

ARTICLES

From Smokes to Smokestacks: Lessons from Tobacco for the Future of Climate Change Liability

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ABSTRACT

In this Article, we imagine a future, circa 2030, wherein the world has managed to avoid the worst climate change, yet has begun to experience considerable warming. Governments of all levels, especially at the state and provincial-level, are incurring unprecedented costs to mitigate the effects of climate change and adapt to new and uncertain climatic regimes. We consider how legislatures might respond to these imagined challenges. In our view, the answer may lie in the unprecedented story of tobacco liability, and especially the promulgation of state and provincial legislation specifically designed to enable the recovery of the public healthcare costs of tobacco-related diseases in the 1990s. This Article delves into the legally-relevant differences and similarities between the tobacco industry and the fossil-fuel industry. It also sets out the main elements of a potential Climate Change Damages and Adaptation Costs Recovery Act, mirroring similar legislation passed to combat tobacco-related issues. As will be seen, the design of such legislation engages several complex legal issues, implicating not only tort doctrine but also questions of legislative competence and private international law. Nevertheless, our initial assessment is that such legislation is both likely and feasible. Our analysis focuses primarily on Canadian law but is relevant to other jurisdictions grappling with the increasing costs of climate change mitigation and adaptation.

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TABLE OF CONTENTS

I.	Introduction: A Climate Changed Canada	2
II.	Background: Tobacco and Climate Change Compared	9
	A. The Ongoing History of Tobacco Litigation and Liability	9
	1. The Evolution of Tobacco Norms	9
	2. Increasing Awareness, Regulation, and Litigation	11
	3. Tobacco Liability Legislation	12
	B. The Emerging Story of Climate Change Litigation and Liability	14
	1. The Evolution of Climate Change Awareness	15
	2. Climate Change and the International Community	16
	3. Climate Change Litigation	19
III.	Analysis	23
	A. The Plaintiffs	26
	B. The Claim	26
	1. Tobacco-Related Disease	26
	2. Climate Change	27
	a. Private and Public Nuisance	28
	b. Negligence Including the Failure to Warn	28
	c. Conspiracy	31
	d. Strict Liability	31
	e. The Reasonableness of the Defendants' Conduct	32
	C. The Defendants	34
	1. Tobacco-Related Disease	34
	2. Climate Change	35
	a. Expanding the Pool of Defendants	35
	b. Jurisdictional Limits	36
	D. Causation and Apportionment	39
	1. Tobacco	39
	2. Climate change	41
	a. Causation	41
	b. Apportionment	42
IV.	Conclusion	44

I. INTRODUCTION: A CLIMATE CHANGED CANADA

The year is 2030. In Canada, mean annual temperatures have increased two degrees Celsius over most land areas, with the greatest increases occurring in northern and eastern Canada as well as during the winter and spring seasons.¹

1. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: SYNTHESIS REPORT 10 (R.K. Pachauri & L.A. Meyer ed.s, 2015) [hereinafter IPCC5]; F.J. WARREN & D.S. LEMMON ED.S, CANADA IN A CHANGING CLIMATE: SECTOR PERSPECTIVES ON IMPACTS AND ADAPTATION 27 (GOVERNMENT OF CANADA 2014). Between 1950 and 2010, Canada's average temperatures had already increased by 1.5 degrees Celsius, representing a rate of warming approximately twice the global average. See WARREN & LEMMON, *supra* note 1, at 27.

Heat waves are more common than they were thirty years ago.² Canada's lakes have warmed, resulting in more frequent algal blooms and corresponding declines in freshwater fish populations.³ Mean annual precipitation and the number of yearly extreme precipitation events have also increased.⁴ At the same time, Alberta and Saskatchewan are experiencing drought conditions as a result of declining mean annual streamflow⁵ and intermittent flood events. Cold season storms have shifted poleward.⁶ Coastal areas are experiencing erosion from a combination of sea level rise and higher intensity storms.⁷ Changes in ocean temperatures, currents, and acidification have disrupted marine ecosystems.⁸ The world has managed to avoid the worst climate change (RCP8.5), yet has begun to experience considerable warming (between RCP2.6 and RCP4.5).⁹

The effects of these changes are felt environmentally, economically, and socially. In Western Canada, drought has led to disruptions in conventional agricultural production and has required construction of additional irrigation infrastructure.¹⁰ Decreased precipitation, increased evaporation, and rapidly shrinking glaciers in the West and North¹¹ have begun to affect water levels in lakes and rivers, which in turn have begun to affect the reliability of hydroelectric generation. This problem is exacerbated in the summer when water levels are low and domestic energy demands are high due to the country's shift away from natural gas-based heating to electricity-based cooling.¹² Diminishing water resources have also significantly impacted the water-intensive activities associ-

2. See WARREN & LEMMON, *supra* note 1, at 31–32 for a discussion of current upward temperature trends and for projected changes.

3. Emily Chung, *World's Lakes are Warming Surprisingly Quickly Due to Climate Change*, CBC NEWS (Dec. 17, 2015), <http://www.cbc.ca/news/technology/warming-lakes-1.3369700>.

4. See WARREN & LEMMON, *supra* note 1, at 31–32 for a discussion of observed changes in participation and extreme precipitation events.

5. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY 1456–57 (R.K. Pachauri & L.A. Meyer eds., 2015) [hereinafter IPCC].

6. Working Group I, Intergovernmental Panel on Climate Change, *Observations: Surface, and Atmospheric Climate Change*, in CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS 281 (R.K. Pachuri & A. Reisinger eds., 2007).

7. IPCC, *supra* note 5, at 364.

8. *Id.* at 374.

9. See Intergovernmental Panel on Climate Change, *Climate Change 2014: Summary for Policy Makers, Impacts, Adaptation and Vulnerability Contribution of Working Group II to the Fifth Assessment Report*, at 14–15 (Cambridge University Press) [IPCC5]. The acronym “RCP” stands for “Representative Concentration Pathways.” There are four pathways used in IPCC5. RCP8.5 is a “high pathway for which radiative forcing reaches 8.5 W/m² by 2100 and continues to rise for some amount of time; [RCP4.5 and 2.6 are] two intermediate ‘stabilization pathways’ in which radiative forcing is stabilized at approximately 6 W/m² and 4.5 W/m² after 2100; and one pathway [RCP2.6] where radiative forcing peaks at approximately 3 W/m² before 2100 and then declines.” Graham Wayne, *The Beginner's Guide to Representative Concentration Pathways*, SKEPTICAL SCIENCE 11 (Aug. 2013), <http://www.skepticalscience.com/rcp.php>.

10. See WARREN & LEMMON, *supra* note 1, at 107 for a discussion of changing suitability of lands to support specified crops and the impacts of pests, diseases, and invasive alien species.

11. *Id.* at 7–8.

12. *Id.* at 69, 84.

ated with the production of oil and gas. In particular, Alberta's Lower Athabasca River is under extreme pressure having exceeded its capacity to sustain both oil sands operations and its own downstream ecosystems.¹³ This is so despite the fact that significant amounts of money have been spent to build additional off-stream water storage.¹⁴ Indeed, climate change has adversely impacted resource industries at all stages of operation, particularly in the North where thawing permafrost and associated instability pose a risk for energy infrastructure like pipelines.¹⁵ Northern resource companies are spending large amounts of money to drive pile foundations deeper and to fly-in supplies as winter roads now have shorter operating seasons.¹⁶

Agricultural production is increasingly impacted by invasive species and diseases, resulting in significant annual losses for some crops. Forestry has been affected by fires and invasive species.¹⁷ Offshore ocean acidification and warming have put further stress on fish stocks.¹⁸ For many species, the rate of environmental change exceeds their ability to adapt. Such shifts in species distribution have resulted in novel ecosystems with different species assemblages, structural attributes, and ecological functions.¹⁹ Despite a boom in 'last chance tourism' during which time visitors rush to see glaciers and wildlife species before they disappear, an overall decline in winter tourism contributes to unemployment, especially in Alberta and British Columbia.²⁰

All levels of government, but especially provincial-level governments, are incurring unprecedented costs as they try to simultaneously adapt to this new climactic reality and pay for damage to public infrastructure. Rising sea levels have required extensive modifications to urban centers and transportation infrastructure along Canada's coasts, including shoreline protection and the relocation of roads. Canada's northern communities face similar difficulties, which are driven by more frequent wildfires. Across the board, ensuring reliable water

13. Emily Chung, *Oilsands May Face Severe Water Shortages, Athabasca River Study Suggests*, CBC NEWS (Sept. 21, 2015), <http://www.cbc.ca/news/technology/oilsands-water-use-1.3237239>.

14. In 2010, an expert panel of the Royal Society of Canada suggested that concerns relating to withdrawals during low-flow periods might be addressed by capturing additional water in off-stream storage during spring peak flow periods. PIERRE GOSSELIN ET AL., ENVIRONMENTAL AND HEALTH IMPACTS OF CANADA'S OIL SANDS INDUSTRY 284 (The Royal Society of Canada 2010).

15. See WARREN & LEMMON, *supra* note 1, at 70.

16. See Christa Marshall, *Canada Struggles with Melting Permafrost as Climate Warms*, SCIENTIFIC AMERICAN (July 7, 2014), <https://www.scientificamerican.com/article/canada-struggles-with-melting-permafrost-as-climate-warms/>.

17. Bruce Cheadle, *Climate Change Bringing Larger Forest Fires, More Bugs, Diseases, Natural Resources Canada Warns*, THE CANADIAN PRESS (Sept. 28, 2016), <https://www.thestar.com/news/canada/2016/09/28/climate-change-bringing-larger-forest-fires-more-bugs-diseases-natural-resources-canada-warns.html>.

18. Canadian Press, *Canada's Marine Ecosystems Face Threat: Report*, CBC NEWS (Oct. 10, 2010), <http://www.cbc.ca/news/technology/canada-s-marine-ecosystems-face-threat-report-1.932414>.

19. See WARREN & LEMMON, *supra* note 1, at 161.

20. *Id.* at 147–48.

services has required significant investment.²¹ Another significant strain on public healthcare services comes from the increased heat waves and the migration of infectious and climate sensitive diseases, such as Lyme disease and West Nile virus.²² Mental health costs have also increased, particularly in the North where many people have lost their livelihoods and their connection to traditional cultural practices.²³ Those costs borne by federal and provincial governments for climate related disasters in past decades, like the \$1.5 billion associated with the Fort McMurray, Alberta fire in 2016²⁴ or the nearly \$5 billion to recover and rebuild infrastructure after the Alberta floods in 2013,²⁵ pale in comparison to the costs now incurred by the government.

Faced with an insurmountable fiscal gap and continuing funding pressures, members of British Columbia's Legislative Assembly, sitting in the 3rd session of the 45th Parliament, have just finished their most recent debate of Bill 48, the *Climate Change Damages and Adaptation Costs Recovery Act*. Excerpts from the Act's debate, recorded in *Hansard*, are as follows:²⁶

Hon J. MacPhail Jr. (Minister of Environment and Climate Change): "This legislation . . . gives the government . . . the legal authority to proceed to courts to collect [infrastructure, healthcare] and other prescribed costs resulting from [climate change-related effects] such as [rising sea levels, increased flooding, and disease]. With this legislation, we are trying to ensure that court action is not thrown out on technical grounds. For too long, the [fossil-fuel industry] has had an unfair advantage in court. Our proposed legislation allows for the introduction in court of statistical evidence . . . This will allow the case to be made even more strongly and more clearly that [the burning of fossil fuels causes climate change and its related effects].

"In addition, we are including a section regarding liability based on risk contribution. It will mean that [in an action against fossil fuel companies] the government [will not] have to prove that [their specific product or activity

21. *Id.* at 236. See also David Thurton, *Fort McMurray Seeing Big Spike in Water-Treatment Costs*, CBC NEWS (Feb. 9, 2017), <http://www.cbc.ca/news/canada/edmonton/fort-mcmurray-wildfire-water-treatment-costs-contaminants-1.3973249>.

22. See WARREN & LEMMON, *supra* note 1, at 173, 221.

23. *Id.* at 208, 215.

24. The Conference Board of Canada estimates the total costs of this fire to be \$5.3 billion, with private insurers responsible for approximately \$3.6 billion in claims. NEWS RELEASE, CONFERENCE BOARD OF CANADA, *Fort McMurray Wildfires to Cost Governments and Insurers More Than \$5 Billion* (Nov. 2016), http://www.conferenceboard.ca/press/newsrelease/16-11-15/fort_mcmurray_wildfires_to_cost_governments_and_insurers_more_than_5_billion.aspx.

25. MNP, REVIEW AND ANALYSIS OF THE GOVERNMENT OF ALBERTA'S RESPONSE TO AND RECOVERY FROM 2013 FLOODS I (July 2015).

26. The following excerpts are borrowed almost verbatim from *Hansard* that accompanied the passage of British Columbia's *Tobacco Damages and Health Care Costs Recovery Act*, see *infra* note 27, except that the terminology has been changed from tobacco to climate change-relevant. For simplicity, the names used here are the names of the original members of the legislature discussing that legislation, with the addition of the "Jr." suffix.

caused climate change], but that [the burning of fossil fuels] generally causes [climate change] . . . With this legislation, we are also extending the limitation period. . . .”²⁷

M. de Jong Jr.: “I guess it just bears emphasizing, then, that these are special rules. They are justified on the basis, as I understand it, of [. . .] who the defendants are anticipated to be.”

Hon J. MacPhail Jr.: “Let me say that they are not special rules in terms of stacking the odds. They are rules to deal with the complexities of the matter that will be brought forward for the court [. . .]. As we said at second reading, it is to ensure that the playing field is fair—given the complexity of the action—and also that the matter proceeds to court in an orderly way.”²⁸

S. Hawkins Jr.: “This section permits the court to admit evidence that otherwise was not admissible as evidence, and I wonder what the public policy behind this section is.”

Hon. J. MacPhail Jr.: “First of all, I’ll describe what this clause does. It allows the court to establish causation and to quantify damages for [climate change]-related damages on an aggregate basis, as opposed to an individual basis, through the use of statistical evidence . . . provided the information was compiled in accordance with accepted statistical standards. The reason for this is that in the past, court cases have been rejected on the basis of technicalities.”²⁹

Hon. P. Priddy Jr.: “At trial, the government must initially prove [two] elements of the case: first, that the [fossil fuel] industry breached a legal duty, such as the failure to warn of dangers inherent in [fossil fuel] products . . .; second, that [combustion of fossil fuels contributed to climate change]. Once these elements are proven, the burden shifts to the [fossil fuel] companies. It will then be their obligation to show that their breach of a legal duty did not cause or did not contribute to any or all of the costs that [. . .] were incurred.

“One further change involves the extent of liability of an individual [retailer or] manufacturer. These amendments establish a presumption that when the government presents its case against a manufacturer, the manufacturer will be liable for the proportion of public costs equivalent to its share of the market for that product. However, it will be open to the manufacturer to show that such apportionment is unfair. . . .”³⁰

27. British Columbia, Legislative Assembly, Official Report of Debates of the Legislative Assembly (Hansard), 36th Parliament, 2nd Session, Vol. 7, No. 5 (July 22, 1997) at 6110 (Hon. J. MacPhail).

28. British Columbia, Legislative Assembly, Official Report of Debates of the Legislative Assembly (Hansard), 36th Parliament, 2nd Session, Vol. 7, No. 8 (July 24, 1997) at 6313 (Hon. J. MacPhail).

29. *Id.* at 6315.

30. British Columbia, Legislative Assembly, Official Report of Debates of the Legislative Assembly (Hansard), 36th Parliament, 3rd Session, Vol. 12, No. 11 (July 29, 1998) at 10713 (Hon. Priddy).

