The Fossil Fuel Industry and the Case for Divestment

Toronto 350.org

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Contents

1 Executive summary

This will be filled in once we are reasonably happy with the rest of the brief. It will certainly be the section that the most people read and which gets the most attention, so we should make a special effort to make the case compelling here.

Citations (and probably internal links to later parts of the brief) should be added to this section.

The governments of the world, including the government of Canada, have agreed that raising global temperatures to more than 2°C above where they were before we started burning fossil fuels would be ``dangerous".[1] If we are to achieve that objective, we cannot burn most of the fossil fuels that remain on the planet. Based on hundreds of thousands of years of evidence on how the climate responds to greenhouse gasses (GHGs), we can calculate that avoiding a 2°C increase means we must keep future GHG pollution to no more than 565 billion tonnes (gigatonnes) of carbon dioxide (CO_2).[2] At the same time, we know that burning the world's proven reserves of coal, oil, and natural gas would produce 2,795 gigatonnes of CO_2 --- nearly five times as much as it would be safe to burn.[3] That means we need to find a way to keep 80% of the world's fossil fuel reserves unburned.[4]

The business plans of fossil fuel companies do not take this objective into account. They assume they can burn all of their proven reserves, along with any additional reserves they discover in unconventional areas like the arctic, the deep ocean, and Canada's bituminous sands. Right now, we are adding about 30 gigatonnes of CO_2 to the atmosphere each year, and the amount we add is increasing at a rate of about 3%. That means that we are on track to exceed the 565 gigatonne limit within 15 years.

Two big implications arise from this. First --- we need to find a way to meet the world's energy needs without burning most of the Earth's remaining fossil fuels. This requires a massive redirection of investment from fossil fuel energy sources to different energy sources that do not alter the climate. Second --- the stockmarket value of fossil fuel companies is based on the assumption that they will be able to dig up and burn what they own. If they are allowed to do this, the global effects will be catastrophic. As such, much of the value of these companies is an illusion, based on an out-dated assumption that we can use the atmosphere forever as a free dumping ground for CO_2.

The University of Toronto has an opportunity to do two things: to take part in the redirection of investment that is necessary to prevent climatic catastrophe, and to sell its shares in fossil fuel companies

[1] The Heads of State, Heads of Government, Ministers, and other heads of delegation present at the United Nations Climate Change Conference 2009 in Copenhagen, *Copenhagen Accord*.

[2] For an excellent summary that is accessible to non-experts see: McKibben, *Global Warming's Terrifying New Math*.

[3] Carbon Tracker Institute, *Unburnable Carbon: Are the world's financial markets carrying a carbon bubble*.

[4] Another accessible summary of the issue can be found in: This American Life, *Hot In My Backyard*.

before the general public accepts that most of their reserves are unburnable.

This brief explains in detail why divestment from fossil fuel companies is in keeping with the values of the university and why it is feasible and financially prudent.

By making the choice to divest, the University of Toronto can improve its future financial prospects, uphold its values, and take part in a necessary global transition away from CO_2-intensive forms of energy. The University of Toronto's Statement of Institutional Purpose includes ``a resolute commitment to the principles of equal opportunity, equity and justice."[5] If future generations are to have equal opportunities, they cannot inherit a planet that has been impoverished by uncontrolled climate change. Similarly, the principles of equity and justice forbid us from ignoring what we know about the harms of greenhouse gas pollution by continuing to impose risk and suffering on innocent people around the world and in future generations.

Across North America, the peer schools of the University of Toronto are considering divestment. There include Harvard, Yale, Princeton, Stanford, and MIT. [NUMBER] schools have already committed to divest. By leading the way and divesting first, the University of Toronto can distinguish itself as being ahead of the pack on one of the major issues of the 21st century.

[5]Toronto Governing Council, *Statement of Institutional Purpose*.

2 Climate change is settled science

2.1 From the U of T divestment policy

> *The University's core academic values include freedom of inquiry and open debate. As a general matter, the University does not take positions on social or political issues apart from those directly pertinent to higher education and academic research. Instead, its role is to provide a forum within which issues can be studied carefully and debated vigorously. Given these values, the University will not consider any proposals for restrictions on its investments that require the institution to take sides in matters that are properly the subject of ongoing academic inquiry and debate.*

2.2 It is not properly the subject of ongoing academic debate that

Ideally, for each claim we should cite the best possible accessible source for laypeople as well as the most authoritative possible scientific source. It would be great if people could add additional references to this section.

- The 10,000 years of human civilization have taken place during a span of relative climatic stability.[6][7]
- Burning coal, oil, and gas produces known quantities of carbon dioxide (CO_2).[8]
- Before the industrial revolution, the concentration of CO_2 in the atmosphere was approximately 280 parts per million (ppm).[9][10]
- It has now risen to over 390 ppm, largely because of the burning of fossil fuels.
- At present, the concentration of CO_2 in the atmosphere is rising at a rate of approximately 2.0 ppm per year.[11]
- If humanity continues to burn fossil fuels at the present rate, the concentration of CO_2 in the atmosphere will rise to well over 550 ppm by 2100.

[6] This claim is supported by evidence from ice core samples taken in Vostok, Antarctica as well as other proxy measures of climate such as pollen in lake sediments and tree rings.

[7] Alley, *The Two Mile Time Machine: Ice Cores, Abrupt Climate Change, and Our Future*, p. 4.

[8] For example, the U.S. Environmental Protection Agency lists quantities of CO_2 produced by burning a barrel of oil, metric tonne of coal, or therm of natural gas: U.S. Environmental Protection Agency, *Calculations and References*.

[9] Evidence for this includes the records of how much fossil fuel has been burned, as well as the changing isotopic ratio of carbon in the atmosphere.

[10] Intergovernmental Panel on Climate Change, *Climate Change 2007: Working Group I: The Physical Science Basis, TS.2 Changes in Human and Natural Drivers of Climate*.

[11] National Oceanic and Atmospheric Administration, *Trends in Atmospheric Carbon Dioxide*.

- Adding carbon dioxide to the atmosphere reduces the amount of energy the Earth radiates into space. This causes the planet to warm.[12]
- Based on evidence from ice cores, we know that doubling the amount of CO_2 in the atmosphere causes global temperatures to rise by about 3°C.
- Governments around the world, including the government of Canada, have adopted 2°C as the threshold beyond which climate change should be considered `dangerous'.[13]
- If the world is to avoid crossing the 2°C limit, most of the world's remaining fossil fuels must be kept in the ground.[14]

Comprehensive and authoritative scientific statements on the key elements of climate change date back at least to the 1979 U.S. National Academy of Sciences report (the Charney report).[15] The report concluded that human activities --- particularly greenhouse gas emissions --- were altering the climate in potentially dangerous ways. These conclusions have been subsequently re-affirmed in the four major reports of the Intergovernmental Panel on Climate Change (IPCC) in 1990, 1995, 2001, and 2007.[16][17][18][19]

Add reference to G8 science academy statement: http://www.nationalacademies.org/includes/G8+5energy-climate09.pdf

Mitigating climate change is important for allowing the university to achieve its academic mission. In the event that the world fails to curb greenhouse gas emissions and produces well over 2°C of climate change, substantial damage is expected to be imposed on the global economy. This threatens the growth prospects of the endowment and pension funds of the University of Toronto. It also creates additional geopolitical risks such as agricultural disruption and forced migration.

James Powell, former President of Oberlin, Franklin and Marshall, and Reed College, argues that university trustees have a quasi-legal duty to all they can about climate change, arguing:

> ``The board is supposed to make sure that the endowment allows for intergenerational equity, that the students who are going to Oberlin in 2075 get as much benefit from it as

[12] Intergovernmental Panel on Climate Change, *Climate Change 2007: Working Group I: The Physical Science Basis, TS.2 Changes in Human and Natural Drivers of Climate*.
[13] The Heads of State, Heads of Government, Ministers, and other heads of delegation present at the United Nations Climate Change Conference 2009 in Copenhagen, *Copenhagen Accord*.
[14] International Energy Agency, *World Energy Outlook: 2012*.
[15] U.S. National Academy of Sciences, *Ad Hoc Study Group on Carbon Dioxide and Climate*.
[16] Intergovernmental Panel on Climate Change, *First Assessment Report*.
[17] Intergovernmental Panel on Climate Change, *Second Assessment Report: Climate Change 1995*.
[18] Intergovernmental Panel on Climate Change, *Third Assessment Report: Climate Change 2001*.
[19] Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*.

those there now. But with global warming, you're guaranteeing a diminution of quality of life decades out.""

Taking action to address climate change is not an example of needlessly taking sides in a controversial issue. Rather, it is a matter of taking part in a necessary global transition. If the world fails to constrain the worst impacts of climate change, serious deleterious impacts can be expected for Canada and the University of Toronto.

2.3 The University of Toronto is already taking action on climate change

In response to the settled science of climate change, the university has already taken a number of actions motivated by concern about climate change and a desire to reduce the university's greenhouse gas pollution impact. The university's actions show climate change to be ``directly pertinent to higher education and academic research".

Policies and infrastructure decisions justified with reference to climate change

The university has adopted an Environmental Protection Policy

This section needs to be filled out

Academic programming

In 2005, the university established a new Centre for Global Change Science (CGCS), which has since conducted exemplary research into climate change effects, as well as a wide array of public lectures focused around climate-related themes. The CGCS has hosted a number of talks as part of its Distinguished Lecture Series including:

- Successes and Challenges for Biodiversity Science: Distribution Responses to Climate Change --- James Clark, Duke University, September 18, 2012
- High Altitude Climate Change: The Survival Struggle of our Earth's Alpine Glaciers --- Andrew Bush, University of Alberta, October 16, 2012
- Assessing Vegetation Responses and Feedbacks to Climate Change --- John Gamon, University of Alberta, November 6, 2012
- Cumulative Carbon Emissions and the Climate Mitigation Challenge --- Damon Matthews, McGill University, February 5, 2013; and

- Trees to Tailpipes: Natural and Anthropogenic Influences on Global Atmospheric Composition --- Colette Heald Massachusetts Inst. of Technology, March 5, 2013.[20]

The university also offers courses on climate-change-related themes, including:

- Applied Climate Change
- Gaining Practical Skills for Climate Change Adaptation (UTSC Summer Institute 2013)
- Climate Change Law (LAW269H1S); and
- Climate Change and Human Health (CEM 406).

Climate change is certainly an area of active scholarly research, but that research does not question the fundamental connection between burning fossil fuel and warming the planet. Nor does it challenge the argument that climate change is likely to cause a great deal of social injury and human suffering. Rather, the academic work being conducted on climate change at U of T reinforces the case for divestment.

2.4 Fossil fuel companies acknowledge the reality and danger of climate change

David Naylor apparently found this a pursuasive argument before: Naylor noted, ``that there is no serious academic or social debate about tobacco's health effects – even tobacco manufacturers by now concede them." `http://www.thestar.com/news/2007/04/10/u_of_t_to_sell_off_its_tobacco_holdings.html`

There are lots of greenwashing ads - possibly even from Shell - that we can use to demonstrate that the fossil fuel industry itself acknowledges climate change.

[20] University of Toronto Centre for Global Change Science, *Distinguished Lecturer Series (2012-13)*.

3 The activities of fossil fuel companies are socially injurious, and this social injury cannot be reasonably remedied through shareholder voice

Since this whole section is largely about law, we need to (a) be completely clear and correct in what we say about the contents and interpretation of these laws (b) make completely defensible claims about the impacts of climate change and fossil fuel extraction generally (c) make sure to run this by some lawyers and people familiar with the U of T administration before we submit it

Milan incorporated text supplied by Monica and Jon, but it was problematic in places. Problems have been flagged with comments in this document.

3.1 From the U of T divestment policy

> *Social injury is 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 deprivation or health, safety, or basic freedoms*

3.2 Social injury

The primary activities of fossil fuel companies impose social injury on consumers, employees, or other persons. The burning of a large portion of the world's reserves of fossil fuels would inflict great social injury through:

1. Impacts on agriculture
2. The inundation of coastal areas
3. Storms, droughts, other extreme weather
4. Increased risks to human health
5. Ecosystem collapse
6. Threats to First Nations groups and indigenous cultures
7. Threats to the infrastructure of cities, including Toronto

8. The threat of abrupt and non-linear adverse climate impacts, arising from positive feedback effects and important thresholds in the climate system

In 2011, the National Roundtable on the Environment and the Economy (NRTEE) concluded that ``Climate change will be expensive for Canada and Canadians. Increasing greenhouse gas emissions worldwide will exert a growing economic impact on our own country, exacting a rising price from Canadians as climate change impacts occur here at home".[21] They also concluded that: ``Global mitigation leading to a low climate change future reduces costs to Canada in the long term."[22]

The NRTEE highlighted how Canada and the rest of the world must choose between two futures: one in which action is taken (necessarily diminishing the profits and stockmarket value of fossil fuel companies) and another in which the world suffers the unmitigated consequences of climate change:

> ``Examining long-term economic costs of climate change to Canada raises the spectre of two futures: one where the world acts — and keeps global warming to 2°C by 2050 as world leaders have pledged — and one where it doesn't and climate change impacts grow and accelerate beyond targets. At slightly under 2°C of global warming, the economic costs of climate change to Canada in 2050 would be between $21 billion and $43 billion with no adaptive action taken; costs could be at the lower end of range if economic growth slowed as part of domestic mitigation or for other reasons. If the world acts to limit warming to 2°C, future costs could stabilize around this 2050 level since emissions growth would have been dampened and plateaued to reach this new global reality."[23]

The sections below will elaborate on these forms of social injury, providing empirical evidence of the observed adverse impacts and predicted future risks from climate change.

Impacts on agriculture

Agriculture is widely considered to be one of the most vulnerable systems to climate change in large part because its productivity is highly dependent on stable climate cycles and weather patterns. For instance, in their Fourth Assessment Report, the IPCC concluded that some African countries agricultural production, including access to food, ``is projected to be severely compromised".[24] Production

[21] National Round Table on Energy and the Environment, *Paying the Price: The Economic Impacts of Climate Change for Canada*, p.15.
[22] Ibid., p.16.
[23] Ibid., p.18.
[24] Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*, See: Synthesis report, Table SPM.2. Examples of some projected regional impacts. https://www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html.

from agriculture and forestry is expected to decline in Australia and New Zealand by 2030, and in Latin America ``[c]hanges in precipitation patterns and the disappearance of glaciers are projected to significantly affect water availability for human consumption, agriculture and energy generation."

Changes in climate that will affect Canadian agricultural production include events such as heat waves and droughts, infestation of pests, and severe storms. The Ontario Ministry of Agriculture and Food's website lists projected impacts including:

- increased heat stress on livestock
- increased pest volumes and number of pest species
- modified geographical extent of agricultural production and locational shifts for growth of certain crops
- potential limitations on food processing expansions due to water quality and quantity issues
- financial challenges for rural municipalities exposed to extreme weather events and needing large infrastructure enhancements to cope with such events (bridges, roads, etc.)[25]

Climate change is also expected to do between $2 and $7 billion in damage to Canada's timber industry by 2050, ``through changes in pests, fires, and forest growth".[26]

Studies exploring economic approaches to dealing with climate change show that adaptation can provide one route to alleviate risks to Canada's agricultural sector.[27] However, extreme weather events, which are predicted to occur with increasing frequency as global temperatures rise are significant drivers of yield and impact changes and can therefore disrupt adaptation practices and threaten the health and prosperity of agricultural systems.[28] Indeed, possibilities of extreme weather events are often outside the scope of adaptation policies that outline strategies and recommendations for coping with less acute impacts such as those listed above.[29]

The ongoing drought in the United States provides a glimpse of what may become increasingly routine in a world altered by climate change. Beginning in the spring of 2012, the drought originally affected areas along the plains and western mid-west regions of the country. As the drought continued, the federal government declared most of the central and southern U.S. wheat belt a natural disaster area.

[25]Ontario Ministry of Agriculture and Food, *Climate Change and Agriculture*.
[26]National Round Table on Energy and the Environment, *Paying the Price: The Economic Impacts of Climate Change for Canada*, p.16.
[27]Amiraslany, *The impact of climate change on Canadian agriculture : a Ricardian approach*.
[28]Isik and Devadoss, ``An analysis of the impact of climate change on crop yields and yield variability".
[29]See for instance: Scott Malcolm, Elizabeth Marshall, Marcel Aillery, Paul Heisey, Michael Livingston, and Kelly Day-Rubenstein, *Agricultural Adaptation to a Changing Climate: Economic and Environmental Implications Vary by U.S. Region*.

By July, the drought had reached such extreme conditions that officials in north-central Oklahoma declared a state of emergency on account of record-low reservoir conditions. Furthermore, the U.S Department of Agriculture (USDA) granted eligibility for low-interest emergency loans to wheat growers in four major wheat-growing states: Kansas, Colorado, Oklahoma and Texas. In early 2013, experts from the National Oceanic and Atmospheric Administration's Climate Prediction Center and the National Drought Mitigation Center at the University of Nebraska-Lincoln predicted that, despite various localized improvements, the drought is set to worsen in general through spring 2013, and will in fact expand to affect areas in California, Texas and Florida.[30] Moreover, less than average snow accumulation in surrounding areas including the central and southern Rockies, results in a decrease of water flowing from streams and rivers to reservoirs, which adds to concerns about the potential for the drought to increase in scope.

Prolonged heat waves and periods of drought are projected to intensify globally concurrent with accelerating warming of global temperatures caused by the increase of GHG levels in the atmosphere. The IPCC expects increased incidence of drought in asia, Australia and New Zealand, and Europe. In North America, it expects ``[w]arming in western mountains... to cause decreased snowpack, more winter flooding and reduced summer flows, exacerbating competition for over-allocated water resources".[31] Canada has experienced significant extreme heat and drought events in its recent history. For instance, six wide ranging and severe droughts took place over southern Ontario between 1936 and 1998. Two droughts, one in 1988 and the other ten years later in 1998, were both consistent with predictions in climate change scenarios for the Great Lakes region.[32] Furthermore, the IPCC reports that climate change will continue to significantly threaten the sustainability of water supplies on a global scale, with water scarcity potentially impacting hundreds of millions of people by the end of the century.

