The Case for Queen’s University Divestment of the
Pooled Endowment Fund from the Fossil Fuel Industry

Contributors: Ryan Broe, Vincent Hanlon, Colin Burns, Victoria Denney, Erin Keenan, Miriam Sabzevari, Emily Graham, Adrian Parlow, Courtney Jacklin, Phil Anderson, Ellen MacAskill, Catherine Hart, Olga Khuskivadze, Tegan McWhirter
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1.00 - Introductions

To Principal Daniel Woolf of Queen's University, the Board of Trustees, the Department of Investment Services, and to all others whom this may concern;

Queen's Backing Action on Climate Change (QBACC) submits this report to you on behalf of our members, and with the intention of representing the best interests of Queen's University students, faculty, and staff of Queen's University, and on behalf of other members of the Queen's and greater Kingston communities.

1.10 - Who We Are

Queen's Backing Action on Climate Change is an activism-based student club sanctioned by the Queen's University Alma Mater Society. Our overarching goal is to highlight environmental concerns of both our members and the greater communities in which we operate and live; Queen's University, they City of Kingston, and beyond. As outlined in this report, our current campaign is for Queen's University to divest its non-pension investments from the 200 publicly-traded companies that hold the majority of the world's proven coal, oil, and gas reserves as well as from Enbridge Inc., TransCanada Corporation and Kinder Morgan in light of those specific corporations' active and relentless efforts to expand Canada's tar sands. Our campaign at Queen's is part of a larger movement for universities and other organization and institutions to divest from fossil fuels across Canada and the world.
1.20 – Our Goals

The goal of the Responsible Investment campaign led by Queen’s Backing Action on Climate Change is straightforward and feasible. We argue that companies involved in the extraction of coal, oil, and gas necessarily and without exception cause social injury. We call upon Queen’s University to:

1: Publicly state its intention to divest from all companies involved in the extraction and distribution of oil -- in particular, those operating within the Athabasca Oil Sands.

2: Publicly state its intention to divest from all companies involved solely in the extraction and distribution coal -- in particular, those operating within Canada.

3: Divest within five years from direct ownership and from any commingled funds that include coal, oil, and gas public equities and corporate bonds.

Additional goal: Stop all new investments in the fossil fuel industry.

2.00 – The Story of Divestment

2.10 – What is Divestment?

Divestment has occurred on many levels and by many different groups such as community organizations, businesses, the municipal governments of towns and cities, and of course universities. Simply put, divestment is to withdraw holdings within a company for a
variety of reasons. These could be simply financial reasons of finding a better investment, or that your initial investment is not giving you the returns you desire. In this context, divestment is a move to withdraw holdings not purely on the financial merit of the decision, but on the ethical and symbolic nature of the action.

2.20 – Do the Math

Environmental activist and author Bill McKibben coined the phrase: “Do the math”, in order to promote an understanding of the impacts greenhouse gas emissions future generations would endure given that the fossil fuel industry’s projected development is too great for our planet to sustain.¹ Those who attended the at the 2011 UN Climate Summit in Copenhagen, recognized and agreed with the conclusion by scientists that a global temperature rise of more than 2°C would drastically change life on Earth as we know it for the worse and in ways that cannot be foreseen.² McKibben notes that in order to remain within a temperature rise of 2°C the planet has a carbon budget, so to speak, of 565 gigatons, which means the release of that amount of carbon dioxide into the atmosphere is our limit. The current projections of available reserves amount to 2,795 gigatons, an amount five times the world’s carbon budget. The release of this amount of greenhouse gasses would result in severely aggravated climate change and unprecedented environmental degradation in the short and long terms; in other words, climate chaos.

2.30 – The Campaigns

Globally there are over 400 divestment campaigns actively being led by students, community organizations, faith organizations, and municipalities. In Canada alone there are over 30 active campaigns. The campaign at Queen’s is therefore at the forefront of this global movement, which has grown faster than any other divestment campaign to date. Our institution has the opportunity to be a leader in a new era of ethical investment that works to promote climate justice, protects the future of our planet and future generations, and supports innovation and sustainability in the energy sector.

3.00 – The Case for the Fossil Fuel Industry Causing Social Injury

3.10 - From the Queen’s University Statement of Investment Procedures, Appendix D – Responsible Investing Process

Within the Queen’s Responsible Investment Process are guidelines that Queen’s when the ethical standing of an investment is in question. In Section I of the Investment Procedures – Appendix D explains the criterion for a Special Action to be taken regarding a divestment concern. This criterion is that an investment causes Social Injury.

Social Injury is defined in the following way by the Yale University standard.

"the injurious impact which the activities of a company are found to have on consumers, employees, or other persons, particularly including activities which violate, or frustrate, the enforcement of, rules of domestic or international law intended to protect individuals against

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deprivation of health, safety, or basic freedoms; for the purposes of these Guidelines, social injury shall not consist of doing business with other companies which are themselves engaged in socially injurious activities." 4

We assert that the actions of the oil and natural gas industries are necessarily socially injurious.