If the passages excerpted above and the legislation described therein seem improbable or even fantastical, readers may be surprised to learn that they are an almost *verbatim* reproduction of some of the *Hansard* from British Columbia's 36th Parliament, which in 1997 passed the *Tobacco Damages and Health Care Costs Recovery Act*³¹ to create "a new civil cause of action" in British Columbia that permitted the government to directly recoup the public healthcare costs associated with tobacco-related disease.³² As further discussed in the next Section, while that initial law was struck down by the Supreme Court of British Columbia,³³ a subsequent bill was re-drafted and upheld by the Supreme Court of Canada in *British Columbia v. Imperial Tobacco Canada Ltd.*³⁴ and almost every Canadian province has since passed similar legislation.³⁵

In this Article, we examine the developments that led to the passage of the *Tobacco Damages and Health Care Costs Recovery Act* and assess the likelihood that climate change litigation and liability will follow a similar path. More specifically, we assess the potential for, and feasibility of, a similarly structured *Climate Change Damages and Adaptation Costs Recovery Act* and the Acts implications for the fossil-fuel industry.

To be sure, we are not suggesting that legislation is a necessary pre-requisite to climate litigation. As further discussed in Section II *infra*, there is already a growing first wave of such litigation against both governments and corporations,³⁶ and new legal theories of liability continue to be developed and tested.³⁷

31. Tobacco Damages Recovery Act, S.B.C. 1997, c. 41, s.13 *amended by* S.B.C. 1998, c. 45, *repealed by* Tobacco Damages and Health Care Costs Recovery Act, S.B.C. 2000, c.30, s. 11.

32. *JTI-Macdonald Corp. v. AGBC*, 2000 BCSC 312, ¶ 12 (CanLII).

33. *Id.* ¶¶ 237–38.

34. *British Columbia v. Imperial Tobacco, Canada Ltd.*, 2005 SCC 49, [2005] 2 S.C.R. 473, ¶ 3 (Can.).

35. Tobacco Damages and Health Care Costs Recovery Act, R.S.P.E.I. 1988, c. T-3.002 (Can.); Tobacco Damages and Health-care Costs Recovery Act, S.N.S. 2005, c. 46 (Can.); Tobacco Damages and Health Care Costs Recovery Act, S.N.B. 2006, c. T-7.5 (Can.); Tobacco Damages and Health Care Costs Recovery, S.S. 2007, c. T-14.2 (Can.); Tobacco Damages and Health Care Costs Recovery Act, SO 2009, c 13 (Can.); Tobacco Damages and Health Care Costs Recovery Act, S.Nu. 2010, c. 31 (Can.) (not yet in force); Tobacco Damages and Health Care Costs Recovery Act, C.C.S.M. 2012, c. T70 (Can.); Tobacco-related Damages and Health Care Costs Recovery Act, CQLR 2009, c. R-2.2.0.0.1 2009 (Can.).

36. Michael Burger, *Local Governments in California File Common Law Claims Against Largest Fossil Fuel Companies*, SABIN CENTER FOR CLIMATE CHANGE LAW: CLIMATE LAW BLOG (July 18, 2017), <http://blogs.law.columbia.edu/climatechange/2017/07/18/local-governments-in-california-file-common-law-claims-against-largest-fossil-fuel-companies/>. Most recently, on July 17, 2017, three California counties (San Mateo County, Marin County and the City of Imperial Beach), filed statements of claim against twenty fossil-fuel companies which they allege are responsible for approximately twenty percent of all global emissions and, consequently, a substantial portion of the costs incurred by those counties in mitigating the effects of climate change, especially sea level rise. The statements of claim for these cases are available on the Sabin Centre for Climate Change Law's website: <http://columbiaclimatelaw.com/>. We also discuss them further in Section III.B.2 *infra*.

37. See Peter Frumhoff et al., *The Climate Responsibilities of Industrial Carbon Polluters*, 132 CLIMATE CHANGE 157 (2015) for a discussion of the conceptual responsibility of corporations. See also CLIMATE CHANGE JUSTICE AND HUMAN RIGHTS TASK FORCE, INTERNATIONAL BAR ASSOCIATION, *ACHIEVING JUSTICE AND HUMAN RIGHTS IN AN ERA OF CLIMATE DISRUPTION* 147–54 (2014) for a discussion of the growing international recognition of corporate responsibility for human rights harms stemming from climate change.

In Canada, for example, lawyers at West Coast Environmental Law recently sent letters to municipalities throughout British Columbia urging them to consider joining a class action against major fossil fuel companies to recover the costs of climate change adaptation.³⁸ In 2014, several environmental groups in Canada sent letters to various energy companies asking them about their climate change communications and lobbying practices. These environmental groups admitted to drawing their inspiration from the legal fight against the tobacco industry: “We’re laying the groundwork for court cases to come . . . In many ways, the oil industry is right now where the tobacco industry was back in the 1980s.”³⁹

At the same time, private liability for climate change can be a jarring idea in some circles. Responding to the above-noted 2014 letter writing campaign, an editorial in the *Calgary Herald* argued that the comparison between the tobacco and energy industries “doesn’t stand up to even cursory examination. One is a product that is always hazardous to human health when consumed, the other is a staple of the modern world.”⁴⁰ Perhaps most importantly, the fossil fuel industry, including fossil fuel producers and manufacturers of fossil fuel consuming products like cars, does not currently regard climate change liability as a substantial risk. The Canadian Association of Petroleum Producers dismissed the environmental groups’ 2014 effort as a “stunt.”⁴¹ More recently, in the United States, the world’s largest auto-manufacturers asked the Environmental Protection Agency (EPA) “to reconsider a recent decision to lock in strict fuel efficiency standards for cars and light trucks to be produced in model years 2022 to 2025.”⁴² This request suggests that the industry sees government regulation as the only relevant floor for its conduct even though “compliance with a statutory standard of care does not abrogate or supersede the obligation to comply with the common law standard of care.”⁴³ In other words, the fossil fuel industry does not seem concerned with tort law’s historic role “as backdrop and partner to environmen-

38. See Liam Britten, *Should Cities Sue Fossil Fuel Companies for Climate Change Costs*, CBC NEWS (Jan. 25, 2017), <http://www.cbc.ca/news/canada/british-columbia/climate-change-lawsuit-1.3952498>.

39. Canadian Press, *Energy Firms Warned Over Communication About Climate Change: Strategy Modelled After Campaign Against Tobacco Companies*, CBC NEWS (May 28, 2014), <http://www.cbc.ca/news/technology/energy-firms-warned-over-communication-about-climate-change-1.2657185>.

40. Editorial, *Environmental Groups Forget Where Their Pleadings Would Take Us*, THE CALGARY HERALD (June 2, 2014), <http://calgaryherald.com/opinion/editorials/editorial-environmental-groups-forget-where-their-pleadings-would-take-us>.

41. Canadian Press, *supra* note 39.

42. Juliet Eilperin & Steven Overly, *Automakers Ask EPA to Overturn Recent Review of Fuel-Efficiency Standards*, WASHINGTON POST (Feb. 22, 2017), https://www.washingtonpost.com/national/health-science/automakers-ask-epa-to-overturn-recent-review-of-fuel-efficiency-standards/2017/02/22/81ad1398-f920-11e6-9845-576c69081518_story.html?hpid=hp_hp-top-table-main_pruitt-1145a%3Ahomepage%2Fstory&utm_term=.6b3cf486027c.

43. *Ryan v. Victoria (City)*, [1999] 1 S.C.R. 201, 204 (Can.) (“Compliance with a statutory standard of care does not abrogate or supersede the obligation to comply with the common law standard of care. The requirements are concurrent, and each carries its own penalty for breach.”).

tal, health, and safety regulation.”⁴⁴

At its core, this Article serves as a reminder that the law is not static. Legal systems, including rules of responsibility and liability, change with advancements in scientific understanding and shifts in societal values. Such legal changes can play an important role in societal change.⁴⁵ Section II of this Article sets out the history and current state of regulation, litigation, and liability in both the tobacco and climate change contexts. Section III uses the *Tobacco Damages and Health Care Costs Recovery Act* as a lens to set out the main elements of a *Climate Change Damages and Adaptation Costs Recovery Act*. It will show how the design of such legislation engages several complex issues, including tort doctrine, especially causation and apportionment, and questions of legislative competence and private international law. The Article concludes in Section IV with an initial assessment concerning the likelihood and viability of such legislation and the implications for the fossil fuel industry today. Although potentially constrained in some respects, such legislation is both likely and feasible. Furthermore, the fossil fuel industry will have to adopt courses of action that seek to avoid further climate change, and prevent, avoid, or mitigate liability. To achieve this, industry could rapidly adopt best available technologies, discontinue activities that provide disinformation, and warn consumers of the dangers of climate change associated with their products.⁴⁶

II. BACKGROUND: TOBACCO AND CLIMATE CHANGE COMPARED

A. THE ONGOING HISTORY OF TOBACCO LITIGATION AND LIABILITY

As further set out below, tobacco norms evolved overtime. Informed by scientific understanding of the dangers associated with smoking, a product that was initially ubiquitous with North American society faced increasing regulation and waves of litigation. Facing massive public healthcare costs associated with tobacco-related disease, this culminated in many Canadian provinces passing legislation that fundamentally changed the rules applicable to tobacco liability.

1. The Evolution of Tobacco Norms

Most accounts of the history of tobacco regulation and liability begin with the United States in the early 1950s. By this time, almost half of all Americans

44. Douglas Kysar, *What Climate Change Can Do About Tort Law*, 41 ENVTL. L. REV. 1, 5 (2011).

45. Neil Gunningham, R Kagan, & D Thornton, *Social License and Environmental Protection: Why Businesses Go Beyond Compliance*, 29 L. & SOC. INQUIRY 307, 329 (2004).

46. See Frumhoff et al., *supra* note 37, at 168 for a list of suggested steps fossil fuel companies should take to discharge their corporate responsibility in relation to climate change, including disclosing financial and physical risks of climate change to their operations and supporting the development of ambitious domestic and international policies designed to reduce GHG emissions to meet the Paris Agreement temperature goals.

regularly consumed tobacco products.⁴⁷ In a passage that is particularly salient to this Article, however, Professor Robert Rabin has suggested that:

. . . raw numbers fail to convey the mystique attached to the cigarette. Observers of popular culture remind us of the dramatic impact of cigarettes in the movies . . . Then there was the ubiquitous advertising presence of athletes, high society and professional figures, as well as celebrities from the entertainment world, endorsing smoking on billboards, in magazines, and over the radio. It seems no exaggeration to say that Americans loved the cigarette almost as much as the automobile.

In these early days, there was hardly a trace of the risk-sensitivity that has fueled the products liability litigation of the past twenty-five years.⁴⁸

In stark contrast to current standards and norms, smoking was acceptable in virtually every context and place; people could even smoke in schools, hospitals, airplanes, buses, and restaurants. However, all of this began to change in 1952. That year, *Readers Digest* published “Cancer by the Carton,” which summarized in plain language the alarming scientific findings of that time: smoking cigarettes increased the risk of cancer.⁴⁹ Over the next two years, society saw consumption rates drop for the first time.⁵⁰ This also brought about the genesis of the tobacco industry’s decades-long campaign to manufacture doubt about the growing scientific evidence linking tobacco consumption to disease.⁵¹

What has come to be known as the first, and universally unsuccessful, wave of tobacco litigation soon followed, beginning with *Lower v. R.J. Reynolds Tobacco Co.*⁵² There were several reasons for this failure, including the tobacco industry’s adoption of a “scorched earth” litigation strategy of exhausting the plaintiffs’ resources by prolonging litigation.⁵³ Plaintiffs also encountered difficulties with the relevant legal doctrines, especially when claiming that tobacco-related harms were reasonably foreseeable at that time.⁵⁴ The tobacco industry initially denied

47. PUBLIC HEALTH SERVICE, U.S. DEP’T OF HEALTH, EDUC., AND WELFARE, PUB. NO. 1103, SMOKING AND HEALTH: REPORT OF THE ADVISORY COMMITTEE TO THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE 26 (1964).

48. Robert L. Rabin, *A Sociological History of the Tobacco Tort Litigation*, 44 STAN. L. REV. 853, 855 (1992).

49. Roy Norr, *Cancer by the Carton*, READER’S DIG. 35 (Dec. 1952).

50. Rabin, *supra* note 48, at 856.

51. Naomi Oreskes & Erik Conway, MERCHANTS OF DOUBT: HOW A HANDFUL OF SCIENTISTS OBSCURED THE TRUTH ON ISSUES FROM TOBACCO SMOKE TO CLIMATE WARMING 5–6 (2010).

52. Rabin estimates that between 100 and 150 similar cases were subsequently filed. Rabin, *supra* note 48, at 857.

53. Jeff Berryman, *Canadian Reflections on the Tobacco Wars: Some Unintended Consequences of Mass Tort Litigation*, 53 INT’L & COM. L. Q. 579, 580 (2004); Frank J. Vandall, *The Legal Theory and the Visionaries that Led to the Proposed \$368.5 Billion Tobacco Settlement*, 27 SW. U. L. REV. 473 (1997–98).

54. Rabin, *supra* note 48, at 860–61.

foreseeability, pursuing this strategy both in and outside of the courts.⁵⁵ When the link between smoking and disease became irrefutable,⁵⁶ leading to the passage of mandatory public health labelling,⁵⁷ industry shifted its argument and claimed that the plaintiff smokers had assumed the risk of disease voluntarily.⁵⁸ This defense effectively quashed the second wave of litigation.

2. Increasing Awareness, Regulation, and Litigation

By the 1970s there was an increasing awareness of the dangers of second-hand smoking, and several states begin to impose restrictions on smoking in public places. In 1975, Minnesota passed the *Clean Indoor Air Act*, the United States' first state-wide anti-second-hand smoke law intended to protect "the public health and comfort and the environment by prohibiting smoking in public places and at public meetings, except in designated smoking areas."⁵⁹ Similar bans followed throughout the United States and the rest of the western world, despite opposition from the tobacco industry and ancillary industries (*e.g.* the service industry).

It was not until the late 1980's that the direction and viability of tobacco litigation changed. At that point, several U.S. states sought to recover the *public* healthcare costs associated with tobacco-related diseases, rather than the *private* costs.⁶⁰ This strategy allowed states to avoid many of the pitfalls encountered by individual plaintiffs, such as limited financial resources and personal culpability. Some states, like Florida, passed laws to make such actions easier.⁶¹ This legal battle culminated in what is now known as the 1998 Master Settlement Agreement, the terms of which included approximately \$240 billion for the recovery of Medicaid expenses incurred by its nearly fifty signatory U.S. states. It also included an absolute ban on public advertisements for cigarettes.⁶²

Around this same time, the United States government brought a lawsuit against nine cigarette manufacturers and two tobacco-related trade organizations.⁶³ The United States alleged that the defendants had and were continuing to violate the

55. Oreskes & Conway, *supra* note 51, at 6.

56. As reflected in the United States' Surgeon General's first report linking smoking and lung cancer. United States Department of Health, Education, and Welfare. U.S. DEP'T OF HEALTH, EDUC., AND WELFARE, PUB. HEALTH SERVICE, CTR. FOR DISEASE CONT., SMOKING & HEALTH: REPORT OF THE ADVISORY COMM. TO THE SURGEON GENERAL OF THE PUB. HEALTH SERVICE 5 (1964).

57. See Luca Paoletti et al., *Current Status of Tobacco Policy and Control*, J. OF THORACIC IMAGING 213 (July 2012), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3409436/>.

58. Rabin, *supra* note 48, at 862.

59. MINN. STAT. ANN. §144.412 (West 2007).

60. Frank J. Vandall, *The Legal Theory and the Visionaries That Led to the Proposed \$368.5 Billion Tobacco Settlement*, 27 SW. U. L. REV. 473, 478 (1997-98).

61. FLA. STAT. ANN. § 409.910 (West 1995).

62. Beryman, *supra* note 53, at 581.

63. *United States v. Philip Morris USA, Inc.*, 449 F. Supp. 2d 1, 26 (D.D.C. 2006).

