

OF LOCK-BREAKING AND STOCK TAKING: IP, CLIMATE CHANGE, AND THE RIGHT TO REPAIR IN CANADA

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This paper argues that Canadian governments have both legal and moral obligations to act to combat climate change. In seeking to fulfill these obligations, Canadian governments should pay particular attention to Canada's intellectual property (IP) regime. This paper argues that given the centrality of IP to Canada's economy, a comprehensive review is required in order to determine whether and the extent to which elements of Canada's IP regime contribute to climate change or impede climate action. To illustrate the need for such a review, this paper will highlight one example of how Canada's IP regime, as currently structured, impedes the fight against climate change. Specifically, it will focus on the provisions of Canada's Copyright Act that provide protection for technological protection measures (TPM). These provisions limit the extent to which consumers can repair software-enabled products that they have purchased. Reform of the TPM provisions in Canada's Copyright Act is required in order to ensure that they do not act as a barrier to repair. This paper will discuss several options for reform. While a comprehensive review of Canada's IP laws is necessary in order to identify and amend all provisions that contribute to climate change or that impede climate action, amending the TPM provisions of the Copyright Act to include an exception for the purposes of diagnosis, repair, and maintenance would be an important step in this direction.

L'auteur de cet article avance que les gouvernements canadiens ont l'obligation légale et morale de lutter concrètement contre le changement climatique. Pour remplir cette obligation, il leur faudra porter une attention particulière au régime canadien de propriété intellectuelle (PI). L'auteur fait ressortir qu'en raison de la place prépondérante qu'occupe la PI dans l'économie canadienne, un examen global s'impose, car il s'agit de savoir si, et dans quelle mesure, le régime canadien de PI contribue au changement climatique ou nuit à la lutte contre celui-ci. Pour illustrer la nécessité d'un tel examen, l'auteur donne un exemple qui montre en quoi ce régime, structuré comme il l'est actuellement, nuit à la lutte contre le changement climatique. Plus précisément, il traite des dispositions de la Loi sur le droit d'auteur qui mettent à couvert les mesures techniques de protection. Ces

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dispositions restreignent les réparations que le consommateur peut effectuer sur les produits logiciels dont il a fait l'acquisition. Une réforme de ces dispositions s'impose si nous ne voulons pas que cette loi canadienne fasse obstacle aux réparations. L'auteur aborde plusieurs avenues de réforme. Certes, il faudra un examen complet de la législation canadienne en matière de PI afin d'y recenser et modifier tout ce qui contribue au changement climatique ou nuit à la lutte contre celui-ci, mais si nous commençons par modifier les dispositions de la Loi sur le droit d'auteur concernant les mesures techniques de protection, par l'ajout d'une exception s'appliquant aux diagnostics, aux réparations et à la maintenance, ce serait un grand pas dans la bonne direction.

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1. Introduction

There is an urgent need for action to combat human-induced climate change. The International Panel on Climate Change's (IPCC) 6th Assessment Report, released in February 2022, concludes that "[h]uman-induced climate change, including more frequent and intense extreme events, has caused widespread adverse impacts and related losses and damages to nature and people, beyond natural climate variability."¹

The impacts of climate change are felt most severely by those who are most vulnerable, including Indigenous, Black and racialized peoples. The IPCC's report, for instance, highlights how "[a]cross sectors and regions the most vulnerable people and systems are observed to be disproportionately affected."²

Time is running out. A study published in *Science* in September 2022 concludes that "[t]he Earth may have left a safe climate state beyond 1°C global warming", and that "[c]urrent policies leading to ~2 to 3°C warming are unsafe because they would likely trigger multiple climate tipping points."³ The Stockholm Resilience Centre, Stockholm University, defines a tipping point as "a critical threshold at which a tiny perturbation can qualitatively alter the state or development of a system."⁴ Earth system components at risk, as identified in this study, include "Arctic summer sea ice, the Greenland ice sheet (GrIS), the West Antarctic ice sheet (WAIS), Atlantic Meridional Overturning Circulation (now AMOC, previously THC), the El Niño Southern Oscillation, the Indian Summer monsoon, the Sahara/Sahel and West African Monsoon, the Amazon rainforest (AMAZ), and boreal forest".⁵

However, not all hope is lost. Actions taken now can help to reduce greenhouse gas (GHG) emissions. Reducing GHG emissions will help us avoid the most catastrophic scenarios outlined by climate scientists. At the same time, failure to take action now makes it more likely that these outcomes will occur. As noted by the IPCC, "[t]he magnitude and rate of climate change and associated risks depend strongly on near-term mitigation and adaptation actions, and projected adverse impacts

¹ Hans-O Pörtner et al, "[Special Report Global Warming of 1.5°C: Summary for Policy Makers](#)" (2022) at 9, online (pdf): *The Intergovernmental Panel on Climate* <www.ipcc.ch> [perma.cc/6JS3-C9VF] [IPCC 2022 Summary].

² *Ibid.*

³ David I Armstrong McKay, "Exceeding 1.5° global warning could trigger multiple climate tipping points" (2022) 377: 6611 *Science* 1 at 8.

⁴ *Ibid* at 1.

⁵ *Ibid* at 1.

and related losses and damages escalate with every increment of global warming.”⁶

All parties—including individuals, businesses, and governments—can take steps to help reduce GHG and fight climate change. Individuals can make changes in their own lives. They can also attempt to persuade others. Similarly, businesses can modify their operations to reduce their carbon footprint. They can also use their voice and influence to advocate for change.

Governments have access to additional levers beyond those possessed by individuals and businesses. While individuals and businesses can change their behaviour (and can encourage others to do the same), governments set the rules of behaviour that all individuals and businesses must follow. Provided they operate within certain constraints both domestic (including constitutions) and international (including bilateral, regional, and international treaties), governments have the power—and in certain cases the obligation—to make systemic changes that either encourage or mandate collective action with respect to GHG emissions.

This paper will argue that Canadian governments have both legal and moral obligations to act to combat climate change. In seeking to fulfill these obligations, Canadian governments should pay particular attention to Canada’s intellectual property (IP) regime. IP regimes including patent, copyright, and trademark underpin the economies of many countries, including Canada.

Thus far, the measures taken by Canadian governments relating to the intersection of IP and climate change have focused on providing IP support to businesses seeking to develop green technologies, including through an expedited patent application process as well as through the provision of information and other supports. While these are important steps to take, more must be done.

This paper argues that given the centrality of IP to Canada’s economy, a comprehensive review is required in order to determine whether Canada’s IP regime is consistent with its legal and moral obligations to take action to fight climate change. In addition to thinking about which supports would be useful for businesses seeking to develop climate mitigation and adaptation technologies, this review must also consider whether and the extent to which elements of Canada’s IP regime contribute to climate change either directly or by impeding the ability of parties to act to combat climate change. In calling for such a review, this paper contributes to the

⁶ IPCC 2022 Summary, *supra* note 1 at 14.

growing body of literature focused on intellectual property and climate change, including works by Joshua Sarnoff, Abbe EL Brown, Matthew Rimmer, Margaret Chon, Peter S Menell and Sarah M Tran, Kavita Kapur, and Peter Drahos, among others.⁷

To illustrate the need for such a review, this paper will give one example of how Canada's IP regime, as currently structured, impedes the fight against climate change. Specifically, it will focus on the provisions of Canada's *Copyright Act* that provide protection for technological protection measures (TPM).⁸ These provisions, as written and interpreted, limit the extent to which consumers can repair software-enabled products that they have purchased, resulting in additional GHG emissions as consumers replace broken electronic items with new items. Reform of the TPM provisions in Canada's *Copyright Act* is required in order to ensure that they do not act as a barrier to repair.⁹

In engaging in this discussion, this paper builds on the body of literature that has focused on the intersection of intellectual property and

⁷ See e.g. Joshua D Sarnoff ed, *Research Handbook on Intellectual Property and Climate Change* (Northampton: Edward Elgar, 2018); Abbe EL Brown, *Intellectual Property, Climate Change and Technology: Managing National Legal Intersections, Relationships and Conflicts* (Northampton: Edward Elgar, 2019); Matthew Rimmer, "Beyond the Paris Agreement: Intellectual Property, Innovation Policy, and Climate Justice" (2019) 8:1 *Laws* 2; Matthew Rimmer ed, *Intellectual Property and Clean Energy: The Paris Agreement and Climate Justice* (Singapore: Springer, 2018); Margaret Chon, "Trademark Goodwill and Green Global Value Networks" in Matthew Rimmer ed, *Intellectual Property and Clean Energy: The Paris Agreement and Climate Justice* (Singapore: Springer, 2018) at 275; Peter S Menell and Sarah M Tran eds, *Intellectual Property, Innovation and the Environment* (Edward Elgar, 2014); Kavita Kapur, "Climate Change, Intellectual Property, and the Scope of Human Rights Obligations" (2011) 11:2 *Sustainable Development L & Policy* 58; Peter Drahos, "Bargaining over the climate: Lessons from intellectual property negotiations" (2011) 2:1 *Climate L* 1.

