Beyond Divestment: Taking Decisive Action on Climate Change

Administrative Response to the
Report of the President's Advisory Committee
on Divestment from Fossil-Fuels

Meric S. Gertler
President
University of Toronto

March 2016

UNIVERSITY OF
TORONTO

Contents

Executive Summary

The University welcomes the Report of the Advisory Committee led by environmental engineering professor Bryan Karney, and we commend the Committee for its work. The severity of the challenge posed by climate change requires us to take a comprehensive – and ultimately more impactful – approach to managing the University's long-term direct investments and, over time, its long-term indirect investments. A serious limitation to any decision to divest from fossil-fuel companies is that such firms only account for one-quarter of Canada's greenhouse gas emissions, with the balance produced by other sectors such as transportation, housing and manufacturing. Building on the Committee's advice, an approach that considers ESG factors – including climate-related risk – as they pertain to all sectors of our economy would seem to offer the best chance of success in meeting the challenge of climate change, while fulfilling our fiduciary duties to the University's pension and endowment fund beneficiaries.

— Meric S. Gertler President, University of Toronto

On March 6, 2014, I was presented with a petition from the U of T student group Toronto350.org calling on the University of Toronto to divest fully from fossil-fuel companies within the next five years and to stop making new investments in the industry immediately. The petition was structured specifically to address the University's *Policy on Social and Political Issues With Respect to University Divestment*.

Under the terms of that Policy, a presidential Advisory Committee on Divestment from Fossil Fuels, whose membership was approved by the Executive Committee of the University's Governing Council, was struck in November of 2014 with a mandate to review the Petition and accompanying Brief and consider the University's response to the call for divestment. The Committee submitted its final Report to me on December 15, 2015. This document is my response to the Committee's Report.

The Committee makes several key recommendations, most notably that the University determine a method to evaluate whether a given fossil-fuel company's actions blatantly disregard the 1.5-degree C threshold adopted in the Paris Agreement, and instruct its investment managers the University of Toronto Asset Management Corporation (UTAM) to divest immediately the University's direct holdings in any companies so identified.

The University welcomes the Report of the Advisory Committee led by environmental engineering professor Bryan Karney, and we commend the Committee for its work. The severity of the challenge posed by climate change and the need for substantive, effective measures in response requires us to

take a comprehensive – and ultimately more impactful – approach to managing the University's long-term direct investments. Additionally, as the practice of assessing environmental, social, and governance ('ESG') factors develops, this approach could be applied not only to the University's direct investments but also to those it makes indirectly through 'pooled' and indexed funds. A serious limitation to any decision to divest from fossil-fuel companies is that such firms only account for one-quarter of Canada's greenhouse gas emissions, with the balance produced by other sectors such as transportation, housing and manufacturing.

Building on the Committee's advice, an approach that considers ESG-based factors – including climate-related risk – as they pertain to all sectors of our economy would seem to offer the best chance of success in meeting the challenge of climate change, while fulfilling our fiduciary duties to the University's pension and endowment fund beneficiaries. Such an approach would allow us to direct our investments actively, in a targeted and dynamic way, appraising the long-term performance of individual firms in a manner that accounts for their ESG practices, including climate-related risk. It could also take into consideration social factors, such as the rights and well-being of Indigenous communities.

In considering an advocacy and leadership role for the University, it would be most effective for us to work with other groups promoting broader disclosure of carbon use and the adoption of measures to promote a low-carbon economy. U of T will have more impact if it joins coalitions such as the United Kingdom-based Carbon Disclosure Project (CDP), which aims to inform investor decision-making, facilitate shareholder engagement, and encourage corporations to manage their carbon emissions more effectively. Several of Canada's largest pension funds, such as the Canadian Pension Plan Investment Board, are already CDP signatories and U of T would show leadership by becoming one of the first Canadian universities to join the group.

Accordingly, I will direct UTAM to:

- Articulate principles that will enable consideration of ESG factors in undertaking direct investments

- Initiate the process by which we become a signatory to the CDP

- Evaluate our signing onto the United Nations-supported Principles for Responsible Investment initiative

- Determine ways in which it can vote proactively and deliberately on shareholder resolutions aimed at reducing climate-related risk for firms in which it is directly invested

- Evaluate signing the Montréal Carbon Pledge, which commits investors to measuring and publicly disclosing the carbon footprint of their investment portfolios every year

- Report annually on its efforts to assess ESG factors in making investment decisions.