*Racketeer Influenced and Corrupt Organizations Act*⁶⁴ by “engaging in a lengthy, unlawful conspiracy to deceive the American public about the health effects of smoking and environmental tobacco smoke, the addictiveness of nicotine, the health benefits from low tar, “light” cigarettes, and their manipulation of the design and composition of cigarettes in order to sustain nicotine addiction.”⁶⁵ The government was largely successful, with the United States District Court for the District of Columbia describing the case as follows:

[This case] is about an industry, and in particular these Defendants, that survives, and profits, from selling a highly addictive product which causes diseases that lead to a staggering number of deaths per year, *an immeasurable amount of human suffering and economic loss, and a profound burden on our national health care system. Defendants have known many of these facts for at least 50 years or more. Despite that knowledge, they have consistently, repeatedly, and with enormous skill and sophistication, denied these facts to the public, to the Government, and to the public health community . . .* In short, Defendants have marketed and sold their lethal product with zeal, with deception, with a single-minded focus on their financial success, and without regard for the human tragedy or social costs that success exacted.⁶⁶

3. Tobacco Liability Legislation

By this time, Canada had seen its own wave of largely unsuccessful private tobacco litigation.⁶⁷ In 1997, however, drawing inspiration from the aforementioned U.S. states, British Columbia passed legislation that has since been copied in almost every Canadian province: the *Tobacco Damages and Health Care Costs Recovery Act*. This legislation, which was immediately and unsuccessfully challenged by the tobacco industry, does at least four things highly relevant to the climate change liability context:

- 1) It creates a direct action against tobacco companies by the provinces to recover the public costs of healthcare incurred as a result of the tobacco-related disease where such disease is the result of some “tobacco-related wrong,” defined broadly as the breach of “a common law, equitable or statutory duty or obligation owed to persons” in that province;
- 2) It permits the provinces to use statistical, epidemiological, and sociological evidence to establish causation on an aggregate basis and to quantify damages (*i.e.*, the province’s cost of healthcare services for the tobacco-related disease);

64. 18 U.S.C. §§ 1961–68 (West 2012).

65. *Philip Morris USA, Inc.* 449 F. Supp. 2d at 26–27.

66. *Id.* at 28 (emphasis added).

67. Berryman, *supra* note 53, at 581. There has been a very recent class-action victory in *Letourneau v. JTI-MacDonald Corp.* [2015] QCCS 2382, where the Quebec Supreme Court awarded the plaintiffs \$15 billion in damages.

- 3) It apportions liability based on the market share of particular tobacco companies; and
- 4) It applies retroactively.

The passage of this type of legislation, coupled with the addition of government plaintiffs to tobacco litigation, fundamentally changed the rules of the tobacco liability game. The industry quickly and rigorously opposed this legislation because of its potential affect on industry liability.⁶⁸ In *British Columbia v. Imperial Tobacco Canada Ltd.*, the Supreme Court of Canada's last word on the matter, the industry challenged the legislation's constitutional validity "on the basis that it violates: (1) territorial limits on provincial legislative jurisdiction; (2) the principle of judicial independence; and (3) the principle of the rule of law."⁶⁹

Through an analysis that is critical to the viability of any climate change costs recovery legislation, the Court dismissed each of these arguments. With respect to extra-territoriality, the relevant head of legislative power contains an explicit territorial limit: "Property and Civil Rights *in the Province*."⁷⁰ The Court dismissed this aspect of the industry's challenge, concluding that there are "strong relationships among the enacting territory (British Columbia), the subject matter of the law (compensation for the government of British Columbia's tobacco-related health care costs) and the persons made subject to it (the tobacco manufacturers ultimately responsible for those costs)."⁷¹ It did not matter that the Act "may capture, to some extent, activities occurring outside of British Columbia."⁷² As the Court explained:

. . . no territory could possibly assert a stronger relationship to that cause of action than British Columbia. That is because there is at all times one critical connection to British Columbia exclusively: the recovery permitted by the action is in relation to expenditures by the government of British Columbia for the health care of British Columbians.⁷³

68. In addition to all of the litigation in British Columbia, the industry has challenged the same legislation in other provinces; *see, e.g.*, *Imperial Tobacco Canada Ltd. v. Québec (Procureure générale)*, [2015] QCCA 1554 (CanLII) (unsuccessfully challenging the legislation on Quebec Charter grounds). The Florida law upon which British Columbia's statute was based was also unsuccessfully challenged. *See Agency for Health Care Admin. v. Associated Industries of Fla. Inc.*, 678 So. 2d 1239, 1257 (Fla. 1996).

69. *See British Columbia, Legislative Assembly, supra* note 30, ¶ 2 for a discussion on the jurisdiction and liability of the Act.

70. *Constitution Act, 1867*, s. 92(13); *British Columbia v. Imperial Tobacco Ltd.*, 2005 SCR 49 473, ¶ 26 (quoting "Section 92 of the *Constitution Act, 1867* is the primary source of provincial legislatures' authority to legislate. Provincial legislation must therefore respect the limitations, territorial and otherwise, on provincial legislative competence found in s. 92. The opening words of s. 92 — 'In each Province' — represent a blanket territorial limitation on provincial powers. That limitation is echoed in a similar phrase that qualifies a number of the heads of power in s. 92: 'in the Province.'").

71. *Id.* ¶ 37.

72. *Id.* ¶ 38.

73. *Id.* ¶¶ 39–40. The Supreme Court went on to explain that the Court of Appeal's "emphasis on the question of whether, as a matter of statutory interpretation, the breach of duty by a manufacturer that is a necessary

With respect to judicial independence, the tobacco industry argued that the legislation “violates judicial independence, both in reality and appearance, because it contains rules of civil procedure that fundamentally interfere with the adjudicative role of the court hearing an action brought pursuant to the Act.”⁷⁴ Here, too, the Supreme Court disagreed, ruling that the judiciary’s primary role is “to interpret and apply the law, whether procedural or substantive, to the cases brought before it . . . The judiciary’s role is not . . . to apply only the law of which it approves . . . Nor is it to second-guess the law reform undertaken by legislators, whether that reform consists of a new cause of action or procedural rules to govern it. Within the boundaries of the Constitution, legislatures can set the law as they see fit.”⁷⁵

Finally, with respect to the rule of law, the industry argued that this “requires that legislation: (1) be prospective; (2) be general in character; (3) not confer special privileges on the government, except where necessary for effective governance; and (4) ensure a fair civil trial.” The Supreme Court dismissed these arguments as well, noting that both prospectivity and the right to a fair trial have specifically been circumscribed to criminal, not civil, law matters.⁷⁶

The critical question thus becomes whether similar developments, specifically the passage of similarly structured *Climate Change Damages and Adaptation Costs Recovery Acts*, are possible in the climate change context. As the next section sets out, legislation that enable governments to sue directly for the public costs of climate change mitigation and adaptation, and that permit reliance on statistical evidence to establish the relationship between human induced climate change and damage-causing weather events, would address some of the obstacles already encountered in climate litigation.

B. THE EMERGING STORY OF CLIMATE CHANGE LITIGATION AND LIABILITY

While still being written, the emerging story of climate change litigation and liability already bears a striking similarity to tobacco litigation and liability issues. Just as norms about tobacco usage changed as awareness of its dangers

condition of its liability under the cause of action created by the Act must occur in British Columbia . . . was undue, for two reasons. First, the driving force of the Act’s cause of action is compensation for the government of British Columbia’s health care costs, not remediation of tobacco manufacturers’ breaches of duty. While the Act makes the existence of a breach of duty one of several necessary conditions to a manufacturer’s liability to the government, it is not the mischief at which the cause of action created by the Act is aimed. The Act leaves breaches of duty to be remedied by the law that gives rise to the duty. *Thus, the breaches of duty to which the Act refers are of subsidiary significance to the cause of action created by it, and the locations where those breaches might occur have little or no bearing on the strength of the relationship between the cause of action and the enacting jurisdiction.*” *Id.* ¶¶ 39–40 (emphasis added).

74. *Id.* ¶ 48.

75. *Id.* ¶¶ 50–52 (“The wisdom and value of legislative decisions are subject only to review by the electorate.”) (citing *Wells v. Newfoundland*, [1999] 3 S.C.R. 199, ¶ 59).

76. *Id.* ¶¶ 63–73.

grew, the norms surrounding fossil fuel use are changing in the face of an increased scientific understanding of climate change risks. In light of this increased knowledge, a first wave of litigation is building.

1. The Evolution of Climate Change Awareness

The scientific community has been evaluating the impacts of increasing levels of greenhouse gases (GHGs) in the atmosphere on the climate system for decades.⁷⁷ While uncertainties remained around the scale of the impacts, by the late 1980s there was almost complete scientific consensus that the release of carbon dioxide (CO₂) into the atmosphere, principally caused by the burning of fossil fuels, was the cause of observed changes in the earth's climate. As the United States' National Aeronautics and Space Agency (NASA) scientist Dr. James Hansen stated in his 1988 testimony before the United States' Congress "it was 99 percent certain that the [already observable] warming trend was . . . caused by a buildup of carbon dioxide and other artificial gases in the atmosphere."⁷⁸ Reporting on Hansen's testimony, the front page of *The New York Times* concluded that the "issue of an overheating world had suddenly moved to the forefront of public opinion."⁷⁹

The United States' Congress responded by introducing the *National Energy Policy Act*,⁸⁰ with the national goals of (1) reducing the amount of carbon dioxide in the atmosphere from 1988 levels by at least twenty percent by the year 2000 and (2) establishing an International Global Agreement on the Atmosphere by 1992.⁸¹ These headlines, and the response by Congress, should not have come as a surprise to key industry leaders, such as the fossil fuel giant Exxon Corporation, which by the 1970s had become corporate leaders in climate science research.⁸²

77. The basic mechanics of climate change have been understood for a long time, with observations that carbon dioxide (CO₂) acts as a "greenhouse gas," reflecting heat rising from the earth back to the surface back in 1859, see Steve Graham, *John Tyndall, 1820-1893*, NASA.GOV, (Oct. 8, 1999), <http://earthobservatory.nasa.gov/Features/Tyndall/>, and recognition that the burning of fossil fuels was affecting mean temperatures of the earth at the twentieth century, see Steve Graham, *Svante Arrhenius, 1859-1927*, NASA.GOV, (Jan. 18, 2000), <http://earthobservatory.nasa.gov/Features/Arrhenius/>. Commentators trace more sustained discussion of anthropogenic climate change to the 1950s, with reports in the 1960s and 1970s highlighting the significance of the problem socially and economically. See Peter Frumhoff et al., *The Climate Responsibilities of Industrial Carbon Polluters*, 132 CLIMATE CHANGE 157, 161 (2015); Naomi Oreskes, *The Scientific Consensus on Climate Change*, 306 SCI. 1686 (2004).

78. Philip Shabecoff, *Global Warming Has Begun, Expert Tells Senate*, N.Y. TIMES (June 24, 1988), <http://www.nytimes.com/1988/06/24/us/global-warming-has-begun-expert-tells-senate.html?pagewanted=all>. See also J. Hansen et al., *Global Climate Changes as Forecast by Goddard Institute for Space Studies Three-Dimensional Model*, 93 J. GEOPHYSICAL RES. 9341 (1988).

79. John Noble Wilford, *His Bold Statement Transforms the Debate on Greenhouse Effect*, N.Y. TIMES (Aug. 23, 1988), <http://www.nytimes.com/1988/08/23/science/his-bold-statement-transforms-the-debate-on-greenhouse-effect.html>.

80. H.R. 5380, 100th Cong. (1988).

81. *Id.*

82. An investigation conducted by InsideClimate News concludes that Exxon's knowledge of climate

2. Climate Change and the International Community

In the same year that Dr. Hansen testified before the United States' Congress, the World Meteorological Organization (WMO) and United Nations Environment Programme (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) to provide policymakers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation.⁸³ Two years later, the IPCC released its First Assessment Report, concluding with certainty that “emissions resulting from human activities are substantially increasing the atmospheric concentrations of the greenhouse gases carbon dioxide, methane, chlorofluorocarbons (CFCs) and nitrous oxide” and that “[t]hese increases will enhance the greenhouse effect, resulting on average in an additional warming of the Earth’s surface.”⁸⁴ The IPCC’s First Assessment Report highlighted the need for global cooperation to address the climate change challenge.

The international community further responded by agreeing to the 1992 United Nations Framework Convention on Climate Change (UNFCCC).⁸⁵ With the objective of “stabiliz[ing] greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system,”⁸⁶ the Parties committed to establish national policies and measures to mitigate climate change.⁸⁷ The UNFCCC marked the beginning of GHG regulation at both the international and domestic level. However, despite the UNFCCC, its companion the Kyoto Protocol,⁸⁸ and voluntary commitments under the Copenhagen Accord,⁸⁹ global concentrations of GHG emissions continue to increase. Atmospheric concentrations of CO₂, methane, and nitrous oxide are now at their highest levels in at least 800,000 years.⁹⁰ Among developed countries the European Union (EU) stands alone in achieving significant emission reduc-

change dates back to 1977 and that Exxon confirmed the global warming consensus with in-house climate models in 1982. See *Exxon: The Road Not Taken*, INSIDECLIMATE NEWS (Sept. 16, 2015), <https://insideclimatenews.org/content/Exxon-The-Road-Not-Taken>.

83. See G.A. Res. 43/53 (Dec. 6, 1988).

84. J.T. HOUGHTON, G.J. JENKINS, & J.J. EPHRAUMS, EDs., *CLIMATE CHANGE: THE IPCC SCIENTIFIC ASSESSMENT XI* (1990).

85. United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107.

86. *Id.* at 4.

87. Recognizing the principle of common but differentiated responsibility, while all Parties committed to put in place measures to mitigate climate change, developed country Parties committed to take the lead by putting in place policies and measures to modify longer-term trends in anthropogenic emissions consistent with the objective of the Convention. See *id.* at 5–6.

88. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, Dec. 11, 1997, U.N.T.S. 148.

89. Decision 2/CP.15, Framework Convention on Climate Change, *Copenhagen Accord*, UNFCCC/CP/2009/11/Add.1 (Mar. 30, 2010).

90. IPCC5, *supra* note 1, at 4. See also NASA, *GLOBAL CLIMATE CHANGE: VITAL SIGNS OF THE PLANET*, <https://climate.nasa.gov> (last visited Nov. 28, 2017).

tions.⁹¹ While the newly in-force Paris Agreement⁹² aims to strengthen the post-2020 global response, existing national commitments made under the Paris Agreement lack the ambition necessary to reverse upward global GHG emissions trends.⁹³ Additionally, the efficacy of the Paris Agreement is further challenged because the United States, under the presidency of Donald Trump, filed notice of its intention to withdraw from that agreement.⁹⁴

Nevertheless, the IPCC continues to make urgent calls to immediately stabilize and reduce GHG emissions to avoid irreversible environmental and consequential human rights impacts.⁹⁵ The IPCC's most recent Assessment Report confirmed not only that the planet's surface and ocean temperatures are rising, but that it is "extremely likely [meaning 95-100%] that human influence has been the dominant cause of the observed warming since the mid-20th century."⁹⁶ Using the word "irreversible" twelve times in its Summary for Policy Makers, the Report also warns that only a finite amount of carbon can be burnt for it to even be possible to avoid warming of greater than two degrees Celsius.⁹⁷

The fossil fuel industry's actions have also taken place in the face of growing understanding of the costs associated with climate change, in regards not only to the loss and damage climate change causes, but also to measures taken to adapt to climate change and to attempt to avoid the associated impacts. In 2011, for example, the National Roundtable on the Environment and Economy estimated that climate change will cost the Canadian economy between CAD\$23–50 billion dollars annually by 2050.⁹⁸

Despite these urgent calls, expected costs, and increasing understanding of GHGs' impact on climate, the fossil fuel industry has increased GHG emissions. Indeed, in his landmark study tracing 63 percent of cumulative worldwide emissions to 90 'carbon major' entities, Heede found that half of those emissions

91. Sharon Mascher, *Neglected Sovereignty: Filling Canada's Climate Change Gap with Unilateral Measures*, 29 J. ENVTL. L. & PRAC. 361, 363–64 (2016).