I have done some searching around in IPCC documents, but cannot find anything like this claim. The only reference in the Word file from Jon and Monica as `IPCC (2007)'.

The International Food Policy Research Institute (IFPRI) finds that declines in yields of one critical world crop --- wheat --- will become greater the longer mitigation is delayed. Using a 2000 baseline, they project a decline in yield for rainfed wheat in the developed world of 1.3 percent by 2030, 4.2 percent by 2050, and 14.3 percent by 2080.[33] Up to 2050, climate change's impact on agriculture might

[30]National Oceanic and Atmospheric Administration, *NOAA Monthly Climate Teleconference: February 2013*.

[31]Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*, See: Synthesis report, Table SPM.2. Examples of some projected regional impacts. *https://www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html*.

[32]Koshida, G., M. Alden, S. Cohen, R. Halliday, L. Mortsch,V. Wittrock and A. Maarouf. ``Drought Risk Management in Canada-U.S. Transboundary Watersheds: Now and in the Future. Drought and Water Crises: Science, Technology, and Management Issues."

[33]Gerald C. Nelson and You, *Food Security, Farming, and Climate Change to 2050: Scenarios, Results, Policy Options*, p. 85.

be manageable to some extent; however, the IFPRI report concludes: ``Starting the process of slowing emissions growth today is critical to avoiding a calamitous post-2050 future". (Gray et al., 2010).[34] While adaptation strategies may provide certain methods for dealing with select risks to agricultural production that are directly associated with climate change, mitigation in the form of reducing GHG emissions is essential to the long-term health and prosperity of the agricultural sector in Canada.

The inundation of coastal areas

Across Canada, coastal communities, forests, agriculture, and fisheries are increasingly at risk from climate change. In the Natural Resources Canada report *Climate Change Impacts and Adaptation: A Canadian Perspective*, ``sea level rise, resulting from thermal expansion of ocean waters and increased melting of glaciers and ice caps" is identified as ``the main issue for marine regions".[35] The report explains that ``[o]verall, more than 7000 kilometres of Canada's coastline are considered highly sensitive to future sea level rise" and that ``climate change [are]is expected to lead to a suite of biophysical and socio-economic impacts" including coastal inundation, increased coastal erosion, saltwater intrusion into freshwater aquifers, reduced sea-ice cover, higher storm-surge flooding, higher sea surface temperatures, loss of coastal habitat, damage to coastal infrastructure, increased property loss, increased risk of disease, increased flood risks and potential loss of life, and loss of cultural resources and values.[36] In 2011, the NRTEE projected that ``The costs of flooding from climate change could be between $1 billion and $8 billion per year by the 2050s".[37]

A closer look at the potential impacts of changing temperatures to the economic stability of Canada's Atlantic provinces illustrates some of these risks in more detail. The federal government report *From Impacts to Adaptation: Canada in a Changing Climate 2007* provides a detailed analysis of both current and projected effects of climate change to different areas in Canada, including an extensive discussion on effects specific to the Maritimes region.[38] The study projects major climatic changes in the region: ``By 2050, there would be a 2 to 4°C increase in summer temperature... Future warming of 1.5 to 6°C during winter can be anticipated".[39] The study also concludes that: ``Rising sea level will result in flooding of higher, previously immune areas... and more frequent flooding of low-lying areas".

These effects interact to have major economic and environmental consequences for the Maritime

[34]Gerald C. Nelson and You, *Food Security, Farming, and Climate Change to 2050: Scenarios, Results, Policy Options*, p. 86.
[35]Lemmen and Warren, *Climate Change Impacts and Adaptation: A Canadian Perspective*, p. xvi.
[36]Ibid., p. xvii.
[37]National Round Table on Energy and the Environment, *Paying the Price: The Economic Impacts of Climate Change for Canada*, p.16.
[38]Natural Resources Canada, *From Impacts to Adaptation: Canada in a Changing Climate 2007*.
[39]Ibid., p.131.

provinces. For instance, there is general consensus amongst fisheries scientists that the changing climate is going to significantly impact the Canadian fishing industry.

Can we get a source for this claim?

The harvesting of wild fish and shellfish, or the raising of these same species in anchored cages, is a major business in many Maritime coastal communities. However, warmer water temperatures could lead to the migration of various fish species to other areas. Similarly, increased land erosion causes greater amounts of sediment to fall into surrounding waters, which can disrupt the feeding and breeding patterns of many species of fish.

Many Maritime coastal communities such as those along the Bay of Fundy are also at risk due to the melting ice sheets, glaciers, and ice caps that are causing the steady and continuous rising of sea levels across the globe.[40] Concurrent with rise in water levels, the land around the Bay of Fundy is subsiding by almost a foot every 100 years. Taken together, these two effects could result in the rise of sea level along the Fundy coast of almost two feet by the end of the century. This seemingly insignificant rise could in fact have a devastating effect on many local coastal areas. Firstly, the increase in coastal erosion caused by rising sea levels will affect sensitive regions along the bay, including vulnerable areas in the northern edges as well as the large low-lying sections of the coast that are already well below sea level and that accommodate roads, railways, businesses, and residential areas. Moreover, the threat of more frequent severe storms poses risks to lands and buildings guarded by the many dykes along the coast, since these structures could prolong flooding by preventing seawater drainage in the increasingly likely case of extreme weather or heavy rainfall events. Taken together, threats to natural resources, increased frequency of extreme weather events, the acceleration of coastal erosion, and the threats to safety and stability of infrastructure due to rising sea levels, could have unparalleled consequences for Maritime communities.

Potentially include sea level rise vulnerability map from Jon's Word file

From Vancouver to Halifax, communities across Canada face significant risks from sea-level rise and accompanying impacts. In the long-term, unmitigated climate change risks causing Greenland and the West Antarctic ice sheet (WAIS) to melt. According to the IPCC: ``Near-total deglaciation would eventually lead to a sea-level rise of around 7 m and 5 m from Greenland and the WAIS, respectively, with wide-ranging consequences including a reconfiguration of coastlines worldwide and inundation of low-lying areas, particularly river deltas".[41] It goes on to say that: ``Widespread deglaciation would not

[40] Percy, *A Rising Tide of Change*.

[41] Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*, See: "Deglaciation of West Antarctic and Greenland ice sheets" `https://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch19s19-3-5-2.html`.

be reversible except on very long time-scales, if at all". Sea level rise on this scale would constitute an exceptionally severe social injury --- with entire countries like Bangladesh and the Netherlands massively inundated, along with low-lying regions like Florida, New York City, and many of the world's other densely populated areas. The IPCC identifies the ``threshold for near-total deglaciation" at 3.2--6.2°C local warming (1.9--4.6°C global warming). This is within the range of warming projections generated by several emission scenarios studied by the IPCC, corresponding to the absence of aggressive migitation action on the part of governments.[42]

Storms, droughts, other extreme weather

The Earth's changing climate has led to a notable rise in the number of great natural catastrophes that are driven by climate-related events over the past 25 years.[43] DISABLEDfootcite[See also:][]EC2011b

This citation is included in the previous footnote, but it is not at all clear why: Environment Canada. 2011b. National Inventory Report: Greenhouse Gas Sources and Sinks in Canada 1990-2009.

Over the past 10 years, countries around the world have experienced approximately 785 natural catastrophes per year. During 2010 alone, a total of 950 natural catastrophes took place, nine-tenths of which were weather-related events such floods, hurricanes and storms.

The source cited here doesn't say anything about this: Environment Canada. 2010a. News Release: Canada Announces a New Federal Sustainable Development Strategy. Environment Canada. Canada's Domestic Action NDa. Available from `http://www.climatechange.gc.ca/default.asp?lang=En&n=4FE85A4C-1` *Now available at:* `http://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=6BEC86EF-BD5F-4208-8E46-7D40515C91C6`

Climate change is likely responsible, at least in part, for the rising frequency and severity of extreme weather events, such as floods, storms and droughts, since warmer temperatures tend to produce more violent weather patterns.[44]

The source cited here is (Environment Canada, ND). I don't know what that means.

The Fourth Assessment Report of the IPCC (2007) asserts that changes in the frequency and intensity of extreme climate events will occur going into the future and will likely challenge human and natural systems to a much greater extent than natural changes in weather conditions. These include

[42] Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*, See: "Projected climate change an its impacts" `https://www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html`".

[43] According to Munich Re, weather-related hazards can be described as a ``great natural catastrophes" if it results in any one or a combination of the following attributes: i) number of fatalities exceeds 2,000; ii) number of homeless exceeds 200,000; iii) the country's Gross Domestic Product (GDP) severely declines; and/or iv) the country is dependent on international aid

[44] See: Intergovernmental Panel on Climate Change, *Has there been a Change in Extreme Events like Heat Waves, Droughts, Floods and Hurricanes?*

hurricanes[45] and other extreme events including droughts, heat waves and floods. The IPCC describes risks of extreme weather events as one of five special `reasons for concern' about climate change, along with risks to unique and threatened systems, the distribution of impacts and vulnerabilities (``those in the weakest economic position are often the most vulnerable to climate change''), aggregate impacts, and risks of large-scale singularities.[46] On hurricanes, the IPCC explains: ``Globally, estimates of the potential destructiveness of hurricanes show a substantial upward trend since the mid-1970s, with a trend towards longer storm duration and greater storm intensity, and the activity is strongly correlated with tropical sea surface temperature''.[47] This accords with the basic science of hurricanes, which are driven by the latent heat in water vapour and gain strength from travelling over warmer water.

Graphic could be included: Global trend for great natural catastrophes (as defined by Munich Re) since 1980.

In Canada, temperatures have warmed by an average of 0.24°C per decade, as indicated by data dating from the first official records of temperature conditions in 1948 through to 2010. This figure represents twice the global average, with temperature rises in the far north occurring at rates three times faster. The average national temperature in 2010 reached 3.0°C above normal, making it the hottest year on nationwide records.

Sources would be welcome here

Precipitation levels in Canada have risen during the past half-century, with mean national levels increasing by about 12%. This averages to about 20 more days of rain nation-wide compared with the 1950s. As climate change accelerates, and the rate of warming increases, the conditions for more volatile weather patterns become more common. Trends consistent with projections of climate models show increasing occurrence of extreme weather in Canada that can be traced back into the early 20th century. For instance, Figure X shows the increase in weather-related disasters in Canada over 100 years.

Do you have such a figure?

These are contrasted to the number of geophysical disasters (earthquakes and landslides) that took place over the same time period, which has remained fairly consistent.

Citation needed

[45] Knutson and Tuleya, ``Impact of CO_2 - Induced Warming on Simulated Hurricane Intensity and Precipitation: Sensitivity to the Choice of Climate Model and Convective Parameterization''.

[46] Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*, See: "The long-term perspective" *https://www.ipcc.ch/publications_and_data/ar4/syr/en/spms5.html*".

[47] Intergovernmental Panel on Climate Change, *Has there been a Change in Extreme Events like Heat Waves, Droughts, Floods and Hurricanes?*

With an influx of extreme weather comes mounting costs for dealing with such events. The NRTEE projected that total costs associated with climate change could reach between $21 billion and $43 billion a year by the 2050s.[48] The range of estimates reflects uncertainty about the extent of action taken to reduce GHG emissions as well as other economic and population growth factors. Similarly, a report by the Institute for Catastrophic Loss Reduction (ICLR) for the Insurance Bureau of Canada (IBC) outlines trends of insured losses from severe weather and natural catastrophes both internationally and within Canada. The report reveals that financial impacts have ranged from between $10 and $50 billion dollars a year internationally since 2002, and with levels exceeding $100 billion in 2011.[49] Within Canada, property insurance claims resulting from severe weather-related events from 2010-2012 have cost roughly $1B a year. The report outlines a number of specific examples of such claims, including:

- A severe wind and thunderstorm that took place on in June of 2010 in and around Leamington in Southern Ontario caused approximately $120 million worth of insured losses to both business and residential properties.
- Areas in Southern Alberta experienced a similar storm that resulted in excessive damage to private and commercial properties as well as automobiles that totalled over $500 million in losses.

As the report details, claims resulting in both severe and smaller-impact weather events represent significant property damage for consumers, with losses driven in large part from aging sewage and water infrastructure that cannot handle the new higher precipitation levels; in fact, a rise in water levels for water-related insurance claims now ``surpass[es] fire as the number one cause of home insurance losses in many parts of the country".[50] The report also details projections running through the 2050s of extreme weather events in Canada, including hot days per year, wildfires, hail and ice storms, tornadoes, and heavy rainfall events, and includes recommendations for dealing with the expansion of insurance-related losses nationwide.

In a report for Ceres --- a network of investors, companies, and public interest groups seeking to accelerate and expand the adoption of sustainable business practices --- Sharlene Leurig evaluated the threat of climate change to insurers. She concluded that: ``This changing climate will profoundly alter insurers' business landscape, affecting the industry's ability to price physical perils, creating potentially vast new liabilities and threatening the performance of insurers' vast investment portfolios".[51] A climate

[48] National Round Table on Energy and the Environment, *Paying the Price: The Economic Impacts of Climate Change for Canada*, p.15.
[49] The Institute for Catastrophic Loss Reduction, *Telling the Weather Story*, p. 5.
[50] Ibid., p. 7.
[51] Leurig, *Climate Risk Disclosure By Insurers: Evaluating Insurer Responses to the NAIC Climate Disclosure Survey*, p. 9.

that is changing increasingly rapidly is associated with severe weather, damage to infrastructure, and soaring costs. This corresponds with the finding of the NRTEE that ``[g]lobal mitigation leading to a low climate change future reduces costs to Canada in the long term".[52]

Increased risks to human health

The impact of climate change on human health is no longer a contested issue, with major national and international organizations like the World Health Organization (WHO), Health Canada, the Centres for Disease Control and Prevention (CDC) and others recognizing both its existing impacts and its ongoing risks. The WHO, for example, asserts that ``the health effects of a rapidly changing climate are likely to be overwhelmingly negative, particularly in the poorest communities, which have contributed least to greenhouse gas emissions" and acknowledges the increasingly damaging impact of an ever-warmer climate on numerous social and environmental health determinants, including clean air, water, food and shelter.[53]

The negative effects of climate change on human health can be traced back almost forty years. For example, a 2009 WHO report entitled *Global health risks: Mortality and Burden of Disease Attributable to Selected Major Risks* found that the modest increase in global temperature between 1970-2004 was the cause of over 140,000 deaths per year.

The report is here, but I cannot find this figure: http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf Please provide a page number or corrected text.

The report explains that:

> Potential risks to health include deaths from thermal extremes and weather disasters, vector-borne diseases, a higher incidence of food-related and waterborne infections, photochemical air pollutants and conflict over depleted natural resources. Climate change will have the greatest effect on health in societies with scarce resources, little technology and frail infrastructure. Only some of the many potential effects were fully quantifiable; for example, the effects of more frequent and extreme storms were excluded. Climate change was estimated to be already responsible for 3% of diarrhoea, 3% of malaria and 3.8% of dengue fever deaths worldwide in 2004. Total attributable mortality was about 0.2% of deaths in 2004; of these, 85% were child deaths. In addition, increased temperatures hastened as many as 12 000

[52] National Round Table on Energy and the Environment, *Paying the Price: The Economic Impacts of Climate Change for Canada*, p. 16.
[53] World Health Organization, *Climate and health: Fact sheet, July 2005*.

additional deaths; however these deaths were not included in the totals because the years of life lost by these individuals were uncertain, and possibly brief.[54]

A more recent study commissioned by 20 governments around the world estimates that this number has grown to approximately 400,000 climate-related deaths per year. The report finds that ``Climate change has already held back global development; it is already a significant cost to the global economy."[55] The report also explains 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. This implies that a combined climate-carbon crisis is estimated to claim 100 million lives between now and the end of the next decade."[56] According to a Health Canada assessment, the most significant impacts to human health driven by changes in climate are linked to temperature stress, extreme weather, rodent and water-borne diseases, ultraviolet radiation, and air pollution.[57] [58] The report describes how ``the economic costs of extreme events in this country are rapidly increasing, as is the number of people affected by natural disasters" and that ``[s]uch events and other climate-related hazards (e.g. smog, food-, water-, vector- and rodentborne diseases) continue to pose significant short- and long-term risks to the health and well-being of Canadians and their communities".[59]

It is generally accepted that the greatest impacts of ongoing climate change will be felt by people in low-income countries, as regions with weak health or governmental infrastructure will not have the capacity to respond to consequences of climate change appropriately. Particularly hard hit will be children, the elderly, people with illnesses or infirmities, and people with pre-existing medical conditions. As the WHO report details, a number of the fatal diseases already affecting these populations, such as diarrhea and other digestive ailments, malnutrition, and malaria, are ``highly climate-sensitive and are expected to worsen as the climate changes".

I cannot find this quote. Please provide a page number or change it. `http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.pdf`

Indeed, a growing body of literature is drawing attention to the incommensurate impacts of climate change on vulnerable and marginalized populations.

These citations are not provided with sufficient details to actually locate them. Please provide titles

[54] World Health Organization, *Global health risks: Mortality and Burden of Disease Attributable to Selected Major Risks*, p. 24.
[55] DARA International, *Climate Vulnerability Monitor: A Guide to the Cold Calculus of A Hot Planet*, p. 16.
[56] Ibid., p. 17.
[57] Health Canada, *Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacity*.
[58] Notably, this is one of many climate science reports produced by Canadian civil servants and essentially `buried' by the government of Stephen Harper. Planned coast-to-coast press conferences were cancelled, the report was released without publicity, and the report is not available through the Health Canada website.
[59] Health Canada, *Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacity*, p. 432.

and ideally URLs: (Global Forum for Health Research 2010; Costello et al. 2009; Commission on Social Determinants of Health 2008).