Finally, given the growing recognition of the importance of climate-related risk, we should give serious consideration to extending a similar ESG factor-based approach to our indirect investments.

The Advisory Committee also recommended that U of T increase its commitment to environmental research and teaching and to promoting sustainability in the University's own operations. I agree with the spirit of these recommendations. The University's most valuable and effective contributions to the global effort to avert and mitigate the consequences of climate change will flow from our fundamental role as an institution of research and education. We are already doing much in this regard, and we commit to the following new initiatives:

- Launching a tri-campus clean-tech challenge to encourage environment- and energy-related entrepreneurship

- Providing $750,000 to be distributed over three years for climate-change related academic initiatives

- Prioritizing climate change-related themes in selected programs and curricula

- Increasing the Utilities Reduction Revolving Fund by 50 per cent (from $5 million to $7.5 million) to encourage more extensive implementation of energy-saving retrofits in our buildings

- Formally adopting substantially more rigorous energy efficiency standards for capital projects

- Pursuing opportunities to use our campuses as 'test beds' for environmental and sustainability research and best practices

- Investigating the potential for development of other renewable energy projects

- Establishing a U of T committee on the environment, climate change, and sustainability with a mandate to coordinate and advance U of T's environmental research, innovation, education, and energy consumption initiatives.

Introduction

The reality of anthropogenic climate change, and the need to reduce greenhouse gas (GHG) emissions in response, is now well established and widely accepted. So too is the consensus that we must take action to limit the rise in global temperatures to 2 degrees C above the pre-industrial average, if we are to avoid catastrophic impacts on the planet and humanity.[1] In December 2015, at the COP21 Paris Climate Conference, the heads of government from virtually every country agreed for the first time to take such action, setting a global temperature increase of 1.5 degrees C as the target.[2]

Clearly, the time for concrete, effective action has arrived. After decades of work on the part of scientists, civil-society organizations, policy-makers, and others, we are now seeing a decisive shift toward a concerted, global effort. Increasingly, national and subnational governments and cities are adopting or pledging to adopt more ambitious plans. In Canada, recent months have seen increasing collaboration between provincial governments, and between the provinces and the federal government. The country's environment ministers met in January of this year to begin developing a comprehensive, multi-faceted, pan-Canadian framework for combatting climate change.[3] Prime Minister Justin Trudeau recently convened a meeting of Canada's first ministers, which produced agreement on a set of broad principles to underpin a national strategy to reduce GHG emissions.[4] Later this year, Ontario will release the first five-year action plan under its Climate Change Strategy.[5] In addition, the City of Toronto has undertaken a two-year consultation with businesses and residents to find ways to reduce the City's GHG emissions by 80 per cent.[6]

These initiatives signal a widespread acknowledgement that the threat of climate change will require not just governments, but all members of civil society, to adopt ambitious, substantive measures that far exceed past practices in scope and impact. During her recent visit to U of T's Munk School of Global Affairs, the Honourable Catherine McKenna, Canada's Minister of Environment and Climate Change (and an alumna of U of T) underlined this point in her remarks. While celebrating the Paris Agreement, she asserted, "Now we have to bring it home. We have to show that we can deliver.... How do we reduce emissions in housing, in more buildings, in transit, in electricity, in energy?...We have to take action."[7]

1 http://ar5-syr.ipcc.ch/ipcc/ipcc/resources/pdf/IPCC_SynthesisReport.pdf
2 http://newsroom.unfccc.int/unfccc-newsroom/finale-cop21/
3 http://news.gc.ca/web/article-en.do?nid=1030449
4 http://pm.gc.ca/eng/news/2016/03/03/communique-canadas-first-ministers
5 https://www.ontario.ca/page/climate-change-strategy
6 http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=ba07f60f4adaf410VgnVCM10000071d60f89RCRD
7 http://news.utoronto.ca/catherine-mckenna-u-t-students-what-your-big-idea-help-tackle-climate-change

Awareness and a willingness to act are also on the rise in the business community. Major efforts are underway globally in the investment and banking sectors to raise awareness of climate-related risk, and to develop standardized methodologies and metrics for assessing such risk so that investment managers can make better-informed decisions.[8] The Financial Stability Board (FSB), which plays a key role in promoting the reform of international financial regulation under the leadership of Bank of England Governor Mark Carney, has recently established a Task Force on Climate-related Financial Disclosures, led by former New York City Mayor Michael Bloomberg.[9] Ceres, a sustainability advocacy organization comprised of major institutional investors, has asked the US Securities and Exchange Commission to press oil and gas firms for improved disclosure of carbon-asset risks.[10] Closer to home, the Ontario Teachers' Pension Plan has recently concluded that investors need a range of means to understand and incorporate physical and regulatory climate-related risks in their investment decision-making over the short and long term.[11]