92. Paris Agreement art. 2.1.a, U.N. Doc. FCCC/CP/2015/L.9/Rev.1, Draft Decision -/CP.21 no. 135.

93. U.N. Framework Convention on Climate Change, *Report of the Conference of the Parties on its Twenty First Session, Held in Paris from 30 Nov. to 13 Dec. 2015 — Addendum — Part 2: Action Taken by the Conference of the Parties at its Twenty First Session*, U.N. Doc. FCCC/CP/2015/10/Add.1 (Jan. 29, 2016) [hereinafter Adoption of the Paris Agreement].

94. U.S. DEPARTMENT OF STATE, COMMUNICATION REGARDING INTENT TO WITHDRAW FROM PARIS AGREEMENT (2017), <https://www.state.gov/r/pa/prs/ps/2017/08/273050.htm>.

95. WORKING GROUP I, CLIMATE CHANGE: THE IPCC SCIENTIFIC ASSESSMENT *passim* (J.T. Houghton, G.J. Jenkins and J.J. Ephraums eds. 1990).

96. IPCC5, *supra* note 1, at 17.

97. Christopher McGlade & Paul Ekins, *The Geographical Distribution of Fossil Fuels Unused when Limiting Global Warming to 2 °C*, 517 NATURE 187 (2015) (subsequent analysis has shown that the GHG emissions associated with burning proven fossil fuel reserves would exceed the earth's remaining carbon budget).

98. NAT'L ROUNDTABLE ON THE ENV'T AND THE ECON., PAYING THE PRICE: THE ECONOMIC IMPACT OF CLIMATE CHANGE FOR CANADA 40 (2011).

have been emitted since 1986,⁹⁹ essentially at the same time that the risks of climate change were becoming well known.¹⁰⁰ Similarly, Frumhoff and his colleagues concluded that more than half of the industrial CO₂ emissions since the Industrial Revolution have been emitted since 1988.¹⁰¹ Moreover, the same fossil fuel industry actors continue to emit GHGs.¹⁰²

The fossil fuel industry has also felt safe increasing GHG emissions in Canada. Canada's total GHG emissions have increased by approximately 18 percent between 1990 and 2015,¹⁰³ and absent significant regulatory reform, the increase is projected to continue into the future.¹⁰⁴ The key sectors driving Canada's long-term emissions growth trend are the fossil fuel and transportation sectors,¹⁰⁵ resulting from increases in both oil and gas production, particularly from the oil sands, and increases in the number of vehicles on the road, particularly trucks, vans and SUVs.¹⁰⁶ While a growing number of regulatory measures directed at reducing GHG emissions in these and other sectors within the Canadian economy exist,¹⁰⁷ federal and provincial government regulations and regulatory approvals

99. Richard Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuels and Cement Producers*, 122 CLIMATE CHANGE 229, 229 (2014) (the analysis includes scope 1, 2 and use of product scope 3 emissions).

100. *Id.* at 230.

101. See Frumhoff et al., *supra* note 37, at 164.

102. Over 60 percent of the industrial CO₂ and methane emissions released globally between 1854 and 2010 can be traced to just 90 fossil fuel and cement producers. Heede, *supra* note 99, at 238.

103. Commissioner of the Environment and Sustainable Development, *Report 1: Progress on Reducing Greenhouse Gases—Environment and Climate Change Canada*, OFFICE OF THE AUDITOR GENERAL OF CANADA, Exhibit 1.2, 1.5 (June 12, 2017), http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201710_e_42475.html [hereinafter CESD Report] (showing Canada's total GHG emissions have risen from 611 megatonnes (MT) in 1990 to 722 MT in 2015); see also, ENV'T AND CLIMATE CHANGE CAN., CANADIAN ENVIRONMENTAL SUSTAINABILITY INDICATORS: GREENHOUSE GAS EMISSIONS 5, ENV'T AND CLIMATE CHANGE CAN. ED. 2017.

104. CESD Report, *supra* note 103, at Exhibit 1.46 (this Report goes on to conclude that "if all of the greenhouse gas reduction measures outlined in the Pan-Canadian Framework on Clean Growth and Climate Change are introduced and implemented in a timely manner, the Department estimates that those measures will result in a reduction of 175 megatonnes by 2030").

105. Government of Canada, *Greenhouse Gas Emissions by Economic Sector* (Apr. 2017), <https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=F60DB708-1>. Other significant sectors include electricity generation, some industrial processes (such as cement and agriculture), and buildings.

106. *Id.*

107. See, e.g., Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations, SOR/2010-201 (Can.); Heavy-Duty Vehicle and Engine Greenhouse Gas Emissions Regulations, SOR/2013-24 (Can.); Renewable Fuels Regulations, SOR/2010-189 (Can.); Env't and Climate Change Can., Reduction of Carbon Dioxide Emissions from Coal-fired Generation of Electricity Regulations, SOR/2012-167 (Can.); The Can. Press & Nat'l Observer, *Canada's Catherine McKenna Announces Coal Phase Out for 2030*, NAT'L OBSERVER (Nov. 21, 2016), <https://www.nationalobserver.com/2016/11/21/news/canadas-catherine-mckenna-announces-coal-phase-out-2030> (stating a Federal Government has also announced the introduction of a pan-Canadian carbon price (or equivalent) rising to \$50 per tonne by 2022; is also developing clean fuel standard); *Harper Government Moves Forward on Tough Rules for Coal-Fired Electricity Sector*, ENV'T & CLIMATE CHANGE CAN. (Sept. 5, 2012), <http://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=4D34AE9B-1768-415D-A546-8CCF09010A23> (more aggressive regulation of coal-fired generation); MID-CENTURY LONG-TERM LOW-GREENHOUSE GAS DEVELOPMENT STRATEGY, ENV'T AND CLIMATE CHANGE CAN. (2016), https://unfccc.int/files/focus/long-term_strategies/application/pdf/canadas_mid-century_long-term_strategy.pdf (foreshadowed fur-

contemplate the *expansion* of these GHG intensive sectors, particularly in relation to oil and gas.¹⁰⁸

3. Climate Change Litigation

Recognizing that the incremental pace of domestic and international-level politics and policy development are ill-suited to rapidly de-carbonize modern economies, there is an increasing focus on climate change litigation throughout the world. Legal actions relating to some aspect of climate change mitigation, adaptation or loss and damage have been brought in over 18 countries on six continents, with hundreds of cases in the United States alone.¹⁰⁹ The vast majority of these legal actions have sought to force governments to regulate GHG emissions, or to at least consider climate change in their decision-making processes.¹¹⁰ Some of these legal actions have been successful. For example, the landmark decision in *Massachusetts v. EPA*,¹¹¹ resulted in a ruling forcing the U.S. Environmental Protection Agency to regulate GHG emissions pursuant to the *Clean Air Act*.¹¹² The precedent-setting decision in *Urgenda Foundation v. The State of Netherlands* offers another example, with the District Court ordering the Dutch Government to “limit or have limited” national GHG emissions by at least 25 percent by 2020 compared to 1990 levels.¹¹³ However, many other legal actions against government have been unsuccessful. For example, in *Friends of the Earth v. Canada (Governor in Council)*,¹¹⁴ the applicants were unable to force the federal government to comply with a law requiring Canada to honour its Kyoto Protocol targets to reduce GHGs.

Increasingly, litigation strategies are focusing on the fossil fuel industries’ responsibility in relation to climate change—in what might be described as the first wave of civil climate change litigation. So far, the United States is the only common law jurisdiction in which the courts have been asked to consider

ther regulation of the fossil fuel sector).

108. See, e.g., *Climate Leadership Plan*, ALBERTA GOVERNMENT, <https://www.alberta.ca/climate-leadership-plan.aspx> (last visited Oct. 10, 2017) (the recent Federal Governmental approval to expand Kinder Morgan’s Trans-Mountain pipeline and the Government of Alberta’s 100 megatonne ‘cap’ on oil sands related GHG emissions, which leaves room to increase oil sands related emissions by 30 megatonnes); *Oils Sands Emissions Limit Act* RSA 2016.

109. JACQUELINE PEEL & HARI M. OSOFSKY, *CLIMATE CHANGE LITIGATION: REGULATORY PATHWAYS TO CLEANER ENERGY 1–2* (CAMBRIDGE UNIV. PRESS ED. 2015); LAW DIVISION, UN ENV’T PROGRAMME, *THE STATUS OF CLIMATE CHANGE LITIGATION A GLOBAL REVIEW 11–14* (LAW DIVISION, UN ENV’T PROGRAMME ED. 2017); Sabin Center for Climate Change, *U.S. Litigation Database*, COLUMBIA SCHOOL OF LAW, <http://wordpress2.ei.columbia.edu/climate-change-litigation/us-climate-change-litigation/> (last visited Oct. 10, 2017).

110. *Id.*

111. *Massachusetts v. EPA*, 549 U.S. 560 (2007).

112. *Air Pollution Prevention and Control*, 28 U.S.C. §§ 7401–7671 (1970).

113. *In re Urgenda Foundation*, Case number C/09/456689 / HA ZA 13-1396 at 1 (Hague Dist. Court 2015), https://elaw.org/system/files/urgenda_0.pdf.

114. *Friends of the Earth v. Can.*, 2008 F.C. 1183 (2008).

corporations' legal liability in tort law for damages caused by their contribution to climate change.¹¹⁵ However, these nascent efforts in the United States' courts have yet to be considered on the merits, encountering instead preliminary obstacles relating to the American doctrines of pre-emption, displacement, standing, and a judiciary reluctance to make policy decisions that, in their view, rest with the political branches of government.¹¹⁶

The case of *Native Village of Kivalina v. ExxonMobil Corporation*¹¹⁷ offers an example. Kivalina is a village inhabited by approximately 400 Inuit people located on the tip of a peninsula in Northern Alaska. As a result of climate change, the sea ice that protected the Kivalina coast from storm waves and surges diminished and the resulting erosion has reached the point where Kivalina is becoming uninhabitable. In 2008, faced with forced relocation at an estimated cost of \$95 to \$400 million, Kivalina commenced an action for damages against the 24 largest GHG emitters in the United States claiming (1) federal common law: public nuisance, (2) state law: public and private nuisance (3) civil conspiracy and (4) concert of action.

The district court dismissed the case. It did so on the basis that the court lacked the jurisdiction to consider the merits of the plaintiffs' federal public nuisance claim as this would require the court "to make policy determinations relating to the use of fossil fuels and other energy sources and consider their value in relation to the environmental, economic and social consequences of such use."¹¹⁸ A factor in this determination was that resolution of the claim would require the court to determine an acceptable limit on the level of GHG emissions emitted by the defendants and to make a policy decision about who should bear the costs associated with climate change. This, according to the district court, was a

115. *Regional Court Dismisses Climate Lawsuit Against RWE—Claimant Likely to Appeal*, GERMANWATCH (Dec. 15, 2016), <https://germanwatch.org/en/13234> (English commentary on a civil law action has been brought by a Peruvian farmer against RWE—the single largest CO₂ emitted in Europe - in a German court. The plaintiff is seeking a share of the costs for preventative measures needed to prevent the flooding of an Andean town based on RWE's contribution to climate change. English commentary on the decision, *Saul Luciano v. RWE*, which dismissed the claim because of, *inter alia*, a lack of "legal causality" is currently on appeal); See, John Vidal, *World's largest carbon producers face landmark human rights case*, THE GUARDIAN (Jul. 16, 2017), <https://www.theguardian.com/environment/2016/jul/27/worlds-largest-carbon-producers-face-landmark-human-rights-case> (providing commentary on the petition that was before the Commission on Human rights in the Philippines against forty-seven "carbon majors" complaining that their collective GHG emissions violated the human rights of millions of people living in the Philippines).

116. *American Electric Power v. Connecticut*, 131 S. Ct. 2527, 2531 (2011) (stating the United States Supreme Court used the displacement doctrine to find that federal public nuisance was not available so long as the Environmental Protection Agency held the authority to regulate GHGs under the *Clean Air Act* while leaving open the availability of state-based public nuisance); Hari M. Osofsky, *Litigation's Role in the Path of U.S. Federal Climate Change Regulation: Implications for AEP v. Connecticut*, 46 Val. U. L. R. 447, *passim* (2012) (discussing in detail the court's decision).

117. *Native Village of Kivalina v. ExxonMobil Corp.*, 696 F.3d. 849, 867–69 (9th Cir. 2012).

118. *Native Village of Kivalina v ExxonMobil Corporation*, 663 F. Supp. 2d 863, 870 (N.D. Cal. 2009).

determination appropriately left to the executive and legislative branches.¹¹⁹ Furthermore, the district court in *Kivalina* was not persuaded that the standing requirement for federal court jurisdiction had been met. To establish standing under Article III of the United States' Constitution, a plaintiff must show "(1) injury in fact; (2) causation; and (3) likelihood that the injury will be redressed by a favorable decision. In the context of the standing requirement, the causation element requires the plaintiff to show a fairly traceable connection between the alleged injury in fact and the alleged conduct of the defendant."¹²⁰ Unlike formal tort causation, discussed further *infra*, this requirement requires only that the plaintiffs "show that there is a 'substantial likelihood' that defendant's conduct caused plaintiffs' harm."¹²¹ Nevertheless, with the plaintiffs "essentially conced[ing] that the genesis of global warming is attributable to numerous entities which individually and cumulatively over the span of centuries created the effects they now are experiencing," the district court held that *Kivalina* lacked standing because there was "no realistic possibility of tracing any particular alleged effect of global warming to any particular emissions by any specific person, entity, [or] group at any particular point in time."¹²²

The United States Court of Appeals for the Ninth Circuit upheld the dismissal of *Kivalina*'s federal public nuisance damages claim on the basis that the doctrine of displacement applied—in that the Federal *Clean Air Act* spoke directly to the question at issue.¹²³ The court reached this finding despite the fact that the remedy sought by *Kivalina* in this action—that of damages—was not available to it under the *Clean Air Act*.¹²⁴ While the majority did not comment on the issue of standing, in a concurring opinion Judge Pro concluded, for much the same reasons as the district court had, that *Kivalina* had failed to satisfy the causation element of standing.

Even if these hurdles—some of which are uniquely American—can be cleared, for an action based in tort to succeed on the merits, a plaintiff must prove on a balance of probabilities that the harm complained of has been 'caused' by the defendant. As foreshadowed in the developing academic literature in this area¹²⁵

119. *Id.* at 877.

120. *Id.*

121. *Id.* at 878 (emphasis added).

122. *Id.* at 880.

123. The United States Supreme Court denied *Kivalina*'s petition for writ of certiorari in May 2013 without reason, leaving the Ninth Circuit's decision standing.

124. See Karine Peloffy, *Kivalina v. Exxonmobil: A Comparative Case Comment*, 9 THE MCGILL INT'L J. OF SUSTAINABLE DEV. L. AND POL'Y 119, 121, 125–29 (2012) (critiquing the Ninth Circuit Court's application of the doctrine of displacement in *Kivalina*).