In Canada, the relationship of health disparities to climate change impacts and adaptation is a newly emerging area of study. Recent reports predict that hotter city temperatures will lead to between five and 10 additional deaths per 100,000 people per year by 2050 as well as contribute to increasing pressure on Toronto hospitals due to sickness and other heat-related conditions that could swell associated costs to between $3 million to $8 million annually by the 2050s.[60] The NRTEE concluded that climate change ``will lead to warmer summers and poorer air quality, resulting in increased deaths and illnesses in the four cities studied — Montréal, Toronto, Calgary, and Vancouver" and that this will impose costs on the health care system of between $3 million and $11 million per year by the 2050s.[61]

Ecosystem collapse

Threats to First Nations groups and indigenous cultures

Threats to the infrastructure of cities, including Toronto

Abrupt and non-linear adverse climate impacts

3.3 The harm caused is inherent to the primary business of fossil fuel companies

All the social injuries described above are imposed on innocent parties by fossil fuel companies in the course of their fundamental business activity of digging up coal, oil, and gas. These harms are inseparable from the continuation and expansion of these core business activities. As a result, shareholder voice is not an effective strategy for mitigating these harms. The value of these companies also reflects the assumption that these reserves will be extracted and burned. The University of Toronto's investments in these companies increase the amount of harm that will arise as a result of climate change.

Divestment is the only way for the University of Toronto to avoid contributing financially to the fossil fuel industry, and by extension, to the socially injurious impacts delineated above. Besides divestment, another approach to socially responsible investment is to try to alter a firm's behaviour by applying pressure through shareholder voice. However, the harmful activities (extracting and selling fossil fuels) are inherent to the primary business of fossil fuels companies in which the university is invested. In this sense, investments in fossil fuel companies closely parallel investments in tobacco companies; in both

[60] National Round Table on Energy and the Environment, *Paying the Price: The Economic Impacts of Climate Change for Canada*, p. 87.
[61] Ibid., p. 16.

cases, the problem is the primary product being produced by the industry.

For example, Shell Canada lists its business activities as follows: ``Shell Canada's Upstream businesses explore for and extract natural gas, and market and trade natural gas and power. Our Downstream business refines, supplies, trades and ships crude oil worldwide and manufactures and markets a range of products, including fuels, lubricants, bitumen and liquified petroleum gas (LPG) for home, transport and industrial use."[62] ExxonMobil describes its upstream and downstream activities similarly.[63]

Given the centrality of oil and natural gas extraction, as well as the refinement and sale of these resources to the business models of these companies, shareholder voice would not be an effective method to address social injury since the companies could not abandon the socially injurious activity without dissolving their existing business models. Moreover, the market value of these companies reflects an assumption that their reserves will be extracted and burned. Therefore, it would be unreasonable for the University of Toronto to expect to be able to alter the socially injurious activities of these companies while holding onto its investments in the fossil fuel industry. Thus, divestment is the only appropriate response for the University of Toronto to adopt in order to dissolve any financial complicity in the fossil fuels industry's socially injurious activities.

3.4 The business activities of these companies frustrate the enforcement of the rules of domestic and international law intended to protect individuals against deprivation of health, safety, and basic freedoms

The socially injurious activities of fossil fuel companies frustrate the enforcement of rules of domestic and international law intended to protect individuals against deprivation of health, safety and basic freedoms.

The section below needs a fair amount of work. We need to go beyond pointing to very general rights in the constitution and international legal documents and work toward a convincing legal case.

First, these activities undermine the *Canadian Charter of Rights and Freedoms*. Section 7 states ``the right to life, liberty and security of the person and the right not to be deprived thereof except in accordance with the principles of fundamental justice." Since life and security of the person depend on a healthy environment, implicit in this statement is the right to a healthy environment. By contributing to increasingly dangerous global climate change, the activities of companies in the fossil fuels industry undermine the right to life by depriving people of the benefits of a healthy environment.

[62] Shell Canada, *Shell At a Glance*.
[63] ExxonMobil, *Exxon: What We Do*.

In addition, numerous pieces of Canadian environmental legislation explicitly recognize and seek to protect the right to a healthful environment. The *Ontario Environmental Bill of Rights* (1993) recognizes the ``inherent value of the natural environment'' and states that ``the people of Ontario have the right to a healthful environment'' and ``have as a common goal the protection, conservation and restoration of the natural environment for the benefit of present and future generations.'' The purposes of the act are:

1. to protect, conserve and, where reasonable, restore the integrity of the environment by the means provided in this Act;
2. to provide sustainability of the environment by the means provided in this Act; and
3. to protect the right to a healthful environment by the means provided in this Act. 1993, c. 28, s. 2 (1).

Legislation cited here should be cited using the same LaTeXfootnote system employed through the rest of the brief.

The above purposes include the following:

1. The prevention, reduction and elimination of the use, generation and release of pollutants that are an unreasonable threat to the integrity of the environment.
2. The protection and conservation of biological, ecological and genetic diversity.
3. The protection and conservation of natural resources, including plant life, animal life and ecological systems.
4. The encouragement of the wise management of our natural resources, including plant life, animal life and ecological systems.
5. The identification, protection and conservation of ecologically sensitive areas or processes. 1993, c. 28, s. 2 (2).

The activities of fossil fuel companies frustrate all of the above purposes by contributing to climate change, thereby undermining the right to a healthy environment of the people of Ontario.

More specific examples of how each of these purposes are challenged by climate change should be added.

Environmental laws for other provinces of Canada recognize and seek to protect the same right to a healthy environment.

For example, Part 1, section 6 of the *Yukon Environment Act* states that: ``The people of the Yukon have the right to a healthful natural environment." In accordance with this right, the Act seeks to protect the environment of the Yukon by providing an appropriate process to assess the environmental effects of projects and activities in the Yukon or that may have effects in the Yukon. Similarly, the *Northwest Territories Environmental Rights Act* recognizes that ``the people of the Northwest Territories have the right to a healthy environment and a right to protect the integrity, biological diversity and productivity of the ecosystems in the Northwest Territories" and establishes the means by which individuals can act to protect the environment from harm. By pursuing the extraction of fossil fuels, the companies in question undermine the right to a healthy environment that these acts articulate and protect. Finally, Quebec's *Environmental Quality Act* states that, ``Every person has a right to a healthy environment and to its protection, and to the protection of the living species inhabiting it, to the extent provided for by this Act and the regulations, orders, approvals and authorizations issued under any section of this Act and, as regards odours resulting from agricultural activities, to the extent prescribed by any standard originating from the exercise of the powers provided for in subparagraph 4 of the second paragraph of section 113 of the Act respecting land use planning and development" (chapter A-19.1).

Should we be including legislation from provinces other than Ontario? If so, it should be cited in the standard way for the brief.

The activities of the fossil fuels industry in Canada also violate the constitutional and treaty rights of Canada's First Nations. These violations arise both from the specific impact of fossil fuel development projects --- such as the oil sands --- and from the inevitable consequences of burning fossil fuels. Rights that are being violated include the right to consultation and accommodation; the right to waters and land and to fish, hunt and trap; and the aboriginal rights affirmed in Canada's constitution.

Keepers of the Athabasca member Vivienne Beisel explains how the oil sands development has violated Treaty 8 and the Constitution: ``The cumulative impacts of oil sands development has all but destroyed the traditional livelihood of First Nations in northern Athabasca watershed. The law is clear that First Nations must be consulted whenever the province contemplates action that may negatively affect Aboriginal and treaty rights... The province has continued to issue approvals for new developments without obtaining their consent or consulting with First Nations in a meaningful and substantial way. This is in direct breach of Treaty 8 First Nations' treaty-protected Aboriginal rights to livelihood, and thus a violation of s.35(1) of the Constitution"'.

MIE HAD THIS TEXT, BUT I DON'T THINK IT ADDS TO OUR CASE ``and Articles 26 and 27 of the United Nations Declaration on the Rights of Indigenous Peoples, an international agreement which Canada, along

with three other nations, has refused to sign." We need to add information on how the rights of aboriginals in Ontario specifically risk being violated by fossil fuel companies.

Finally, the activities of the fossil fuels companies in which the University of Toronto is invested frustrate international law. First, Article 3 of the *Universal Declaration of Human Rights* states that ``Everyone has the right to life, liberty and security of person." The right to life is a precondition to all other fundamental human rights. The activities of companies in the fossil fuels industry undermine the right to life by depriving people of the benefits of a healthy environment. In addition, the *Hague Declaration on the Environment* (1989), to which Canada is a signatory, makes the link between the right to life and the harmful change effects of climate change explicit: ``The right to live is the right from which all other rights stem. Guaranteeing this right is the paramount duty of those in charge of all States throughout the world. Today, the very conditions of life on our planet are threatened by the severe attacks to which the earth's atmosphere is subjected." In signing onto this Declaration, Canada recognized the reality of the threat to human life posed by climate change and pledged to take measures to address that threat. The University of Toronto's investment in fossil fuels frustrates any efforts Canada has taken or may take in the future to address the problem of climate change by supporting the companies that most significantly contribute to the problem.

Again, this needs to be made more specific both in terms of impacts and in terms of laws. Where possible, we want to be able to point to specific documented effects that contravene specific pieces of applicable legislation.

The activities of fossil fuel companies are also at odds with the fundamental objective of the *United Nations Framework Convention on Climate Change* (UNFCCC), which was ratified by Canada and which entered into force on March 21st 1994. The UNFCCC affirms the intention of signatories to achieve ``stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". Countries including Canada have since adopted a threshold of 2˚C of global temperature increase above pre-industrial levels as constituting `dangerous' climate change. Achieving this objective requires that most of the reserves of fossil fuel companies be left unburned underground. It also requires the abandonment of projects intended to extract unconventional reserves of fossil fuels, through activities including oil and gas drilling in the arctic, exploitation of the oil sands, and extraction of previously inaccessible oil and gas reserves through hydraulic fracturing.

3.5 Why fossil fuels are like tobacco

Get a working anchor for the link in part 3

In 2007, the University of Toronto decided to divest from tobacco companies, after determining that the case to do so was consistent with university policies. There are several important ways in which the tobacco precedent is relevant to fossil fuel divestment.

Firstly, the scientific case demonstrating the harm caused by tobacco strengthened progressively over the span of decades. Companies were initially willing to challenge these claims, but the weight of evidence eventually made their case untenable. Similarly, the evidence demonstrating the seriousness of anthropogenic climate change has now progressed beyond the point where it can be considered a subject of ongoing academic inquiry and debate.

Secondly, in both the cases of tobacco and fossil fuels the problem is the primary product being produced by the industry. Just as it would be ineffective to use shareholder voice to try to convince a tobacco company to stop producing and selling tobacco, it is implausible that the university could use shareholder activism to convince fossil fuel companies to desist from activities that create and facilitate major greenhouse gas pollution.

Thirdly, both investments in tobacco and fossil fuels challenge the core values of the university.

Get a working link to the tobacco precedent section in part 6 here

Elaborate, and add citations related to the tobacco precedent. Also, consider whether any other previous U of T divestment campaigns can be cited as useful precedents.

4 Divestment is compatible with the university's fiduciary duties

4.1 From the U of T divestment policy

> *(i) prudent investment. The University has a fiduciary duty to manage investments responsibly to maximize return on its investments within a policy risk tolerance as approved by Business Board from time to time.*
>
> ...
>
> *The committee will consider the following guidelines in considering the appropriate response to any request:*
>
> - *the extent and significance of the University's investment in a particular entity. Determination of whether investments are considered significant will depend on the committee's judgment of the relative magnitude of the University's holdings both as a fraction of all University investments and in relation to the market capitalization of the entity under review.*
> - *the degree to which the entity itself is involved in the undesirable activity.*
>
> *Normally, activity is considered significant if more than ten percent of the entity's revenues are derived from the undesirable activity.*

In a report for the Canadian Centre for Policy Alternatives, Marc Lee and Brock Ellis explain that: ``Canada is experiencing a carbon bubble that must be strategically deflated in the move to a clean energy economy".[64] Even with a high estimate of how much of the world's total carbon budget Canada can use up, they conclude that: ``78% of Canada's proven reserves, and 89% of proven-plus- probable reserves... need to remain underground".[65] In short, the business plans and stock market valuations of fossil fuel companies are based on the assumption that they can continue to use the global atmosphere as a free dumping ground for greenhouse gas pollution. As the injury caused by climate change becomes more obvious, it is likely that more governments will step in to regulate greenhouse gas pollution, eventually compelling fossil fuel companies to leave significant reserves unburned. If the damage from fossil fuel burning amounts to $50 per tonne (the low end of Lee and Ellis' estimate) then the damage that burning all Canadian fossil fuels would do amounts to $844 billion, equivalent to two-and-a-half times the market capitalization and nearly twice the total assets of Canadian fossil fuel companies. Based on a

[64] Lee and Ellis, *Canada's Carbon Liabilities: The Implications of Stranded Fossil Fuel Assets for Financial Markets and Pension Funds*, p.5.
[65] Ibid., p.6.

high damage estimate of $200 per tonne, burning Canada's fossil fuel reserves would cause $5.7 trillion in damage --- a figure 17 times larger than the market capitalization of these 144 firms and 13 times larger than their assets. The analysis from Lee, Ellis, and others makes two things clear: burning fossil fuels causes very substantial amounts of social injury, and the prospect of strengthened regulations on greenhouse gas pollution threatens the profitability and stockmarket value of fossil fuel companies.

This section will consider both the financial case for divestment and questions about the practicality of divesting from a financial perspective, including in terms of the fiduciary duties borne by the University of Toronto.

4.2 There is no evidence of a divestment penalty for investors

Several studies have attempted to quantify the financial consequences of taking environmental factors into account in the investment management process. In aggregate, these studies found no significant impact on investment risk in predictive models, nor a performance penalty in tests using historical data.

Historical The UN Environment Program Finance Initiative's analysis of twenty academic studies on the effect of incorporating Environmental, Social and Governance factors in the investment management process found there to be no evidence of a resulting performance penalty. The two reviewed studies that focused specifically on environmental factors found a positive relationship between consideration of those factors and performance.[66] I (Stu) didn't really understand the document. This comment should be clarified.

Risk Based Assessment The aperio group found that divesting from the ``Filthy Fifteen" ``increases absolute portfolio risk by only 0.0006%, or about a half of one one-thousandth of a percent." Even divesting from the entire Fossil Fuel sector only results in a 0.0034% return penalty. In other words, the portfolio does become riskier, but by such a trivial amount that the impact is statistically insignificant.[67]

Forward Looking Carbon Tracker and Standard & Poors together conducted a study on the implications of carbon constraints for credit ratings of the oil and gas sector. Their scenario assumes reducing demand for CO_2-intensive fuels, in line with the internationally recognized limit of a 2ºC rise in global temperatures, and is ``not materially different from the current price deck assumptions." The study concludes with the statement,

[66] United Nations Environment Programme Finance Initiative and Mercer, *Demystifying Responsible Investment Performance: A review of key academic and broker research on ESG factors*.
[67] Geddes, *Do the Investment Math: Building a Carbon-Free Portfolio*.

> ``as the price declines persist in our stress scenario of weaker oil demand, meaningful pressure could build on ratings. First to be affected would be the relatively focused, higher cost producers, and then the more diversified integrated players. In both cases, according to our study, the causes would be a decline in operating cash flows, weakening free cash flow and credit measures, along with less certain returns on investment and less robust reserve replacement."[68]

Thus, not only does divestment present little risk of missing out on improved ratings (and therefore, investment returns), divestment could actually benefit the portfolio, in that it would remove risk of being invested in companies whose ratings only appear to decline in the long term.

4.3 Market capitalization and value at risk

Stated policy objectives are incompatible with the current valuation of fossil fuel reserves

Fossil fuels may provide a hedge against other asset classes, but only in scenarios where unconstrained emissions lead to accelerated and possibly catastrophic warming. The international community is in broad agreement that this must not happen.

Regulatory risk is not adequately priced

As one scenario for the World Energy Outlook in 2012, the International Energy Agency assumes international cooperation to keep CO_2 under 450ppm, which in their model constrains the likelihood of warming greater than 2˚C to 55%. This is in contrast to their baseline New Policies Scenario, which assumes modest reductions in the rate of emissions increase compared to the third scenario, Current Policies. Regarding the effect this policy environment would have on the price of fossil fuels they estimate:

> Compared with the New Policies Scenario, the global oil price in the 450 Scenario in 2035 is $25 per barrel lower and the coal price almost 40% lower. The price for natural gas falls by 23% in Europe and 4% in North America.[69]

For any scenario where emissions are constrained to keep warming under 2˚C, market assumptions regarding the profitability of fossil fuel extraction are necessarily optimistic. Marginal projects will become unprofitable and returns to investors for even the most profitable projects will decline. Indeed, the study conducted by Standard & Poors even indicates near-term threats to the stability of investing

[68] Redmond and Wilkins, *What A Carbon-Constrained Future Could Mean For Oil Companies' Creditworthiness*.
[69] International Energy Agency, *World Energy Outlook: 2012*, p. 257.

in some fossil fuel companies: ``Under our stressed scenario, the ratings on companies with high development and production costs, including those focused on unconventional resources, could see rating pressure build *within one or two years*, especially if the companies are relatively undiversified" (emphasis ours).[70] The study continues, ``We see a deterioration in credit measures for these smaller oil companies over 2014-2015, to a degree that could potentially lead to negative outlook revisions and downgrades over 2014-2017... this could result in an earlier deterioration in our business risk profile assessments." Furthermore, even ``the financial risk profiles of the oil majors would weaken modestly over the next five years."