Universities, too, have a crucial and unique role to play in helping to meet the challenge of climate change. The University of Toronto, for its part, has made major contributions to advancing the science of climate change and to informing concrete actions and public policy in response, through its research, teaching, and outreach activities. Faculty, staff, and students across our three campuses are working on every aspect of the challenge, in the sciences, social sciences, humanities, and professional disciplines. As detailed in later sections of this document, our institutional commitments are already broad and deep.

But the severity of the problem of climate change is such that many members of the U of T community wish to do more. Indeed, as a publicly supported academic institution, we feel a strong sense of social responsibility to take action. The movement for divestment from fossil fuels, as represented by the 350.org network, is one manifestation of the desire among many in our community to take proactive measures. It has been active on campuses across North America, in the UK, and beyond for several years. Responses by universities have ranged from outright rejection of divestment, to divestment from certain classes of fossil-fuel producers (such as coal firms), to full divestment by a small number of institutions. Others have opted to focus on a range of other sustainable investment initiatives.[12]

---

8 See for example, the landmark speech by Mark Carney, Governor of the Bank of England, to Lloyd's of London, 29 September 2015, at http://www.bankofengland.co.uk/publications/Pages/speeches/2015/844.aspx#1.

9 http://www.fsb.org/2015/12/fsb-to-establish-task-force-on-climate-related-financial-disclosures/

10 http://www.ceres.org/press/press-releases/investors-push-sec-to-require-stronger-climate-risk-disclosure-by-fossil-fuel-companies

11 http://www.otpp.com/documents/10179/20936/-/7726319b-b1cf-4bbc-8775-7e3c6f28a858/Separating%20the%20Real%20Risks%20for%20Investors%20from%20the%20Noise.pdf

12 See Hebb, T. 'Fossil Free Campaign Orientation Paper', prepared for the University of Ottawa, Carleton Centre for Community Innovation, Carleton University, June 2015, pp 12–15.

The Toronto350.org initiative asking U of T to divest from direct investments in fossil-fuel producing firms has provided an opportunity both to address the important matter they have raised and to reflect on our broader contributions to meeting the challenge of climate change. In response to Toronto350.org's Petition[13] and Brief,[14] I struck an ad hoc Advisory Committee on Divestment from Fossil Fuels (hereinafter, 'the Committee'), following the procedure set forth in the University's *Policy on Social and Political Issues With Respect to University Divestment*.[15] I asked the Committee to consider the University's response to the call for divestment, and to reflect more generally on the University's most appropriate and effective responses to the challenge of climate change.[16] The Committee's Report [17] was delivered after considerable research, consultation, and deliberation, and reflects a level of intellectual quality, engagement, and integrity typical of the University of Toronto. I am extremely grateful to the members of the Committee and to its chair, Professor Bryan Karney, for their excellent work on behalf of the University.

In order to give full consideration to the Committee's recommendations, and to ensure due diligence at a time when both the regulatory environment and business practices are rapidly evolving, I struck several working groups composed of members of my senior administrative team, and undertook further research and consultation. Accordingly, this Administrative Response to the Committee's recommendations is structured around four distinct roles performed by the University of Toronto: the University as Investor; the University as Research Performer and Innovation Catalyst; the University as Educator; and the University as Energy Consumer. The working groups were mindful that while the President has special authority and influence regarding the University's role as an investor, in the University's other three roles he and the University's central administration are meant to serve as a catalyst. Academic plans with respect to research and teaching arise from the University's academic divisions; in these matters fundamental to the University's mission, the administration's role is to support the priorities established by divisions and academic units.