125. See, e.g., David A. Grossman, *Warming up to a Not-So-Radical Idea: Tort-Based Climate Change Litigation*, 28 COLUM. J. ENVTL. L. 1, 22–31 (2003); DAVID A. GROSSMAN, *Adjudicating Climate Change: State, National, and International Approaches* 193–229 (William C. G. Burns & Hari M. Osofsky eds., 2009); Michael Gerrard, *What Litigation of a Climate Nuisance Suit Might Look Like*, 12 SUSTAINABLE DEV. L. & POL'Y 11, 12–14, 56 (2012); MEINHARD DOELLE ET AL., *Climate Liability in Canada: Transnational Law and Practice*,

and the treatment of the causation element of standing in *Kivalina*,¹²⁶ causation presents a particular obstacle to climate change plaintiffs. This is especially so for plaintiff's seeking to attribute loss or damage to a specific weather event. As noted by Michael Gerrard in 2012, "[i]t has become a truism in climate policy circles that specific weather events cannot be attributed to GHG emissions."¹²⁷ This is likely to become more possible as scientific understanding of the relationship between climate change and severe weather events evolves,¹²⁸ or when the weather event results in a gradual and ongoing impact—such as sea level rise or loss of sea ice as in *Kivalina*. Yet, even then, if the harm associated with a specific event or the costs necessary to adapt to ongoing change can be attributed to climate change, the global nature of climate change creates a causation problem characterized by Jacqueline Peel as the "drop in the ocean problem."¹²⁹ The emissions from one entity, even a single or group of large industrial GHG emitters, cannot on their own be said to "cause" climate change. As a result, proving a causal link between climate change related harm and the cause and effect of the defendants' actions remains challenging. Further, even if causation can be proven, the conventional rules for apportioning fault are difficult to apply against multiple defendants whose exact contributions are impossible to ascertain.¹³⁰

526–555 (Richard Lord ed., 2012); Jacqueline Peel, *Issues in Climate Change Litigation*, 24 CARBON & CLIMATE L. REV. 15, 19 (2011); David Hunter & James Salzman, *Negligence in the Air: The Duty of Care in Climate Change Litigation*, 155 U. PA. L. REV. 1741, 1744–45 (2007).

126. A similar standing issue arose in *Comer v. Murphy Oil USA*, a procedurally complex climate change case involving a group of Mississippi Gulf Coast residents and property owners seeking damages from the defendant energy company's plant on the basis that it had "[c]ause[d]" global warming which, increased the "[d]estructive [c]apacity" of Hurricane Katrina, which, in turn, damaged their property. The plaintiffs commenced an action in 2005 in the Southern District of Mississippi asserting claims of public and private nuisance, trespass, negligence, unjust enrichment, fraudulent misrepresentation, and civil conspiracy against the companies. *See Comer v. Murphy Oil USA*, 585 F.3d 855, 879–80 (5th Cir. 2009). The district court dismissed the case with prejudice, holding that the plaintiffs lacked standing, and that their claims were not justiciable under the political questions doctrine. On appeal, the panel reversed the district court's decision in part, and held that plaintiffs had standing to bring claims for nuisance, trespass, and negligence, and that these claims were justiciable under the political questions doctrine. *See Comer v. Murphy Oil USA*, 607 F.3d 1049, 1053–55 (5th Cir. 2010). The appeal was ultimately dismissed, however, for lack of a quorum and a petition to the Supreme Court for a writ of mandamus was denied. *See, In re Comer*, 131 S. Ct. 902 (2011). The same group of Gulf Coast residents and property owners then filed a new complaint in the Southern District of Mississippi in 2011, *Comer (II)*, who dismissed their claims on the basis that their claims, *inter alia*, lacked Article III standing and were barred by the doctrine of res judicata. The U.S. Court of Appeals for the Fifth Circuit affirmed that finding on the basis of res judicata. *See Comer v. Murphy Oil USA*, 718 F.3d 460, 469 (5th Cir. 2013).

127. Gerrard, *supra* note 125.

128. WORLD METEOROLOGICAL ORGANIZATION, <https://www.wmo.int> (last visited Jan. 8, 2018).

129. Peel, *supra* note 125, at 16. This defence was raised, unsuccessfully, in *Massachusetts v. EPA*, with the EPA arguing that its failure to regulate emissions from new motor vehicles made an insignificant contribution to the climate change related impacts suffered by the State of Massachusetts because of the global nature of the problem. *Massachusetts v. EPA*, 549 U.S. 497, 525 (2007).

130. Myles Allen, *Liability for Climate Change: Will it Ever be Possible to Sue Anyone for Damaging the Climate?*, 421 NATURE 891, 892 (2003); Gerrard, *supra* note 125. *See also*, Daniel A. Farber, *Apportioning*

There will undoubtedly be further attempts to advance tort-based claims to damages for private and public costs associated with climate change. It is not the purpose of this Article to fully canvas—or pre-empt—the avenues available to do so. Rather, watching the building first wave of unsuccessful tort-based climate change litigation, and drawing on the similarities between tobacco and climate change, this Article now turns to consider, through the lens of the *Tobacco Damages and Health Care Costs Recovery Act*, what a comparable legislative response to these obstacles, in the form of a *Climate Change Damages and Adaptation Costs Recovery Act*, might look like.

III. ANALYSIS

As evidenced *supra*, there already exists a considerable body of literature with respect to climate change liability. Most of this scholarship, however, focuses on *existing* laws and doctrine and therefore merely confirms the current challenges encountered in climate change litigation.¹³¹ In addition, while comparisons between climate change and other liability regimes such as for asbestos and hazardous substances have been made,¹³² recent comparisons with tobacco liability have primarily focused on the issue of disclosure (*e.g.* the New York Attorney General’s suit against Exxon under that state’s *Martin’s Act*,¹³³ further discussed *infra*). University of British Columbia Professor Michael Byers and environmental lawyer and scholar Andrew Gage have recently identified the relevance of the precedent established by tobacco damages recovery legislation to the climate change context, but their analysis centered on litigation brought by foreign countries and does not consider the similarities and differences between these contexts in detail.¹³⁴

At their core, both tobacco and climate change liability involve the manufacture of products like tobacco and fossil fuels respectively, initially considered harmless but now understood as creating significant risks. In addition, the harms associated with tobacco and fossil fuels have private and public dimensions. The private consequences of tobacco consumption are most obvious, in the form of tobacco-related disease, but human-caused climate change will also result in various—if less direct—private harms, from health effects such as the migration of diseases such as West Nile Virus and Lyme disease, to property damage. In neither case, however, is the harm purely private because governments, as

Climate Change Costs, UCLA J. ENVTL. L. & POL’Y 21, 29–30 (2008).

131. See, *e.g.*, Grossman, *supra* note 125; Gerrard, *supra* note 125.

132. Daniel A. Farber, *Responsibility for Historic Carbon Emissions: Lessons from Tort and Statutory Compensation Schemes*, UC BERKELEY PUB. L. RES. PAPER No. 2404372 (Mar. 4, 2014).

133. See *Martin Act*, N.Y. Gen. Bus. Law § 352 (McKinney).

134. ANDREW GAGE & MICHAEL BYERS, PAYBACK TIME? WHAT THE INTERNATIONALIZATION OF CLIMATE LITIGATION COULD MEAN FOR CANADIAN OIL AND GAS COMPANIES (2014), <https://www.wcel.org/publication/payback-time-what-internationalization-climate-litigation-could-mean-canadian-oil-and>.

providers of public services, have already and will continue to bear significant additional costs, whether for healthcare, for adaptation in anticipation of predicted climate change effects or for construction to repair damage to public infrastructure following some climate-related event. The significant public costs associated with tobacco and climate change make the comparison between these two phenomena particularly compelling.

Similarly, much like the publication of “Cancer by the Carton” in 1952 gave rise to a deliberate campaign of obfuscation by the tobacco industry, so too has the period since Dr. James Hansen’s testimony in 1988 seen the rise of an industry-funded campaign to manufacture doubt about the growing scientific evidence linking fossil fuels, GHG emissions and climate change,¹³⁵ political advocacy against carbon regulation, and the aggressive development of new sources of fossil fuels.¹³⁶ From 1989 to 2002, the Global Climate Coalition, formed by several investor-owned fossil fuel corporations that included Exxon-Mobil, Shell, and British Petroleum, reportedly led an aggressive lobbying and advertising campaign designed to create doubt about the IPCC’s integrity and the scientific evidence linking the burning of fossil fuels to global warming.¹³⁷ For example, the Global Climate Coalition played a role in the United States’ decision not to sign the Kyoto Protocol.¹³⁸ ExxonMobil, in particular, is reported to have been active in the campaign to deny the science of climate change.¹³⁹ As investigations have recently revealed, despite both understanding and accepting the validity of climate science, Exxon appears to have sponsored, both directly and indirectly, many of the scientists and think tanks that have sought to confuse and blur the scientific consensus around climate change.¹⁴⁰ Taking a page out of what others have called the “Tobacco Strategy,”¹⁴¹ the “Exxon Position” was adopted to “emphasize the uncertainty in scientific conclusions regarding the

135. Oreskes & Conway, *supra* note 51, at 184.

136. See Frumhoff et al., *supra* note 37, at 164.

137. *Id.* at 162.

138. *Id.*; see also John Vidal, *Revealed: How Oil Giant Influenced Bush*, THE GUARDIAN (June 8, 2005), <https://www.theguardian.com/news/2005/jun/08/usnews.climatechange>.

139. David Kaiser & Lee Wasserman, *The Rockefeller Family Fund vs. Exxon*, THE NEW YORK REVIEW OF BOOKS, (Dec. 8, 2016) [hereinafter *The New York Book Review*]. See also Justin Farrell, *Corporate Funding and Ideological Polarization About Climate Change*, 113 PROC. OF THE NAT’L ACAD. OF SCI. OF THE U.S.A. 92, 92–97 (2016); STEVE COLL, PRIVATE EMPIRE: EXXONMOBIL AND AMERICAN POWER, 184–85, 619–20 (2012); UNION OF CONCERNED SCIENTISTS, SMOKE, MIRRORS AND HOT AIR: HOW EXXONMOBIL USES BIG TOBACCO’S TACTICS TO MANUFACTURE UNCERTAINTY ON CLIMATE SCIENCE 1–3 (2007).

140. See Sara Jerving, Katie Jennings, Masako Melissa Hirsch, & Susanne Rust, *What Exxon Knew about the Earth’s Melting Arctic*, L.A. TIMES (Oct. 9, 2015), <http://graphics.latimes.com/exxon-arctic/>; Katie Jennings, Dino Grandoni, & Susanne Rust, *How Exxon Went from Leader to Skeptic on Climate Change Research*, L.A. TIMES (Oct. 23, 2015), <http://graphics.latimes.com/exxon-research/>; Amy Lieberman & Susanne Rust, *Big Oil Braced for Global Warming While It Fought Regulations*, L.A. TIMES (Dec. 31, 2015), <https://graphics.latimes.com/oil-operations/>.

141. Oreskes & Conway, *supra* note 51, at 186–90.

potential enhanced greenhouse effect.”¹⁴² In the wake of these allegations, the New York, Massachusetts, California, and Virgin Islands Attorney Generals have begun investigating whether ExxonMobil committed fraud by failing to disclose many of the business risks of climate change to its shareholders despite evidence that it understood those risks internally, and 13 more state Attorney Generals have announced that they were considering investigations of their own.¹⁴³

At the same time, there are also clear differences between fossil fuel usage and tobacco consumption. The ubiquity of fossil fuels in modern economies means that the potential pool of climate change defendants could be several times larger than in the tobacco context. The potential defendant pool also appears to be less homogenous, comprising not just manufacturers of fossil fuels but also potentially the manufacturers of products that consume fossil fuels and emit GHGs, such as major energy utilities and automobile manufacturers. These differences suggest the need to consider different approaches and a potentially broader set of underlying torts. For example, in order to succeed in negligence a defendant must be found to have owed a legal ‘duty of care’ to the plaintiff.¹⁴⁴ Courts have been clear that such a duty is not owed to the public at large; there must be sufficient proximity between the two parties to warrant liability.¹⁴⁵ In products liability cases, this proximity is found in the relationship between manufacturers and the consumers of their goods.¹⁴⁶ This may work with respect to some climate change defendants (*e.g.* gasoline retailers, vehicle manufacturers) but not others.

In the following sections, the authors consider the similarities and differences between tobacco and fossil fuels in more detail through the lens of British Columbia’s *Tobacco Damages and Health Care Costs Recovery Act*, identifying that legislation’s potential analogs in a future *Climate Change Damages and Adaptation Costs Recovery Act*. We begin by setting out the respective plaintiffs, the claim (or cause of action), and the defendants. We then move on to consider the potential mechanisms for establishing causation and apportioning liability. As will be seen, the question of extra-territorial harm (*i.e.* harm arising from actions outside of the relevant jurisdiction)—and more specifically how it is to be dealt with in terms of causation and apportionment—arises in both the tobacco and climate change contexts, although it is admittedly more acute in the latter context.

142. See Jennings, Grandoni, & Rust, *supra* note 140; see also Geoffrey Supran & Naomi Oreskes, *Assessing ExxonMobil’s Climate change Communications (1977–2014)*, 12 ENVTL. RES. LETTERS 1, 15 (2017), <http://iopsience.iop.org/article/10.1088/1748-9326/aa815f>.

143. *The New York Book Review*, *supra* note 139.

144. *Cooper v. Hobart*, [2001] 3 S.C.R. 537 (Can.).

145. *Id.*

146. *Id.*

A. THE PLAINTIFFS

In the tobacco context, the plaintiffs have been provincial and state-level governments. For the purposes of our analysis, the presumptive plaintiffs would also be provincial and state-level governments, bearing in mind that British Columbia's tobacco legislation was inspired by similar legislation in the United States.¹⁴⁷ To the extent that they incur their own costs, however, we see no reason why national-level governments could not also pass legislation to sue for the recovery of their own costs.

B. THE CLAIM

1. Tobacco-Related Disease

In *British Columbia v. Imperial Tobacco*, Justice Major, for the Court, set out the relevant sections of the *Tobacco Damages and Health Care Costs Recovery Act* and then went on to summarize the essence of the cause of action set out therein:

[6] . . . The government has a direct and distinct action against a manufacturer for the present value of existing and reasonably expected future expenditures by the government for

- (a) benefits as defined under the *Hospital Insurance Act* or the *Medicare Protection Act*;
- (b) payments under the *Continuing Care Act*; and
- (c) programs, services or benefits associated with disease,

Where

- (a) such expenditures result from disease or the risk of disease caused or contributed to by exposure to a tobacco product; and
- (b) such exposure was caused or contributed to by
 - (i) a tort committed in British Columbia by the manufacturer; or
 - (ii) a breach of a common law, equitable or statutory duty or obligation owed by the manufacturer to persons in British Columbia who have been or might have become exposed to a tobacco product.

[7] Viewed in this light, s. 2(1) creates a cause of action by which the government of British Columbia may recover from a tobacco manufacturer money spent treating disease in British Columbians, *where such disease was caused by exposure to a tobacco product (whether entirely in British Columbia or not)*, and such exposure was caused by that manufacturer's tort in British Columbia, or breach of a duty owed to persons in British Columbia.¹⁴⁸

147. See, e.g., FLA. STAT. ANN. § 409.910 (West 2017).

148. *British Columbia v. Imperial Tobacco Ltd.*, 2005 SCC 49 473, ¶¶ 2–7.

Justice Major went on to note that this cause of action was direct and distinct as opposed to a subrogated claim,¹⁴⁹ and that the government's claim can be pursued on an aggregate basis, "i.e., in respect of a population of persons for whom the government has made or can reasonably be expected to make expenditures,"¹⁵⁰ in which case "it may use statistical, epidemiological and sociological evidence to prove its case: s. 5(b)"¹⁵¹ and "need not identify, prove the cause of disease or prove the expenditures made in respect of any individual member of the population on which it bases its claim: s. 2(5)(a)."¹⁵² The specific rules with respect to causation and apportionment are further discussed *infra*.

2. Climate Change

Under a future *Climate Change Damages and Adaptation Costs Recovery Act*, a province's cause of action would similarly be "direct and distinct" and would seek to recover the costs of mitigation, adaptation, and loss and damage caused or contributed to by the climate change equivalent of a "tobacco-related wrong," e.g., a climate-related wrong. As noted *supra*, the *Tobacco Damages and Health Care Costs Recovery Act* defines "tobacco-related wrong" as

a tort committed in British Columbia by a manufacturer which causes *or contributes* to tobacco related disease, or . . . a breach of a common law, equitable or statutory duty or obligation owed by a manufacturer to persons in British Columbia who have been exposed or might become exposed to a tobacco product.¹⁵³

Setting the definition's focus on manufacturers aside until the section on defendants *infra* Part III.C, a "climate change-related wrong" might similarly be defined as a tort committed in a province by a "designated party" that causes *or contributes* to climate change, or a breach of a common law equitable or statutory duty or obligation owed by a "designated party" to persons in a province who have been exposed or might become exposed to GHG-emitting—or perhaps more importantly climate altering—products. These torts could come in the form of private and public nuisances, the failure to warn, conspiracy, and strict liability. For each of the potential torts described, it will be necessary at some point to consider the reasonableness of the defendants' conduct.