It is also worth noting that the study claims, ``the core business model [of fossil fuel companies] could come into question," and that ``this could potentially result in *a downgrade of more than one notch* if we were to place less reliance on undeveloped or probable reserves than at present" (emphasis ours).

There is a strong potential for malinvestment in capital-intensive, long-term projects

The IEA's World Energy Outlook (2012) concluded that, ``more than two-thirds of current proven fossil-fuel reserves cannot be commercialized in a 2DegC world before 2050."[71] The Standard & Poors Carbon Tracker Initiative study raises concerns concerning the fossil fuel sector: ``This illustrates to us the apparent divergence between the assets owned by coal, oil, and gas companies and the direction of negotiations at UNFCCC conferences."[72] Indeed, investment in CO2-emissions-enabling infrastructure is contrary to the international community's consensus about the direction of the future.

The persistently high price of fuels on the world market in recent years has lead to unprecedented investment on the part of the fossil fuel industry in projects that were previously deemed too marginal to profitably develop. Development of unconventional hydrocarbon reserves such as tar sands, oil shale, offshore drilling in extremely deep water and the Arctic, hydraulic fracturing and mountaintop removal coal mining entails extremely high capital investment. Scenarios in which carbon emissions are restricted sufficiently to keep global temperatures from rising more than 2°C would likely cripple the return on much of this investment. In anticipating restrictions on carbon emissions, the fossil fuel industry has been pinning its hopes on the development of effective methods of carbon capture and sequestration (CCS).

Despite tremendous investment in CCS technology on the part of both the private and public sectors, economically feasible sequestration of emissions at scales needed to mitigate climate change remains

[70] Redmond and Wilkins, *What A Carbon-Constrained Future Could Mean For Oil Companies' Creditworthiness*.
[71] International Energy Agency, *World Energy Outlook: 2012*.
[72] Redmond and Wilkins, *What A Carbon-Constrained Future Could Mean For Oil Companies' Creditworthiness*.

elusive. There are currently no commercial scale CCS projects in operation on the planet, and in 2008 Cambridge Energy Research Associates (CERA) predicted that it would be another two decades before CCS saw large-scale deployment.[73] According to the Carbon Tracker Initiative, even if CCS is deployed in line with an idealised scenario by 2050, this would only extend fossil fuel carbon budgets by 12-14%, or just 4% of total global reserves.[74] It must be remembered that at the current rate of global carbon emissions, the entire budget of carbon emissions would be spent by the late 2020s, several years before large-scale CCS can be expected to come online.[75]

CCS has many other problems associated with it. For example, CCS would use extra energy, potentially as much as 40% of the power generated by a power station.[76] This reduces the efficiency of the power plant, both increasing financial costs and increasing the amount of fuel needed per energy output, which in turn contributes to the problems associated with fossil fuel extraction. Indeed, the increased cost of the energy provided by CCS-enabled power stations would likely be higher than the cost of energy from renewable sources, and so would almost certainly never be implemented.[77] Storing carbon underground is risky --- safe and permanent storage of CO2 cannot be guaranteed, and even very low leakage rates could undermine any climate mitigation efforts.[78] Finally, money spent on CCS will divert investments away from sustainable solutions to climate change, which the world will need to transfer to eventually, whether or not it burns all the available (non-renewable) fossil fuels. Therefore, pinning our hopes on a non-existent technology, that is likely to both be more expensive and problematic than other energy sources, is a false hope.

Fossil fuel reserves as stranded assets

Given the degree to which proven reserves of carbon exceed allowable emissions for sub-2˚C warming, companies with fossil fuel reserves as their largest assets may be substantially overvalued under current market conditions. Stranded assets in the form of unburnable reserves and large liabilities incurred to develop those reserves combine to create a risk not only to equity, but to bondholders as well. The Carbon Tracker Initiative reports that in 2012 the Fossil Fuel sector spent $674 billion prospecting for new sources of carbon, sources which cannot be exploited if the 2˚C target is to be met.[79]

As the Carbon Tracker Initiative's 2012 report made clear, fossil fuel companies have significantly

[73] Cambridge Energy Research Associates, *Crossing the Divide: The Future of Clean Energy*.
[74] Carbon Tracker Institute, *Unburnable Carbon 2013: Wasted capital and stranded assets*.
[75] Carbon Tracker Institute, *Unburnable Carbon: Are the world's financial markets carrying a carbon bubble*.
[76] Greenpeace, *False Hope: Why carbon capture and storage won't save the climate*.
[77] Nelder, *Why carbon capture and storage will never pay off*.
[78] Greenpeace, *False Hope: Why carbon capture and storage won't save the climate*.
[79] Carbon Tracker Institute, *Unburnable Carbon 2013: Wasted capital and stranded assets*.

more exploitable sources of carbon available than is safe to burn.[80] Therefore, when considering ``What A Carbon-Constrained Future Could Mean For Oil Companies' Creditworthiness," Standard & Poors decided that, ``instead of considering issues of peak oil in terms of supply, this introduces a concept of peak oil demand."[81]

Volatility of investor sentiment

Current market capitalization of the fossil fuel industry rests in part on the assumption that the global investor class will continue to see the sector as a reliable investment even as damage from climate change becomes apparent. This assumption has been increasingly challenged from both outside and within the financial industry. Traditionally conservative-minded publications such as *The Economist*,[82] *Business Week*[83] and the *Financial Times*[84] have published articles suggesting the fossil fuel sector is overvalued. In recent months, other voices within the financial industry such as investor groups and hedge fund managers have been increasingly sounding the alarm over the ``Carbon Bubble".[85] The Guardian recently reported

> The message to all the players across the financial chain, from ratings agencies through accountants, to actuaries, investment advisors and all the rest, is also obvious. If the regulators won't do their job, do it for them. *Jump, before you are pushed* (emphasis ours).[86]

The afore-mentioned Standard & Poors study, which saw a declining trend on both the short-term and long-term outlook for fossil fuel companies (both mid-size and large), reached its conclusion without ``explicitly [factoring in] any mitigating measures such as ... material cuts in near-term capital investment."[87] However, there is already a significant, international fossil-fuel divestment movement that could result in such material cuts: over 300 colleges and universities and over 100 cities and states currently have divestment campaigns, along with several religious institutions. So far, ten cities and four colleges have pledged to divest and the movement is only just getting started. [CITATION NEEDED]

[80] Carbon Tracker Institute, *Unburnable Carbon: Are the world's financial markets carrying a carbon bubble*.
[81] Redmond and Wilkins, *What A Carbon-Constrained Future Could Mean For Oil Companies' Creditworthiness*.
[82] The Economist, *Unburnable fuel*.
[83] Bloomberg Businessweek, *Economist: Energy reserves overvalued by global markets*.
[84] Stern, *A profound contradiction at the heart of climate change policy*.
[85] Hickman, *Jeremy Grantham, environmental philanthropist: 'We're trying to buy time for the world to wake up'*.
[86] J. Leggett and Bill McKibben, *How your pension is being used in a $6 trillion climate gamble*.
[87] Redmond and Wilkins, *What A Carbon-Constrained Future Could Mean For Oil Companies' Creditworthiness*.

4.4 Fossil fuels represent a risk to the university's other investments

Institutional investors, and universities in particular, are unique in that they are often expected to plan financially on a timescale far longer than average. On timescales of 50 years or more, the consequences of unconstrained emissions are very likely to overshadow all other financial considerations. According to a 2012 report by DARA, Climate change is already costing the world more than $1.2 trillion, wiping 1.6% annually from global GDP. By 2030, the researchers estimate, the cost of climate change and air pollution combined will rise to 3.2% of global GDP, with the world's least developed countries forecast to bear the brunt, suffering losses of up to 11% of their GDP.[88] Going further into the future is increasingly hard to predict, with estimates varying widely: the Stern Review estimates losses of between 5%-20%,[89] and a United Nations report asserts that climate change could cost Latin American and Carribean countries 137% of GDP by 2100.[90] However, regardless of the variations of predictions, the trend is crystal clear: the more the climate changes, the greater the reductions to GDP. Therefore, reducing climate change will result ina relatively higher GDP, and so will result in greater returns on the University's investments.

4.5 Attractive substitutes exist for divested equities

There are many attractive alternatives that could form substantial portions of the university's portfolio. The renewable energy sector has enormous growth potential and is starting to match even conventional fossil-fuel energy prices (let alone unconventional energy prices). Unsubsidised renewable energy is now cheaper than electricity from new-build coal- and gas-fired power stations in Australia, according to new analysis from research firm Bloomberg New Energy Finance.[91] Solar power is predicted to be cheaper than fossil fuel power in the USA as soon as 2015.[92] In March 2013, 100% of the new energy on the U.S. grid was solar power.[93]

There are three broad-based mutual funds that are completely fossil free: Green Century Balanced Fund, Porfolio 21 Global Equity Mutual Fund, and Shelton Green Alpha Fund.[94]

[88] DARA International, *Climate Vulnerability Monitor: A Guide to the Cold Calculus of A Hot Planet*.
[89] Stern, *The Economics of Climate Change: The Stern Review*.
[90] Economic Commission for Latin America and the Caribbean, *Economics of Climate Change in Latin America and the Caribbean*.
[91] Bloomberg New Energy Finance, *Renewable Energy Now Cheaper Than New Fossil Fuels in Australia*.
[92] GlobalData, *Grid Parity for Wind and Solar Power - Future Outlook and Impact Analysis*.
[93] Fleischfresser, *Solar power produced 100% of new energy on U.S. grid in March*.
[94] 350.org, *Move My Money*.

4.6 Pensions and climate change

Pensions are intended to allow the pensioner to enjoy a satisfactory, even comfortable, retirement. However, the more the climate changes, the lower the retirees' quality of life will be. A study conducted by the World Bank makes it clear that a 4ºC hotter world will be a much more hostile world than one in which there has only been a 2ºC rise, with 6ºC or greater rises being more hostile still.[95] The previous sections of this brief demonstrate that even a 2ºC rise will result in a greater frequency of natural disasters than the relative climate stability of the development of human civilisation thus far. Indeed, the world's top scientists have calculated that a concentration of CO2 in the atmosphere that is higher than 350ppm is not compatible with the planet ``on which civilization developed and to which life is adapted."[96]

In their report for the Canadian Centre for Policy Alternatives, Marc Lee and Brock Ellis also consider the special question of divestment and pension funds. They highlight how ``[a]ddressing risk is inherent to financial market investment" but point out that ``there has been a general failure to account for climate risks, and a tendency to view any screening for environmental purposes to be detrimental to financial performance".[97] They also argue that: ``by not accounting for climate risk, large amounts of invested capital are vulnerable to the carbon bubble".[98] In assessing the university's obligation toward pensioners, it is also worth thinking beyond the simple metric of the financial performance of their pension funds. Unmitigated climate change is expected to cause substantial harm to both human prosperity and the quality of the natural environment around the world. In his comprehensive study of the economics of climate change, Nicholas Stern concluded that failing to mitigate climate change ``create risks of major disruption to economic and social activity... on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century".[99] Stern projected that up to 20% of global GDP could be swallowed up by damage from climate change. Since the publication of the Stern Review in 2007, Nicholas Stern has stated that they underestimated the threat in their assessment.[100] He has also drawn specific attention to the mismatch between the size of proven fossil fuel reserves and the quantity of fossil fuels that can be burned without exceeding the 2˚C target.[101] In evaluating its obligations to pensioners, the university must consider both their financial welfare (which is threatened

[95] The World Bank, *Turn Down the Heat: Why a 4°C Warmer World Must be Avoided*.
[96] James Hansen, *Target Atmospheric CO_2: Where Should Humanity Aim?*
[97] Lee and Ellis, *Canada's Carbon Liabilities: The Implications of Stranded Fossil Fuel Assets for Financial Markets and Pension Funds*, p.8--9.
[98] Ibid., p.9.
[99] Stern, *The Economics of Climate Change: The Stern Review*, See also: `http://www.hm-treasury.gov.uk/d/Executive_Summary.pdf`.
[100] Adam, *I underestimated the threat, says Stern*.
[101] Stern, *A profound contradiction at the heart of climate change policy*.

by unmitigated climate change) and the kind of impoverished world future pensioners can be expected to inhabit if nothing is done to seriously constrain how much fossil fuel is burned.

It is in the best interests of the future pensioners of the University of Toronto (its current employees) to live in a world with a stable climate. For example, if a 55-year-old college president were to insist today that a portfolio requires fossil fuel investment, then when that president reached the age of retirement, only 11% of the CO_2 released during the class of 2016's education would have left the atmosphere. The same article also highlights the perspective of students:

> ``Even if today's college students live to be 100 years old, more than half of the CO_2 released into the atmosphere during the four years they are in college will still be present there at the end of their lives –-- warming the planet and contributing to extreme events, like droughts, floods, and storms all the while –-- long after the decision makers behind those investment choices will have left office. The college students across the US who are arguing that their education should not be funded by actions that diminish the health of the world in which their future will unfold have a strong case, supported by the basic physics of the climate."[102]

James Powell, former-president of Oberlin, Franklin and Marshall, and Reed College, further reinforces this concept, suggesting that trustees have a quasi-legal duty to do all they can about climate change. ``The board is supposed to make sure that the endowment allows for intergenerational equity, that the students who are going to Oberlin in 2075 get as much benefit from it as those there now. But with global warming, you're guaranteeing a diminution of quality of life decades out."[103]

Therefore, not only is divestment from the fossil fuel industry a sound financial decision for meeting the financial obligations of prudent investment, the current employees of the University of Toronto will benefit from such divestment.

Notes on this section:

Stuart took over the drafting of this section. This may be a place where we can make especially good use of documents already prepared by other schools, including: (a) schools U of T regards as peers, like Harvard (b) schools in a similar position to U of T, like McGill and UBC and (c) schools that have already divested.

This section also needs to specifically address this section from the Procedures for Responding to Social and Political Issues with Respect to University Divestment: ``the extent and significance of the University's investment in a particular entity. Determination of whether investments are considered significant will depend on the committee's judgment of the relative magnitude of the University's holdings both as a fraction

[102] Sawin, *Carbon Dioxide Will Persist in the Atmosphere Long After Current Decision Makers Have Left Their Roles: On Ethical Grounds, Young People Should Have a Say*.
[103] McKibben, *The Case for Fossil-Fuel Divestment*.

of all University investments and in relation to the market capitalization of the entity under review."

It is virtually certain that the ad hoc committee will consider the special responsibility the university has toward current and future retirees. We need to make the case that (a) divestment is a sound financial decision for meeting those obligations and (b) if current employees want a decent retirement, dangerous climate change must be avoided.

5 Actions have been taken by the Canadian government and international bodies on this issue

All three levels of Canada's government have taken action in response to the threat of climate change.

5.1 From the U of T divestment policy

> *Responses should be based on the following principles:*
>
> ...
>
> *(iii) actions taken by the Canadian government or other national or international bodies with regard to the particular issue of concern.*

5.2 Federal government

Emission standards for passenger vehicles and light trucks In November 2012, proposed regulations were released for vehicles beginning with the 2017 model year. Average emissions from vehicles in 2025 are expected to be 50% of those sold in 2008.[104]

Heavy duty vehicles In April 2012, the federal government released regulations for heavy duty vehicles beginning with the 2014 model year.[105]

Coal-fired power plants In September 2012, final regulations were introduced to limit emissions from the coal-fired electricity sector.[106]

Renewable fuel requirement As of December 2010, gasoline is required to contain an average of 5% renewable content, with a 2% requirement for diesel fuel.[107]

Carbon capture and storage (CCS) Canada's federal and provincial governments have committed a total of approximately $3 billion in funding for CCS, which could lead to as many as five to six large-scale demonstration projects in Canada.[108]

[104] Environment Canada, *Reducing Greenhouse Gases*.
[105] Ibid.
[106] Environment Canada, *Harper Government Moves Forward on Tough Rules for Coal-Fired Electricity Sector*.
[107] Environment Canada, *Reducing Greenhouse Gases*.
[108] Ibid.

Agricultural greenhouse gases Canada is contributing $27 million toward the Global Research Alliance on Agricultural Greenhouse Gases, a group created to advance research, technology transfer, and adoption of beneficial management practices to mitigate agricultural greenhouse gases.[109]

5.3 Government of Ontario

Emission reduction targets The Government of Ontario has legislated greenhouse gas emission reduction targets of 6% below 1990 levels by 2014, 15% below by 2020, and 80% below by 2050.[110]

Phasing out coal The Government of Ontario has committed to phasing out coal-fired electricity generation by 2014.[111]

Public transit investments The Ontario government is contributing over $9 billion to the Metrolinx Regional Transportation Plan.[112]

Green Energy Act Ontario's 2009 Green Energy Act created a system of feed-in tariffs to support the deployment of renewable energy options including solar photovoltaic, biogas, biomass, landfill gas, and wind power.[113] It established a right for all renewable energy projects to be connected to the grid, streamlined the approval process for green energy projects, and began the implementation of a `smart' energy grid.

Forest protection Ontario has protected roughly half of the province's boreal forest from mining and forestry, motivated in part by the forest's importance as a carbon sink.[114]

Establishment of a Climate Change Secretariat In 2008, the province created a permanent secretariat to coordinate its *Climate Change Action Plan*.[115]

Community Go Green Fund The province provided $6 million to 90 community groups in order to help charitable or environmental organizations, youth or cultural associations, educational institutions and Aboriginal communities reduce their carbon footprint.[116]

[109] Environment Canada, *Reducing Greenhouse Gases*.
[110] Ontario Ministry of the Environment, *Climate Change - Greening Our Ways*.
[111] Government of Ontario, *Ontario Regulation 496/07: Cessation of Coal Use – Atikokan, Lambtom, Nantcoke and Thunder Bay Generating Stations*.
[112] Ontario Ministry of the Environment, *Climate Change - Greening Our Ways*.
[113] Ontario Ministry of the Environment, *Green Energy Act*.
[114] ForestEthics, *Robbing the Carbon Bank: Global Warming & Ontario's Boreal Forest*.
[115] Ontario Ministry of the Environment, *Climate Change - Greening Our Ways*.
[116] Ibid.