Our aim has been to ensure that the course of action we embark upon fulfills both our fiduciary duties and our social responsibility as a major publicly supported institution. We have also aimed to outline a strategy that is guided by the best evidence available, and that will be truly effective in helping meet the challenge of climate change and the commitments Canada has made through

13 https://campaigns.gofossilfree.org/petitions/divest-uoft

14 https://d3n8a8pro7vhmx.cloudfront.net/to350/pages/50/attachments/original/1428958642/fossil-fuel-divest-new.pdf?1428958642

15 http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/Policy/ppmar042008.pdf

16 http://www.provost.utoronto.ca/public/PDADC/2014_to_2015/Presidential_Advisory_Committee_on_Divestment_from_Fossil_Fuels.htm

17 http://www.president.utoronto.ca/secure-content/uploads/2015/12/Report-of-the-Advisory-Committee-on-Divestment-from-Fossil-Fuels-December-2015.pdf

the Paris Agreement. There now appears to be a strong consensus among members of the University of Toronto community in favour of doing our utmost to that end. As readers will see in the following pages, we have embraced the spirit and followed the logic of the Committee's recommendations, while taking what we believe to be a broader – and ultimately, even more impactful – approach to the question of investment and fossil fuels. It is my sincere hope and expectation that, taken together, the commitments to action proposed in this document will make a major contribution to helping Toronto, Ontario, Canada, and the world reach our ambitious climate action goals.

1. The University as Investor

The Committee's Recommendations

In considering the request in the Petition, the Committee rejected the idea of blanket divestment from fossil-fuel producing firms. It argues that many members of this industry engage in activities that "offer society indispensable benefits that currently cannot reasonably be gained in any other way" (p. 3). Hence, their Report states categorically: "A blanket divestment strategy would be unprincipled and inappropriate in the Committee's view" (p. 7).

Instead, the Committee recommends targeted divestment of the University's direct holdings in those firms whose actions constitute a "blatant disregard" for the 1.5-degree C threshold. It suggests focusing on those firms that derive more than 10 per cent of their revenue from "non-conventional or aggressive extraction" (p. 3). The Committee defers to the University to define this concept, though it highlights "open-pit mining of natural bitumen in Canada, Arctic extraction or exploration, and thermal coal mining in Canada and the United States" as examples of it in practice. The concept of blatant disregard is also extended to cover those firms "that knowingly disseminate disinformation concerning climate change science or firms that deliberately distort science or public policy more generally in an effort to thwart or delay changes in behaviour or regulation" (p. 4). Finally, the Committee singles out firms "that derive more than 10% of their revenue from coal extraction for power generation or Canadian and American power generation firms that derive more than 10% of their revenue from coal-fired plants" (p. 4).[18]

18 The Committee identifies individual firms it believes meet the criteria described above: ConocoPhillips Co. (Arctic extraction activities and plans), ExxonMobil Corp. (alleged funding of 'disinformation'), and Peabody Energy Corp., Arch Coal Inc., Alpha Natural Resources LLC, Cloud Peak Energy, and Westmoreland Coal Co. (production of thermal coal) (pp. 4–5).

The Committee's recommendations also include a number of qualifications and nuances:

- Those firms deriving more than 10 per cent of their revenue from non-conventional or aggressive extraction that have nevertheless demonstrated positive change [such as "a pattern of significant material reductions in such extraction" (p. 4)] could be considered as eligible for investment by the University

- As a company's activities change in the future, they could be reconsidered and re-evaluated as eligible for investment by the University

- The process of operationalizing the concepts of blatant disregard and non-conventional or aggressive extraction may be "difficult" (p. 4)

- The University should consider engaging with the fossil-fuels industry in a partnership aimed at encouraging progressive practices by the industry

- The University should commit to annual reporting of both the method used to assess the worthiness of investments in light of the above criteria and the findings of this analysis

- The focus should be on direct investments as opposed to pooled funds, but as circumstances change this limitation could be reviewed.

It is clear from the above discussion that the Committee is advocating an approach that (i) determines investment worthiness on a *firm-by-firm* rather than industry-wide basis, and (ii) is *dynamic* rather than static: changes in the behaviour of an individual firm over time that shift it towards supporting the 1.5-degree C threshold could constitute grounds for reclassifying the firm as investment-worthy. In espousing these two concepts, the Committee supports a strategy for the University in which investment decisions with respect to individual firms are based on clear evidence, and guided by a set of principles defining desirable or undesirable practices and behaviour.

As part of the Committee's due diligence, the University sought an external expert legal opinion on the Committee's behalf, examining the University's duties with regard to our pension and endowment funds. The opinion indicated that both the pension and endowment funds are held in financial trusts to which fiduciary duties apply. These fiduciary duties are expressed both in statutory and common-law principles. A core consideration is the primacy of the financial best interests of the beneficiaries, requiring a focus on the long-term financial performance of the investments that are held in the trusts.