⁸ *Copyright Act*, RSC 1985, c C-42, ss 41-41.24. For works that address TPMs in Canada, see generally, Carys J Craig, "Locking Out Lawful Users: Fair Dealing and Anti-Circumvention in Bill C-32", in Michael Geist ed *From Radical Extremism to Balanced Copyright: Canadian Copyright and the Digital Agenda* (Toronto: Irwin Law, 2010) 177; Carys J Craig, "Digital Locks and the Fate of Fair Dealing in Canada: In Pursuit of 'Prescriptive Parallelism'" (2010) 13:4 *J of World Intellectual Property* 503; Anthony D Rosborough, "If a Machine Could Talk, We Would Not Understand It: Canadian Innovation and the Copyright Act's TPM Interoperability Framework" (2021) 19 *CJLT* 141.

⁹ This is not to say that these provisions are the only barrier to repair in the context of copyright, that the only intellectual property barriers to repair are related to copyright law, or that the only barriers to repair are intellectual property-related. In order to fully empower Canadian consumers to repair items they have purchased, it may be necessary to reform many different areas of law, including patent law, trademark law, industrial design law, law related to confidential information, contract law, and consumer protection law.

the right to repair in both Canada and in other jurisdictions, including works by Anthony D Rosborough, Leah Chan Grinvald and Ofer Tur-Sinai, Matthew Rimmer, Aaron Perzanowski, Jorge L Contreras, Tesh W Dagne and Gosia Piasecka, and others.¹⁰ It contributes to this literature in several ways, including by explicitly linking discussion of the intersection of intellectual property and the right to repair with efforts to combat climate change.

This paper will proceed in six parts. The first section is the introduction. Second, it will argue that Canadian governments have both legal and moral obligations to take action to fight climate change. Third, it will argue that in seeking to fulfill these obligations, Canadian courts should engage deeply with Canada's IP regime. Fourth, it will argue that while the provision of IP-related supports is an important part of efforts to fight climate change, that this alone is insufficient to satisfy Canada's moral and legal obligations to take action to fight climate change. Rather, a comprehensive review of Canadian IP legislation is required in order to determine whether and to what extent Canada's IP regime contributes to climate change or impedes climate action. Fifth, it will discuss one example of how Canada's IP regime impedes efforts to fight climate change. Specifically, it will discuss how the provisions in Canada's *Copyright Act* that provide protection for TPMs impede the fight against climate change by making it more difficult for consumers to repair items that they have purchased. This section will also discuss the importance of repair in the fight against climate change, the ways in which TPM provisions in Canada's *Copyright Act* serve as a barrier to repair, various options for reform of the *Copyright Act*'s TPM provisions, arguments against reform of the TPM provisions, and government support for the creation of a right to repair more generally. The sixth section will conclude the paper.

¹⁰ See e.g. Anthony D Rosborough, "Unscrewing the Future: The Right to Repair and the Circumvention of Software TPMs in the EU" (2020) 11:1 J Intellectual Property Information Technology & E-commerce L 26; Leah Chan Grinvald & Ofer Tur-Sinai, "Intellectual Property Law and the Right to Repair" (2019) 88:1 Fordham L Rev 63; Matthew Rimmer, "The Right to Repair: Patent Law and 3D Printing in Australia" (1 January 2023) Script-ed - A JL, Technology, & Society 2023; Aaron Perzanowski, *The Right to Repair: Reclaiming the Things We Own* (Cambridge: Cambridge University Press, 2022); Jorge L Contreras, "Research and Repair: Expanding Exceptions to Patent Infringement in Response to a Pandemic" (2020) 7:1 J Law & Biosciences; Tesh W Dagne and Gosia Piasecka, "The Right to Repair Doctrine and the Use of 3D Printing Technology in Canadian Patent Law" (2016) 14:2 CJLT 263.

2. Canadian governments have both legal and moral obligations to take action to fight climate change

A) Canadian governments have legal obligations to take action to fight climate change

Canada has signed and ratified a number of international treaties focused on climate change, including the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement.¹¹ One of the key goals of the Paris Agreement, for instance, is to “[h]old[] the increase in the global average temperature to well below 2°C above pre-industrial levels and pursu[e] efforts to limit the temperature increase to 1.5°C above pre-industrial levels”.¹² These treaties require Canada to take specific steps with respect to climate change goals.

Canadian governments also have legal obligations under international human rights law to take action to fight climate change. Canada has adhered to a number of international human rights treaties and optional protocols, including the International Covenant on Economic, Social and Cultural Rights (ICESCR) (1976), the International Covenant on Civil and Political Rights (ICCPR) (1976).¹³ By adhering to these and other agreements, Canada has assumed certain responsibilities to act to protect human rights.

As well, in September 2015, Canada was one of 193 UN members states to adopt the 2030 Agenda for Sustainable Development.¹⁴ Grounded

¹¹ *United Nations Framework Convention on Climate Change*, 9 May 1992, 1771 UNTS 107 (entered into force 21 March 1994, ratified by Canada 21 March 1994) [UNFCCC]; *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, 11 December 1997, 2303 UNTS 162 (entered into force 16 February 2005, ratified by Canada 16 February 2005, withdrawn by Canada 15 December 2005); *Amendment to the list in Annex I to the United Nations Framework Convention on Climate Change*, 26 October 2010, 2707 UNTS (entered into force 26 October 2010) [Copenhagen Accord]; *Paris Agreement*, 12 December 2015, 3156 UNTS (entered into force 4 November 2016, ratified by Canada 4 November 2016) [Paris Agreement].

¹² *Paris Agreement*, *supra* note 11, art 2(1)(a).

¹³ *International Covenant on Economic, Social and Cultural Rights*, 16 December 1966, 993 UNTS 3 [ICESCR]; *International Covenant on Civil and Political Rights*, 19 December 1966, 999 UNTS 171 [ICCPR].

¹⁴ “[Canada and the Sustainable Development Goals](https://www.canada.ca/en/government/publications/canada-and-the-sustainable-development-goals)” (last modified 4 January 2023), online: *Government of Canada* <www.canada.ca>.

in human rights,¹⁵ the 2030 Agenda is described as “a 15-year global framework centred on an ambitious set of 17 Sustainable Development Goals (SDGs), 169 targets and over 230 indicators.”¹⁶ SDG 13 focuses on climate action.

Climate change is a significant threat to human rights in Canada and around the world. The United Nations Office of the High Commissioner of Human Rights (UNOHCHR) has written that:

Climate change threatens the effective enjoyment of a range of human rights including those to life, water and sanitation, food, health, housing, self-determination, culture and development. States have a human rights obligation to prevent the foreseeable adverse effects of climate change and ensure that those affected by it, particularly those in vulnerable situations, have access to effective remedies and means of adaptation to enjoy lives of human dignity.¹⁷

As well, the UNOHCHR has highlighted how:

The negative impacts of climate change are disproportionately borne by persons and communities already in disadvantageous situations owing to geography, poverty, gender, age, disability, cultural or ethnic background, among others, that have historically contributed the least to greenhouse gas emissions. In particular, persons, communities and even entire States that occupy and rely upon low-lying coastal lands, tundra and Arctic ice, arid lands, and other delicate ecosystems and at risk territories for their housing and subsistence face the greatest threats from climate change.¹⁸

In order to fulfill its responsibilities under the ICCPR and ICESCR, Canada must take action to protect act to fight climate change. This view is supported by the recent decision of the UN Human Rights Committee in *Daniel Billy et al v Australia*, which determined that failure by Australia to

¹⁵ “[About the 2030 Agenda on Sustainable Development](#)” (last visited 8 January 2023), online: *United Nations Office for the High Commissioner for Human Rights* <www.ohchr.org> [perma.cc/BB89-5ELH].

¹⁶ “[The 2030 Agenda for Sustainable Development](#)” (last modified 13 January 2023), online: *Government of Canada* <www.international.gc.ca> [perma.cc/8UGN-UNN4]; See also “[Sustainable Development Goals](#)” (last visited 8 January 2023), online: *United Nations* <www.un.org> [perma.cc/5ADQ-PYAP/].