3.20 – Why the Fossil Fuel Industry is Socially Injurious

Social injury is based on the deprivation of health, safety, and basic freedoms. We shall outline below how the fossil fuel industries meet each of these requirements for causing social injury. In the following sections we shall briefly outline the damages done and the damages that will continue in these sectors. Importantly, many of these sectors are interrelated. We shall discuss the following subjects.

3.20.1 - Environmental Justice

Climate change is no longer a purely scientific debate, but one of social justice. The concept of environmental racism can be easily summed up in the following definition, “any policy, practice or directive that differentially affects of disadvantages (whether intended or unintended) individuals, groups, or communities based on race or colour.” 5

There is a distinction between Aboriginal and non-Aboriginal peoples’ experiences of the adverse effects of fossil fuel extraction, such that the negative impacts are disproportionately borne by Aboriginal peoples. There are a number of ways in which frontline communities near the Canadian Oil Sands and other fossil fuel extraction projects are subjected to detrimental


effects and these have been highlighted in the other sections of this document.

Additionally, corporations directly violate Aboriginal title and treaty rights by the trespass and occupation of land, for which there are often limited or no legal consequences. The ongoing lawsuit of the Beaver Lake Cree Nation vs the Government of Alberta and the Government of Canada over treaty violations was ordered to court in 2013 after five years of fighting. The case highlights that projects operating in northern Alberta on Beaver Lake Cree territory violate Treaty 6 of 1876 because they are destroying the habitats of caribou and fish, thereby depleting the population of these animals and thus preventing members of Beaver Lake Cree Nation from exercising their right to hunt, fish, and trap. On top of this, toxins leaking from tar sands tailing ponds are present in water supplies hundreds of kilometers away.

Queen’s has the opportunity to take a stand against companies that perpetuate environmental injustices and contribute to climate injustice at the global scale by removing the social license of the fossil fuel industry. Queen’s can demonstrate that it values social justice rather than remaining idle and complicit.

Environmental racism is present in our society and Queen’s has an opportunity to take a stand against these practices by showing that is does not support companies complicit in it. Queen’s can demonstrate that it values finding solutions to these social ills rather than standing idly by and silently condoning them while they are perpetrated by the fossil fuel industry.

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7 Linnitt, "Beaver Lake Cree Judgement" DeSmog Canada
3.21 – Ecosystem Collapse

3.21.1 – Risk of fossil fuel infrastructure failure

There is significant risk associated with the extraction, storage, transportation, and use of fossil fuels. It is imperative that the safety of these processes be guaranteed or else we risk the destruction of ecosystems and human habitation. Time and again it has been seen that the transport of fossil fuels around the world is not adequately monitored and that the safety regulations are not adequately enforced. The Alberta Energy Regulator has shown that in 2012 the number of pipeline “incidents” was 1.5 failures per 1000 kilometers. They completed roughly 1400 pipeline inspections and 270 construction inspections.8 While this may seem a reasonable number to conduct, what is not highlighted is that this is on roughly 400,000 kilometers of pipeline in Alberta alone.9 Therefore, there was one inspection for every 286 kilometers of pipeline, a minimal number of inspections at selective points. The regulatory practices of both individual corporations and government are consistently proven to be inadequate. The Office of the Auditor General of Canada reported in 2011 that the National Energy Board and Transport Canada both lack the appropriate safety regulations to transport fossil fuels and do not act upon their systems’ deficiencies.10 It is wildly inappropriate to think that these regulations are safe for the environments through which the pipelines and transport

8 http://www.aer.ca/about-aer/spotlight-on/pipeline-safety-review (Board n.d.)
9 http://www.pembina.org/blog/639 (Lempers 2010)
10 http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201112_01_e_36029.html#hd3d (Canada 2011)
systems run as can be seen from the history of pipeline failures many companies in Canada have.\textsuperscript{11}

During the National Energy Board’s (NEB) federal review process for Kinder Morgan’s Transmountain Pipeline Expansion project, NEB intervenor Marc Eliesen resigned from his position because he found the process was rigged to achieve a pre-determined outcome desired by Kinder Morgan.\textsuperscript{12} He stated the process was fraudulent and showed a clear disregard for the concerns of the people that would be affected by the project. This process failure shows how much control the fossil fuel industry can exert over institutions that are supposed to be impartial and representative of stakeholders’ wishes and concerns. The damage that these incidents cost and the lack of initiative to solve what leads to them appear to be acceptable to the companies responsible, while impacted communities are left with the mess.

3.21.2 – Aquatic Health

The health of aquatic ecosystems is particularly vulnerable to the effects of the oil and gas industry. The Athabasca watershed region near the tar sands is impacted by extractive processes on, including leaking tailings ponds. It is estimated that roughly 11 to 12.6 million


litres of tailings seeps into the groundwater each day.\textsuperscript{13} These toxic tailings contain elements such as lead, mercury, and arsenic.\textsuperscript{14} When these toxins leak into the groundwater, and consequently the river and lake systems, the health of those ecosystems is threatened and their ecological integrity undermined.\textsuperscript{15}

The evidence of the damage caused by oil spills in the ocean is overwhelming. Events such as the Exxon Valdez spill and the BP disaster in the Gulf of Mexico show that despite safety claims by the oil and gas industry are false. Additionally, the measures in place to prevent these spills are lacking in credibility.\textsuperscript{16}

It is entirely irresponsible to be party to a group of firms that time and again circumvent regulations and human and environmental safety in favour of profit. The reckless extraction, transport, and management of these industries threaten current and future generations ability to live and thrive.