149. *Id.*

150. *Id.*

151. *Id.*

152. *Id.*

153. British Columbia, Legislative Assembly, *supra* note 28, at 6314.

a. Private and Public Nuisance

Some scholars propose looking to private and public nuisance claims for climate compensation.¹⁵⁴ Simply put, these nuisance claims focus on the harm suffered by plaintiffs, rather than defendants' conduct, and support asserting jurisdiction where the harm occurred.¹⁵⁵ Both private and public nuisance could be effective at addressing climate change liability.

Private nuisance is "an interference with [a] claimant's use or enjoyment of land that is both substantial and unreasonable."¹⁵⁶ In *St. Lawrence Cement*, the Supreme Court of Canada held that "nuisance is a field of liability that focuses on the harm suffered"¹⁵⁷ and "reinforces the application of the polluter-pay principle."¹⁵⁸ Especially for individuals with coastal properties or properties otherwise affected by flooding or forest fires, this tort could reasonably be made against fossil fuel manufacturers or those engaged in excessive GHG-emitting activities. From the perspective of the province, the focus is not on the actual harm caused by these breaches but rather the province's subsequent costs in mitigating these harms and adapting public infrastructure to a new climatic regime.

A public nuisance is defined in Canada as "any activity that unreasonably interferes with the public's interest in questions of health, safety, morality, comfort or convenience . . . [t]he conduct complained of must amount to . . . an attack upon the rights of the public generally to live their lives unaffected by inconvenience, discomfort or other forms of interference."¹⁵⁹ The negligent burning of a public forest, including areas set aside for environmental reasons, was described as a public nuisance by the Supreme Court of Canada in *British Columbia v. Canadian Forest Products*.¹⁶⁰

b. Negligence Including the Failure to Warn

Less discussed in climate change liability literature¹⁶¹ but central to the tobacco context has been the tort of negligence, specifically the failure to warn. "There is a clear duty owed by manufacturers, not only to make and design their

154. ANDREW GAGE & MARGARETHA WEWERINKE, TAKING CLIMATE JUSTICE INTO OUR OWN HANDS, WEST COAST ENVTL. L. (2015), <http://wcel.org/resources/publication/taking-climate-justice-our-own-hands>. Private and public nuisance claims were advanced in both *Native Village of Kivalina v. ExxonMobil*, 663 F. Supp. 2d 863, 870 (N.D. Cal. 2009) and *Comer*, *supra* note 125, at 879–80. A public nuisance claim was also made in *Connecticut v. Am. Elec. Power Co.*, 406 F. Supp. 2d 265, 270 (S.D.N.Y. 2005).

155. *Club Resorts Ltd. v. Van Breda*, [2012] 1 S.C.R. 572 (Can.).

156. *Antrim Truck Centre Ltd. v. Ontario (Transportation)*, [2013] 1 S.C.R. 594, ¶ 18 (Can.).

157. *St. Lawrence Cement Inc. v. Barrette*, [2008] 3 S.C.R. 392, ¶ 77 (Can.).

158. *Id.* ¶ 80.

159. *Ryan v. Victoria (City)*, [1999] 1 S.C.R. 201, 206 (Can.).

160. *British Columbia v. Canadian Forest Products Ltd.*, 2004 SCC 38, [2004] 2 S.C.R. 74, ¶ 66 (Can.).

161. *Grossman*, *supra* note 125, at 39 (discussing product liability in the context of climate change).

products reasonably, but to warn about any dangerous aspects of their products. These warnings must be explicit and reasonably communicated.”¹⁶² In the climate change context, setting the matter of jurisdiction aside for the moment, it is reasonable to suggest that gasoline manufacturers and retailers owe a duty of care to consumers to warn them of the risks of climate change associated with their product. These risks have been well understood since the 1994 signing of the UNFCCC,¹⁶³ if not since 1988 when Hansen’s testimony moved climate change into the public consciousness.¹⁶⁴

Alternatively, or in addition, a novel duty of care could be recognized between the fossil fuel industry and governments where, as is the case with climate change, the harm is predominantly public and cumulative in nature.¹⁶⁵ Perhaps the clearest articulation of such a duty—and its alleged breach—can be found in the Statements of a claim recently filed by three California counties against twenty major fossil fuel companies. The opening paragraph bears a striking resemblance to the United States District Court’s language describing the tobacco industry’s conduct in *United States v. Philip Morris USA, Inc. et al.* (as discussed *supra*):

Defendants, major corporate members of the fossil fuel industry, have known for nearly a half century that unrestricted production and use of their fossil fuel products create greenhouse gas pollution that warms the planet and changes our climate. They have known for decades that those impacts could be catastrophic and that only a narrow window existed to take action before the consequences would not be reversible. They have nevertheless engaged in a coordinated, multi-front effort to conceal and deny their own knowledge of those threats, discredit the growing body of publicly available scientific evidence, and persistently create doubt in the minds of customers, consumers, regulators, the media, journalists, teachers, and the public about the reality and consequences of the impacts of their fossil fuel pollution. At the same time, Defendants have promoted and profited from a massive increase in the extraction and consumption of oil, coal, and natural gas, which has in turn caused an enormous, foreseeable, and avoidable increase in global greenhouse gas pollution and a

162. ALLEN M. LINDEN ET AL., *CANADIAN TORT LAW: CASES, NOTES & MATERIALS* 499 (14th ed. 2014).

163. Douglas A. Kysar, *What Climate Change Can Do About Tort Law*, 41 ENVTL. L. 1, 10 (2011).

164. See Frumhoff et al., *supra* note 37, at 161.

165. The possibility that industry could owe a private law duty of care to governments was explicitly left open by the Supreme Court of Canada in *British Columbia v. Canadian Forest Products Ltd.*, [2004] 2 S.C.R. 74, 2004 SCC 38, ¶¶ 80, 81. At the first stage of the duty of care test set out by the Supreme Court of Canada in *Cooper v. Hobart*, a plaintiff must establish that they were reasonably foreseeable and sufficiently proximate to establish a *prima facie* duty of care. *Cooper v. Hobart*, [2001] 3 S.C.R. 537 (Can.). Arguably, municipal governments have been foreseeable plaintiffs since at least the *Kivalina* lawsuit. Similarly, proximity could be based on the long-understood cumulative and public nature of the harm. If a *prima facie* duty is made out, consideration shifts to residual policy considerations that would warrant negating the duty. We can think of no negative policy effects that would warrant negating a private law duty to avoid or mitigate the effects of climate change.

concordant increase in the concentration of greenhouse gases, particularly carbon dioxide (“CO₂”) and methane, in the Earth’s atmosphere.¹⁶⁶

Indeed, there are several municipalities that recently passed bylaws requiring gasoline retailers to post some kind of warning label on gas pumps.¹⁶⁷ Similarly, automobile manufacturers, at least those who manufacture cars with internal combustion engines, arguably have a duty to warn consumers of the climate change risks associated with their use. While there are differences in the kind of harm suffered by individuals in the contexts of tobacco and climate change, in both contexts the harms are now reasonably foreseeable. While climate change is perhaps the paradigmatic example of cumulative harm, the risk of actually developing a tobacco-related disease is also not tied to a singular exposure (as is the case for asbestosis, for example) but rather the risk of disease increases with continuous exposure. Similarly, while smoking poses the greatest risk to the actual consumer, it also affects the non-smoking public through second-hand smoke, just as the combustion of fossil fuels and the emission of GHGs affect those who purchase fossil fuel products as well as those who do not. Indeed, from a public policy perspective, the fact that there can be no “private consumption” of fossil-fuels, as there arguably can be for tobacco products, makes the case for liability that much stronger.

We pause here to acknowledge that, at least insofar as a failure to warn is alleged, gasoline retailers and automobile manufacturers who do give adequate warnings may escape some liability on this front.¹⁶⁸ In our view, the potential for such an outcome actually adds legitimacy and fairness to the exercise because it recognizes the role of each and every *informed* citizen in addressing climate change. At the same time, like those who suffer or suffered harm from second-hand smoke, this defense would not likely apply to harms incurred by those who did heed such warnings, e.g. those who purchase electric vehicles, and neverthe-

166. Michael Burger, *Local Governments in California File Common Law Claims Against Largest Fossil Fuel Companies*, SABINE CTR. FOR CLIMATE CHANGE L. CLIMATE L. BLOG (July 18, 2017), <http://blogs.law.columbia.edu/climatechange/2017/07/18/local-governments-in-california-file-common-law-claims-against-largest-fossil-fuel-companies/>. The causes of action pleaded include public and private nuisance, strict liability, negligence—including a failure to warn, and trespass.

167. See Tamara Baluja, *Climate Change Stickers Mandatory on North Vancouver Gas Pumps*, CBC NEWS (Nov. 17, 2015), <http://www.cbc.ca/news/canada/british-columbia/north-vancouver-climate-change-stickers-gas-pumps-1.3323621>.

168. Cf. *Létourneau v. JTI-MacDonald Corp.*, 2015 CanLII 2382, ¶¶ 110–42 (Can. Que. Sup. Ct.) (discussing effect of warnings on potential liability for tobacco). The Canadian non-profit *Our Horizon* has designed warning labels that include photographs of endangered species such as caribou, with a caption that reads: “Warning: Use of this fuel product contributes to climate change which may put up to 30% of species at a likely risk of extinction” see OUR HORIZON, <http://ourhorizon.org/> (last visited Jan. 8, 2018). In addition, gasoline retailer Petro-Canada (owned by Suncor Energy) has recently voluntarily added climate labels to its fuel pumps that advise customers to “play [their] part in helping to reduce climate change by using our products responsibly” and directing them to their “pump talk” website. PETRO CANADA, <http://www.pumptalk.ca/> (last visited Jan. 8, 2018).

less suffered harms due to the actions of others.¹⁶⁹

c. Conspiracy

Another tort referred to frequently in the tobacco context is conspiracy. Consisting of two distinct branches in Canada, “unlawful means” conspiracy is made out where a) the defendants act in combination, that is, in concert, by agreement or with a common design; b) their conduct is unlawful; c) their conduct is directed towards the plaintiff; d) the defendants should know that, in the circumstances, injury to the plaintiff is likely to result; and e) their conduct causes injury to the plaintiff.¹⁷⁰ Bearing in mind the similarities in the efforts to manufacture doubt about the risks of tobacco and climate change, this tort—or some modified version of it—may well be relevant here.¹⁷¹

d. Strict Liability

Finally, there may be some future role for strict liability, or the Rule in *Rylands v. Fletcher*, for climate change liability. This tort “imposes strict liability for damages caused to a plaintiff’s property (and probably, in Canada, for personal damages) by the escape from the defendant’s property of a substance ‘likely to cause mischief.’”¹⁷² As recently interpreted by the Ontario Court of Appeal, strict liability may well become applicable in the climate change context as CO₂ and other GHGs become more strictly regulated, thus foreseeable as likely to cause mischief,¹⁷³ especially in instances where they have been emitted in contravention of established standards or “escaped” in *Smith v. Inco* terms.¹⁷⁴ Such is arguably the case with respect to the recent scandal involving Volkswagen, which in 2015 admitted “to installing secret software in hundreds of thousands of United States’ diesel cars to cheat exhaust emissions tests and make them appear cleaner than they were on the road.”¹⁷⁵ Strict liability thus potentially offers a

169. See *In re Methyl Tertiary Butyl Ether Prods. Liab. Litig.*, 175 F. Supp. 2d 593, 625 (S.D.N.Y. 2001) (“Some courts have also held that the duty to warn extends to ‘third persons exposed to a foreseeable and unreasonable risk of harm by the failure to warn.’” (quoting *McLaughlin v. Mine Safety Appliances Co.*, 11 N.Y.2d 62, 68-69 (1962))).

170. *Agribands Purina Canada Inc. v. Kasamekas* [2011], 106 O.R. 3d 427, ¶ 26 (Can. Ont. C.A.), as mentioned in *Bhasin v. Hrynew*, 2014 SCC 71, [2014] 3 S.C.R. 494 (Can.).

171. *Native Village of Kivalina v. ExxonMobil Corp.*, 696 F. 3d. 849, 867 (9th Cir. 2012); *Comer v. Murphy Oil USA*, 718 F. 3d. 460, 465 (5th Cir. 2013) (both cases presenting claims based on conspiracy).

172. *Smith v. Inco Ltd.* (2011), 107 O.R. 3d 321, ¶ 68 (Can. Ont. C.A.).

173. It is worth noting here that these are already deemed “toxic substances” under the Canadian Environmental Protection Act, 1999, S.C. 1999, c. 33.

174. *Smith*, 107 O.R. 3 321, ¶ 68. It is also worth noting that the six GHGs listed in Annex A of the Kyoto Protocol (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride) are listed as toxic substances under the Canadian Environmental Protection Act, 1999, S.C. 1999, c. 33, sched. 1.

175. See *Volkswagen Agrees to \$4.3B U.S. Emissions Scandal Settlement*, CBC NEWS (Jan. 11, 2017), <http://www.cbc.ca/news/business/volkswagen-emissions-settlement-1.3930655>.

broader approach for imposing damages wherever causation is evident, regardless of a defendant's culpability.

e. The Reasonableness of the Defendants' Conduct

To varying degrees, the reasonableness of the defendants' conduct is relevant for most of the torts discussed. In the climate change context, Professor Deborah Curran suggests that the basic question is the point in time at which the fossil-fuel industry's conduct becomes intentional and the interference unreasonable, "where the harm (environmental, economic and social) outweighs the benefit (economic and social)."¹⁷⁶ Citing the observations of Hunter and Saltzman that "the relative risk-utility balance of climate changing activities is shifting," Curran suggests that litigation will increasingly focus "on those companies within a sector that are lagging behind the industry leaders in responding to climate change Inquiries into the reasonableness of a company's operations or products turn into inquiries into how they compare to those of others. In this way, today's industry laggards may be tomorrow's climate defendants."¹⁷⁷ Beyond operations and products, Hunter and Saltzman also suggest that inquiries into unreasonableness of a company's activities might also include: "issuing or promoting misinformation about climate change that the company knows or reasonably should have known is false; withholding studies or information that would increase our understanding of climate change; and destroying climate change related documents."¹⁷⁸

With respect to private and public nuisance, under existing Canadian doctrine this analysis is secondary to the consideration of the interference with the use and enjoyment of private property or public rights, respectively. That being said, the "nature of the defendant's conduct is not . . . an irrelevant consideration. Where the conduct is either malicious or careless, that will be a significant factor in the reasonableness analysis . . . where the defendant can establish that his or her conduct was reasonable, that can be a relevant consideration"¹⁷⁹ In what is the Supreme Court of Canada's last word on the matter, however, a "finding of reasonable conduct will not . . . necessarily preclude a finding of liability."¹⁸⁰

With respect to negligence, the "standard of care" is the benchmark of this tort. It serves as an objective standard informed by several factors, including the presence of reasonably foreseeable risks, the cost of preventing or reducing such risks, and the utility of the conduct in question.¹⁸¹ The greater the risk (a function of the probability and magnitude of potential harm), the more likely it is that the

176. Deborah Curran, *Climate Change Backgrounder*, in ENVIRONMENTAL LAW: CASES AND MATERIALS 748 (Meinhard Doelle & Chris Tollefson eds., 2d ed. 2013).

177. *Id.* at 749.