The Committee states its understanding that trustees charged with ensuring the financial best interests of beneficiaries "may exclude a class of investments where they have reached a well-founded, good faith conclusion that particular investments are not in the long-term best financial interest of the beneficiaries." Moreover, this assessment can be guided *inter alia* by "environmental, social or governance ('ESG') factors as they may relate to the financial health of the funds" (p. 18). The Report then proceeds to make the case that investing in firms whose actions constitute blatant disregard for the 1.5-degree C threshold would not be in the financial best interests of beneficiaries. This case encompasses multiple factors, such as the problem of stranded assets and climate-related risk in relation to investment performance generally, and ultimately extends to the observation that failure to respect the threshold will trigger catastrophic, climate-related crises with dire financial consequences for the University's investments.

The University's Response

1.1 *An Active ESG Factor-Based Investment Strategy for the University of Toronto*

In considering the advice of the Committee, I am convinced by the fundamental argument that ESG factors may indeed have a material impact on the long-term financial performance of particular investments. Moreover, I accept the premise of the Committee's Report that climate-related impacts arising from the activities of individual firms may increase risk and affect their long-term competitive performance – and hence, their attractiveness as investments.

As noted in the introductory section of this document, pronouncements by leading members of the financial community, such as Mark Carney and Michael Bloomberg (on behalf of the FSB), and by the managers of major public-sector pension funds, confirm that this argument is now informing mainstream world-views and investment practices. This approach is also being reflected increasingly in government regulation. For example, the Financial Services Commission of Ontario (FSCO), which regulates Ontario pension plans, now requires that a pension plan's Statement of Investment Policies and Procedures (SIPP) indicate whether ESG factors are taken into account in the plan's investment policies and procedures, and if so, how they have been incorporated.[19]

Clearly, there is growing recognition both globally and locally that environmental considerations such as climate-related risk are material factors in assessing and managing investment risk and long-term financial performance. Increasingly,

19 FSCO's Investment Guidance Note No. 4, https://www.fsco.gov.on.ca/en/pensions/fsco_consultations/Documents/IGN004.pdf

institutional investors are factoring these and other ESG considerations into their assessment of the financial best interests of beneficiaries in their financial trusts. At the same time, there is growing acknowledgement of the idea that those firms that adopt sound ESG practices reduce risk over time and may offer better long-term value for investors. Accordingly, prudence dictates that the University's investment managers take steps to ensure that ESG-related risk (including climate-related risk) is appropriately considered (likewise, ESG-related investment *opportunities* should also be considered). ESG factors can also encompass the important concept of 'social injury' with which we are familiar from the University's own Policy,[20] by highlighting the negative social effects of a particular firm's private actions under the 'social' category of ESG factors.

The approach set out here is consistent with the Committee's recommendation in favour of 'targeted' and dynamic divestment. It is consistent with the idea of targeting, in that it is premised on differentiating between individual firms on the basis of their demonstrated practices and performance. It is also a dynamic approach: to the extent that such firms' practices change over time, so too might their worthiness as potential investments. Hence, according to this logic, all else being equal, the University should invest in those firms whose positive ESG practices are aligned with the long-term financial best interests of the beneficiaries of the investment trusts, with the University's investment decisions adjusted accordingly.

Would this approach produce outcomes consistent with the specific guidelines recommended by the Committee? That is, would non-conventional or aggressive extractors and disinformers as described by the Committee be considered poor investment prospects and thus not worthy of prudently managed investments? The process of operationalizing how one considers ESG factors in investment decision-making remains an evolving art, and the work of the FSB Task Force to develop standardized metrics to assess climate-related risk is still underway. Nonetheless, my expectation is that such investments – properly assessed – would indeed be deemed undesirable from the perspective of ESG-related factors.

The University of Toronto Asset Management Corporation (UTAM), which manages the University's endowment and pension-based financial trusts, reports that the University currently does not have any direct investments in the firms expressly named in the Committee's Report. As for the future, there is reasonable evidence that such investments could indeed carry increased financial risk, and have a reasonable prospect of lower long-term investment outcomes, making them unattractive as long-term investments by the University.

20 *Policy on Social and Political Issues with Respect to University Divestment,* http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/Policy/ppmar042008.pdf

1.2 *Advantages of an Active ESG Factor-Based Investment Strategy*

There are several advantages to the ESG-based approach outlined above. First and foremost, it is driven by the need to fulfill the University's fiduciary duties with respect to both the endowment and pension-based trusts. There is a growing recognition internationally (e.g., by the FSB) and domestically (e.g., by FSCO, Canada Pension Plan Investment Board (CPPIB), and Ontario Teachers' Pension Plan) that ESG factors are very likely to affect investment performance, especially over the long term. It is increasingly clear that the University's fiduciary duties require systematic consideration of ESG factors, including those that affect climate change.