\textbf{3.2.1.2.2 - The Compromise of Canada’s Marine Protected Areas}

The Tarium Niryutait Marine Protected Area (MPA) consists of three distinct areas within the Mackenzie Bay and Mackenzie River Estuary in the Canadian Beaufort Sea and consists of approximately 1800 square kilometers of shallow marine habitat off the coast of the Northwest Territories. It protects


\textsuperscript{14} Price, "11 Million Litres a Day: The Tar Sands' Leaking Legacy." \textit{Environmental Defense}.


important summering habitat for beluga whales to socialize, rear calves, moult and feed. While the primary objective may be to conserve and protect beluga whales, the MPA also protects a variety of fish species, including Pacific herring, longnose sucker, northern pike, arctic cod, saffron cod, burbot, pond smelt, rainbow smelt and capelin. A second objective of the MPA is to protect traditional harvesting rights and fishery resources of the Inuvialuit people. Fishing in accordance with the Inuvialuit Final Agreement or in accordance with the Fisheries Act and its regulations is permitted within the MPA.

Canada’s Oceans Act lists five criteria for the designation of a MPA: (1) the conservation and protection of commercial and non-commercial fishery resources and their habitats; (2) endangered or threatened marine species and their habitats; (3) unique habitats; (4) areas of high biodiversity and biological productivity and; (5) any other marine resource or habitat as is necessary to fulfill the mandate of the Minister. While an unmistakable purpose of MPAs is to conserve and protect biological resources and their cultural significance, this point is not as obvious in the legislation protecting our marine ecosystems. The regulations for Tarium Niryutait provide several exceptions to the mandate to protect any marine organism and any part of its habitat from disturbance, damage, or destruction. Exploratory drilling and the production of oil and gas may be authorized within the protected area provided that it will not disturb, damage, destroy or remove a marine mammal. The same condition applies for the construction, decommissioning and maintenance of oil or gas pipelines. It is clear that the priorities of federal government with respect to MPAs are not solely focused on the best interests of marine organisms and habitat. While the regulations state that oil and gas exploration within the MPA may not result in the harm of a marine mammal, the same cannot be said for the protection of fish species, their habitat, and the fishing rights of the Inuvialuit people. As the interests of the oil and gas industry continue to be placed above the Inuvialuit people, we will compromise an integral part of the livelihood of northern communities.

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3.21.3 – Effects on Terrestrial Ecosystems

Development of the Alberta tar sands is leading to significant degradation of a number of terrestrial habitats in the surrounding areas. The boreal forest, the largest forest ecosystem in the world, provides shelter and sustenance for a wide variety of animals, including large and small mammals, resident and migratory birds, and reptiles and amphibians. Extraction of bitumen from the oil sands through mining and in situ operations is destroying previously untouched forest habitats. As mentioned previously, there is a large First Nations population in the area, who rely on the wild populations. The land cleared for open pit mining, the forest fragmented for in situ operations and the waters of tailings ponds and reclaimed wetlands used to once support wildlife and bird populations have been irreversibly changed.19

Currently, about 4800 km² of the Alberta tar sands has accessible bitumen that is worth extracting through open-pit mining.20 This is a process where the largest shovels in the world dredge up to 200 ft of the landscape in order to load the tar laced sand into 400-ton dump trucks. Where there used to be forests, fields, rivers and streams there is now an expanse of dirt, gravel and sand devoid of richness This drastically limits the amount of carbon that is able to be sequestered in the area, a crucial ecosystem service which helps to mitigate the effects of climate change.


change.\textsuperscript{21} By supporting the companies directly involved in the expansion of the oil sands, we are essentially removing the earth’s natural resistance to global carbon fluctuations and expediting climate change through increased carbon emissions. We rely on the forested areas to remove emitted carbon and control atmospheric levels.

The vast majority of the bitumen found in Alberta’s Oil Sands is locked up underneath hundreds of feet of soil and rock. In situ extraction means that the oil producers can collect the oil with what they claim to be “limited surface disturbance”.\textsuperscript{22} It has been shown that in situ extraction disturbs less than per unit of production, but the impact of production is dispersed over a greater area.\textsuperscript{23} Increasing the area disturbed will greatly reduce the amount of pristine habitat many animals require to survive. For example, caribou are extremely sensitive to these forms of anthropogenic disturbance.\textsuperscript{24} Researchers from the University of Alberta have determined that caribou will actively avoid areas with human activity. The study’s findings report that caribou tended to stay 1000m away from the most disturbed sites, such as wells and camps, and 250m away from roads and seismic lines. Estimates determined that caribou herds had to reduce or stop their use of up to half their habitat within the developed area.