¹⁷ “[OHCHR and climate change](#)” (last visited 5 October 2022), online: *United Nations Human Rights: Office of the High Commissioner* <www.ohchr.org> [perma.cc/TR3Y-M4CD].

¹⁸ “[The impacts of climate change on the effective enjoyment of human rights: OHCHR and climate change](#)” (last visited 5 October 2022), online: *United Nations Human Rights: Office of the High Commissioner* <www.ohchr.org> [perma.cc/32AE-LD6U].

take adequate measures to combat the effects of climate change constitutes a violation of articles 17 and 27 of the ICCPR.¹⁹

Canada may also be legally obligated to take action to fight against climate change through its commitment to the human right to a healthy environment for all. The human right to a “clean, healthy, and sustainable environment for all people” was recognized in October 2021 by the UN Human Rights Council through the adoption of resolution 48/13, and in July 2022 in a resolution adopted by the UN General Assembly.²⁰ Canada voted in favour of this UN General Assembly resolution.²¹

In 2022, the Government of Canada indicated in a Backgrounder prepared by Environment and Climate Change Canada that it “recognizes that every individual in Canada has a right to a healthy environment, and that the Government has a duty to protect that right when administering [the Canadian Environmental Protection Act (CEPA)].”²² This Backgrounder was created to provide context for the Government of Canada’s proposed amendments to CEPA, which are contained in Bill S-5. As of October 3, 2022, Bill S-5 has completed third reading in the Senate and first reading in the House of Commons.²³ It proposes to:

Amend[] the Canadian Environmental Protection Act, 1999 to, among other things,

- a) recognize that every individual in Canada has a right to a healthy environment as provided under that Act;
- b) provide that the Government of Canada must protect that right as provided under that Act, and, in doing so, may balance that right with relevant factors;

¹⁹ [UNHRC, 135th Sess](#) UN Doc CCPR/C/135/D/3624/2019 (2022), online: <tbinternet.ohchr.org> [perma.cc/7H65-JSQK].

²⁰ [UN General Assembly, 76th Sess](#), UN Doc A/76/L.75 (2022), online: <digitallibrary.un.org> [perma.cc/GH4T-GPYW].

²¹ [“The human right to a clean, healthy and sustainable environment: resolution/adopted by the general assembly”](#) (last visited 5 October 2022), online: *United Nations Digital Library* <digitallibrary.un.org> [perma.cc/5PVF-CKHM].

²² Environment and Climate Change Canada, [“Government of Canada delivers on commitment to strengthen the Canadian Environmental Protection Act, 1999 and recognizes a right to a healthy environment”](#) (last modified 9 February 2022), online: *Government of Canada* <www.canada.ca>.

²³ LEGISinfo, [“S-5 An Act to amend the Canadian Environmental Protection Act, 1999, to make related amendments to the Food and Drugs Act and to repeal the Perfluorooctane Sulfonate Virtual Elimination Act”](#) (last visited 6 October 2022), online: *Parliament of Canada* <www.parl.ca> [perma.cc/WWL5-SSQL].

c) require the development of an implementation framework that sets out how that right will be considered in the administration of that Act, and require that research, studies or monitoring activities be conducted to support the Government of Canada in protecting that right.²⁴

Despite criticisms as to its scope and enforceability,²⁵ this Bill, if passed, will require the Government of Canada to take steps to protect the “right to a healthy environment” for Canadians. While noting that Bill S-5 “could, and should, be strengthened in the House of Commons”, David R Boyd, UN Special Rapporteur on Human Rights and the Environment, has described it “an important starting point for finally incorporating the right to a healthy environment into Canadian law”.²⁶

B) Canadian governments have moral obligations to take action to fight climate change

In addition to legal obligations, Canadian governments also have moral obligations to act to combat climate change. One basis for this obligation can be found in the polluter-pays principle.²⁷ As noted by the OECD, under this principle, “the polluter should bear the expenses of carrying out ... measures ... to ensure that the environment is in an acceptable state”.²⁸ Philosopher James Garvey has discussed the application of this principle in the context of climate change. Sandra Jane Fairbanks summarizes Garvey’s application of this principle as “assign[ing] moral responsibility for the damages from climate change to whoever caused climate change”.²⁹ Canada’s emissions, while lower than some countries, are still globally

²⁴ S-5, *An Act to amend the Canadian Environmental Protection Act, 1999, to make related amendments to the Food and Drugs Act and to repeal the Perfluorooctane Sulfonate Virtual Elimination Act*, 1st Sess, 44th Parl, 2022, cls (a) – (c).

²⁵ Carl Meyer “[Canadians could soon have the legal right to a healthy environment. But can it be enforced?](#)”, *The Narwhal* (10 August 2022), online: <thenarwhal.ca> [perma.cc/Q95Q-VJZ6].

²⁶ *Ibid.* David R Boyd has written extensively on the right to a healthy environment among other environmental issues. See generally *The Optimistic Environmentalist: Progressing Towards a Greener Future* (Toronto: ECW Press, 2015); *Cleaner, Greener, Healthier: A Prescription for Stronger Canadian Environmental Laws and Policies* (Vancouver: UBC Press, 2015); *The Right to a Healthy Environment: Revitalizing Canada’s Constitution* (Vancouver: UBC Press, 2012); *The Environmental Rights Revolution: A Global Study of Constitutions, Human Rights, and the Environment* (Vancouver: UBC Press, 2012).

²⁷ OECD, Legal Instruments, [Recommendation of the Council on the Implementation of the Polluter-Pays Principle](#), (13 November 1974), online: <legalinstruments.oecd.org> [perma.cc/55ZJ-N7ZL].

²⁸ *Ibid.*

²⁹ Sandra Jane Fairbanks, “Climate Change and Moral Responsibility” (2014) 4 *Earth Jurisprudence & Environmental Justice* J 57 at 61, citing James Garvey, *The Ethics*

significant. In 2019, for instance, Canada ranked 10th overall in terms of total GHG emissions, with a share of global emissions of 1.5%.³⁰ Canada was also “the highest GHG emitting country per capita among the top 10 emitting countries.”³¹ Garvey’s application of the polluter-pays principle suggests that Canada is morally responsible for the consequences of these emissions, and must take action to reduce them accordingly.³²

3. In seeking to fulfill their legal and moral obligations to fight climate change, Canadian governments should engage deeply with Canada’s IP regime

The World Intellectual Property Organization (WIPO) has stated that “[i]ntellectual property (IP) protection is an important component of modern national economic policies.”³³ This statement has been echoed by Canadian policy-makers. In launching its Intellectual Property Strategy in 2018, for instance, the Department of Innovation, Science and Economic Development Canada described IP as “a key component of an innovation economy”, and something that “helps Canadian innovators reach commercial success, further discovery and create middle-class jobs by protecting their ideas and ensuring they reap the full rewards of their inventions and creations.”³⁴

Innovation economies are built on ideas and technology. IP regimes provide the structure of rights and obligations that support and underpin the innovation economy. In Canada, for instance, the *Patent Act* establishes the framework for protection of inventions;³⁵ the *Copyright Act* sets the rules in relation to works of expression (including with respect to software);³⁶ and the *Trademarks Act* outlines both the nature and extent of protection associated with registered and unregistered marks in Canada.³⁷ Each of these acts applies across all industry sectors. As well, they apply

of *Climate Change: Right and Wrong in a Warming World*, (Great Britain: Bloomsbury Academic, 2008).

³⁰ “[Global greenhouse gas emissions: Total global greenhouse gas emissions](#)” (last modified 25 August 2022), online: *Government of Canada* <www.canada.ca>.

³¹ *Ibid* at Global greenhouse gas emissions per capita.

³² Fairbanks, *supra* note 29 at 61.

³³ “[IP and Economics](#)” (last visited 7 October 2022), online: *World Intellectual Property Organization* <www.wipo.int> [perma.cc/2D6R-TYX2].

³⁴ Innovation, Science and Economic Development Canada, “[Government of Canada launches Intellectual Property Strategy](#)” (26 April 2018), online: *Government of Canada* <www.canada.ca>.

³⁵ *Patent Act*, RSC 1985, c P-4.

³⁶ *Copyright Act*, *supra* note 8.

³⁷ *Trademarks Act*, RSC 1985, c T-13.

to all persons within Canadian jurisdiction, including all individuals and businesses based in Canada.

