preceding 2018, we included in our summary of evidence for the Court a statement that the recent increase had reached an average of 2.3 ppm per year.

The most recent data now available confirm that the average annual rise during the past five years has been 2.5 ppm. The U.S. National Oceanic Atmospheric Administration's (NOAA) Mauna Loa Observatory located in Hawaii has been monitoring atmospheric carbon dioxide levels since 1958. The data set out in Figure G below are found on the NOAA, Earth System Research Laboratory, Global Monitoring Division website, https://www.esrl.noaa.gov/gmd/ccgg/trends/index.html

Figure G: Annual rise in the atmospheric carbon concentration level in parts per million (ppm) CO_2

	Mauna Loa Observatory	global average
2015	2.95	2.96
2016	3.01	2.86
2017	1.90	2.14
2018	2.86	2.40
2019	2.46	2.56

Source of data: National Oceanic & Atmospheric Administration (NOAA), Earth System Research Laboratories, Trends in Atmospheric Carbon Dioxide https://www.esrl.noaa.gov/gmd/ccgg/trends/gr.html

The five-year average at Mauna Loa is 2.63 ppm. The average based on data from multiple monitoring stations around the world including the Mauna Loa Observatory in Hawaii shows an increase of 2.58 ppm every year.

The rising atmospheric carbon concentration level is driving the heating of the earth's surface.

The evidence presented to the Court noted that at the time of the IPCC's Fifth Assessment Report published in 2013-2014, the rise in global mean surface temperature was 0.85°C above the pre-industrial average, which was based on temperature records up to 2012. The more recent IPCC Special report released on October 7, 2018, concluded that global surface temperature had increased 1.0°C above the pre-industrial level (the pre-industrial level is taken to be the average over the period 1850-1900). The evidence also shows that two-thirds of total surface warming has occurred since 1970.

New evidence, not available when we prepared our case two years ago, reports that global mean temperature in 2019 was about 1.1±0.1 °C above the 1850-1900 baseline: see the World Meteorological Organization, *WMO Statement on the State of the Global Climate in 2019.* The WMO reports that 2016 remains the warmest year ever on record, and that the past five years all rank in the five warmest years on record.

The concentration level is now increasing by slightly more than 10 ppm CO_2 every four years. The remaining margin to 2°C, before we exceed 450 ppm, is 40 ppm.

The margin left to keep global heating from exceeding 1.5°C is much smaller.

The remaining margin is further reduced by the additional warming effect of other greenhouse gases released into the atmosphere every year, principally methane and nitrous oxide. Taking into account other GHGs, the IPCC Fifth Assessment Report in 2014 concluded that we are on a path to exceed 450 ppm $GtCO_2eq$ by 2030, in the

absence of major changes in emissions-reduction policies. Major changes have not occurred.

Even with immediate and massive emissions cuts effectively implemented now, the ability of industrial economies to quickly and significantly reduce the magnitude of the annual incremental increases in the atmospheric carbon concentration (now rising by about 2.5 ppm every year) is severely constrained. Assuming unprecedented action now on a global scale, the annual increases in the carbon concentration level would still only very gradually decline, down to 2.0 or perhaps to 1.5 ppm by the end of this decade, but only if we were to achieve an extraordinary reduction of emissions in the range of 25% to 50%, in line with the policy objectives in the *UN Emissions Gap Reports* and the IPCC *Special Report*. Even with gradually diminishing increases each year, the overall atmospheric concentration level (which reached 409.8 ppm in 2019) will still be rising every year to 2030, and the remaining margin (now 40 ppm for 2°C) will continue to diminish rapidly over the next ten years.

Further, the studies we presented to the court all confirm that even if we were to successfully close the "emissions gap" by 2030 – thereby giving us (and our children) further time over the following decades to work to complete a transition of our energy systems away from our reliance on oil, coal, and natural gas, ongoing emissions of CO_2 and methane and other GHGs will still continue to be released from industrial sources and transportation for another 20 or 30 years, albeit in declining volumes, until we reach what politicians like to call "net-zero" in 2050 or after. The atmospheric carbon concentration level will continue to rise, although we hope in smaller increments, for many more decades.

These of course are the small evidentiary details. But this story about the imminence of our peril is found in the small details.

In the context of the above evidence about the atmospheric carbon concentration level and its significance in driving the heating of the earth, and given the minute and rapidly depleting margin before we reach 450 ppm CO_2, and taking into account the ample and detailed evidence documenting the present intention of Canada and the world's other major producers to continue expanding their oil production to 2030, it is difficult to imagine any situation that could better be described as an "imminent peril".