Once the bitumen has been extracted, they treat it with hot water and a series of chemicals in order to separate the bitumen from the sand.\textsuperscript{25} This water mixture has levels of pollutants, such

\begin{footnotesize}
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\item \textsuperscript{21} Canadian Association of Petroleum Producers. “What Are Oil Sands?”
\item \textsuperscript{24} Bendell-Young, L. I., et al. "Ecological characteristics of wetlands receiving an industrial effluent." \textit{Ecological Applications} 10, no. 1 (2000) pg. 310 - 322
\end{itemize}
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as naphthenic acid, that make it unsafe for most biotic life. The resulting effluent is housed in incredibly large unlined reservoirs known as tailing ponds. They release nearly 9 million liters of toxic tailings water per day into the surrounding water systems, causing severe harm to the local biota. Independent researchers from Simon Fraser University have concluded wetlands that receive tailings water have significant effects on the fish community. Animals at higher trophic levels, which include birds and even humans, are at risk to greater bioaccumulation of harmful compounds when prey items grow in tailings affected wetlands. These toxic wetlands make a countless number of wild fish, fowl and game species inedible for local people to hunt.

3.22 – Human safety and health

3.22.1 – Health risks

There are significant risks to human health in the operation, transportation, and use of fossil fuels. In terms of operations, various First Nations groups living downstream of Canadian fossil fuel operations have claimed a link between fossil fuel operations and illnesses such as asthma and heart disease. In 2009, The Alberta Cancer Board confirmed above average cancer rates diagnosed in residents of Fort Chipewyan. As of March 31, 2014, The Alberta Energy

Regulator has found "odours from heavy oil operations in the Peace River area have the potential to cause some of the symptoms experienced by residents; therefore, these odours should be eliminated."

In terms of transportation, the risk of accidental pollution during transport poses health risks of toxic exposure to fossil fuels through contact with water, air, and wildlife.

The use or consumption of fossil fuels is the main direct cause of climate change. We cannot separate the health risks of a product’s use or consumption from those who profit from their sale. As such, we must recognize the link fossil fuel companies have to the well-documented and enormous health risks of climate change, particularly on underserved communities as well as predominantly countries in the Global South, who have contributed the least amount to greenhouse gas emissions. A 2012 study commissioned by 20 governments around the world estimates that there are "400,000 climate-related deaths per year" and that "continuing today’s patterns of carbon-intensive energy use is estimated, together with climate change, to cause 6 million deaths per year by 2030, close to 700,000 of which would be due to climate change.”

Death, illness, and injury are on the horizon due to increases in: extreme weather such as heatwaves, natural disasters, vector-borne diseases such as dengue and malaria, photochemical air pollutants, food-related and waterborne infections, and under-nutrition due to

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food insecurity.34

During the development of a residential neighbourhood in southeast Calgary, Alberta, soil testing revealed increased levels of lead and hydrocarbons in the soil, exceeding the acceptable limits set by the Canadian Council of Minister of Environment. The elevated level of these toxic compounds was linked to the operation of one of Imperial Oil’s refineries, which have been in the area since the mid-1970s. The concerns of the new residents prompted Alberta Environment to order Imperial Oil to conduct a soil remediation. However, instead of recognizing that operation of an oil refinery for over fifty years had resulted in the pollution of the soil, Imperial Oil elected to appeal this cleanup order to the Alberta Environmental Appeal Board.35 This outright denial of the adverse effects of operating an oil refinery exemplifies how the overarching interests of the oil and gas sector do not include environment protection and remediation, even when the results pose consequences for human health. Soil decontamination and more so the initial contamination, is only begrudgingly acknowledge by the industry after unprecedented levels of public outcry and provincial mandates. This not only verifies the inability of Imperial Oil to differentiate between the moral obligation to protect the environment for generations to come and the incentive to mitigate negative publicity, but confirms that profits are given priority over human health concerns.


35 Imperial Oil Ltd. and Devon Estates Ltd. v. Director, Enforcement and Monitoring, Bow Region, Regional Servies, Alberta Environmet re: Imperial Oil Ltd., Appeal No. 01-062-R.
3.22.2 - Cultural Degradation

The development of the Tar Sands, as well as other fossil fuel resources in Canada and their associated pipelines have been met by continual opposition by environmentalists and Aboriginal communities alike. However, the demands for environmental justice on behalf of Aboriginal peoples “go beyond distributional equity to emphasize the defense and very function of Indigenous communities – their ability to continue to reproduce their traditions, practices, cosmologies, and [their] relationship with nature.” Aboriginal people “envision themselves as most intimately connected with their environment”, and there exists a “fundamental attachment of Indigenous peoples to their land and to the species they share the landscape with.” As Aboriginal cultures and ways of life have evolved to coexist and depend upon the habitats in which they reside, and as a large portion of the land below which fossil fuel reserves are situated and current and planned pipelines cross is either “unceded by Indigenous communities or remains under treaty agreements negotiated primarily in the late nineteenth century”, disruptions to these lands caused by fossil fuel development necessarily result in disruptions to Aboriginal ways of life and cultural practices.