Given the centrality of IP to Canada's economy, Canadian governments seeking to reduce GHG emissions should engage in a meaningful way with all aspects of Canada's IP regime. It could be the case, for instance, that elements of Canada's IP regime, as currently structured, either contribute to climate change or impede efforts to fight climate change. To the extent that this is the case, these elements should be reformed to the extent possible under international law.³⁸ It could also be the case that elements of Canada's IP regime, as currently structured, help combat climate change. These elements should be highlighted, for the benefit of other jurisdictions seeking to take similar steps to reduce their GHG emissions. Engaging in a meaningful way with all aspects of Canada's IP regime could also result in ideas for reform that would have positive effects in terms of reducing GHG emissions. Due to the broad application of IP regimes across industry sectors, even minor, targeted changes to IP legislation have the potential to make significant differences in terms of GHG emissions reductions.

4. The provision of IP-related supports is an important part of efforts to fight climate change, but must be accompanied by a comprehensive review of Canada's IP regime

Some steps have been taken by Canadian governments with respect to the intersection of IP and climate change. These steps have primarily focused on the provision of IP-related supports to companies seeking to develop technologies to help adapt to climate change or to mitigate its effects. One example of such an initiative undertaken by the federal government is the adoption by the Canadian Intellectual Property Office of a process through which to "fast-track" patent applications relating to green technologies. Canada's "fast-track" system for green technologies has been in place since March 2011.³⁹ In order to be eligible for this program, applications must "relate[] to technology that if commercialized would help to resolve or mitigate environmental impacts or to conserve the natural environment

³⁸ Any changes to Canada's IP regime would need to be consistent with Canada's international obligations, both with respect to international trade and international human rights.

³⁹ Antoine Dechezleprêtre and Eric Lane, "[Fast-tracking green patent applications](#)", *WIPO Magazine* (June 2013), online: <www.wipo.int> [perma.cc/2UK7-6QTC].

or natural resources.”⁴⁰ No additional fees are required in order to receive advanced examination.⁴¹

A second example of an initiative focused on the provision of IP-related supports for businesses is the development of information-sharing resource The Clean Growth Hub, which describes itself as “... main source of information, resources and advice on federal supports for clean technology in Canada.”⁴² The Clean Growth Hub website links to a wide range of services and information, including with respect to funding opportunities, advisory services, information with respect to reconciliation, equity, diversity and inclusion, and resources and tools.⁴³ These resources and tools include a toolkit to assist parties in applying for federal funding for clean technologies.⁴⁴ Among other areas of focus, this toolkit contains information on IP and IP strategy.⁴⁵

A third example of an initiative undertaken by the federal government to provide IP support for companies seeking to develop and disseminate technologies to help adapt to climate change or to mitigate its effects is the creation of a partnership between the Canadian Government’s Department of Innovation, Science and Economic Development (ISED) and Innovation Asset Collective. The Innovation Asset Collective (IAC) describes itself as:

An independent, membership based not-for-profit selected by the Canadian Government’s Department of Innovation, Science and Economic Development (ISED) to assist Canadian small and medium-sized enterprises (SMEs) in the data driven cleantech sector with their IP needs. We are a key pillar in Canada’s IP Strategy and the first program that considers the broader relevant IP needs for companies.⁴⁶

⁴⁰ Canadian Intellectual Property Office, “[Advanced examination for green technologies](#)” (last modified 8 June 2021), online: *Government of Canada* <www.ic.gc.ca>[perma.cc/CBS7-BMZF].

⁴¹ *Ibid.*

⁴² “[Clean Growth Hub](#)” (last modified 13 January 2023), online: *Government of Canada* <ised-isde.canada.ca> [perma.cc/N4NQ-UT3]].

⁴³ *Ibid.*

⁴⁴ Clean Growth Hub, “[Applying for federal clean tech funding: A toolkit](#)” (last modified 11 November 2021), online (pdf): *Government of Canada* <ised-isde.canada.ca> [perma.cc/WMR2-6WB6].

⁴⁵ *Ibid* at 17–18.

⁴⁶ “[IAC is revolutionizing the IP ecosystem, helping Canadian companies leverage IP Strategy to compete and scale](#)” (last visited 7 October 2022), online: *Innovation Asset Collective* <www.ipcollective.ca> [perma.cc/D2H3-7227].

Resources provided by IAC to its members include those related to IP education and strategy,⁴⁷ grant funding to support spending in the area of IP,⁴⁸ the acquisition of patents by IAC on behalf of members “to help minimize [their] risk of third party threats”,⁴⁹ and market intelligence reports (along with tutorials to teach parties how to read and understand these reports).⁵⁰

Some provincial governments also provide IP-related supports to companies, including those that focus on “green” technologies. Two provinces that provide this type of support are British Columbia (BC), through a partnership between the Province of BC, Innovation Asset Collective (IAC) and Innovate BC;⁵¹ and Ontario, through Intellectual Property Ontario, “a board-governed provincial agency that will help the postsecondary education and research and innovation sectors generate, protect, manage and commercialize intellectual property (IP).”⁵²

The development and dissemination of “green” or “clean” technologies is an important part of efforts to fight climate change.⁵³ As such, the measures noted above are useful initiatives, in that they make it easier for companies to apply for IP rights over these technologies, either by offering an expedited patent application process, or by providing companies with information and support so that they can take steps to apply through the regular patent process. They can also help companies defend against infringement actions, including by providing them with information or by purchasing patents that could pose a threat to their business operations.

However, given the need for urgent action to combat climate change, it is not enough to focus on ways through which the IP regime can incentivize the development of new technologies that can help with mitigation or adaptation efforts. It is also important to scrutinize existing IP legislation

⁴⁷ “[IP Education and Strategy](#)” (last visited 7 October 2022), online: *Innovation Asset Collective* <[www.ipcollective.ca](#)> [perma.cc/JJ6V-XFWH].

⁴⁸ “[IP Funding](#)” (last visited 7 October 2022), online: *Innovation Asset Collective* <[www.ipcollective.ca](#)> [perma.cc/D3TV-SV4E].

⁴⁹ “[IAC IP Portfolio](#)” (last visited 7 October 2022), online: *Innovation Asset Collective* <[www.ipcollective.ca](#)> [perma.cc/ERM4-GVF4].

⁵⁰ “[IAC Market Intelligence](#)” (last visited 7 October 2022), online: *Innovation Asset Collective* <[www.ipcollective.ca](#)> [perma.cc/J2L9-QWDV].

⁵¹ “[BC businesses benefit from national intellectual property partnership](#)” (11 April 2022), online: *BC Gov News* <[news.gov.bc.ca](#)> [perma.cc/J3M6-6V5F].

⁵² “[Intellectual Property Ontario](#)” (last modified 12 October 2022), online: *Government of Ontario* <[www.ontario.ca](#)> [perma.cc/6JDQ-M9JM].

⁵³ “[How Technology Can Help Fight Climate Change](#)” (5 July 2022), online: *United Nations Climate Change* <[unfccc.int](#)> [perma.cc/38L3-YQ5P].

in order to determine its impact on climate change, including whether it contributes to climate change either directly or by impeding action taken to fight climate change. In seeking to do so, it is necessary to undertake a comprehensive review of Canada's IP regime. This review should be initiated as a matter of urgency by scholars, policy-makers, politicians, lawyers, representatives of civil society groups, businesspeople, and members of the public, among other groups, working both collaboratively as well as on an independent basis. This dual-track approach could help to elicit a wide range of options for reform, as well as providing flexibility to ensure that ideas, once developed, are put forward for consideration without delay.

5. Canada's TPM provisions should be amended to make it easier for consumers to repair items they have purchased/licensed

This paper contributes to this effort by drawing attention to one way in which Canada's IP regime impedes efforts to fight climate change. Specifically, it will discuss how the provisions in Canada's *Copyright Act* that provide protection for TPMs impede the fight against climate change by making it more difficult for consumers to repair items that they have purchased. Parties that are unable to repair products that they have purchased may choose to replace them with new items the production of which results in additional GHG emissions. As well, additional GHG emissions also result from attempts to recycle or to dispose of items that are no longer usable.⁵⁴

This section will begin by discussing why repair is important from a climate perspective. It will then proceed by highlighting how Canada's regime of TPM protection imposes barriers to repair. Finally, it will make suggestions for reform of Canada's TPM provisions in order to make it easier for consumers to extend the lifespan of items that they have previously acquired, resulting in climate change benefits.