178. Hunter & Saltzman, *supra* note 125, at 1775.

179. Antrim Truck Centre Ltd. v. Ontario (Transportation), [2013] 1 S.C.R. 594, ¶ 29 (Can.).

180. *Id.*

181. PHILIP H. OSBORNE, THE LAW OF TORTS (4th ed. 2011).

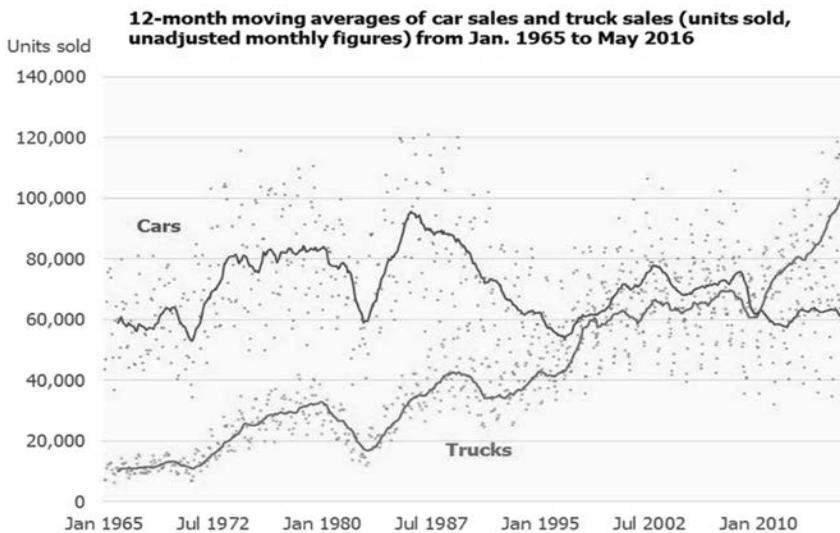


FIGURE 1. Car v. Truck Sales (Canada, 1965–2016.)¹⁸⁵

standard of care will require some measures to prevent or at least reduce that risk. In the specific context of product liability and the duty to warn, the Supreme Court of Canada has stated that “[a]ll warnings must be reasonably communicated, and must clearly describe any specific dangers that arise from the ordinary use of the product.”¹⁸² It seems reasonable to suggest that the fossil fuel industry could be more explicit and proactive about the risks of climate change in light of the high probability, 95 percent according to IPCC5, and magnitude of potential harm, *i.e.*, \$100 billions.¹⁸³ For example, it seems clear that current automobile marketing strategies do not address the reasonably foreseeable risks associated with climate change. According to recent analysis by the Sierra Club, automobile manufacturers in the United States are spending only a fraction of their massive marketing budgets on low emission vehicles.¹⁸⁴ This is consistent with recent analysis showing that in both Canada and the United States, the number of “car” class vehicles sold has fallen at the same time that sales of “truck” class vehicles, with their higher emissions, have dramatically increased (see Figure 1). If

182. *Hollis v. Dow Corning Corp.*, [1995] 4 S.C.R. 634, ¶ 20 (Can.).

183. NICHOLAS STERN, STERN REVIEW ON THE ECONOMICS OF CLIMATE CHANGE, at iv–v, xxi (2006), http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm; NAT’L ROUNDTABLE ON THE ENV’T AND THE ECON., *supra* note 98.

184. Gina Coplon-Newfield, *New Data Shows Auto Industry Failing to Advertise Electric Cars*, SIERRA CLUB: COMPASS (Dec. 19, 2016), <http://www.sierraclub.org/compass/2016/12/new-data-shows-auto-industry-failing-advertise-electric-cars>.

185. Jamie Carson (@carsjam33), TWITTER (Jul. 19, 2016, 8:15 AM), <https://twitter.com/carsjam33/status/755420762681507842>.

automobile manufacturers' marketing strategies ignore climate change risks, *e.g.* by failing to warn consumers about the risks of climate change or failing to raise consumer awareness about the benefits and availability of lower-emission vehicles, they are arguably inconsistent with the applicable standard of care.

C. THE DEFENDANTS

1. Tobacco-Related Disease

Under the *Tobacco Damages and Health Care Costs Recovery Act*, potential liability has been restricted to “manufacturers,” although that term has been fairly broadly defined:

“manufacturer” means a person who manufactures or has manufactured a tobacco product and includes a person who currently or in the past

- (a) causes, directly or indirectly, through arrangements with contractors, subcontractors, licensees, franchisees or others, the manufacture of a tobacco product,
- (b) for any fiscal year of the person, derives at least 10% of revenues, determined on a consolidated basis in accordance with generally accepted accounting principles in Canada, from the manufacture or promotion of tobacco products by that person or by other persons,
- (c) engages in, or causes, directly or indirectly, other persons to engage in the promotion of a tobacco product, or
- (d) is a trade association primarily engaged in
 - (i) the advancement of the interests of manufacturers,
 - (ii) the promotion of a tobacco product, or
 - (iii) causing, directly or indirectly, other persons to engage in the promotion of a tobacco product;

It was the definition of “manufacturer” in the first iteration of the Act that the British Columbia Supreme Court deemed *ultra vires*, i.e. beyond the jurisdiction of, the provincial legislation by reason of extra-territoriality.¹⁸⁶ Specifically, the Court held the term manufacturer was, in essence, an attempt to pierce the corporate veil and impose liability on entities with no real connection to British Columbia.¹⁸⁷

Importantly, “manufacturers” is still a relatively broad term, including trade associations engaged in the advancement of the tobacco industry’s interests. It is worth noting, however, that the potential pool of defendants could have been broader still. For example, it could have included tobacco farmers,¹⁸⁸ or the restaurants and bars that for many decades derived an economic benefit from

186. *JTI-Macdonald Corp. v. Att’y Gen. B.C.*, 2000 CarswellBC 375, ¶¶ 151–220 (Can. B.C. S.C.).

187. *Id.*

188. These were actually compensated pursuant to the MSA.

allowing smoking on their premises and even lobbied against restrictions on smoking in public places. Similarly, it could have included employers that allowed smoking in their workplaces. Presumably, the legislature chose to focus on manufacturers because of their egregious conduct, but also, as in all instances where a decision to sue is made,¹⁸⁹ their ability to pay. The fundamental point here is that the legislation does not attempt to capture all relevant tort-feasors and yet this did not detract from the legality of the legislation as determined by the Supreme Court of Canada.

2. Climate Change

Under a future *Climate Change Damages and Adaptation Costs Recovery Act*, potential liability might similarly be restricted to a broadly conceptualized class of “manufacturers.” Those who manufacture, or have in the past manufactured, fossil-fuel products intended for combustion, i.e. coal, oil and natural gas, are perhaps the most obvious defendants. As noted *supra*, this category of defendants has been named in the first wave of climate change litigation.¹⁹⁰ However, just as in tobacco litigation, it would be reasonable to expand the potential pool of manufacturers. The range of defendants will be motivated, in part, by the type of tort, legislation, and jurisdictional limits.

a. Expanding the Pool of Defendants

It is reasonable to include manufacturers of products that are GHG-intensive (*e.g.* coal and natural gas-based energy producers and other GHG-intensive industries such as cement manufacturers) and manufacturers of products that, in turn, demand the combustion of fossil fuels (*e.g.* manufacturers of automobiles with combustion engines). Both the energy sector¹⁹¹ and automobile manufacturers¹⁹² have already been named as defendants in the first wave of litigation. Finally, just as the tobacco legislation expanded the pool of potential defendants to capture trade associations, the climate change legislation might include trade associations advancing the fossil-fuel industry’s interests, at least to the extent that these have engaged in the deceptive marketing practices of their tobacco counterparts.

189. OSBORNE, *supra* note 181.

190. *See, e.g.*, Native Village of Kivalina v. ExxonMobil Corp, 696 F. 3d. 849, 868 (9th Cir. 2012).

191. *See, e.g., id.*

192. *See, e.g.*, People v. General Motors Corp. et al., No. C06-05755 MJJ, 2007 WL 2726871 (N.D. Cal. Sept. 17, 2007).

It would, of course, be possible to stretch the potential pool of defendants captured by this legislation even further, to include the distributors and ultimate consumers of GHG-emitting products: those who sell and purchase inefficient motor vehicles; those who sell and purchase gas to fuel those vehicles; or, those who distribute and consume coal-fired power. A myriad of common activities cumulatively contributes to the problem of climate change. However, just as with the tobacco legislation, decisions as to which parties to sue should be informed by conduct, ability to pay, and public policy concerns as to who should ultimately bear responsibility and therefore liability based on their relative contribution to the problem.

In the case of climate change, early attention has focused on longstanding and major manufactures of fossil fuel products intended for combustion and manufacturers of GHG intensive products in light of both historic and ongoing contribution to atmospheric concentrations of GHGs. As noted *supra*, Heede has traced 63 percent of the industrial CO₂ and methane emissions released globally between 1854 to 2010 to just 90 fossil fuel and cement producers—with more than half of the industrial CO₂ emissions traced in Heede's study emitted since 1986.¹⁹³ And, as with tobacco, the culpability of some within these classes of defendants is heightened by their response, or lack of response, to the developing understanding of climate change and its associated risks. For example, Frumhoff et al. ascribe heightened responsibility to those defendants who failed to take responsible action in the face of the developing scientific consensus around climate change and instead promoted misinformation in order to confuse and blur the scientific consensus or delay regulatory action.¹⁹⁴

b. Jurisdictional Limits

A decision about whether the focus of the legislation is on global emissions or emissions from within the province has real implications on determining potential defendants and which of the torts canvassed *supra* Part III.B will be relied upon. Taking a global approach (*e.g.* Heede's 90 fossil fuel and cement producers), the most attractive tort may well be nuisance (private and/or public), bearing in mind that tort's focus on the plaintiff's harm (see also Figure 2, *infra*, showing that even within Canada, the most important GHG-emitting facilities are not evenly distributed across the provinces). It would be unreasonable, however, to rule out the other torts at this early stage of the analysis, bearing in mind not only

193. Heede, *supra* note 99, at 231–34. The analysis includes scope 1, scope 2, and use of product scope 3 emissions.

194. See Frumhoff et al., *supra* note 37, at 163–166.; see also, Damian Carrington & Jelmer Mommers, 'Shell knew': Oil Giant's 1991 Film Warned of Climate Change Danger, THE GUARDIAN (Feb. 28, 2017), <https://www.theguardian.com/environment/2017/feb/28/shell-knew-oil-giants-1991-film-warned-climate-change-danger>.

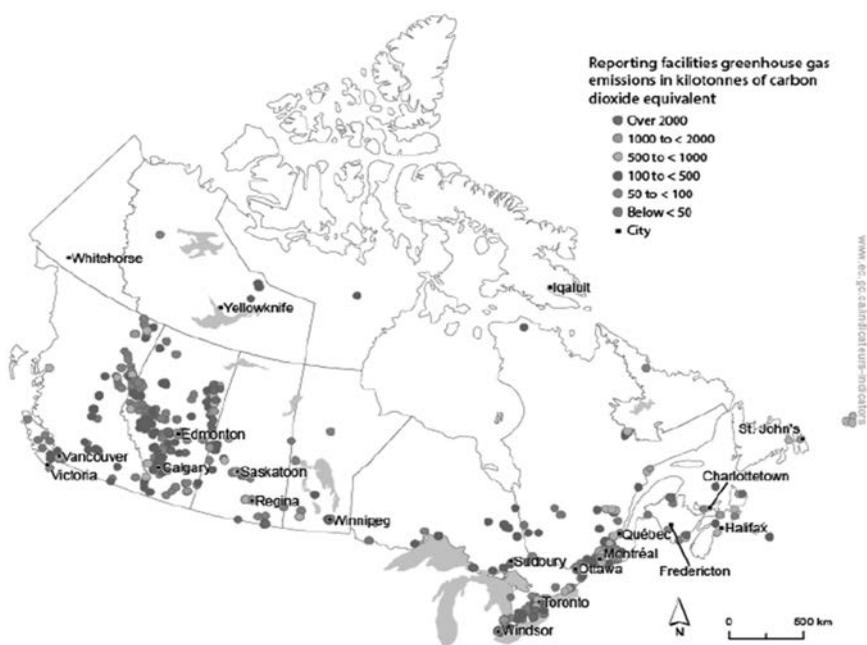


FIGURE 2. Greenhouse Gas Emissions from Facilities, Canada, 2014.¹⁹⁷

the current approach to establishing the *situs* of a tort¹⁹⁵ but also the direction that the relevant tests may take as tort law is itself shaped by the reality of climate change.¹⁹⁶

It is also at this stage that the distinction between the power to legislate and right to sue needs to be kept in mind. In *British Columbia v. Imperial Tobacco Ltd.*, the Supreme Court described the latter as *subsidiary* to the former, which meant that such legislation could capture breaches outside of the enacting jurisdiction:

. . . the driving force of the [Tobacco] Act's cause of action is compensation for the government of British Columbia's health care costs, not remediation of tobacco manufacturers' breaches of duty. While the Act makes the existence of a breach of duty one of several necessary conditions to a manufacturer's liability to the government, it is not the mischief at which the cause of action created by the Act is aimed. The Act leaves breaches of duty to be remedied by

195. *Club Resorts Ltd. v. Van Breda*, 2012 SCC 17, ¶ 88 (The *situs* of the tort is clearly an appropriate connecting factor . . . The difficulty lies in locating the *situs*, not in acknowledging the validity of this factor once the *situs* has been identified).

196. See generally Douglas A. Kysar, *What Climate Change Can Do about Tort Law*, 41 ENVTL. L. 1 (2011).

197. ENVIRONMENT AND CLIMATE CHANGE CANADA, <https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=31022B8E-1> (last visited Mar. 11, 2018).

the law that gives rise to the duty. *Thus, the breaches of duty to which the Act refers are of subsidiary significance to the cause of action created by it, and the locations where those breaches might occur have little or no bearing on the strength of the relationship between the cause of action and the enacting jurisdiction.*"¹⁹⁸

This analysis may be sufficient to distinguish the tobacco and climate change compensation contexts from that which was considered by the Supreme Court of Canada in *Interprovincial Co-operatives Ltd. v. Dryden Chemicals Ltd.*,¹⁹⁹ wherein Manitoba enacted legislation creating a cause of action in Manitoba against polluters in the neighboring provinces of Saskatchewan and Ontario. In a 3-1-3 split decision, a narrow majority held that Manitoba could not make a law punishing companies that lawfully emitted pollutants in Saskatchewan and Ontario, even if those pollutants made their way into Manitoba. However, the majority was influenced by the legislation purporting to deal with the pollution of interprovincial waterways, a matter held to fall within Parliament's jurisdiction over seacoast and inland fisheries.²⁰⁰ The decision is four decades old and has been heavily criticized, including by one of Canada's leading constitutional scholars.²⁰¹

Alternatively, a province or state may choose to focus only on those defendants whose conduct or activities generated GHG emissions within its jurisdiction, in which case any of the torts canvassed above would be available. In this respect, we begin by noting that the first wave of climate litigation has restricted its edge-cutting ambition to defendants within their domestic jurisdictions.²⁰² Second, as Osofsky²⁰³ and Peel²⁰⁴ have argued, there is merit in thinking of climate change as a multi-scalar problem—capable of engaging several levels of gover-

198. *British Columbia v. Imperial Tobacco Ltd.*, 2005 SCC 49, ¶ 40 (Can.) (emphasis added).

199. [1976] 1 S.C.R. 477 (Can.); In the United States, see *North Carolina ex rel. Cooper v. Tenn. Valley Auth.*, 615 F.3d 291 (4th Cir. 2010).

200. *Interprovincial Cooperatives Ltd. v. The Queen*, [1976] 1 S.C.R. 477, 478 (Can.).

201. PETER W. HOGG, *CONSTITUTIONAL LAW OF CANADA* 13-10 to 13-11 (5th ed. 2007). In his concurring judgment Judge Richie was satisfied that the Provincial legislation dealing exclusively with the effect of pollution has controlling effect within the territorial limits of the province by which it is enacted. His concern was focused on the provision in the Manitoba legislation directed at nullifying the effect of permission duly granted by the regulatory authority of another jurisdiction because it provided that it was not a lawful excuse "to show that the discharge of the contaminant was permitted by the appropriate regulatory authority having jurisdiction at the place where the discharge occurred, if that regulatory authority did not also have jurisdiction at the place where the contaminant caused damage to the fishery."