The development and exploitation of fossil fuel resources within Canada contributed both directly and indirectly to the cultural degradation of Aboriginal people. By forcibly relocating Aboriginal communities from land they have traditionally inhabited to allow for resource extraction, and by causing the degradation of this land through deforestation, habitat fragmentation, and air, water and soil pollution, the fossil fuel industry directly contributes to the degradation of Aboriginal cultures. Indirectly, the fossil

38 Preston, “Neoliberal settler colonialism, Canada and the tar sands.” pg. 46 – 47
fuel industry’s role in progressing climate change, is threatening the traditional ways of life and cultural survival of numerous Aboriginal communities, particularly in the Canadian north and Arctic where this change is occurring most rapidly. Rapid ecological change places Aboriginal communities in a highly vulnerable situation as many of the organisms on which their economic and cultural well-being depend “have narrow habitat and niche requirements that make them particularly sensitive” to ecosystem change. As these species play critical roles in “the diet, traditions and cultures of these Indigenous communities, disruptions to their habitat ultimately lead to the degradation of Aboriginal cultures. The impact of changing ecosystems on wildlife and the impact this can have on Aboriginal ways of life and cultural continuity is well exemplified by the case of the Dunne-za First Nation of West Moberly B.C. and the caribou. The cultural system of the Dunne-za peoples is “in large part grounded in the local ecology and the biology of species found within West Moberly’s territory”, and it is this system that their “mode of life is dependent upon.” Within this system, caribou are “integrated into nearly every aspect of the Dunne-za sense of place and being,” playing significant roles in numerous cultural practices, such as the traditional seasonal round. Further the species is essential to the tradition of “vision quests”, which are “an important spiritual custom for young men that facilitates their interconnectedness with the land and their surroundings.” Additionally, caribou play essential roles in various myths and legends used by the Dunne-za to “convey values, norms, history, and knowledge about the people, land, and spirituality” and to teach the “cultural practices, customs and traditional ecological knowledge” to

41 Ibid. pg. 96
43 Muir, et al. “An environmental justice analysis of caribou recovery planning, protection of an Indigenous culture, and coal mining development in northeast British Colombia, Canada.” pg. 461
44 Ibid. pg. 462
younger generations. As such, resource extraction activities that negatively affect caribou populations have lasting effects on the cultural continuity of the Dunne-za peoples. Currently, the once thriving caribou populations of B.C. have been severely reduced, and are now fragmented into nine small herds, as opposed to a single large one. The ability of the Dunne-za to sustain cultural practices that involve the hunting of caribou has been hindered. Further, the development of a coal mine, by First Coal Corporation, on land categorized as being within the critical habitat of one of the remaining caribou herds, greatly concerns the people of West Moberly, rapid changes to the environment impact cultural continuity, even if said changes do not affect wildlife populations, as said changes impact the validity of Aboriginal ecological knowledge and their ability to pass this knowledge down to future generations. Indigenous communities’ nationwide share the experience of the Dunne-za First Nation showing that the circumstances of social injury reach from coast to coast to coast.

3.23 – Human and Environmental Security Concerns

3.23.1 – Economic and Employment Security

Fossil fuel investments pose significant threats to economic prosperity and stability in Canada and globally, through their contribution to climate change and through the creation of a ‘carbon bubble’ which could disrupt global economic activity.

In his comprehensive and ground-breaking report on the economic impacts of climate change, Nicholas Stern points out that environmental damage associated with climate change will destroy 5-20% of global GDP per year. Such drastic economic losses will affect

\[\text{\cite{lemmen2007, stern2007}}\]

\[\text{\cite{toronto3502014}}\]
livelihoods of individuals and communities across Canada and the world, regardless of the degree of their involvement in the oil industry. By failing to substantially mitigate climate change impacts, the reliance on fossil fuels and the actions of oil and other fossil fuel companies compromises the well-being of every person on Earth as well as future generations, and in a crisis, the least privileged will be disproportionately impacted.

More specifically, the overvaluation of fossil fuel assets creates a ‘carbon bubble’ which renders fossil fuel investments inherently risky. Climate change authorities, such as the Intergovernmental Panel on Climate Change, agree that 2°C is the maximum acceptable increase in average global temperatures without extremely adverse effects on human civilization. The most valuable assets of fossil fuel companies are their unexploited reserves, 80% of which must remain in the ground if the 2°C is to be met. In short, fossil fuel companies hold more carbon than can safely be burned, and in the event of the regulation of carbon emissions or stricter efficiency requirements, these reserves become unviable, resulting in massive stresses to the fossil fuel industry and the global economy, and with acute effects on Canada’s economy. In this way, the activities of fossil fuel companies threaten the economic well-being of Canadians and the global community.

3.23.3 - Food Security

Food security refers to “the state achieved when food systems operate such that ‘all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their

dietary needs and food preferences for an active and healthy life. Further, food systems encompass all "interactions between and within the biogeophysical and human environments which result in the production, processing, distribution, preparation and consumption of food", including aspects such as food availability, food access, and food utilization. When food systems become stressed, food is diminished, and underserved populations locally and globally suffer the worst impacts.