5.4 City of Toronto

Climate Change Action Plan

The city's Climate Change, Clean Air and Sustainable Energy Action Plan was unanimously adopted by Toronto City Council in July 2007. The city allocated over $1 billion over the next five years to projects to reduce greenhouse gas emissions.[117]

These commitments included:

- $67 million for the Better Building Partnership and the Sustainable Energy Funds, which are low interest revolving loan funds that support energy conservation and renewable energy
- $136 million for energy retrofits to and installation of renewable energy systems on City owned buildings;
- $24 million for tree planting, in addition to the $40 million a year operating budget for the city's Forestry Unit;
- $36 million to accelerate implementation of the City's Bike Plan;
- $20 million for the Live Green Toronto program which provides support for neighbourhood and community groups in taking action on Climate Change;
- $10 million for continued conversion of traffic signals to LED lights;
- $7 million for the Clean Roads to Clean Air street sweeping initiative;
- $186 million for water efficiency and improved energy efficiency in Toronto Water operations that will achieve an annual avoidance of an estimated 14,000 tonnes of greenhouse gas emissions;
- $21 million for methane gas capture and control at closed and operating landfills;
- $67 million to build anaerobic digestion facilities that will capture biogas from collected Green Bin organic materials and generate enough electricity to power an estimated 1,700 homes;
- $380 million to improve rapid transit services, such as, new light rapid transit lines, rapid transit routes for buses and an improved signalling system that will increase the capacity of the Yonge subway line;
- $400 million for the purchase of electric-hybrid buses; and

[117] Toronto Environment Office, *Climate Change, Clean Air and Sustainable Energy Action Plan.*

- $10 million plus for a range of initiatives including the Green Fleet Transition, the Eco-Roofs and Greenroofs Incentive programs, and support initiatives that promote production and consumption of locally grown food.

These investments are specifically justified with reference to the danger of climate change, with expected impacts on the city including rising mean temperatures, warmer winters, changes in disease vectors, changes in precipitation patterns, increased extreme weather, falling lake and stream levels, and rising sea levels.[118]

The City of Toronto has also committed to specific greenhouse gas reduction targets, starting with the city's 1990 baseline level of approximately 22 million tonnes per year:[119]

- 6 percent by 2012 (1,320,000 tonnes per year)
- 30 percent by 2020 (6,600,000 tonnes per year)
- 80 percent by 2050 (17,600,000 tonnes per year)

Other actions taken by the city include:

Adaptation The city is making efforts to prepare for the impacts of climate change, through programs and policies including Toronto's Heat Alert system and Hot Weather Response Plan, The Wet Weather Flow Master Plan, Green Roof Pilot Incentive Program, Deep Lake Water Cooling (Enwave), Peaksaver and Keep Cool Programs (Toronto Hydro), Green Development Standard, and Better Buildings Partnership.

Great Lakes Climate Change Policy Coordination Along with 10 other cities in the Great Lakes region, Toronto is working to develop an international city-level policy on climate change.

Live Green Toronto This five-year, $20-million dollar program is intended to promote and support actions by residents and community groups to reduce emissions, clean our air and protect our climate.

Landfill gas The City of Toronto collects and burns landfill gases that are emitted at its three largest landfill sites: Keele Valley, Brock West and Beare. The city explains that: ``the process of collecting and incinerating landfill gases is crucial to the goal of combating the emission of greenhouse gases into the atmosphere".City of Toronto, *Toronto Atmospheric Fund - Emission reduction*

[118]Toronto Environment Office, *Climate Change, Clean Air and Sustainable Energy Action Plan*.
[119]City of Toronto, *Toronto Atmospheric Fund - Emission reduction*.

Greenhouse Gas and Air Emissions Inventory In 2007, the city completed a combined greenhouse gas and air quality emissions inventory, with information about energy consumption and pollutants within the city.

Concern about oil sands pipelines The Toronto City Council has expressed its desire to review the application of Enbridge to reverse their Line 9 pipeline to carry diluted bitumen from the oil sands. The city may apply to become an intervenor in the National Energy Board process.

5.5 Actions taken by other national bodies

The extensive actions undertaken by other countries demonstrates the seriousness of climate change. In many cases, they have implemented significantly more ambitious policies than those enacted in Canada to date. This action demonstrates how, in the view of the world's major governments, the need to mitigate climate change is not properly the subject of academic inquiry and debate.

United States

Federal government

At the federal level, the White House under the leadership of President Obama has taken many steps towards mitigating and adapting to climate change.[120][121][122]

Monitoring Emissions The United States is comprehensively cataloguing greenhouse gas emissions from its largest emitting sources.

Government Procurement and Energy Consumption President Obama directed the Federal Government – the largest energy consumer in the U.S. economy – to reduce its greenhouse gas emissions from direct sources such as building energy use and fuel consumption by 28 percent by 2020. He also directed Federal agencies to reduce their greenhouse gas emissions from indirect sources, such as those from employee commuting, by 13 percent by 2020.

Creation of the Climate Change Adaptation Task Force (CCATF) and the U.S. Global Change Research Program The CCATF recommends how Federal agency policies and programs can better prepare the United States to address the risks associated with a changing climate. The USGCRP is a collaborative effort involving 13 Federal agencies to evaluate the current and future impacts of climate change,

[120]The White House, *Climate Change*.
[121]The White House, *Climate Change Adaptation Task Force*.
[122]The White House, *Develop and Secure America's Energy Resources*.

inform policy-makers and the public about scientific findings, and investigate effective ways to reduce greenhouse gas emissions and deploy cost-effective clean energy technology.

Investing in Clean Energy With the support of administration policy, the U.S. has nearly doubled renewable energy generation from wind, solar, and geothermal sources since 2008. Since 2009, the Department of Interior has approved 29 onshore renewable energy projects, including 16 solar, 5 wind, and 8 geothermal projects. Moving forward, the Department of Interior is committed to issuing permits for 10,000 megawatts of renewable power on public lands and in our offshore waters by the end of 2012, enough to power 3 million homes. In 2010, President Obama also set a goal of breaking ground on at least four commercial scale cellulosic or advanced biorefineries by 2013. That goal was accomplished a year ahead of schedule.

Smart Grid In 2011, the Administration announced that it would accelerate the permitting review of seven proposed electric transmissions lines. These infrastructure projects, when built, will increase grid capacity, facilitating better integration of renewable energy sources, avoiding blackouts, and helping to accommodate the growing number of electric vehicles on the road. The Administration also launched a Green Button initiative in 2011 to empower Americans to reduce energy use in their homes. Already, utilities across the country have committed to providing 27 million households with access to data about their own energy use with a simple click of an online ``Green Button" that will help them reduce waste and shrink their energy bills.

Clean Energy Research & Development In 2009, the Administration funded the Department of Energy's Advanced Research Project Agency-Energy (ARPA-E), which focuses on "out-of-the-box" transformational energy research that brings together the nation's best scientists, engineers, and entrepreneurs. Building upon the initial investment, in late September 2011, the ARPA-E program announced 60 cutting-edge research projects in 25 states. In total, The ARPA-E has supported more than 120 individual projects.

Clean Energy Innovation Hubs The Administration also launched a series of clean energy innovation hubs, which bring together teams of the best researchers and engineers in the United States to solve major energy challenges. The hubs will focus on improving batteries and energy storage, reducing constraints from critical materials, developing fuels that can be produced directly from sunlight, improving energy efficient building systems design, and using modelling and simulation for advanced nuclear reactor operations.

The President's Better Buildings Challenge The President's Better Buildings Challenge has set a goal to improve the energy efficiency of commercial buildings by 20 percent by 2020. The Administration has also partnered with manufacturing companies, representing over 1,400 plants, to improve energy efficiency by 25 percent over 10 years.

The Environmental Protection Agency (EPA)

The EPA develops standards for greenhouse gas emissions from mobile and stationary sources under the Clean Air Act. Its federal regulatory activities are in addition to its volunteer programs, international partnerships, and partnerships with states and tribes.

Standards to Cut Greenhouse Gas Emissions and Fuel Use for New Motor Vehicles The EPA is enabling the production of a new generation of clean vehicles --- from the smallest cars to the largest trucks --- through reduced greenhouse gas emissions and improved fuel use. Together, the enacted and proposed standards are expected to save more than six billion barrels of oil through 2025 and reduce more than 3,100 million metric tons of carbon dioxide emissions

Renewable Fuel Standard Program A set of regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. By 2022, the Renewable Fuel Standard (RFS) program will reduce greenhouse gas emissions by 138 million metric tons, about the annual emissions of 27 million passenger vehicles, replacing about seven percent of expected annual diesel consumption

Proposed Carbon Pollution Standard for New Power Plants On March 27, 2012, EPA proposed a Carbon Pollution Standard for New Power Plants that would, for the first time, set national limits on the amount of carbon pollution that power plants can emit. The proposed rule, which applies only to new fossil-fuel-fired electric utility generating units, will help ensure that current progress continues toward a cleaner, safer, and more modern power sector.

Oil and Natural Gas Air Pollution Standards On April 18, 2012, EPA finalized cost effective regulations to reduce harmful air pollution from the oil and natural gas industry, while allowing continued, responsible growth in U.S. oil and natural gas production. The final rules are expected to yield a nearly 95 percent reduction in VOC emissions from more than 11,000 new hydraulically fractured gas wells each year. The rules will also reduce air toxics and emissions of methane, a potent greenhouse gas.

Geologic Sequestration of Carbon Dioxide The EPA has finalized requirements for geologic sequestration, including the development of a new class of wells, Class VI, under the authority of the Safe Drinking Water Act's Underground Injection Control Program.

The EPA is also taking adaptation measures. These include:

- The Climate Ready Estuaries program works with the National Estuary Programs and the coastal management community to: (1) assess climate change vulnerabilities, (2) develop and implement adaptation strategies, and (3) engage and educate stakeholders.
- The EPA's Climate Ready Water Utilities (CRWU) initiative assists the water sector, which includes drinking water, wastewater, and stormwater utilities, in addressing climate change impacts.

Some federal departments are also taking actions specific to their purview. For example, the Department of Transportation's Congestion Mitigation and Air Quality (CMAQ) Improvement Program provides over $8.1 billion dollars in funds to State DOTs, MPOs, and transit agencies to invest in projects that reduce emissions from transportation-related sources. Since October 2009, the Department of Energy and the Department of Housing and Urban Development have jointly completed energy upgrades in more than one million homes across the country.

Regional/State/Local level

This is the only place in the brief where we include raw URLs right in the brief text

There are a vast number of initiatives happening across the U.S. at the regional, state, and local levels. Due to the sheer volume, these initiatives cannot possibly be catalogued in this space. However, the Department of Transportation has two useful web-pages with links to various databases and initiatives across the country.

- Local action: `http://climate.dot.gov/state-local/local-action-plans.html`
- Regional initiatives: `http://climate.dot.gov/state-local/regional-initiatives.html`

One initiative notable for its aggressiveness in tackling climate change is California Senate Bill X1-2. SBX1-2 directs California Public Utilities Commission's Renewable Energy Resources Program to increase the amount of electricity generated from eligible renewable energy resources per year to an amount that equals at least 20% of the total electricity sold to retail customers in California per year by December 31, 2013, 25% by December 31, 2016 and 33% by December 31, 2020.

Joint State-Provincial Initiatives

There are several cross-border initiatives between U.S. states and Canadian provinces that are working to address climate change. These initiatives have been designed to reduce GHG emissions, develop clean energy sources, and achieve other environmental and economic goals.[123] They include:

- North America 2050: *http://www.c2es.org/us-states-regions/regional-climate-initiatives#NA2050*
- Western Climate Initiative: *http://www.c2es.org/us-states-regions/regional-climate-initiatives#WCI*
- Regional Greenhouse Gas Initiative: *http://www.c2es.org/us-states-regions/regional-climate-initiatives#RGGI*
- Midwest Greenhouse Gas Reduction Accord: *http://www.c2es.org/us-states-regions/regional-climate-initiatives#MGGRA*
- Transportation and Climate Initiative *http://www.c2es.org/us-states-regions/regional-climate-initiatives#TCI*

United Kingdom

The Climate Change Act 2008 made the UK the first country in the world to have a legally binding long-term framework to cut carbon emissions. It introduced a long-term framework for managing emissions through a system of national carbon budgets: caps on the total quantity of greenhouse gases permitted in the UK over a specified time. Each carbon budget covers a five year period, with the first three carbon budgets running from 2008 to 2012, 2013-2017 and 2018-2022. During these periods, emissions must be reduced (from 1990 levels) by 22%, 28% and 34% respectively.

The Act also created a framework for building the UK's ability to adapt to climate change, including:

- a UK-wide Climate Change Risk Assessment that must take place every five years
- a National Adaptation Programme which must be put in place and reviewed every five years to address the most pressing climate change risks to the UK
- a mandate giving the government the power to require 'bodies with functions of a public nature' and 'statutory undertakers' (eg water and energy utilities) to report on what they are doing to address the risks posed by climate change to their work.

The UK Department of Energy & Climate Change has set the following national policies and strategies for combating climate change:

[123] Centre for Climate and Energy Solutions, *Multi-State Climate Initiatives*.

- setting carbon budgets to limit the amount of greenhouse gases the UK is allowed to emit over a specified time
- using statistics on greenhouse gas emissions and further evidence, analysis and research to inform energy and climate change policy
- using the EU Emissions Trading Scheme (EU ETS) to meet over 50% of the UK's carbon emissions reduction target between now and 2020
- using a set of values for carbon to make sure project and policy appraisals account for their climate change impacts
- using the 2050 Calculator to let policy makers and the public explore the different options for meeting the 2050 emissions reduction targets

Reducing the demand for energy and helping people and businesses to use energy more efficiently:

- reducing demand for energy with smart meters and other energy-efficient measures for industry, businesses and the public sector
- reducing emissions by improving the energy efficiency of properties through the Green Deal
- providing incentives for public and private sector organisations to take up more energy-efficient technologies and practices through the CRC Energy Efficiency Scheme
- reducing greenhouse gases and other emissions from transport
- reducing greenhouse gas emissions from agriculture

Investing in low-carbon technologies:

- taking action to increase the use of low-carbon technologies and creating an industry for carbon capture and storage
- reducing emissions from the power sector and encouraging investment in low-carbon technologies by reforming the UK's electricity market
- providing over £200 million of funding for innovation in low-carbon technologies from 2011 to 2015

Publicly reporting carbon emissions from businesses and the public sector:

- encouraging corporate reporting of greenhouse gas emissions
- asking English local authorities to measure and report their greenhouse gas emissions

Germany

Targets

In the framework of EU effort sharing under the Kyoto Protocol, Germany has committed itself to cutting its emissions of climate-damaging gases by a total of 21% in the period 2008 to 2012 compared with 1990. In addition, Germany has pledged to reduce its GHG emissions by 40% by 2020, 55% by 2030, 70% by 2040, and by 80-95% by 2050 (compared with 1990 levels). Germany has also set ambitious targets for increasing the share of renewable energy in final energy consumption, with 18% by 2020, 30% by 2030 and by 60% by 2050.

Emissions Trading

Emissions trading in particular makes a significant contribution to emissions reductions in Germany. The climate protection targets for the period 2008 to 2012 have been made significantly more stringent: from 2008, old power plants in Germany will be allocated around 30 percent fewer emission allowances than their current level of emissions. Furthermore, 10 percent of the allowances will be auctioned.

Feed-In Tariff

The use of an adequate, long-term and predictable feed-in tariff encourages the construction of many renewable energy production sites. The differentiated feed-in tariff leads to one of the most diversified ranges of renewable energy technologies used within the European Union.

Integrated Energy and Climate Programme (IECP)

In order to reach the German climate protection goals the Federal Government has elaborated a comprehensive Integrated Energy and Climate Programme (IECP). Its goal is to ensure an ultramodern, secure and climate-friendly energy supply in Germany. It comprises measures for enhanced energy efficiency and expanded use of renewable energy sources.

Measures contained in the IECP include:

Amendment to the Combined Heat and Power Act The share of high-efficiency CHP plants in electricity production will be doubled by 2020 from the current level of around 12 percent to around 25 percent.

Amendment to the Energy Industry Act Liberalising electricity metering will facilitate and promote

innovative metering methods and demand-related, time-variable tariffs. This will enable consumers to reduce their energy costs and will improve the efficiency of the power generation sector.

Report and draft amendment to the Energy Saving Ordinance Energy standards will be tightened by an average 30 percent from 2009. As a second step (planned for 2012), these efficiency standards will be tightened by a further 30 percent.

Clean power plants Standards will be laid down for nitrogen oxide emissions from new power plants.

Guidelines on the procurement of energy-efficient products and services Energy-efficient appliances and services will be promoted through priority procurement.

Amendment to the Renewable Energy Sources Act The government's goal is to increase the share of renewables in the electricity sector from the current level of over 13 percent to 25-30 percent in 2020, and then to continue increasing the level further. The amendment to the Renewable Energy Sources Act contains among other things new provisions for regulating tariffs for offshore wind farms.

Renewable Energies Heat Act The share of renewable energies in heat provision will be increased to 14 percent by 2020. Obligations to use renewable energies in new buildings are laid down in the Renewable Energies Heat Act. Funding for the government support programme for existing buildings will increase - from 130 million euro in 2005 to up to 350 million in 2008 and up to 500 million euro from 2009.