A) The importance of repair in the fight against climate change

From a climate perspective, it is critically important that consumers are empowered with the knowledge, skills, and tools through which to repair items that they have purchased. This is because things break. Sometimes, they fail before the end of their expected lifespan. Other times, they are designed to fail at a specific point through the business strategy of

⁵⁴ EA Crunden "[How Useful is Recycling, Really?](#)", *The Atlantic* (28 January 2021), online: <www.theatlantic.com> [perma.cc/U3VX-F4A4].

planned obsolescence.⁵⁵ Maintaining, repairing, and refurbishing items extends their lifespan. This has two climate benefits. First, without the possibility of affordable, accessible repair for a broken item, the consumer may choose to purchase a replacement product, the production of which would have resulted in the creation of additional GHGs (among other environmental consequences). The amount of GHG produced depends on the object in question. Certain items have a bigger carbon footprint than others.⁵⁶ The life cycle of a single iPhone 14 Pro, for instance, involves 65 kg of carbon emissions.⁵⁷ Apple notes that 81% of these emissions are related to the item's production (the acquisition of source materials plus manufacturing).⁵⁸ An item repaired is an item that does not need to be re-purchased (at least at that particular moment in time).

When confronted with an item that is broken and cannot be repaired, a consumer has a number of options including recycling it or discarding it as waste. Recycling can be an effective way through which to re-use certain products (or certain components of products). However, there are limitations to its effectiveness.⁵⁹ Recycling is also not always available as an option. As well, the recycling process itself produces GHGs.

Even if recycling is an option, an individual may still choose to discard the item in question. The discarding of items into landfills has climate change consequences. For instance, significant methane emissions are caused by items decomposing anaerobically in landfills.⁶⁰ GHG emissions are also created when waste is incinerated. The disposal of electronic items into landfills (e-waste) results in environmental (and health) impacts that

⁵⁵ See e.g. John Harris "[Planned Obsolescence: The Outrage of our Electronic Waste Mountain](#)", *The Guardian* (15 April 2020) online: <www.theguardian.com> [perma.cc/26A9-82N3]; Kamila Pope, *Understanding Planned Obsolescence: Unsustainability Through Production, Consumption and Waste Generation*, (Kogan Page, 2017); Giles Slade, *Made to Break: Technology and Obsolescence in America*, (Harvard University Press, 2007).

⁵⁶ Livia Albeck-Ripka "[How to Reduce Your Carbon Footprint](#)", *New York Times* (last visited 7 October 2022) online: <www.nytimes.com> [perma.cc/3HKD-DUKS] (Livia Albeck-Ripka defines carbon footprint as "the total amount of greenhouse gas emissions that come from the production, use and end-of-life of a product or service").

⁵⁷ "[Product Environmental Report: iPhone 14 Pro](#)" (7 September 2022) at 2, online: *Apple* <www.apple.com> [perma.cc/MQ2W-4BDP]; The life cycle of a product includes source materials, manufacturing, use, transportation, and end-of-life processing.

⁵⁸ *Ibid.*

⁵⁹ Matthew Gault "[The World Economic Forum Tells Davos: Electronics Are 'the Fastest-Growing Waste Stream in the World'](#)", *Vice* (29 January 2019) online: <www.vice.com> [perma.cc/9LE6-5QER].

⁶⁰ "[Environmental Benefits of Anaerobic Digestion \(AD\)](#)" (last modified 31 August 2022), online: *United States Environmental Protection Agency* <www.epa.gov> [perma.cc/P3DP-S56E]; Celeste Robinson, "[Recycling and Climate Change](#)" (18 March

are particularly severe.⁶¹ Recognition of the environmental impact of both waste and e-waste is one of the motivating factors behind the emergence of community groups and clubs that are focused on repair.⁶²

B) The TPM provisions of the *Copyright Act* as a barrier to repair

Consumers who want to repair a broken item may encounter a number of barriers in attempting to do so. Some relate to product design. The product could be made of a specific type of material or contain a component that if broken is difficult or impossible to repair. Other barriers relate to knowledge or tools. Individuals may not know how to repair an item, or they may lack the necessary tools to repair it. A third category of barriers relates to contract law. Some warranties may provide that in order for the warranty to remain valid, the item may only be repaired by an authorized repair-person. Terms of service for use of an item that is licensed and not purchased outright may also limit the ability of the licensee to have the item repaired.⁶³

A fourth category of barrier relates to IP law. Potential IP barriers include the patent law distinction between repair and manufacture, under which repair is permitted, but only to the extent to which it does not lead to the creation of a new item;⁶⁴ the use by companies of trademark law to prevent the use of authorized parts in repaired items; the reliance by companies on the law of confidential information as a justification for

2021), online: *University of Colorado Boulder* <www.colorado.edu> [perma.cc/MW8U-7PC4] “[Importance of Methane](#)” (last updated on June 9, 2022), online: *United States Environmental Protection Agency* <www.epa.gov/gmi/importance-methane> [perma.cc/3S45-GHW7].

⁶¹ See e.g. Gault, *supra* note 59; Brett H Robinson, “[E-waste: An assessment of global production and environmental impacts](#)” (2009) 408 *Science of the Total Environment* 183, online: <kiwiscience.com> [perma.cc/4KPG-MHN7]; “[Children and digital dumpsites: e-waste exposure and child health](#)” (15 June 2021), online: *World Health Organization* <www.who.int> [perma.cc/NA3H-V4AQ].

⁶² “[Repair Cafes: Maple Ridge](#)” (last visited 20 January 2023), online: *Ridge Meadows Recycling Society* <rmrecycling.org> [perma.cc/6R86-5ZYA]; (To give a few examples of groups in the Vancouver area, see e.g. the Maple Ridge Repair Café (MRRC) and other groups listed on the [MetroVan Repair Cafés website](#), online: *MetroVan Repair Cafés* <www.metrovanrepaircafes.ca> [perma.cc/E68T-X6RZ]).

⁶³ These are just some of the barriers that can be identified. Other barriers include consumer law, tax law, chemical law, and “issues of ... consumer perception and markets” (Sahra Svensson-Hoglund et al, “[Barriers, enablers and market governance: A review of the policy landscape for repair of consumer electronics in the EU and the US](#)” (2021) 288 *J Cleaner Production*, online: <www.sciencedirect.com> [perma.cc/9534-LKGG]).

⁶⁴ See e.g. *Rucker Co v Gavel’s Vulcanizing Ltd* (1986), 7 CPR (3d), 6 CIPR 137 (FCTD).

denying broad access to information necessary for repair; and the use of copyright law as a barrier to prevent the reproduction of software or repair manuals.⁶⁵

This paper will focus a different IP barrier, namely the provisions of Canada's *Copyright Act* that make it an offence to circumvent a TPM protecting access to a copyrighted work (including software). Due to the increasing number of items sold that are software-enabled, this barrier constitutes a significant limitation on the ability of consumers to repair items that they have purchased or licensed.

As noted in "A Consultation on a Modern Copyright Framework for Artificial Intelligence and the Internet of Things":

Consumer products ranging from kitchen appliances to cars that were once only mechanical, or electrical but lacking digital capabilities, are now being embedded with software. These technological transformations can make products more useful and responsive for consumers. However, at the same time, the software that controls the components of the product can be protected by copyright, which reduces some of the abilities consumers have traditionally exercised, including the ability to repair their own purchases when they malfunction or break.⁶⁶

For many of these items, access to the copyright-protected software is limited through the use of a TPM. This constitutes a barrier to repair, as access to this software may be required in order to repair the item. For parties who do not wish to bypass the TPM, who do not know how to bypass the TPM, or who lack the tools to do so, the only way through which to repair the item may be to take it back to the party that sold or licensed the product. This may not be possible in all cases. As well, the cost of this authorized repair may be either too expensive for the person to pay or might be priced at a level higher than the cost of replacing the item, leading to the consumer making the decision to recycle or discard the item and purchase it anew.

The TPM provisions of the *Copyright Act* function as a secondary barrier to repair. Under the *Copyright Act* as currently structured, the act of circumventing a TPM that controls access to copyright-protected software (a work) constitutes an offence.⁶⁷ In addition to prohibiting circumvention of an access-control TPM, The *Copyright Act* also prohibits

⁶⁵ See Rosborough, *supra* note 10; Grinvald & Tur-Sinai, *supra* note 10.

⁶⁶ "A Consultation on a Modern Copyright Framework for Artificial Intelligence and the Internet of Things" (last modified 16 July 2021) at 20-21, online (pdf): *Government of Canada* <www.ic.gc.ca> [perma.cc/D643-46M3].