Climate change is rapidly becoming a global stress on food systems. The productivity of certain crops is compromised by increased water stress, increased weed and pest proliferation, shifting regional ecology, higher disease rates, heavy unseasonal rains resulting in over-saturated soils, changes in seasonal temperatures and duration, and increased frequency of extreme climate events. Although the spatial variation in climate change means that not all regions will be equally impacted by increased climate and extreme weather events, and some regions may even experience increases in productivity due to longer growing seasons and increased CO2

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52 Ibid. pg. 2139-2148

53 Ibid. pg. 2139-2148


fertilization, the overall impact on the global food system is expected to be negative. For example, “cereal producing regions of Canada, and northern Europe and Russia might be expected to increase production as a consequence of the climate changes predicted by GCMs, while many parts of the world would suffer losses including the western edge of the USA prairies, eastern Brazil and western Australia.” Furthermore, expected gains in these regions will likely fall short due to nutrient limitations, increased pollution and extreme weather events. Many of the countries Canada relies on for a significant portion of its food imports are expected to be heavily impacted by changing climatic conditions and greater frequency of extreme weather events. For example, the United States represents 57 percent of Canadian food imports, and Brazil and Australia are among the top ten regions for Canadian food imports [4]. As such, impacts on crop productivity in these regions are likely to result in increased food stress and insecurity in Canada.

Additionally, some food systems are better able to cope with increased stress, just as some individuals are more readily able to cope with increased stress on their food systems. Those most unlikely to be able to cope with increased stress on food systems are those already at risk, namely lower-class individuals, as a large proportion of their resources is already being spent on obtaining food. Lower-income individuals and families are particularly at risk as increased stress on a given food system typically results in increased food prices, meaning individuals who already expend a large portion of their resources on obtaining food are less likely to be able to cope with perturbations. As such, “the vulnerability of food systems is not determined by the

56 Gregory, et al. “Climate change and food security” pg. 2139-2148
57 Ibid. pg. 2139-2148
58 Ibid. pg. 2139-2148
59 Ibid. pg. 2139-2148
nature and magnitude of environmental stress *per se*, but by the combination of the societal
capacity to cope with, and overcome from environmental changes, coupled with the degree of
exposure to stress. As such, within Canada, lower-class individuals, as well individuals living
in remote northern communities or on isolated Aboriginal reserve lands are expected to bear the
greatest burden of increasing Canadian food insecurity.

3.24 – Climate change

3.24.1 -Fossil fuel companies contributing to the climate change positive
feedback mechanisms

There are currently feedback mechanisms in place that increase the rate at which the
climates is changing. Feedback is the process by which a change in one quantity changes a second
quantity, which in turn changes the first. An example of a feedback mechanism is the snow/ice-
albedo cycle. As the average global temperature rises, the polar ice caps will melt and decrease
in size. As the polar caps shrink, the area of sea water or land increases, which in turn
increases the temperature of the ocean and contributes to further melting of the polar ice caps.
The albedo of bare land and open water is lower than that of ice, since the surface of ice is white
and therefore has a high reflective power, whereas open water and land absorb more solar
radiation from the sun and causes more melting, and this cycle continues. This climate feedback
mechanism is generally referred to as the “snow/ice-albedo” feedback and can occur everywhere
on earth, not just at the polar ice caps.

It is possible for the feedback mechanism to continue without any change to the quantity

60 Ibid. pg. 2139-2148
61 Curry, Judith A., Julie L. Schramm, and Elizabeth E. Ebert. "Sea ice-albedo climate feedback
of the components of the system. The term “tipping-point” can be used to describe the critical threshold at which a perturbation can qualitatively alter the state or development of a system.\textsuperscript{62} If the positive feedback systems of climate change reach a point of no return, the effects on societies will be unavoidable. The future state of the Earth’s systems may be qualitatively altered if companies continue to burn fossil fuels and release CO2 into the atmosphere. Due to recent increases in atmospheric CO2 and trace gases, there is a large, rapidly growing gap between current climate and the equilibrium climate for current atmospheric composition.\textsuperscript{63} This gap represents the continuation of feedback systems even if we were to stop all CO2 emissions today. If there were to be a stabilization of the atmospheric concentrations of CO2, anthropogenic warming and sea level rise would continue for centuries due to the timescales associated with climate processes and feedbacks and some of the changes in the climate system would be irreversible in the course of a human lifespan.\textsuperscript{64}

The practices of fossil fuel companies are contributing to pushing feedback mechanisms past the tipping-point. This could have serious impacts on the state of the earth, and would be injurious to its inhabitants. Human activities may have the potential to push components of the Earth systems past the critical states into qualitatively different modes of operation, implying


\textsuperscript{63} Hansen, James, Pushker Kharecha, Makiko Sato, Valerie Masson-Delmotte, Frank Ackerman, David J. Beerling, Paul J. Hearty et al. "Assessing "Dangerous Climate Change": required reduction of carbon emissions to protect young people, future generations and nature." \textit{PloS one} 8, no. 12 (2013) pg. 4