Amendment to the Gas Grid Access Ordinance The amendment to the Gas Grid Access Ordinance will ensure that biogas can be fed into the natural gas grid to a greater extent. A share of 10 percent biogas is possible by 2030.

Amendment to the Biofuel Quota Act The share of biofuels will be increased and from 2015 will be geared more towards reducing greenhouse gas emissions. The amendment to the Biofuel Quota Act will lead to a rise in the biofuels' share to around 20 percent by volume (17 percent by energy content) by the year 2020.

Sustainability Ordinance The Sustainability Ordinance will ensure that when producing biomass for biofuels, minimum requirements for sustainable management of agricultural land and for the conservation of natural habitats are complied with.

Fuel Quality Ordinance The amended Fuel Quality Ordinance will increase the blending limit of bioethanol in petrol fuels from 5 to 10 percent volume. For biodiesel in diesel fuels, this blending limit will increase from 5 to 7 percent volume.

Reform of vehicle tax to a pollutant and CO_2 basis For new vehicles, this tax will then be calculated on the basis of a vehicle's emissions rather than engine capacity as before.

Chemicals Climate Protection Ordinance This Ordinance will reduce emissions of fluorinated greenhouse gases from mobile and stationary cooling installations through provisions on leakproofness and labelling of the installations and on recovery and return of the refrigerants used.

China

China has surpassed the United States as the world's largest greenhouse gas emitter. In 2011, China was the world leader in renewable energy technology investments, spending $52 billion.

Targets

Under China's 12th Five Year Plan, the government set set binding targets to reduce energy consumption per unit of GDP by 16 percent, cut CO_2 emissions per unit of GDP by 17 percent, and raise the proportion of non-fossil fuels in the overall primary energy mix to 11.4 percent. At the Copenhagen Climate Change Summit in 2009, the Chinese government signalled its goal to reduce the carbon emissions intensity per unit of GDP by 40-45% from 2005 levels by 2020.

Transformation and upgrading of traditional industries

Conserving energy and cutting emissions by optimizing and upgrading its industrial structure. The government has stepped up evaluation and examination of energy conservation, environmental impact assessments, and preliminary examination of land used for construction projects. It has raised the entry threshold for certain industries and limited new projects in industries with high energy consumption, high pollutant emissions or excess capacity. It has also controlled the export of products with high energy consumption and high pollutant emissions.

Supporting the development of strategic and newly emerging industries

China has initiated a special fund to boost the development of strategic emerging industries, and expanded its venture capital program for emerging industries. So far 102 venture capital funds have been set up under the program, managing a total of 29 billion yuan. Among these funds, 24, with a total value of 7 billion yuan, are designed to stimulate the development of the energy-saving, environmental protection and new energy sectors.

Carbon pricing

Although this was not included in China's 12th Five Year Plan, there have been reports that the Chinese government will be introducing a carbon tax on major energy consumers before the end of the plan. It is estimated that the tax would begin at 10 yuan ($1.59) per ton of carbon dioxide emitted, and would increase depending on the company's emission levels (information is not yet available on the details of the tax increases).

Five Chinese cities (Shanghai, Beijing, Shenzhen, Tianjin, and Chongqing) and two provinces (Guangdong and Hubei) are currently preparing pilot emissions trading schemes, set to begin in 2013. The Chinese government has ordered these areas to set greenhouse gas emissions control targets, and to implement an emissions trading scheme in order to meet these targets. This pilot project is considered to be an important learning step, leading up to the implementation of a national emissions trading scheme by 2015.

France

Targets

France continues to support the targets stipulated in the Kyoto Protocol and sees the UNFCCC as a primary body through which climate change negotiations will move forward. France has already made progress in reducing its greenhouse gas emissions; in 2010, France had reached a 6.6% reduction in emissions (compared to 1990 levels). France is committed to meeting the EU target of a 20% reduction in emissions by 2020 (1990 levels) and has also set a goal of a 75% reduction in emissions by 2050 (1990 levels), with intermediary targets of 40% reduction by 2030 and 60% reduction by 2040. Currently, France estimates that it will exceed its targets and achieve a 22.8% reduction in greenhouse gas emissions by 2020 (compared to 1990 levels).

L'Observatoire National sur les Effets du Réchauffement Climatique (ONERC - National Observatory on the Effects of Climate Change)

ONERC was created by legislation passed on February 19th 2001. The ONERC has three main purposes:

- To collect and spread information on risks related to global warming
- To formulate recommendations on adaptation measures to mitigate the effects of climate change.
- To be the focal point of the IPCC in France.

Stratégie nationale d'adaptation au changement climatique (SNACC - National Strategy from Climate Change Adaptation)

France's national adaptation strategy was adopted on the 13th of November 2006, based on recommendations from the ONERC.

It outlines four priority areas for adaptation

- Acting to ensure public security and health
- Addressing social aspects and inequalities of climate-change risk
- Limiting costs and taking advantage of the change
- Protecting cultural heritage

There are eight strategic action steps developed in the strategy:

- Developing scientific knowledge
- Consolidating observation systems
- Informing and educating all actors
- Promoting a regional and community-oriented approach
- Financing adaptation actions
- Utilizing legislative and regulatory instruments
- Taking into consideration the special status of overseas territories
- Contributing to international cooperation

Grenelle Environment

The Grenelle Environment was a series of political talks initiated by Nicolas Sarkozy in September and October 2007 that brought together representatives of all levels of government, civil society and industry to develop public policy on environmental and sustainable development issues. It has led to the following policies and actions in these areas:

Residential Sector

- After 2012, all new buildings must have a primary energy consumption of less than 50kWh/m2/year on average. This standard was implemented in after 2010 for all public buildings and for construction under the National Urban Renovation Program. By 2020, all new buildings must have

a primary energy consumption that is less than the amount of renewable energy produced in the buildings (energy positive buildings).

- Eco-loans at 0% interest: allow owners to take 10-15 year loan of up to 30,000 euros towards improving the energy efficiency of their property. This program can be combined with other financial support tools.
- All public and state owned buildings will undergo an energy performance assessment by 2010, and renovations will begin on these buildings in 2012 that should result in a 40% reduction in energy consumption and a 50% reduction of greenhouse gas emissions within a period of 8 years.
- The most energy intensive 800,000 social housing units will be renovated prior to 2020. Loans will be made available at a 1.9% interest rate between 2009-2010 to allow for the immediate renovation of 100,000 units, and upgrades will continue at a rate of 70,000 units per year.

Transportation

- 2,000 km of high-speed rail will be built by 2020 and an additional 2,500km will be planned.
- France will meet the EU objective of reducing vehicle emission to 120g CO_2/km.
- The "bonus-malus" program in place since January 2008 provides a credit for the purchase of low-emitting vehicles (less than 130g CO_2/km) and imposes a tax on purchase of vehicles emitting more than 160g CO_2/km.
- France had the objective of a 5.75% biofuel mix between 2001-2008, and increased the target to 7% in 2010 and 10% by 2015. To reach these objectives, a general tax on polluting activities (TGAP) will be imposed on operators not respecting this fuel mix ratio and an exemption program on the domestic tax for petroleum products (TIPP) for biofuels will be implemented.

Industry

- The 2005 directive creating a cap and trade system will be reviewed. This review was adopted by the European Parliament and Council in December 2008. It will allow the implementation period to be extended, to harmonize the system of quota allocation and to reinforce the objectives of reducing greenhouse gas emissions in this sector. This measure will achieve, at the European level a 21% reduction of emissions in this sector between 2005-2020 (1990 levels).

Energy

- Certificates of Energy Efficiency, in place since 2006, will be expanded.
- The “Ecoconception” Directive will be implemented:
- Completely retiring incandescent light bulbs by 2012.
- Limiting the consumption of single digital decoders to 1W by 2010 and 0.5W by 2012.
- Improving the performance of electric chargers and external power supplies.
- Developing renewable energy to achieve 23% mix in energy consumption by 2020 by increasing the annual production of renewable energy by 20 million tons of oil equivalent.
- Renewable Heat Fund (Fonds chaleur renouvelable): this program created a fund of 1 billion euros for 2009-2011 to develop renewable sources such a wood, geothermal, and solar to be used for heating in the tertiary sector and in industry,
- Tax credit for sustainable development that promotes the purchase of solar water heaters and solar panels was extended until 2012.
- The construction of new biomass plants with a capacity of 250MW.
- Increasing the capacity of geothermal energy sixfold by 2020, by providing 2 million homes with heat pumps.
- A fixed tariff for wind energy and improving the planning and consultation process for new wind turbines; simplification of the process for developing off-shore wind energy.
- 1 billion euros will be devoted to research into sustainable development.

For solar energy

- Building a solar plant in each French region for a cumulative power of 300 MW, supporter by simplified tariffs to secure long term investment.
- Creating a 45 euro cent/kWH tariff to facilitate the installation of solar panels on private buildings.
- Reducing the administrative and financial steps when panels do not exceed 30 m2.
- Increasing the scope of the public buildings that are eligible for the reduced tariff for purchasing electricity produced from renewable sources.
- Construction permits cannot oppose the installation of renewable energy production systems on buildings.

5.6 Actions taken by international bodies

Substantially more information and examples could be added here.

International efforts to address climate change have often been centred around the United Nations Framework Convention on Climate Change (UNFCCC), though many other international forums and organizations have also made efforts to address the issue.

United Nations Framework Convention on Climate Change (UNFCCC)

- Signed in 1992, came into force in 1994 with 50 ratifications
- Objective: ``stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system"
- This has subsequently come to be understood to mean limiting warming to less than 2°C

Other sub-components of UNFCCC – adaptation funding, etc

Canada has repeatedly endorsed the 2°C limit for warming

- The 2009 Copenhagen Accord - signed by Canada - recognizes ``the scientific view that the increase in global temperature should be below 2 degrees Celsius"
- Other references to the limit
- For the world to reach this goal, fossil fuels need to be phased out aggressively

This is a section where we need to be very careful to maintain a dispassionate tone and to include strong evidence supporting our factual and legal claims. Ideally, we want impeccably-documented examples of wrongdoing by Shell, along with information on which laws they have violated.

6 Why start with Royal Dutch Shell?

The preceding sections of this brief show how climate change is causing of increasing instability and harm to the planet. Consequences of climate change have the potential to cause unprecedented levels of social and environmental damage, unless dramatic policy changes are put into place rapidly. One important dimension of that response is the redirection of large amounts of investment away from new fossil fuel developments. The extraction and burning of fossil fuels are the direct causes of climate change, and of all the adverse consequences that follow from it. Investing in the fossil fuel industry fuels the continuation of these activities and thus constitutes deriving financial benefit from harmful activity. This is not in accordance with socially or ethically responsible investment practices.[124]

As a first step toward divestment from the fossil fuel industry, we ask that the University of Toronto divest 100% of its holdings from Royal Dutch Shell by the end of 2013. As one of the largest fossil fuel companies in the world, as well as the university's largest single holding, Shell represents an ideal starting point for the university's move to divest from the fossil fuel industry.

In addition to the broader implication of Shell's activities as directly contributing to the harmful affects of climate change, Shell represents an ideal case for divestment due to three main reasons related to the operations of the company:

1. Shell has repeatedly carried out actions resulting in social injury, including conduct in Nigeria and Alberta that conflicts with domestic and international law.

2. Shell represents a financial risk to investors, with even greater shareholder uncertainty in the medium- and long-term due to proposed projects that are costly and high-risk.

3. Divestment from Shell will not adversely affect the university's portfolio.

6.1 Shell's ongoing history of social injury

Royal Dutch Shell has been found to repeatedly and willfully cause social injury as a result of activities that:

[124] Richardson, *Socially Responsible Investment Law: Regulating the Unseen Polluters*.

1. Directly conflicted with national and international law, and
2. Infringed on governmental regulations or on international health and safety or environmental standards.

The following list of legal actions taken against Shell demonstrates that the company has consistently and knowingly inflicted social harm as a consequence of a number of its global operations.

Legal offences in Nigeria

Shell has a long history of human rights and environmental abuses in the Niger Delta region, where it has operated since 1958. In 2012 alone, 198 oil spills took place at Shell facilities in Nigeria, releasing 26,000 barrels of oil.[125] A United Nations report in 2011 determined that cleaning up mangroves contaminated by Shell would take 30 years and at least $1 billion.[126] In the same report, it was identified that some families in the area were consuming water with benzene levels 900 times higher than those considered safe by the World Health Organization.[127]

Currently, Shell is the midst of a number of litigation processes at various stages, as documented in Shell's 2011 Annual Report:

> Shell subsidiaries and associates operating in Nigeria are parties to various environmental and contractual disputes. These disputes are at different stages in litigation, including at the appellate stage, where judgments have been rendered against Shell. If taken at face value, the aggregate amount of these judgments could be seen as material.[128]

Since the publication of the report, Shell has been found responsible for oil pollution and ordered to pay compensation by a Dutch court in *Niger Delta Farmers vs. Shell* (detailed below).[129] The parties are currently in the process of negotiating compensation. The full financial impact of the company's ``environmental and contractual disputes'' in Nigeria is not yet known and could have a material effect on the company.[130] In 2011, *The Economist* argued that ``[l]egal pressures on the company are increasing'' and that Shell has ``paid out $1.7m in compensation to groups in the delta affected by spills''.[131]

The following is a partial list of legal challenges to Shell's activities in Nigeria over the span of approximately fifteen years:

[125] Sekularac and Deutsch, *Dutch court says Shell responsible for Nigeria spills*.
[126] United Nations Environment Programme, *Environmental Assessment of Ogoniland*.
[127] The Economist, *Oil spoils*.
[128] Royal Dutch Shell, *Building an Energy Future: Annual Report*, P.138.
[129] See also: Sekularac and Deutsch, *Dutch court says Shell responsible for Nigeria spills*.
[130] Royal Dutch Shell, *Building an Energy Future: Annual Report*, p. 139.
[131] The Economist, *Oil spoils*.

Bodo vs. Shell:

This case is ongoing. It was first brought before the High Court in London on June 18th 2012, and will be heard sometime this year. Shell is challenged by 11,000 members of the Niger Delta Bodo community, who say the company is responsible for spilling approximately 500,000 barrels of oil in 2008. Shell has admitted liability for two spills in the Bodo region.[132]

Kiobel v. Royal Dutch Petroleum Co.:

This case is ongoing. It was first brought before the United States Supreme Court and granted petition on October 17th 2011. Nigerian plaintiffs accuse Royal Dutch Shell and its affiliate Shell Transport and Trading Company PLC of providing transportation and payments to government forces who committed crimes against humanity in the Ogoni region, including the arrest, torture and murder of protestors challenging Shell operations.[133][134] This case involves activities included in the *Wiwa v. Royal Dutch Shell Co.* cases described below.

Niger Delta Farmers vs. Shell Oil Company:

A verdict for this case was reached in January 2013. Shell Nigerian subsidiary, Shell Petroleum Development Company of Nigeria Ltd. (SPDC), was sued in a Dutch court by four farmers and the environmental organization Friends of the Earth on October 10th 2012. SPDC was found responsible for oil spills in Niger Delta on one of four counts and ordered to pay compensation to Nigerian farmer Friday Akpan for incidents occurring in 2004, 2005, 2007.[135] Compensation is being negotiated. *The Economist* argued that ``[t]he ruling could open a flood-gate to legal complaints against oil companies".[136]

Wiwa v. Royal Dutch Shell Co.:

In 1993, Ken Saro-Wiwa took part in a march by 300,000 Ogoni people, demanding a share in oil revenues and increased political autonomy. Following a trial by a military tribunal, Saro-Wiwa and eight other Ogoni leaders were hanged in 1995. According to the United Nations Environment Programme: ``Continued social upheaval in the area further alienated the Ogoni community from SPDC [Shell Petroleum Development Company (Nigeria) Ltd], and MOSOP [Movement for the Survival of the Ogoni People] has since been campaigning for the total expulsion of Shell from Ogoniland."[137] Saro-Wiwa was identified as a ``prisoner of conscience" by PEN Canada and Amnesty International, and international appeals and global outrage took place in response to the tribunal's decision.

[132] Sekularac and Deutsch, *Dutch court says Shell responsible for Nigeria spills*.
[133] Centre for Constitutional Rights, *Kiobel v. Royal Dutch Petroleum Co.*
[134] Radio France Internationale, *Shell could face trial in US for alleged complicity in torture in Nigeria*.
[135] Chazan, *Shell ordered to pay Niger Delta farmer*.
[136] The Economist, *A mixed verdict*.
[137] United Nations Environment Programme, *Environmental Assessment of Ogoniland*, p.27.

Under the *Alien Tort Statute*, the *Torture Victim Protection Act* of 1992, and *Racketeer Influenced and Corrupt Organizations Act* (RICO), the Wiwa family has brought three lawsuits against Royal Dutch Shell, its Nigerian subsidiary, and the CEO of that subsidiary in the United States District Court for the Southern District of New York. These cases involved the hanging of Saro-Wiwa and eight others, the detention and torture of Owens Wiwa and Michael Tema Vizor, and the shooting of Karololo Kogbara while she peacefully protested the bulldozing of her crops to permit the construction of a Shell pipeline. The plaintiffs alleged that the executions were carried out with the ``knowledge, consent and/or support'' of Shell.[138] They also alleged that Shell was paying soldiers involved in human rights abuses in the region.[139] Shell settled legal action out of court with a payout of $15.5 million dollars.[140] The settlement is one of the largest payouts by a multinational corporation charged with human rights violations to date and speaks to the company's complicity in these activities.

Notably, four years after the execution of his father, Ken Saro-Wiwa Jr. was a Visiting Fellow and Senior Resident at the University of Toronto's Massey College. The college possesses the final handwritten letter Saro-Wiwa Sr. wrote to his son, prior to his execution, along with a handmade chair crafted by Saro-Wiwa Sr. and inscribed with a poem criticizing Shell.[141]

US Dept. of Justice vs. Panalpina, Shell, et al.