⁶⁷ *Copyright Act*, *supra* note 8, s 41.1(1)(a).

the provision of TPM circumvention services to the public as well as a number of acts relating to “technology, device[s] or component[s] ... designed or produced primarily for the purposes of circumventing a technology protection measure”.⁶⁸ These prohibitions are set out in s. 41.1 of the *Copyright Act*, which reads:

41.1 (1) No person shall

a) circumvent a technological protection measure within the meaning of paragraph (a) of the definition *technological protection measure* in section 41;

b) offer services to the public or provide services if

i) the services are offered or provided primarily for the purposes of circumventing a technological protection measure,

ii) the uses or purposes of those services are not commercially significant other than when they are offered or provided for the purposes of circumventing a technological protection measure, or

iii) the person markets those services as being for the purposes of circumventing a technological protection measure or acts in concert with another person in order to market those services as being for those purposes; or

c) manufacture, import, distribute, offer for sale or rental or provide—including by selling or renting—any technology, device or component if

i) the technology, device or component is designed or produced primarily for the purposes of circumventing a technological protection measure,

ii) the uses or purposes of the technology, device or component are not commercially significant other than when it is used for the purposes of circumventing a technological protection measure, or

iii) the person markets the technology, device or component as being for the purposes of circumventing a technological protection measure or acts in concert with another person in order to market the technology, device or component as being for those purposes.⁶⁹

⁶⁸ *Copyright Act*, *supra* note 8, ss 41.1(1)(b)-(c).

⁶⁹ *Copyright Act*, *supra* note 8, ss 41.1(1)(a)-(c).

Circumvent is defined under the *Copyright Act*, in respect to access control TPMs, as “to descramble a scrambled work or decrypt an encrypted work or to otherwise avoid, bypass, remove, deactivate or impair the technological protection measure, unless it is done with the authority of the copyright owner.”⁷⁰

A number of exceptions to the prohibition on anti-circumvention are set out in the *Copyright Act*. These provisions relate to law enforcement and national security;⁷¹ interoperability of computer programs;⁷² encryption research;⁷³ prevention of communication of personal information;⁷⁴ computer, system, or network security;⁷⁵ persons with perceptual disabilities;⁷⁶ broadcasting undertakings;⁷⁷ radio apparatus;⁷⁸ as well as any other exclusions prescribed by regulation.⁷⁹ There is no exception that focuses specifically on repair.

Despite having come into force in 2012, the TPM provisions of the *Copyright Act* have thus far received limited judicial scrutiny. At the time of writing, only one case—*Nintendo of America Inc v King*, a 2017 decision of the Federal Court authored by Justice Campbell—has engaged with these provisions in any significant depth.⁸⁰ In this case, Nintendo of America Inc. (Nintendo) sought a declaration that the Respondents (Jeramie Douglas King and Go Cyber Shopping (2005) Ltd.) had infringed the anti-circumvention provisions of the *Copyright Act* by circumventing, offering for sale, and offering installation services for, devices designed to circumvent the TPMs on some of Nintendo’s video game consoles, for the purpose of playing unauthorized copies of video games.⁸¹ Nintendo also sought a declaration that the Respondent infringed the Applicant’s copyright contrary to s. 27(2) of the *Copyright Act*.⁸²

This decision reinforces the extent to which the TPM provisions in the *Copyright Act* constitute a barrier to repair. It does so in three ways. First, as noted by Teresa Scassa, *Nintendo* adopts an “extremely broad

⁷⁰ *Copyright Act*, *supra* note 8, s 41(a).

⁷¹ *Copyright Act*, *supra* note 8, s 41.11.

⁷² *Copyright Act*, *supra* note 8, s 41.12.

⁷³ *Copyright Act*, *supra* note 8, s 41.13.

⁷⁴ *Copyright Act*, *supra* note 8, s 41.14.

⁷⁵ *Copyright Act*, *supra* note 8, s 41.15.

⁷⁶ *Copyright Act*, *supra* note 8, s 41.16.

⁷⁷ *Copyright Act*, *supra* note 8, s 41.17.

⁷⁸ *Copyright Act*, *supra* note 8, s 41.18.

⁷⁹ *Copyright Act*, *supra* note 8, s 41.21.

⁸⁰ 2017 FC 246 [*Nintendo*].

⁸¹ *Ibid* at para 2.

⁸² *Ibid*.

interpretation” of the definition of TPMs.⁸³ The Respondent had argued that in order for a measure to satisfy the definition of an access control TPM, “it must create a barrier to the work being copied”, and that “the shape of the Applicant’s game cartridges fails to meet the statutory requirement of a TPM because it does not establish a barrier to copying.”⁸⁴

These arguments were rejected by Justice Campbell, who determined that “access control TPMs do not need to employ any barrier to copying in order to be ‘effective’”, and that the shape of game cartridges, along with all other asserted access control measures, constitute TPMs under s. 41.⁸⁵ This element of the decision creates a barrier to repair in that it expands the range of measures that constitute access control TPMs under the statutory definition, the circumvention of which is a prohibited act.

Second, *Nintendo* adopts what Sangeetha Punniyamoorthy and Thomas Kurys describe as a “restrictive approach to the anti-circumvention exceptions.”⁸⁶ The anti-circumvention exception in question in *Nintendo* is the interoperability exception. This exception provides, in part, that the anti-circumvention prohibition:

does not apply to a person who owns a computer program or a copy of one, or has a licence to use the program or copy, and who circumvents a technological protection measure that protects that program or copy for the sole purpose of obtaining information that would allow the person to make the program and any other computer program interoperable.⁸⁷

Justice Campbell notes that “[t]he Respondent’s position appears to be that its sale of circumvention devices and installation services are for the purpose of making the Applicant’s game consoles ‘interoperable’ with homebrew software.”⁸⁸ Homebrew software is defined in *Nintendo* as software designed by third parties to be played on a certain video game system, but not owned or licensed by the video game system maker.⁸⁹

⁸³ Teresa Scassa, “Information Law in the Platform Economy: Ownership, Control, and Reuse of Platform Data” in Derek McKee, Finn Makela & Teresa Scassa, eds, *Law and the ‘Sharing Economy’: Regulating Online Market Platforms* (University of Ottawa Press, 2018) at 176.

⁸⁴ *Nintendo*, *supra* note 80 at para 76.

⁸⁵ *Nintendo*, *supra* note 80 at paras 84, 86, 90.

⁸⁶ Sangeetha Punniyamoorthy & Thomas Kurys, “[Federal Court knocks TPM circumvention with significant damages award](https://canliiconnects.org/)” (13 March 2017), online: *CanLII Connects*, <canliiconnects.org> [perma.cc/7ST7-EHBE].

⁸⁷ *Copyright Act*, *supra* note 8, s 41.12(1).

⁸⁸ *Nintendo*, *supra* note 80 at para 118.

⁸⁹ *Nintendo*, *supra* note 80 at para 117.

Justice Campbell rejected the Respondent's argument that its activity should fall within the interoperability exception, on the basis that the evidence establishes that the devices' primary purpose was to enable the playing of unauthorized copies of Nintendo games on Nintendo consoles;⁹⁰ that "the market for illicit and infringing activities" is significantly greater than the market for homebrew software;⁹¹ that the Respondent on their website advised their customers that no homebrew is available at the moment;⁹² that "[t]here is no need for any TPM circumvention to achieve interoperability" in that "there are legitimate paths for developers to develop software on its consoles without circumventing the Applicant's TPMs";⁹³ and that the Respondent "failed to adduce any evidence that any users actually *did* use their service or devices for the purpose of making the Applicant's consoles interoperable with homebrew software."⁹⁴

The approach taken by Justice Campbell to the interoperability exception departs significantly from the approach taken by the Supreme Court of Canada (SCC) to fair dealing and other user rights. For instance, absent from Justice Campbell's discussion of the interoperability exception is the term "user right." Under the SCC's interpretation of the *Copyright Act*, anti-circumvention exceptions, like all other exceptions, limitations, and defences set out in the *Copyright Act*, should be seen as user rights. As noted by Chief Justice McLachlin in *CCH Canadian Ltd v Law Society of Upper Canada*:

The fair dealing exception, like other exceptions in the *Copyright Act*, is a user's right. In order to maintain the proper balance between the rights of a copyright owner and users' interests, it must not be interpreted restrictively. As Professor Vaver, *supra*, has explained, at p. 171: "User rights are not just loopholes. Both owner rights and user rights should therefore be given the fair and balanced reading that befits remedial legislation."⁹⁵

While Justice Campbell's decision mentions *CCH Canadian et al* (the SCC case in which the term user rights was first mentioned), it does so in the context of noting that the burden is on the Respondent to establish that its activity falls within an exception, and in setting out the test for secondary infringement. The omission of any discussion of user rights in Justice Campbell's decision, or of the need to avoid giving a restrictive interpretation to exceptions, is worthy of note.