3.24.2 – Extreme weather

As global climate change progresses, changing air and water patterns present the risk of more frequent and intensified extreme weather events. Both rising sea levels and rising temperatures of surface waters have been predicted to contribute to more destructive hurricanes in the future. Archival data from the mid-1970s onwards shows a very strong correlation between tropical sea surface temperatures and the total destructive power of hurricanes in both the North Atlantic and North Pacific oceans. This is based on observed increases in both the intensity and duration of these hurricanes, and these data suggest we should expect future increases proportional to the rise in sea surface temperatures. A number of other factors, including increased humidity and decreased vertical wind shear in the Pacific have been linked to both global climate change and a predicted increase in the intensity and duration of future hurricanes. The best climate models currently available suggest that hurricanes will become both stronger on average and more frequent in the North Pacific and North Atlantic oceans, which house some of the world’s most heavily populated cities. Simulations conducted by the most recent global climate models predict “the frequency of tropical cyclones will increase by 10

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66 Kerry Emanuel, "Downscaling CMIP5 climate models shows increased tropical cyclone activity over the 21st century." Proceedings from the National Academy of Sciences.
to 40% by 2100. And the intensity of those storms will increase by 45% by the end of the century, and storms that actually make landfall—the ones that tend to smash—will increase by 55%.69

Increased intensity, frequency, and duration of future hurricanes as a result of global climate change are predicted to have devastating effects on coastal cities. Meteorologists have determined that the damage inflicted by hurricane Sandy in 2012, the second most costly hurricane in United States history (after Hurricane Katrina), was made significantly worse by global climate change. Over the past century, sea levels have risen about 8 inches as a result of human activity, giving Sandy a lot more water to displace along the coasts of several countries in the Caribbean and the eastern United States.70 It was estimated that 30,000 additional homes were flooded and almost 71,000 additional people were impacted in New York City alone as a result of the human-induced rise in sea levels.71 The IPCC predicts a further rise in average sea levels by 2100 of 11 to 40 inches, depending on emissions levels.72 The implications of these predictions are that human-induced climate change will lead directly to a massive increase in damage to property and human life resulting from hurricanes.

Climate change also increases the frequency and severity of droughts, fires and flooding. Average temperatures have risen globally during the 20th century by about one degree

69 Walsh, “Climate Change Could Make Hurricanes Stronger – and More Frequent” TIME
Fahrenheit. However, local temperature change is highly variable with some areas temperatures rising sharply and other areas getting colder. The decade from 2000-2009 was the hottest on record in the United States, and as of July 2013 the country has experienced 340 consecutive months (over 28 years) of temperatures higher than the 20th century average. These chronic levels of increased temperatures, particularly in certain areas such as the southern U.S., cause greater evaporation from the ground and water bodies, leading to increased risk of drought. The National Resource Defense Council’s 2010 Climate Change, Water, and Risk Report predicted that one third of counties in the continental U.S. “will face higher risks of water shortages by mid-century as a result of global warming.” It states that these shortages present a severe risk for agricultural production due to lower crop yield and increased pests, disease, and weeds. Many of the at-risk states are agricultural leaders. In fact, the top three crops alone in these states were worth $105 billion in 2007. In addition to crops, a number of milder winters have allowed for the survival and reproduction of pine beetles. Pine beetles have decimated large areas of pine forest including 70% of whitebark pine trees in and around the Greater Yellowstone Ecosystem (one of the last large, intact ecosystems of its kind). This has had adverse effects on the logging industry, and exacerbates global warming, as the trees are no

73 University Corporation for Atmospheric Research. "How much has the global temperature risen in the past 100 years?" University Corporation for Atmospheric Research. https://www2.ucar.edu/climate/faq/how-much-has-global-temperature-risen-last-100-years (accessed November 15, 2014).


longer able to function as carbon sinks.

The total area burned by forest fires each year has also been increasing over the second half of the 20th century in certain parts of Canada, according to Natural Resources Canada. Many forest areas are predicted to experience more frequent fires over the course of this century as a result of global warming, with severe environmental and economic consequences. They predict a doubling of the area burned annually, which could destroy entire towns and cause major losses in the logging industry among others.

A warmer atmosphere is also able to hold more moisture, resulting in more extreme precipitation events and increasing the likelihood of flooding. For decades, climate models have been predicting more rain and increased flood risk in Alberta, and in June 2013 Calgary experienced the most severe flood in its history, displacing 75,000 people and killing five. Furthermore, the Government of Canada’s National Round Table on the Environment and the Economy estimates that “the coastal land area exposed to climate change-induced flooding...by the 2050s is roughly equivalent to the size of the Greater Toronto Area,” with costs estimated at $1 to $8 billion per year.

Climate change has also been linked to periods of more extreme cold weather than seen in the past. The melting of ice caps in the Arctic is associated with a weakening of fast-moving winds separating Arctic winds from warmer southern winds. This is thought to allow the polar

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vortex, a circular pattern of cold polar winds, to dip down over parts of southern Canada and northern U.S.\textsuperscript{80} In the winter of 2013-2014 this phenomenon caused record lows in many states and provinces and an estimated $5 billion in damages in the U.S. alone, as well as 21 deaths and 20,000 flight cancellations.\textsuperscript{81}

### 3.25 - Breaking International Accords

The 2009 Copenhagen Accord, like numerous international agreements before it, emphasized the urgent need to address climate change. At the Copenhagen Accord, 141 attending nations, including Canada, agreed upon setting a warming limit of no more than 2°C above pre-Industrial levels.\textsuperscript{82} As previously stated, in order to have a reasonable chance of preventing warming from surpassing this limit, no more than 565 gigatons of carbon dioxide can be released into the atmosphere.\textsuperscript{83} Furthermore, as the global fossil fuel industry’s current projections report 2795 gigatons of available carbon reserves, approximately five times the amount allowed to be released, countries committed to mitigating climate risk must redress their dependence on fossil fuels.