In 2010, Shell was implicated in a case brought against Panalpina, a Swiss-based company that provides international air and ocean freight, by the U.S. Department of Justice. Panalpina was implicated in foreign bribery charges by US regulatory bodies and settled on a total of $85 million over these allegations. Royal Dutch Shell and five other oil companies were also implicated and charged along with Panalpina, paying a total of $246 million in penalties altogether. As stated by Robert Khuzami, the Director of Enforcement for the US Securities and Exchange Commission (SEC), ``These companies resorted to lucrative arrangements behind the scenes to obtain phoney paperwork and special favors, and they landed themselves squarely in investigators' crosshairs."[142] The case is significant as setting potential precedents of vigilance for global companies that utilize external contractors in parts of the world ``where resources are plentiful but the rule of law is shaky."[143]

With respect to Shell's role, the company was implicated in corrupt activities that took place in Nigeria and included the expedition of services such as clearing drilling rigs and other equipment through

[138] Kearney, *New York trial delayed for Nigerians suing Shell*.
[139] Mouawad, *Shell to Pay $15.5 Million to Settle Nigerian Case*.
[140] Ibid.
[141] See: `http://www.flickr.com/photos/sindark/7947170092/in/set-72157631444407428`
[142] Kochan and Goodyear, *Corruption: The New Corporate Challenge*, p. 119.
[143] Scannell and Catan, *Settlements Near In Bribery Case*.

customs (more specifically, using a customs broker to pay officials to acquire special treatment for a project conducted in Nigeria).[144] Shell consented to pay a disgorgement of $18.15 million and a criminal fine of $30 million.[145] Shell subjected to a Deferred Prosecution Agreement (DPA) with the U.S. Department of Justice (DOJ) for violations of bribery and books provisions of the Foreign Corrupt Practices Act (FCPA).[146] Shell also consented to a Cease and Desist Order from the U.S. Securities and Exchange Commission (SEC) on account of record keeping violations and internal control provisions of the FCPA. As a result, the DPA outlined an ethics program designed to prevent and identify any breach of the FCPA as well as any other applicable anti-corruption laws corresponding to all aspects of Shell's operations. The program also calls for Shell to immediately report any evidence of questionable activity to the DOJ. As stated in Shell's 2011 annual report, such activity could have a significant impact on the company: ``Any violations of the DPA, or of the SEC's Cease and Desist Order, could have a material adverse effect on the Company."[147]

Gas flaring

Since 2005, Shell has refused to comply with a Federal High Court order to end gas flaring in the Iwherekan community in Nigeria. Shell is also avoiding payment of $1.5 billion in compensation to the Delta's Ijaw ethnic group for decades of pollution.[148]

Oil spills

Going forward, Shell faces thousands of claims related to oil spills in Nigeria, and charges in the most recent case (*Niger Delta Farmers vs. Shell Oil Company*) opens doors for further legal actions.[149]

Infringements on governmental regulations and international health and environmental standards with respect to operations in Nigeria

The release of the Assessment of the Environment of Ogoniland by the United Nations Environment Programme (UNEP) on August 4th 2011 confirmed the devastating extent of pollution in the minority Ogoni region. The estimated time required for clean-up is between 25 to 30 years. The UN condemned Shell for failing to comply to its own operating standards and for under-reporting pollution.[150]

The same UN report also confirms that all water bodies in Ogoniland are polluted with hydrocarbons and reveals that benzene, a known carcinogen, is concentrated at a level 900 times above World Health

[144] *Shell Bribes Among `Culture of Corruption,' Panalpina Admits*.
[145] Sullivan and Cromwell, LLP. *Foreign Corrupt Practices Act – Recent Developments*.
[146] Royal Dutch Shell, *Building an Energy Future: Annual Report*, p.17.
[147] Ibid.
[148] Ukala, ``Gas Flaring in Nigeria's Niger Delta: Failed Promises and Reviving Community Voices".
[149] The Economist, *A mixed verdict*.
[150] United Nations Environment Programme, *Environmental Assessment of Ogoniland*.

Organization standards for safe drinking water.

Shell has repeatedly ignored Nigerian federal law (and its own internal policies) calling for regular inspection and maintenance and upgrading of pipelines and production facilities, as well as and prompt and effective response to oil spills.[151][152]

Legal offences in Alberta

Shell is one of the biggest players in developing the Athabasca oil sands, with 249,000 barrels per day of production from its Scotford upgrader.[153] Shell Canada currently operates the Alberta Oil Sands Project (AOSP), which consists of the Albian Sands Mine, Muskeg River Mine, Jackpine Mine, and the Scotford Upgrader.

The AOSP is close to a number of First Nations communities who claim that the project adversely affects their health, livelihood, and lands.[154] Under Canadian constitutional law, there is a duty to consult and accomodate aboriginal people on development projects that affect them. There are currently a series of legal proceedings related to tar sands developments launched by First Nations that could impact the viability of Shell's current and future operation plans, as outlined below:

Ongoing - ACFN vs. Shell Canada In continuing legal battles throughout 2011-2012, the Athabasca Chipewyan First Nations (ACFN) sued Shell Canada for breach of terms of agreements made in 2003 and 2006 regarding the company's existing tar sands mines.[155] The ACFN alleges that Shell has not honoured these agreements and that these breaches have allowed Shell's operations to continue damaging the surrounding environment and the infringing upon the rights of ACFN peoples. Affected First Nations communities continue to seek legal options to delay or halt Shell's operations in the AOSP.

2009 - Ecojustice vs. Shell Canada Ecojustice, an environmental organization, took Shell to the Alberta Court of Appeal after Shell breached signed commitments with the government of Alberta to reduce carbon emissions for the Jackpine and Muskeg River mines. Alberta courts instructed regulators to ignore the breach. However, the ruling has prompted both residents and elected officials in Alberta to demand an overhaul of regulatory approval processes in the province.[156]

[151] Steiner, *International Standards to Prevent and Control Pipeline Oil Spills, Compared with Shell Practices in Nigeria*.
[152] Steiner, *Double standard: Shell practices in Nigeria compared with international standards to prevent and control pipeline oil spills and the Deepwater Horizon oil spill*.
[153] AlbertaEnergy, *Facts and Statistics*.
[154] B. Amuna and Vassey, *Risking Ruin: Shell's Dangerous Developments in the Tar Sands, Arctic, and Nigeria*.
[155] CTV Calgary, *First Nation sues Shell*.
[156] B. Amuna and Vassey, *Risking Ruin: Shell's Dangerous Developments in the Tar Sands, Arctic, and Nigeria*.

Cases related to groundwater contamination As described in their 2011 Annual Report, Royal Dutch Shell (including subsidiaries), has been sued repeatedly by public and semi-private water purveyors, as well as governmental bodies, who insist that Shell take responsibility for groundwater contamination in various instances.[157] As outlined in the Annual Report, at the end of 2011, fewer than 10 of these cases remained open, with the remaining cases in various stages of litigation. The number of allegations made by numerous public and private entities, including governmental agencies, speaks to Shell's consistent negligence in ensuring environmental safety. While groundwater cases remain ongoing, a study published by Alberta Health in 2008 confirmed a 30% rise in the number of cancers between 1995 and 2006 in the community of Fort Chipewyan,[158] providing scientific evidence supporting the appeals of First Nations residents that AOSP activities were polluting the surrounding environment.[159] An internal government memo, obtained by journalist Mike De Souza by virtue of Access to Information legislation, confirms groundwater toxins related to bitumen mining and upgrading are seeping from tailings ponds and contaminating groundwater. These toxins are not naturally occurring, contrary to statements made by government and industry.[160][161]

Alongside the promise of future legal conflicts as a result of the company's activities in Nigeria, more legal challenges are almost certain to arise as First Nations communities continue to oppose Shell's operations.

The International Finance Corporation's (IFC) implementation of a new Sustainability Framework, which requires clients of Equator Principle banks to obtain the free, prior and informed consent of indigenous communities impacted by mining projects, poses a significant obstacle to the company going forward where they conflict with the interests of various First Nations communities.[162] In addition, the International Covenant on Civil and Political Rights states that: ``In no case may a people be deprived of its own means of subsistence."[163] Shell violates this obligation by making the waters of the Niger Delta unsafe to drink, and threatens to do so further by contaminating the food and water of aboriginal

[157] One barrel of surfaced-mined oil from tar sands extraction requires 2-4 barrels of freshwater and creates about 1.5 barrels of toxic waste. This waste is held in `tailings ponds', which covered $176km^2$ in 2010 and contained 830 billion litres of toxic waste. Shell's tailings ponds cover $23km^2$ and contain millions of litres of toxic waste. Each day, 11 million litres of waste leaks into the Athabasca River from tar sands operations. These toxins are known carcinogens and leaks have had devastating impacts on human and ecological health.

[158] B. Amuna and Vassey, *Risking Ruin: Shell's Dangerous Developments in the Tar Sands, Arctic, and Nigeria*.

[159] This study, however, lacks appropriate data and is considered a conservative estimate by many residents.

[160] Natural Resources Canada, *Memorandum to the Minister: Pending Release by Natural Resources Canada of Reports on Natural vs. Human-Caused Contamination in the Oil Sands Region of the Athabasca River, Alberta*.

[161] See also: Souza, *Oilsands tailings leaking into groundwater, Joe Oliver told in memo*.

[162] Sosa, *License to Operate: Indigenous Relations and Free Prior and Informed Consent in the Mining Industry*.

[163] Part I, Article I (2) United Nations General Assembly, *International Covenant on Civil and Political Rights, G.A. res. 2200A (XXI), 21 U.N. GAOR Supp. (No. 16) at 52, U.N. Doc. A/6316 (1966), 999 U.N.T.S. 171*.

communities in Alberta and the arctic.

Continued threats to human rights, environmental well-being and international law

Court rulings in cases brought against Shell over the past fifteen years have resulted in determinations of guilt, out of court settlements, and case dismissals. In the case of Shell, one can reasonably argue that where there is smoke there is fire --- that is, regardless of the outcomes of individual legal challenges, the sheer volume of allegations against the company stand as evidence of Shell's willful and repeated acts of social injury. Shell's record of being the target of lawsuits raises the question of whether this investment represents the values of the university of Toronto, in addition to being a material risk to the company's profitability going forward. Moreover, a review of Shell's most recent activities and the projects it has slated for the immediate future indicates that Shell will continue to engage in activities that constitute human rights abuses and environmental degradation. For instance:

1. In the summer of 2011, Shell supported Syrian President Bashar al-Assad's regime by contributing over $55 million during government crackdowns.[164] Moreover, Shell continued drilling and exporting crude oil from Syria throughout the first year of the popular revolt and did not halt operations until Western imposed oil sanctions and global outrage forced them to withdraw from the country on the December 2nd 2011.

2. Both Shell's current activities and its proposed projects in the Arctic will threaten local First Nations communities such as the Inupiat who live around the Beaufort and Chukchi Sea and who practice a subsistence culture, both by tradition and by necessity.[165]

In May 2013, members of the Native Village of Port Hope, Alaska and the Athabasca Chipewyan First Nation (ACFN) participated in Shell's Annual General Meeting and confronted Shell's chairman about the risks of drilling in the Arctic.[166] In addition to the direct threat posed to people living in the region, arctic drilling risks adding to the already dangerously large reserves of fossil fuels being exploited globally, contributing further to the universal threat of climate change.

6.2 Shell represents financial risk

Royal Dutch Shell or any of its subsidiaries are a risky investment for two main reasons:

[164] Minio-Paluello, *Shell supports Syrian regime with $55 million during crackdown; one out of six Syrian tanks runs on Shell oil.*
[165] B. Amuna and Vassey, *Risking Ruin: Shell's Dangerous Developments in the Tar Sands, Arctic, and Nigeria*, p. 13.
[166] Gemmill, *Shell and the Arctic Oil Rush*.

1. Previous violations of human rights and environmental regulations may ultimately have a material affect on the company; these same activities can also manifest in decreased shareholder confidence.

2. High-risk ventures going into the medium and long term introduce uncertainty on a number of levels.

Poor reputation for social responsibility lowers shareholder confidence

Shell's reputation for complicity in human rights and environmental degradation has resulted in lowered shareholder confidence and has prompted socially conscious investors to avoid holding Shell stock. For instance, the Dow Jones Sustainability Index, which integrates assessment of economic, environmental and social criteria with emphasis on long-term shareholder value, excluded Shell from the Index in both 2010 and 2011 following concerns about the company's activities in Nigeria (which include both human rights and environmental abuses).[167] Shell's European Universe was included in the 2012 Index, but all others remain excluded (including the North American, Asia Pacific, Aussie, Emerging Markets, Korean Universes).

In February of 2012, 28 Right Livelihood Award Laureates including conservation scientists and professionals petitioned the Norway Government Pension Fund to divest all its holdings in Royal Dutch Shell. The petition was made after this group, in collaboration with numerous other Nigerian scientists and communities, found the Delta to be ``one of the most severely oil-impacted ecosystems in the world."[168] This collaborative team of scientists and Nigerian residents that led to the 2011 UNEP assessment discussed above. As stated on their petition, the argument for divestment is based on the company's ``willful negligence" which resulted in the extensive environmental harm found in the Niger Delta region.[169]

Fossil fuel extraction in the Arctic represent particularly high-risk and unpredictable endeavours

The arctic is experiencing some of the most profound and rapid effects of climate change. World renowned physicist and oceans expert Peter Wadhams calls the situation in the Arctic a ``global disaster," observing that ice is disappearing at a faster rate than previously predicted.[170] The IPCC has observed that: ``Average Arctic temperatures have increased at almost twice the global average rate in

[167] Reuters, *Shell to scrap bonus link to sustainability index*.
[168] Nigeria Conservation Foundation and IUCN/CEESP,
[169] Right Livelihood Award Foundation, *Petition for Norway Pension Fund. The Right Livelihood Award*.
[170] Vidal, *Arctic expert predicts final collapse of sea ice within four years*.

the past 100 years."[171] The rapid warming of the arctic has global consequences, as vanishing sea ice is replaced with darker water and more energy and heat are absorbed by the Earth from the sun as a consequence.

Despite the growing body of accepted scientific facts that point towards the significant and unpredictable consequences of a melting arctic, Shell has spent over $4.5 billion on operations and lease purchases in the far north, taking advantage of the climate impacts in the Arctic to secure further exploration and drilling.[172] Because Shell's production has been decreasing for the past 10 years --- with the exception of a 5% increase in 2010 --- booking new reserves is of primary importance for the company. This is driving Shell to invest in more pollution-intensive forms of oil, such as those in Canada's oil sands, as well as oil reserves that are riskier to extract, such as those in the arctic. Shell's Alaskan project alone accounted for about one-seventh of Shell's total exploration spending in 2011. While Arctic extraction projects represent a new branch of growth for the company, these projects are also risky for shareholders for four reasons:

High costs

Unconventional methods of extracting oil, especially in harsh and isolated regions such as the arctic, are extremely costly due to technological requirements, human resources, costs of spill cleanups, and other related expenses. For example, recent projects such as Shell's Sakhalin-2 project in Russia saw an unexpected cost overrun from $6 - $22 billion dollars in 2006.[173]

Moreover, recent incidents have occurred casting doubt on Shell's capacity to safely undertake arctic operations. Sixteen distinct and serious safety and environmental violations were discovered on the Noble Explorer --- a Shell drilling rig anchored in the arctic waters off Alaska. The UK Coast Guard inspected the rig and reported findings of ``systematic failure and lack of main engine preventative maintenance."[174] These findings have been turned over to the U.S. Department of Justice and U.S. federal prosecutors have been asked to take legal action over these violations as of late February, 2013.

Arctic projects are dependent on a favourable political climate

An interaction of soaring costs, uncertainty related to project completion, and popular resistance against drilling in sensitive regions such as the Arctic may lead to difficulties securing subsidies or tax breaks from governments. Shell has ``spent several years on an intensive lobbying campaign to persuade

[171] Intergovernmental Panel on Climate Change, *Fourth Assessment Report: Climate Change 2007*, Climate Change 2007: Synthesis Report - Observed changes in climate and their effects.
[172] Broder, *With 2 Ships Damaged, Shell Suspends Arctic Drilling*.
[173] For more on these four central risk factors see: Greenpeace and FairPensions, *Out in the Cold: Investor Risk in Shell's Arctic Exploration*.
[174] Cockerham, *Coast Guard: Shell Arctic rig findings turned over to Justice Dept.*

federal officials that it could drill safely" in the arctic.[175] The credibility of this claim is diminished by Shell's inability to operate drilling rigs safely in the region. Furthermore, the Deepwater Horizon disaster in the Gulf of Mexico has raised awareness among policy-makers and the general public about the risks involved in oil extraction within extreme environments, as well as the inability of major oil firms to rapidly contain serious spills when they occur.

Lack of oil spill plan

There is currently no proven method to clean up an oil spill in the remote and extreme arctic landscape, nor are there many resources available for such an event. A 2011 report from top scientists at the U.S. Geological Survey confirm that not enough is known about the arctic's unique marine environment to ensure an adequate or sufficient clean up plan in the case of an oil spill. As asserted in this survey, this lack of knowledge presents a ``major constraint to a defensible scientific framework for critical Arctic decision making."[176]

Shell's inability to operate drilling equipment safely in the arctic is highlighted by the damage suffered by the company's two drilling ships --- Kulluk and Noble Discoverer --- which were attempting to operate in the region.[177] As a result of these incidents, Shell has canceled its arctic drilling plans outright through 2013, though it has stated its intention to resume arctic drilling in future seasons.