⁹⁰ *Nintendo, supra* note 80 at para 120.

⁹¹ *Nintendo, supra* note 80 at para 121.

⁹² *Nintendo, supra* note 80 at para 122.

⁹³ *Nintendo, supra* note 80 at para 123.

⁹⁴ *Nintendo, supra* note 80 at para 124.

⁹⁵ 2004 SCC 13 at para 48 [*CCH Canadian et al*] [emphasis added].

Distinctions can also be drawn between some of the factors considered by Justice Campbell and some of the fairness factors considered by the SCC in the context of applying the fair dealing defence. For instance, Justice Campbell states that “[t]here is no need for any TPM circumvention to achieve interoperability” in that “there are legitimate paths for developers to develop software on its consoles without circumventing the Applicant’s TPMs.”⁹⁶ This reasoning evokes the argument, in the fair dealing context, that if a license is available, then a dealing should not be considered fair. This argument was raised in *CCH Canadian et al* in the context of discussing the “alternatives to the dealing” factor. Chief Justice McLachlin (as she then was) rejected this argument, noting that:

The availability of a licence is not relevant to deciding whether a dealing has been fair. As discussed, fair dealing is an integral part of the scheme of copyright law in Canada. Any act falling within the fair dealing exception will not infringe copyright. If a copyright owner were allowed to license people to use its work and then point to a person’s decision not to obtain a licence as proof that his or her dealings were not fair, this would extend the scope of the owner’s monopoly over the use of his or her work in a manner that would not be consistent with the *Copyright Act*’s balance between owner’s rights and user’s interests.⁹⁷

In the context of the interoperability exception, Justice Campbell’s statement does not take into consideration the many reasons—commercial or otherwise—why developers seeking to develop and distribute software for a console might have their attempt to do so rejected. Furthermore, application of this reasoning in the context of other anti-circumvention exceptions would suggest that if there is an alternative path to achieving the objective of the exception that does not involve circumventing the TPM, then the exception should not be available. This approach would significantly narrow the ambit of all anti-circumvention exceptions. To use the language of Chief Justice McLachlin in *CCH Canadian et al*, this reasoning would “extend the scope of the owner’s monopoly over the use of his or her work in a manner that [is not] consistent with the *Copyright Act*’s balance between owner’s rights and user’s interests.”⁹⁸

This paper has highlighted this example because it poses the greatest risk to any future repair exception. If Justice Campbell’s reasoning is carried forward into future decisions, then even if a repair exception is added to the *Copyright Act*’s TPM provisions, if there is an alternative path to achieving the objective of the exception (namely the availability of an authorized repair option), then the exception should not be available.

⁹⁶ *Nintendo*, *supra* note 80 at para 123.

⁹⁷ *CCH Canadian et al*, *supra* note 95 at para 70.

⁹⁸ *CCH Canadian et al*, *supra* note 95 at para 70.

More broadly, Justice Campbell's decision, by adopting a narrow, restrictive approach to exceptions, makes it less likely that any act relating to repair would be considered to fall within any future repair exception. It can be characterized as a TPM-centric approach, the equivalent in the anti-circumvention context of the "author-centric view which focused on the exclusive right of authors and copyright owners to control how their works were used", which has been rejected by the SCC in the context of copyright in favour of an approach that balances between protection and access.⁹⁹

The third way in which this decision reinforces the extent to which the TPM provisions in the *Copyright Act* constitute a barrier to repair is through its approach to damages. To give just two examples, in *Nintendo*, Justice Campbell imposes an award for statutory damages at the maximum end of the statutory range (\$20,000 per work infringed).¹⁰⁰ He also awards \$1,000,000 in punitive damages.¹⁰¹ This punitive damage award was given despite the fact that, as noted in Appeal Justice De Montigny's decision for the Federal Court of Appeal in *Airbus Helicopters SAS v Bell Helicopter Textron Canada Limitée*, a 2019 decision, "a survey of the cases where Canadian courts have awarded punitive damages in the intellectual property context between 1994 and 2017 shows that these awards were generally in the \$10,000 to \$100,000 range ..."¹⁰² Appeal Justice De Montigny writes that "the most notable exceptions [to this range of damage awards are] the \$500,000 award by the Supreme Court in *Cinar* and that of \$1,000,000 by the Federal Court in *Nintendo of America Inc v King*."¹⁰³ Parties considering circumventing a TPM in order to repair an item (either for themselves or on behalf of others) may decline to do so in the face of this judgment, ultimately resulting in fewer goods being repaired, and additional GHG emissions produced.

C) Possibilities for reform of the TPM provisions of the *Copyright Act*

I) Parliament could add an additional exception to the anti-circumvention provisions

Several options for reform could be considered in seeking to expand the ability of consumers to repair software-enabled items. One option is to add an additional exception to the *Copyright Act* which clarifies that it

⁹⁹ *Society of Composers, Authors and Music Publishers of Canada v Bell Canada*, 2012 SCC 36 at paras 9–11.

¹⁰⁰ *Nintendo*, *supra* note 80 at para 162.

¹⁰¹ *Nintendo*, *supra* note 80 at para 174.

¹⁰² 2019 FCA 29 at para 43.

¹⁰³ *Ibid.*

is not an infringing act to circumvent an access control TPM in order to repair an item, or to manufacture, import, or distribute a tool that is used for the purposes of repair.

This is the approach taken by Bill C-244, *An Act to amend the Copyright Act (diagnosis, maintenance and repair)*, a Private Member's Bill introduced by Wilson Miao (the Liberal MP from Richmond Centre, British Columbia) in 2022.¹⁰⁴ As noted in section 2 of Bill C-244:

2 The [Copyright] Act is amended by adding the following after section 41.12:

Embedded computer programs

41.121 (1) Paragraph 41.1(1)(a) does not apply to a person who circumvents a technological protection measure that controls access to a computer program if the person does so for the sole purpose of diagnosing, maintaining or repairing a product in which the computer program is embedded.

Technology, device or component

(2) Paragraph 41.1(1)(c) does not apply to a person who manufactures, imports or provides a technology, device or component for the purposes of circumventing a technological protection measure that controls access to a computer program if the person does so for the purpose of diagnosing, maintaining or repairing a product in which the program is embedded and

- a) uses that technology, device or component only for that purpose; or
- b) provides that technology, device or component to another person solely for that purpose.¹⁰⁵

As of October 5, 2022, Miao's bill has completed its second reading in the House of Commons.¹⁰⁶

¹⁰⁴ Bill C-244, *An Act to amend the Copyright Act (diagnosis, maintenance and repair)*, 1st Sess, 44th Parl, 2022. The text of Bill C-244 is the same as Bill C-272, *An Act to amend the Copyright Act (diagnosis, maintenance or repair)*, 2nd Sess, 43rd Parl, 2021, a Private Member's Bill introduced by Bryan May, Liberal MP from Cambridge, Ontario. Bill C-272 passed second reading with a vote of 330-0 and was referred to the Standing Committee on Industry, Science and Technology. It died on the Order Paper when the Governor-General dissolved Parliament in August 2021.

¹⁰⁵ Bill C-244, *supra* note 104 at s 2.

¹⁰⁶ *Ibid.*

II) The Governor in Council could exercise its authority to create additional exclusions through regulation

A second option is for the Governor in Council to exercise its authority under s. 42.21 of the *Copyright Act* to “make regulations ... prescribing additional circumstances in which paragraph 41.1(1)(a) does not apply”, as well as “requiring the owner of the copyright in a work ... to provide access to the work ... to persons who are entitled to the benefit of any of the limitations on the application of paragraph 41.1(1)(a) prescribed under paragraph (a).”¹⁰⁷

One of the factors that the Governor in Council can consider when making the decision to prescribe additional circumstances in which the prohibition on circumvention does not apply is “any other relevant factor”.¹⁰⁸ Given the urgency with which action is required in order to avoid the worst climate change scenarios, a relevant factor could be the environmental impact of the barrier to repair.