202. See *Native Village of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849, 853 n.1 (9th Cir. 2012) (naming 22 fossil fuel, energy companies and utilities operating in the United States as defendants); *Comer v. Murphy Oil USA*, 718 F.3d 460, 466 n.6 (5th Cir. 2013) (naming 24 fossil fuel and energy companies and utilities operating in the Gulf Coast for property damage sustained during Hurricane Katrina); Osofsky *supra* note 116, at 457 (discussing impacts of the *AEP* case, in which plaintiffs list the five largest emitters of carbon dioxide in the United States as defendants in their public nuisance action).

203. Osofsky, *supra* note 116.

204. Peel, *supra* note 125.

nance. While there is an obvious appeal to focus on those defendants who could be said to have contributed the greatest share to climate change on a global scale, this approach is also not without its problems, including potential difficulties with enforcing any subsequent judgments.²⁰⁵ In light of these and other challenges, governments may prefer to focus on defendants fully within their jurisdictions and to rely instead on innovative approaches to causation and apportionment.

Finally, in the event of such legislation and litigation, the fossil fuel industry would likely attempt to add governments as defendants to the suit for their role in encouraging fossil fuel development or in passing sub-optimal regulatory standards. Under current Canadian doctrine at least, such an attempt is unlikely to succeed. In *R v. Imperial Tobacco Canada Ltd.*,²⁰⁶ the Supreme Court of Canada rejected such efforts by the tobacco industry in the tobacco context on the basis that such governmental actions and decisions were properly characterized as “policy” in nature and therefore immune from liability.²⁰⁷

D. CAUSATION AND APPORTIONMENT

1. Tobacco

In *British Columbia v. Imperial Tobacco Ltd.*, Judge Major explained the mechanics of causation and the important presumptive rules referred to at the outset of this Article as follows:

[9] Where the government’s claim is made on an aggregate basis, it may use statistical, epidemiological and sociological evidence to prove its case: s. 5(b). It need not identify, prove the cause of disease or prove the expenditures made in respect of any individual member of the population on which it bases its claim: s. 2(5)(a) . . .

[10] Pursuant to s. 3(1) and (2), the government enjoys a reversed burden of proof in respect of certain elements of an aggregate claim. Where the aggregate claim is . . . to recover expenditures in respect of disease caused by exposure to cigarettes, the reversed burden of proof operates as follows. Once the government proves that

- (a) the defendant manufacturer breached a common law, equitable or statutory duty or obligation it owed to persons in British Columbia who have been or might become exposed to cigarettes;
 - (b) exposure to cigarettes can cause or contribute to disease; and
 - (c) during the manufacturer’s breach, cigarettes manufactured or promoted by the manufacturer were offered for sale in British Columbia,
- the court will presume that

205. See, e.g., Yuliya Zeynalova, *The Law on Recognition and Enforcement of Foreign Judgments: Is It Broken and How Do We Fix It?*, 31 BERKELEY J. INT’L L. 150, 152 (2013).

206. 2011 SCC 42, [2011] 3 S.C.R. 45 (Can.).

207. *Id.* ¶¶ 63–96.

- (a) the population that is the basis for the government's aggregate claim would not have been exposed to cigarettes but for the manufacturer's breach; and
- (b) such exposure caused or contributed to disease in a portion of the population that is the basis for the government's aggregate claim.

[11] In this way, it falls on a defendant manufacturer to show that its breach of duty did not give rise to exposure, or that exposure resulting from its breach of duty did not give rise to the disease in respect of which the government claims for its expenditures. The reversed burden of proof on the manufacturer is a balance of probabilities: s. 3(4).²⁰⁸

The causation "gap" filled by British Columbia's tobacco legislation is two-fold. The government does not need to prove that British Columbians suffered disease as a result of exposure to cigarettes, but rather that *any population* would suffer disease as a result of such exposure, for which section 5 makes clear it may rely on statistical and epidemiological evidence.²⁰⁹ More importantly, the government does not need to prove that British Columbians suffering from tobacco-related disease have or are doing so as a result of breaches by the defendants *in* the province. Instead, defendants will be *presumed* to have caused the disease of British Columbians who have purchased tobacco products in the neighboring State of Washington, as well as arrivals to British Columbia who are suffering from disease as a result of exposure that occurred in their previous jurisdiction. In other words, the legislature chose to subject the defendants to potential liability for costs that they very likely did not cause, subject to a reverse burden of proof.

With respect to apportionment, Judge Major explained it as follows:

[12] Where the aforementioned presumptions apply, the court must determine the portion of the government's expenditures after the date of the manufacturer's breach that resulted from exposure to cigarettes: s. 3(3)(a). The manufacturer is liable for such expenditures in proportion to its share of the market for cigarettes in British Columbia, calculated over the period of time between its first breach of duty and trial: ss. 3(3)(b) and 1(6).

[13] In an action by the government, a manufacturer will be jointly and severally liable for expenditures arising from a joint breach of duty (i.e., for expenditures caused by disease, which disease was caused by exposure, which exposure was caused by a joint breach of duty to which the manufacturer was a party): s. 4(1).²¹⁰

208. *British Columbia v. Imperial Tobacco Ltd.*, 2005 SCC 49, ¶¶ 9–11 (Can.).

209. *Id.*

210. *Id.* ¶¶ 12–13.

2. Climate change

Several scholars, including Andrew Gage and Margaretha Wewerinke note that “causation” is frequently invoked as one of the largest barriers to successful climate damages litigation.²¹¹ As discussed *supra*, the significance of this barrier is foreshadowed by the standing analysis in some first wave climate litigation cases. The most important lesson from the tobacco context may not be the specific ways in which certain presumptions have been applied, but rather to highlight that the rules of causation and apportionment are not immutable. Therefore, in examining legislative changes to causation and apportionment, it is important to look at a variety of approaches.

a. Causation

One legislative approach to the barriers posed by causation is to incorporate “modest” legislative changes, such as those proposed by Gage and Wewerinke.²¹² This approach, which is more suited to reliance on Heede’s analysis and a focus on global GHG emissions, recognizes that scientific evidence is becoming more sophisticated to allow quantification of the likelihood of a particular weather event or impact resulting from climate change, and the approach attempts to strike a balance between the procedural rights of plaintiffs and defendants so as to avoid undermining the credibility of the legislation and decisions made under it.²¹³

Another approach is to more boldly fill the causation “gap” as British Columbia’s tobacco legislation has. This would be especially necessary with legislation that focuses on emissions-generating conduct within the province. In this case, while all defendants will have contributed to climate change, it could not be said on a traditional “but for” basis that any particular one defendant was a necessary cause of the province’s incurred costs associated with climate change. As in the tobacco context, this problem could arguably be addressed by creating a presumption that the province’s costs associated with climate change (both the remediation of damage and adaptation costs) occurred as a result of emissions-generating activities *in* the province. This, in turn, means that the defendants will be *presumed* to have caused the climate change related harm in British Columbia resulting from GHG emissions in other jurisdictions.

211. GAGE & WEWERINKE, *supra* note 154, at 31.

212. *Id.* at 31–32. These commentators’ propose model climate change legislation that: affirms that the court “may have regard to scientific or statistical information or modeling, historical experience and information derived from other relevant studies, including information derived from sampling”; confirms that the doubling of the likelihood of a particular type of event occurred due to climate change is equivalent to proof on the balance of probabilities that the event was caused by climate change; and, confirms expenses reasonably incurred in order to adapt or prepare for, expected climate change related impacts, including costs not yet incurred, are expenses caused by climate change.

213. *Id.* at 34.

In other words, the legislature could choose—as it did in the tobacco context—to subject the defendants to potential liability for costs that they alone did not cause, subject to a reverse burden of proof. It could then fall on the defendants to show on a balance of probabilities that their respective breaches did not cause or contribute to the expenditures incurred by the government. For this purpose, climate change damages and adaptation costs recovery legislation could fill the causation gap by adapting a version of the “material contribution to risk” test set out by the Supreme Court of Canada in *Clements v. Clements*.²¹⁴ As a matter of Canadian common law, the “material contribution to risk” test is available where:

The plaintiff effectively has established that the “but for” test, viewed globally, has been met. It is only when it is applied separately to each defendant that the “but for” test breaks down because it cannot be shown which of several negligent defendants actually launched the event that led to the injury. The plaintiff thus has shown negligence and a relationship of duty owed by each defendant, but faces failure on the “but for” test because it is “impossible”, in the sense just discussed, to show which act or acts were injurious. In such cases, each defendant who has contributed to the risk of the injury that occurred can be faulted.²¹⁵

To satisfy the test, the plaintiff must establish that the “loss would not have occurred ‘but for’ the negligence of two or more tortfeasors, each possibly in fact responsible for the loss” and that the plaintiff “through no fault of her own, is unable to show that any one of the possible tortfeasors in fact was the necessary or ‘but for’ cause of her injury, because each can point to one another as the possible ‘but for’ cause of the injury.”²¹⁶ This test is not perfectly applicable in the climate change context because each defendant would have in fact contributed to the cumulative impact (*i.e.* each actually “launched the event that led to the injury”), but not one of them was a necessary cause. Some modification would also be necessary to the traditional exclusionary *de minimis* rule,²¹⁷ as all contributions—even those caught by Heede’s analysis, could arguably be excluded by the conventional application of this rule.

b. Apportionment

For the purposes of apportionment, under a global approach that focuses on the world’s largest GHG emitters, Gage and Wewerinke adopt a proportional contribution approach, meaning that “a company which is responsible for 2% of GHG emissions should be responsible for 2% of the damages caused by climate

214. 2012 SCC 32, [2012] 2 S.C.R. 181 (Can.).

215. *Id.* ¶ 40.

216. *Id.* ¶ 46.

217. *Athey v. Leonati*, (1996) 3 S.C.R. 458, ¶¶ 44–47 (Can.).

change.”²¹⁸ They also propose that companies with “overlapping responsibilities” for specific emissions should be jointly and severally liable and that judges be given discretion, based on specific considerations, to vary the liability assigned to a particular defendant.²¹⁹

Where the legislation is aimed first and foremost at GHG emissions *within a province’s jurisdiction*, entirely different issues need to be considered. Perhaps obviously, applying proportional contribution logic would thwart the effectiveness of the legislation, as even a large emitter in a province such as British Columbia would proportionally contribute only a small percentage of the overall GHG emissions causing climate change, making recovery of the province’s costs negligible.

However, there are compelling reasons to consider alternative approaches to apportionment in such a scheme, which would still allow the province to recover a large proportion, if not all, of its costs. We note first that, in Canada at least, apportionment has not traditionally relied on mechanistic assessments of physical causation (*e.g.* which tortfeasor was the primary or secondary cause of harm) but rather has focused on the moral blameworthiness of the relevant conduct.²²⁰ Along these lines, a failure to capture provincial and state-level emissions that may not be globally significant would seem to give a “free pass” to the vast majority of defendants in Canada, which nevertheless form part of the 37 percent of emitters not represented in Heede’s analysis.

While such an approach may seem draconian at present, it may seem much less so in a climate-changed future. Finally, and perhaps most importantly, it would appear to be a matter of legislative policy, not immutable legal principle. As noted by the Supreme Court in *British Columbia v. Imperial Tobacco*:

The judiciary’s role is not . . . to apply only the law of which it approves . . . Nor is it to second-guess the law reform undertaken by legislators, whether that reform consists of a new cause of action or procedural rules to govern it. Within the boundaries of the Constitution, legislatures can set the law as they see fit.²²¹

Under either a global approach or one focused on emissions within the enacting jurisdiction, the issue of apportionment will raise different challenges for different claims. For example, in the case of a car manufacturer who sold cars emitting more GHGs than the accepted standard, as determined by a standard of care analysis, it would be reasonably straightforward to apportion GHG emis-

218. GAGE & WEWERINKE, *supra* note 154, at 33.

219. *Id.* at 33–34.

220. *See, e.g.*, Contributory Negligence Act, R.S.A. 2000, c C-27 (Can. Alta.).

221. *British Columbia v. Imperial Tobacco Ltd.*, 2005 SCC 49, ¶ 52 (quoting *Wells v. Newfoundland*, [1999] 3 S.C.R. 199, ¶ 59) (“The wisdom and value of legislative decisions are subject only to review by the electorate.”).

sions to the defendant based on the number of vehicles sold in the province. The challenge then becomes what portion of the government expenditures can be apportioned to the defendant in light of the GHG emissions it is responsible for (as discussed above). Similarly, a coal plant can be attributed GHG emissions relative to a minimum accepted standard for electricity generation. The bigger challenge, again, is the apportionment of mitigation, adaptation and loss and damage costs incurred by the plaintiff government per ton of GHG emissions attributed to the defendant. One approach would be to establish a formula in legislation, such as dividing the cost incurred by a government in a given year by the total GHG emissions in that same year, and use the resulting cost per ton as the basis for apportioning liability. Different issues on apportionment would arise with respect to failure to warn and conspiracy based claims.

IV. CONCLUSION

Inspired by developments in tobacco litigation and liability, this Article explored the potential for legislation to be developed to assist future governments to recover some of the costs of mitigation, adaptation and loss, and damage associated with climate change.

While recognizing that such legislation could ultimately take different forms, the comparison to tobacco is useful because it illustrates the potential for the law to respond dynamically to changing facts, values, and norms. By comparing the liability issues associated with climate change to governments' efforts to recover health care and related costs associated with the use of tobacco, we have also been able to identify two categories of challenges associated with climate liability. The first category involves challenges that were encountered in the tobacco context and successfully addressed through legislation. These included litigation resources, issues of causation and personal culpability, and apportionment. The tobacco experience suggests that similar challenges can be overcome through similar legislative provisions in the climate context. The guidance offered by the Supreme Court of Canada in the context of the tobacco industry's challenges to the tobacco legislation is particularly helpful in this regard. It suggests that while there may be some territorial limits to the ability of jurisdictions to recover costs associated with climate change, there is still considerable room to adjust common law rules through legislation to hold those responsible for these costs accountable. The lynchpin in such legislation, according to the Supreme Court, is the government's claim for compensation for costs it has incurred. It does not matter that such legislation "may capture, to some extent, activities occurring outside of" the province enacting such legislation,²²² so long as "there is at all times one critical connection to [the province]: the

222. *Id.* ¶ 38.

recovery permitted by the action is in relation to expenditures by the government . . . for [the residents of the province].”²²³

The second category consists of challenges that are unique to climate change and that will require different legislative solutions than those employed in the tobacco context. They include the broader geographic distribution of the harm associated with the release of GHG emissions, the broader range of sources of GHG emissions, and the broader range of possible defendants, which could include the fossil fuel industry itself, large scale consumers of fossil fuel and manufacturers of products that rely on fossil fuels. These challenges will require further consideration to ensure that proposed solutions will withstand inevitable court challenges. The general direction offered in the context of the challenges to the tobacco legislation does provide some guidance on the parameters within which solutions can be designed.

Importantly, as high as the stakes were and are with respect to tobacco-related disease, the stakes are much higher with respect to climate change. The future costs to governments will grow exponentially over time, which in turn will increase the pressure on governments to seek contribution from those responsible. Of course, the extent of the problem will depend on future global efforts to reduce GHG emissions through political initiatives such as the Paris Climate Agreement. For each potential defendant, potential liability may depend on how their efforts going forward measure up against possible standards, such as best available technology.²²⁴ In the meantime, provincial and state governments have the opportunity to send important signals to key industry sectors by passing such legislation sooner rather than later.

223. *Id.*

224. Higher costs of future mitigation because of past failures to mitigate might be another basis for claims against those responsible for the failure to reduce GHG sufficiently to avoid the negative impacts of climate change. Further research is required to explore these issues.