Funding challenges

The social and environmental responsibility guidelines of international financial institutions (IFIs) and signatories to the Equator Principles --- the voluntary set of standards for assessing and managing social and environmental risk --- have delayed or halted funding for frontier extraction projects in the past. For example, the European Bank did not solicit funds in 2003--2006 for the Reconstruction and Development (EBRD) of Shell's Sakhalin-2 due to serious breaches of their environmental and sustainability guidelines. Growing frustration and resistance on behalf of First Nations communities and the implementation of new IFC guidelines promise more delays on account of legal challenges posed by affected communities.[178]

Supporting industry-based evidence of risks to Shell's ongoing and proposed projects

1. On March 8th, 2013, Norwegian state-owned oil company, Statoil, announced that it is slowing plans to drill for oil in U.S. arctic waters after Shell's most recent string of incidents in arctic.

[175] Broder, *With 2 Ships Damaged, Shell Suspends Arctic Drilling*.
[176] Holland-Bartels and Pierce, *An Evaluation of the Science Needs to Inform Decisions on Outer Continental Shelf energy Development in the Chukchi and Beaufort Seas, Alaska*.
[177] Broder, *With 2 Ships Damaged, Shell Suspends Arctic Drilling*.
[178] Mathiason, *EBRD freezes Shell Sakhalin loan*.

2. German bank WestLB announced it would not invest in any company drilling in the arctic because the ``risks and costs are simply too high."[179]

3. Total, the French oil company, has disavowed drilling in the arctic; CEO Christophe de Margerie claims that ``Oil on Greenland would be a disaster ... A leak would do too much damage to the image of the company."[180]

4. Growing resistance around production of tar sands puts operations there at risk, as Shell has already faced shareholder resolutions demanding greater clarity over the risk of tar sands investments.

5. The Carbon Bubble: Latest climate science tells us that approximately 80% of reserves owned by fossil fuel companies cannot be burned. As policy-makers and the financial industry absorb this information, the business case for drilling in extreme environments and exploiting unconventional reserves may be undermined.

[181][182][183]

6.3 Divestment from Shell would not hurt the university financially

Get a working anchor for the link in part 3

Shell constitutes the university's largest single holding at approximately $9.48 million dollars as of March 2012.[184] At the same time, it represents about 1% of the institution's total known endowment. When the university divested from the tobacco industry its holdings in the industry were calculated at 1.6% of US equities and .98% of international equities, for a total weight in tobacco stocks of 2.28%.[185] In the case of tobacco, the *ad hoc* committee assembled by the President to consider divestment concluded that selling tobacco stocks would not adversely affect the university's portfolio. Given the lesser size of the university's investment in Shell, it is likely that divestment in this case will also not damage the university financially.

CAN SOMEONE PLEASE READ THE BLURB BELOW (taken from the Advisory Board Report explaining their decision for tobacco divestment) AND MAKE SURE I AM RIGHT IN THIS LAST PARAGRAPH? I'M REALLY SLOW

[179] Naidoo, *Drilling for oil in the Arctic: the risks are too great for companies to take on*.
[180] NBC News wire, *Environmental risk of drilling in Arctic too high, CEO of oil giant Total says*.
[181] Carbon Tracker Initiative, *Carbon Tracker Initiative*.
[182] United Nations Environment Programme, *Climate and Trade Policies in a Post-2012 World*.
[183] P. Spedding, *Oil and carbon revisited: Value at risk from 'unburnable' reserves*.
[184] University of Toronto Asset Management Corporation, *Canadian Equities Above $1 Million As at March 31, 2012*.
[185] Advisory Board on Tobacco Investment, University of Toronto, *Report of the Advisory Board on Tobacco Investment*.

WHEN IT COMES TO THIS KIND OF STUFF AND I WANT TO MAKE SURE I'M NOT JUST MAKING THIS UP!

Milan - I need to get this document from Monica before I can assess the following paragraphs. It doesn't seem to be available via Google. Also, everything about why shareholder activism is inadequate should probably go into part 3, possibly with a hyperlink here.

In its assessment of the impact of prohibiting University funds on tobacco investments, UTAM indicated that it could implement the divestment of tobacco stocks only for Separate Accounts with minimal management and monitoring costs expected. While Separate Accounts constitute 54% of total investments, as of the end of July 2006, the amount of equities in Separate Accounts as a proportion of total investments is 28%. The amount of tobacco stocks that could be divested would be a very small portion of this 28%.

The case for Pooled Accounts which make up 46% of total investments is a different matter. Divestiture of all Pooled Account holdings would involve significant time and costs as it would require a fundamental change in the UTAM business model for managing the university's investments. It is not feasible for the university to change its investment structure to move away from pooled funds, given that it is substantially less expensive to manage, and so provide a higher expected return, net of costs. Thus the ``prudent investor'' rule would only permit divestment from tobacco stocks held in separate accounts.

Get a working link to the tobacco precedent section in part 6 here

The university's Policy on Social and Political Issues With Respect to University Divestment contemplates the possibility of the university voting proxies and attempting to influence the conduct of companies in which it invests (``shareholder activism''). Some other institutions, including Yale, do so. The University of Toronto has neither the resources nor the jurisdiction to monitor the business practices of tobacco companies, or any other enterprises. The university must devote its resources to its mission of research and teaching. Nor is the university a large enough investor to shape the conduct of companies in which it invests.

This seems like a weak ending for this section

7 Short answers to common questions

7.1 Why should the university `take sides' in this matter? Is it appropriate for the university to take stances on social and political issues?

7.2 Isn't shareholder activism a better option?

7.3 Other people will buy the stocks we sell, so how does this make a difference?

7.4 What are the University of Toronto's peer schools doing?

7.5 But don't fossil fuel companies also invest in renewable energy?

7.6 In what cases have courts found that fossil fuel companies caused injury?

7.7 Isn't the energy sector, including oil and gas extraction, production and distribution, highly regulated by government at all levels?

7.8 Can humanity manage without fossil fuels?

This question was extensively examined by Cambridge physicist David MacKay, resulting in his 2009 book *Sustainable Energy – without the hot air*.[186]

The entire book is available for free online at: `http://withouthotair.com/`

[186] MacKay, *Sustainable Energy – without the hot air*.

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9 Appendix I: Issues With Respect to University Divestment

9.1 Policy on Social and Political Issues With Respect to University Divestment

March 4, 2008

Preamble

The University's core academic values include freedom of inquiry and open debate. As a general matter, the University does not take positions on social or political issues apart from those directly pertinent to higher education and academic research. Instead, its role is to provide a forum within which issues can be studied carefully and debated vigorously. Given these values, the University will not consider any proposals for restrictions on its investments that require the institution to take sides in matters that are properly the subject of ongoing academic inquiry and debate.

As a corollary, the University's response to any petition regarding divestment must be governed by the fundamental place of diversity of opinion within its community. Except in those situations in which the University must settle on an answer to controversial questions about how best to achieve its academic mission, the University risks abandoning its core values if it takes sides in ongoing debates and is perceived to be advancing a specific political or social position.

Principles

In responding to questions about social and political issues with respect to University investment, it is acknowledged that first and foremost, maximizing economic return consistent with the University's stated risk tolerance should be the criterion for purchase and sale of stock in all normal circumstances. In specific instances where the University's social responsibility as an investor is questioned, however, credible and effective procedures for responding should exist.

Responses should be based on the following principles:

(i) prudent investment. The University has a fiduciary duty to manage investments responsibly to maximize return on its investments within a policy risk tolerance as approved by Business Board from time to time.

(ii) the Yale University concept of social injury:

(a) Social injury is 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 deprivation or health, safety, or basic freedoms; for purposes of this Policy, social injury shall not consist of doing business with other companies which are themselves engaged in socially injurious activities.

(iii) actions taken by the Canadian government or other national or international bodies with regard to the particular issue of concern.

Consideration of questions about social and political issues with respect to University investment must take into account applicable legislative requirements and government or University policy, as well as the legal standards applicable to prudent institutional investors.

Advisory Committee

The President will establish an *ad hoc* committee of qualified individuals to review any investments claimed to be in conflict with University's social and political positions and to advise the President on possible actions to be taken. Chaired by a senior University officer designated by the President, the committee will consist of individuals with relevant expertise from among the teaching staff, students, administrative staff and alumni. The Executive Committee of the Governing Council will be asked to approve the appointments on the recommendation of the President.

In making recommendations regarding the membership, the President will take into account any potential conflicts of interest proposed members might be expected to have with a view to minimizing such conflicts of interest on the part of committee members

The committee's report and the President's decision will be reported to the Governing Council through the Executive Committee.

The President will issue procedures regarding the implementation of this policy. The first such procedures are included here for information, and the President will review any substantive changes in those procedures with the Executive Committee of the Governing Council.

9.2 Procedures for Responding to Social and Political Issues with Respect to University Divestment

January 2008

Raising Issues

Members of the University of Toronto community who wish to raise issues with regard to University investments that are in conflict with stated University policies may do so by:

- preparing a convincing brief establishing the case; and
- presenting the evidence of general concern in the University community by collection of signatures.

Responsibility for initiating a request for University action regarding its investments rests with members

of the University community. One or more individuals must prepare a fully documented brief identifying the social or political issue that they believe requires divestment.

When the brief has been fully prepared, the initiators of the request must secure evidence of support for their cause through the collection of at least 300 signatures endorsing the brief. Up to 200 of the signatures could come from a single constituency of the University community (for the purposes of these procedures, the constituencies are teaching staff, students, administrative staff, and alumni); the remaining 100 signatures must be from at least two other University constituencies with a minimum of 25 signatures from any individual constituency. Each signatory must attest that he/she has read and agrees with the entire content of the brief.

When signatures have been added to the brief, the material is to be deposited with the office of the President.

Response

The administration will respond by establishing an *ad hoc* review committee as specified by the policy.

This committee, chaired by a senior officer designated by the President, will consider the briefs. The committee may consult with investment and other experts as they deem necessary.

If the committee determines that the brief repeats previous submissions, or is vexatious or frivolous, it will cease its deliberations and recommend to the President that the brief be dismissed. If the brief is not repetitive, vexatious or frivolous, the committee shall complete its deliberations and provide its recommendation in writing to the President regarding the appropriate action to be taken by the University.

The committee will consider the following guidelines in considering the appropriate response to any request:

- the extent and significance of the University's investment in a particular entity. Determination of whether investments are considered significant will depend on the committee’s judgment of the relative magnitude of the University’s holdings both as a fraction of all University investments and in relation to the market capitalization of the entity under review.
- the degree to which the entity itself is involved in the undesirable activity.

Normally, activity is considered significant if more than ten percent of the entity's revenues are derived from the undesirable activity.

The President will consider the recommendations and make the final decision.

Reporting

The written report and the President's decision will be provided to the Governing Council through the Executive Committee. Following receipt of the report and the President's decision by the Governing Council, the report and decision will be provided to the petitioners.

Approved by Governing Council on March 4, 2008, replacing the Policy on Social and Political Issues with Respect to University Investment revised and approved by the Governing Council on December 14, 1994.

10 Appendix II: The 200 Companies

Toronto350.org is asking the University of Toronto to divest from the following 200 companies, as listed in the Carbon Tracker Initiative's 2012 report, *Unburnable Carbon*.[187] These are the top 200 listed companies by estimated carbon reserves.

- African Rainbow Minerals Ltd.
- AGL Energy
- Alcoa Inc.
- Allete Inc.
- Alliance Resource Partners L.P.
- Alpha Natural Resources Inc.
- Anadarko Petroleum Corp.
- Anglo American PLC
- Apache Corp.
- Aquila Resources Ltd.
- Arc Resources Ltd.
- ArcelorMittal
- Arch Coal Inc.
- Aston Resources Pty Ltd.
- ATP Oil & Gas Corp.
- Bandanna Energy Ltd.
- Bankers Petroleum Ltd.
- Banpu PCL
- Bashneft

[187] Carbon Tracker Institute, *Unburnable Carbon: Are the world's financial markets carrying a carbon bubble*.

- Baytex Energy Corp.
- Berry Petroleum Co. (Cl A)
- BG Group PLC
- BHP Billiton
- BHP Billiton
- Black Hills Corp.
- Bonavista Energy Corp
- BP PLC
- Bumi Resources
- Cairn Energy PLC
- Canadian Natural Resources Ltd.
- Canadian Oil Sands Ltd.
- Capital Power Corp.
- Cenovus Energy Inc.
- Chesapeake Energy Corp.
- Chevron Corp.
- China Shenhua Energy Co. Ltd.
- Churchill Mining PLC
- Cimarex Energy Co.
- Cliffs Natural Resources Inc.
- Cloud Peak Energy Inc.
- CLP Holdings Ltd.
- CNOOC Ltd.

- Coal India Ltd.
- Coal of Africa Ltd.
- Compania Espanola de Petroleos S.A.
- Concho Resources Inc.
- ConocoPhillips
- Consol Energy Inc.
- Continental Resources Inc. Oklahoma
- Crescent Point Energy Corp.
- Datang International Power Generation Co. Ltd.
- Datong Coal Industry Co. Ltd.
- Denbury Resources Inc.
- Devon Energy Corp.
- Ecopetrol S.A.
- El Paso Corp.
- EnCana Corp.
- Energen Corp.
- Enerplus Corp.
- ENI S.p.A.
- EOG Resources Inc.
- EQT Corp.
- Eurasian Natural Resources Corp. PLC
- Evraz Group S.A.
- Exxaro Resources Ltd.

- Exxon Mobil Corp.
- FirstEnergy Corp.
- Forest Oil Corp.
- Fortune Minerals Ltd.
- Fushan International Energy Group Ltd.
- Gansu Jingyuan Coal Industry & Electricity Power
- Gazprom OAO
- GDF Suez S.A.
- Global Energy Development PLC
- Grupo Mexico S.A.B. de C.V.
- Gujarat NRE Coke Ltd.
- Gujarat NRE Coking Coal Ltd.
- Hess Corp.
- Homeland Energy Group Ltd.
- Huolinhe Opencut Coal Industry Corp. Ltd.
- Husky Energy Inc.
- Idemitsu Kosan Co. Ltd.
- Imperial Oil Ltd.
- INA-Industrija Nafte
- Inner Mongolia Yitai Coal Co. Ltd.
- Inpex Corp.
- International Coal Group Inc.
- Irkutskenergo

- Itochu Corp.
- James River Coal Co.
- Jindal Steel & Power Ltd.
- Jizhong Energy Resources Co. Ltd.
- Kazakhmys PLC
- Kuzbassenergo
- Linn Energy LLC
- Lukoil Holdings
- Lundin Petroleum AB
- Macarthur Coal Pty Ltd.
- Magnitogorsk Iron & Steel Works
- Marathon Oil Corp.
- Mariner Energy
- Massey Energy Co.
- Mechel OAO
- Mitsubishi Corp.
- Mitsui & Co. Ltd.
- Mitsui Matsushima Co. Ltd.
- MOL Hungarian Oil and Gas Plc
- Mongolian Mining Corp.
- Murphy Oil Corp.
- NACCO Industries Inc. (Cl A)
- New Hope Corp. Ltd.

- New World Resources N.V.
- Newfield Exploration Co.
- Nexen Inc.
- Neyveli Lignite Corp. Ltd.
- Noble Energy Inc.
- Noble Group Ltd
- Northern Energy Corp. Ltd.
- Novatek
- Novolipetsk Steel OJSC
- NTPC Ltd.
- Occidental Petroleum Corp.
- Oil & Natural Gas Corp. Ltd.
- Oil India Ltd.
- Oil Search Ltd.
- OMV AG
- Optimum Coal Holdings Ltd.
- PA Resources AB
- Pacific Rubiales Energy Corp.
- Patriot Coal Corp.
- Peabody Energy Corp.
- Pengrowth Energy Corp.
- Penn West Petroleum Ltd.
- PetroBakken Energy Ltd.

- Petrobank Energy & Resources Ltd.
- Petrobras
- Petroleum Development Corp.
- Pingdingshan Tianan Coal Mining Co. Ltd.
- Pioneer Natural Resources Co.
- Plains Exploration & Production Co.
- Polo Resources Ltd.
- Polyus Gold OAO
- Premier Oil PLC
- Prophecy Resource Corp.
- PT Adaro Energy
- PT Bayan Resources
- PTT PCL
- Public Power Corp. S.A.
- Questar Corp.
- Quicksilver Resources Inc.
- Range Resources Corp.
- Raspadskaya OJSC
- Repsol YPF S.A.
- Resolute Energy Corp.
- Rio Tinto
- Rosneft
- Royal Dutch Shell PLC

- RWE AG
- SandRidge Energy Inc.
- Santos Ltd.
- Sasol Ltd.
- Severstal JSC
- Shanxi Coking Co. Ltd.
- Sherritt International Corp.
- SINOPEC Shandong Taishan Petroleum Co. Ltd.
- SK Holdings Co. Ltd.
- SM Energy Co.
- Soco International PLC
- Southwestern Energy Co.
- Statoil ASA
- Straits Asia Resources Ltd.
- Suncor Energy Inc.
- Swift Energy Co.
- Talisman Energy Inc.
- Tata Power Co. Ltd.
- Tata Steel Ltd.
- Teck Resources Ltd.
- Tokyo Electric Power Co. Inc.
- Total S.A.
- TransAlta Corp.

- Tullow Oil PLC
- Ultra Petroleum Corp.
- United Co. Rusal PLC
- United Industrial Corp. Ltd.
- Vale SA
- Venoco Inc.
- Walter Energy, Inc.
- Wescoal Holdings Ltd.
- Wesfarmers Ltd.
- Western Coal Corp.
- Westmoreland Coal Co.
- Whitehaven Coal Ltd.
- Whiting Petroleum Corp.
- Williams Cos.
- Woodside Petroleum Ltd.
- Xstrata PLC
- Yanzhou Coal Mining Co. Ltd.
- YPF S.A.
- Zhaikmunai L.P.
- Zhengzhou Coal Industry & Electric Power Co. Ltd.