This proposal is similar to the approach in the United States, under which the Librarian of Congress can adopt exemptions to the anti-circumvention provisions of the *Digital Millennium Copyright Act (DMCA)*.¹⁰⁹ One key difference between the Canadian and American approaches is that in the United States, these exemptions are only valid for a three year period, and must be renewed if they are to remain in force. A second key difference is that in the United States, the exemption only covers the act of circumvention, and not the act of providing tools or services to aid in circumvention.¹¹⁰ The Canadian approach is not limited in this way.¹¹¹

In October 2021, the Librarian of Congress renewed and expanded several exemptions permitting the circumvention of access control TPMs for the purposes of diagnosis, repair, and modification. Specifically, the Librarian of Congress renewed and expanded an exemption to the anti-circumvention provisions of the *DMCA* that permits parties to circumvent an access control TPM in order to diagnose, repair, and modify motorized land vehicles (and, now, marine vessels); renewed and expanded an exemption that permits parties to diagnose, repair, and modify “any software-enabled device that is primarily designed for use by consumers”; adopted an exemption for the repair of optical video drives in video games;

¹⁰⁷ *Copyright Act*, *supra* note 8, ss 42.21(1), 42.21(2)(a), 42.21(2)(b).

¹⁰⁸ *Copyright Act*, *supra* note 8, s 42.21(2)(a)(vi).

¹⁰⁹ *Digital Millennium Copyright Act (DMCA)*, 17 USC § 1201(a)(1) (1998).

¹¹⁰ *Ibid.*

¹¹¹ *Copyright Act*, *supra* note 8, s 42.21.

and adopted an exemption “allowing circumvention of TPMs restricting access to firmware and related data files on medical devices and systems for the purposes of diagnosis, maintenance, and repair”.¹¹²

III) Other related reforms

In seeking to eliminate barriers to repair in the context of copyright and TPMs, several additional reforms may need to be made. First, in light of Justice Campbell’s decision in *Nintendo*, it may be necessary for either judicial or statutory intervention to clarify the approach to be taken to exceptions to anti-circumvention provisions, that is to say that they should be treated, like other exceptions to infringement, as user rights. Second, it may be necessary to consider amending Canada’s fair dealing defence to include a new category of “diagnosis, maintenance, and repair.” An alternative to this would be the creation of a new exception to copyright infringement. In the absence of such a defence (either as part of the TPM exceptions or as a separate provision), parties may be reluctant to engage in repair of software-enabled devices due to the risk of a successful copyright infringement lawsuit. Third, another complementary provision could indicate that any attempt to contract out of either these provisions, or the Copyright Act more broadly, is null and void. While raised here, these proposed reforms will be canvassed in greater detail in separate works, in part in order to address in a fulsome manner any question of their compatibility with Canada’s international obligations.

D) Arguments against reform of the TPM provisions

This past year, the Government of Canada undertook to collect information, as part of its “Consultation on a Modern Copyright Framework for Artificial Intelligence and the Internet of Things”, on several questions relating to a repair exception to the anti-circumvention provisions, namely:

- viii. Is cyber security, public safety and/or the disclosure of personal information at risk when a person circumvents a TPM for the purpose of repairing a product (e.g. interference with the functioning of a product and release of unsafe products on the marketplace); if so, what mitigation measures can be taken to reduce these risks?

¹¹² Copyright Office, Library of Congress, “[Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies](#)” (28 October 2018), online: *National Archives: Federal Register* <www.federalregister.gov> [perma.cc/HR3R-4GQS].

ix. Are there products, or categories of products, for which the circumvention of TPMs for the purpose of repairing them would introduce undue risks to personal health and safety or to network functionality and public safety access?¹¹³

Any information collected as part of this process can help to inform actions taken by Parliament with respect to reform of the *Copyright Act's* TPM provisions. To the extent that the concerns raised above relating to security, safety, or personal health are validated, one alternative is to place limitations on any exception to the prohibition against circumventing access control TPMs for the purpose of diagnosis, maintenance, and repair.

In considering any potential limitations on an exception for repair, however, it should be noted that many TPMs can be circumvented quickly and easily. Instructions for how to do so can be found online. Tutorial videos are available on YouTube. As well, a number of exceptions to circumvention currently exist, both in Canada and in other jurisdictions. If it is the case that circumventing a TPM to access a work—for whatever purpose—can put public safety, personal information, or personal health at risk, then perhaps the answer is for parties making use of TPMs to recognize the ease with which many TPMs can be circumvented and to take steps to minimize the risk of harm (for instance by modifying the product design). Another way through which parties could reduce the risk of harm from unauthorized repair is by distributing information on how to repair items safely and effectively, by offering repair classes or tutorials, or by making tools for repair broadly available.

E) Government support for the creation of a right to repair

As noted above, TPM-related barriers are only some of the barriers to repair encountered by individuals seeking to extend the lifespan of their items. However, at least in the context of electronic goods, they are a significant barrier, particularly given the increasing number of products that contain embedded software. Amending the *Copyright Act* to incorporate a right to circumvent TPMs for the purpose of repair is thus an important step towards the full implementation of a right to repair.¹¹⁴

¹¹³ Government of Canada, *supra* note 66 at 23.

¹¹⁴ Anthony D Rosborough, “[Canada needs right-to-repair legislation](#)”, *Policy Options* (14 May 2021), online: <policyoptions.irpp.org> [perma.cc/7DVN-2F7N]; Joshua Turiel, “Consumer Electronic Right to Repair Laws: Focusing on an Environmental Foundation” (2021) 45:2 Wm & Mary Env’tl L & Pol’y Rev 579; Perzanowski, *supra* note 10; Aaron Perzanowski, “Consumer Perceptions of the Right to Repair” (2021) 96:2 Ind LJ 361.

There is government support for this broader goal. The December 16, 2021 mandate letter of the Minister of Environment and Climate Change, the Honourable Steven Guilbault asks the Minister to:

Work with the Minister of Innovation, Science and Industry to implement a ‘right to repair’ to extend the life of home appliances, particularly electronics, and require businesses to inform Canadians of the environmental impacts of consumer products.¹¹⁵

Similarly, the December 16, 2021 mandate letter of the Minister of Innovation, Science and Industry, the Honourable François-Philippe Champagne, asks the Minister to:

Work with the Minister of Environment and Climate Change to implement a ‘right to repair’ to extend the life of home appliances, particularly electronics, by requiring manufacturers to supply repair manuals and spare parts, and by amending the Copyright Act to allow for the repair of digital devices and systems.¹¹⁶

6. Conclusion

Above, I have argued that Canadian governments have both legal and moral obligations to take action to combat climate change. As well, I have argued that in seeking to do so, Canadian governments should pay particular attention to Canada’s IP regime. Given the important role played by IP in Canada’s economy, a thorough review of Canada’s IP legislation is necessary in order to ensure that it is not incentivizing behaviour that is contributing to climate change, or restricting or limiting behaviour that if adopted more broadly, would help achieve climate goals. Given the urgent need to act it is imperative that review this take place as soon as possible.

This paper has also highlighted one aspect of Canada’s IP regime that is a barrier in the fight against climate change, namely the provisions of the *Copyright Act* that prohibit circumventing an access control TPM that protects a copyrighted work for all purposes except for those specifically excepted. As of the time of writing, there is no exception for circumvention for the purpose of diagnosis, maintenance or repair. This barrier to repair is amplified by Justice Campbell’s decision in *Nintendo*, which adopts a broad approach to the definition of TPM, a narrow approach to the exceptions to the prohibition on circumventing an access control TPM, a

¹¹⁵ “[Minister of Environment and Climate Change Mandate Letter](#)” (16 December 2021), online: *Office of the Prime Minister of Canada* <pm.gc.ca>.

¹¹⁶ “[Minister of Innovation, Science and Industry Mandate Letter](#)” (16 December 2021), online: *Office of the Prime Minister of Canada* <pm.gc.ca>.

statutory damages award at the maximum end of the range, and a punitive damages award that is significantly higher than all but one of the other punitive damages awards given in IP cases between 1994–2017. Faced with a statutory prohibition and judicial precedent suggesting the possibility of a substantial damage award, parties may choose not to seek out repair for their item, and either recycle it or dispose of it as e-waste. Parties may also choose not to assist others with their repairs due to similar concerns.

Such a result would be regrettable. Repairing electronic items lengthens their lifespans and keeps them out of either recycling programs that are less than 100% effective or landfills. E-waste is a significant contributor to GHG emissions, and thus to climate change. As noted in the IPCC's 6th Assessment Report, "[c]limate change is a threat to human well-being and planetary health. Any further delay in concerted anticipatory global action on adaptation and mitigation will miss a brief and rapidly closing window of opportunity to secure a liveable and sustainable future for all".¹¹⁷

Canada's IP regime can and must be reformed in order to help take action against climate change. A comprehensive review of Canada's IP laws is necessary in order to identify and reform all provisions that contribute to climate change or that impede climate action. Amending the TPM provisions of the *Copyright Act* to include an exception for the purposes of diagnosis, repair, and maintenance would be an important step in this direction.

¹¹⁷ IPCC 2022 Summary, *supra* note 1 at 33.