Although Canada has already taken certain measures to decrease their national carbon output, including the implementation of stricter emission standards for heavy-duty vehicles and the mitigation of greenhouse gases from agricultural activities, these measures are not enough. The 2003 Canada Emissions Trends report from Environment Canada revealed that if current trends hold, Canada’s carbon emissions in 2020 will exceed the level promised under the Copenhagen Accord by 20 percent, meaning that what Canada is already doing is not enough to reduce its carbon emissions to 1990 levels as promised. Furthermore, even with these measures, Canada’s emissions will be 66 to 107 percent greater than required to meet the 2°C limit agreed upon at Copenhagen.

Canada must shift its focus to the development and implementation of green technologies and renewable resources. The 21st Conference of Parties to the UNFCCC will take place in Paris in 2015, where the negotiations begun in Copenhagen will be reviewed, and “all the nations of the world, including the biggest emitters of greenhouse gases, will be bound by a universal agreement on climate.” If Canada holds itself to its agreements, a move away from fossil fuels is inevitable, as failing to do so would ultimately lead to Canada breaking the international Copenhagen Accord. This move would necessarily signal a downturn in the profitability of Canada’s fossil fuel industry, increasing the risk of continued investments in fossil fuels.

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The growing urgency of these negotiations shows that the global community is concerned with the detrimental effects our current system is having on social, environmental, and economic stability. The pressure on institutions to mitigate their impact will only increase with time.

4.00 – Divestment as a Moral Imperative

Queen’s University is widely recognized as one of the best institutions of postsecondary education in North America. As an institution of higher learning, Queen’s has the privilege of engaging in the worlds of scientific research, political activism, and social justice.

It is undisputed amongst credible climate and environmental scientists that we are beginning to experience the impacts of anthropogenic climate change. A rise in average global temperatures, ocean acidification, soil degradation and habitat and ecosystem destruction are but a few impacts this has. While it is undeniable that much of modern society is dependent on fossil fuels, it goes without saying that alternatives are present. As an institute of higher education, Queen’s cannot contend that climate change science is still up for rigorous academic debate. It is a fact that anthropogenic disturbances are major contributors to climate change. As a leading university, to invest in the fossil fuel industry and support its continued unsustainable models of business and development, while at the same time supporting environmental research and declaring goals of carbon neutrality, is hypocritical.

To live in North America, and to be able attend or work at an institution such as Queen’s, is a true privilege. It is the obligation of privilege to use it for good, to help others, and promote social justice by protecting our environment. Queen’s must be held accountable for its actions including investment decisions. As a place and group of individuals who have benefitted from this industry, we must act to make sure that the fossil fuel industry does not continue to harm
others through its business practices and the by-products of its activity.

As such, we argue that Queen's University has a moral imperative to invest in innovation and new forms of clean, sustainable, safe energy sources for the benefit of all. Remaining party to the fossil fuel industry through our endowment investments is simply standing by while environmental, social, and economic damage persists. Queen's has the capacity to change this by sending a symbolic message to the fossil fuel industry and removing corporations' social license to operate.

5.00 – The Financial Argument

Skeptics of divestment often claim that there will be great adverse affects to the returns received and that the accumulated risk by divestment from the fossil fuel industry is too high - that they would not be abiding by their fiduciary duty. This has been proven to be misinformed.

While it is true that with any investment or divestment there is a degree of uncertainty about whether or not a return will be positive or negative, the risks associated with fossil fuel divestment are negligible and yet continued to be ignored to maintain the status quo. As shown by Aperio Group, Impax, Tim Nash, and Tom Steyer, all four respected investment management firms/investors, the risks of divesting from fossil fuels are nearly non-existent. They argue that the returns on fossil free portfolios will have small returns with next to no tracking error.

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Additionally, all agree that divestment from the fossil fuel industries is a “smart” investment not just for returns but for the symbolic precedent it sets that endowment managers oppose the actions of these industries. This symbolic action not only benefits the endowment financially, but also publicly.

6.00 – What Queen’s Can Do

As an institution of higher learning Queen’s University has an opportunity and responsibility to divest. Much like it was in the 1980s during the divestment from South African firms benefiting from apartheid, Queen’s can once again be on the right side of history. As one of the top universities in Canada, it would set precedent for other institutions to act and to acknowledge the world’s current economic model is not financially sustainable, and its consequences are such that the planet cannot sustain. Queen’s can reinvest the money it removes from the fossil fuel industry into new innovative and sustainable sources of energy, as well as, additional ethical investments that improve the social and environmental good.

Queen’s can reinvest the money it removes from the fossil fuel industry into new innovative and sustainable sources of energy. It has to opportunity to be on the cutting edge of clean, sustainable, and renewable energy development in a world that is turning towards it and away from fossil fuels. This opportunity to become a global environmental leader is one that Queen’s should not turn away from.

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