Second, this approach underscores the important point that, in addition to climate-related risk, there is a broader range of environment-related risks (and opportunities) that ought to be taken into consideration when making investment decisions. These might include issues related to water use, air and water pollution, and other similar matters.

Third, this approach provides a prudent way for social responsibility to be factored into nuanced investment decisions. In addition to addressing environmental factors, including those expressly related to climate change, the active ESG factor-based approach provides a consistent analytical framework for issues beyond the environment. For example, with regard to the impact of fossil-fuel extraction and processing on the rights and well-being of Indigenous communities – a concern expressed by Toronto350.org in their Petition, Brief, and Community Response [21] – an investment approach informed by effectively measured ESG factors could capture such activities in assessing the prudence of investing in individual firms. One would expect those firms whose activities in this regard have been shown unequivocally to be harmful to be more likely to present higher risk and potentially lower long-run return to investors.

Fourth, this approach could apply over time not only to the assessment of direct investments in fossil-fuel producing firms but also to the University's direct investments in fossil-fuel consuming firms. Here it is important to recognize that fossil-fuel producers account for only 25 per cent of Canada's GHG emissions, with the balance accounted for by sectors such as transportation, housing, manufacturing, and other economic activities. In Ontario, transportation alone accounts for 43 per cent of the province's emissions, manufacturing accounts for 30 per cent, and buildings contribute 17 per cent of GHG emissions.[22] Given the very pressing

21 Asher, L. et al. 'U of T community response to the report of the Fossil Fuel Divestment Committee,' 25 February 2016. http://www.uoftfacultydivest.com/files/Community-Response.pdf

22 These figures were reported in the *Globe and Mail* (print edition), 23 January 2016, pp. B10–11. See also http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/carbon-challenge-the-economic-cost-of-emissions-reduction/article28359647/

need to meet Canada's ambitious targets as noted above, the University must take action to help achieve these goals. Hence, an approach that addresses all sectors of our economy would seem to offer the best chance of success in meeting the challenge of climate change, while fulfilling our fiduciary duties. This is also consistent with the logic underlying major policy tools such as carbon taxes, which are most effective when applied to all sectors of the economy.

Fifth, this approach would enable our investment managers to use the growing body of literature, emerging professional standards and practices, and the ever improving data to evaluate potential investments with due consideration of climate-related risk, instead of having to develop definitions, criteria, and practices that are unique to the University of Toronto, which would be neither practical nor cost-effective. The market for third-party firms providing such assessment tools and services is developing rapidly, as more investors – large and small – recognize the importance of incorporating ESG factors into their decision-making.[23] A broader, ESG-based approach in our investment policy therefore offers a more feasible and robust framework with which we might operationalize our investment principles.

Finally, as the practice of assessing ESG-based factors develops, it is possible that it could be applied not only to the University's direct investments but also to those it makes indirectly through pooled and indexed funds. In order for this to be viable, the cost and ease of assessing such factors, and the data quality, must reach a point where external investment managers are able to make such determinations without sustaining unduly high implementation costs. But ultimately, the University should aspire to being able to assess the ESG-related factors that bear on the potential risk and return associated with all of its investments, both direct and indirect.

1.3 *Other Elements of an Active Strategy: Engagement and Activism*

The literature on investor strategies to combat climate change highlights the importance of other activities that complement the kind of investment approach outlined above. In particular, remaining a shareholder in a particular firm permits the investor to exert pressure on that firm's management to adopt practices that address ESG-related goals – by, for example, reducing the firm's carbon footprint and GHG emissions.[24] The same literature also concludes that shareholder engagement

23 For example, third-party service providers such as Trucost, Sustainalytics, and MSCI offer increasingly sophisticated tools for measuring portfolio carbon footprints and assessing the ESG practices of individual firms.

24 See, for example, Bauer, R., Clark, G.L. and Viehs, M., 'The geography of shareholder engagement: evidence from a large British institutional investor' (15 May, 2013). Available at SSRN: http://ssrn.com/abstract=2261649; Hebb, op. cit., pp. 10–11. Closer to home, in February, Suncor Energy recommended to shareholders that they vote in favour of a minority resolution filed by NEI Investments (a firm specializing in socially responsible investment) asking Suncor to provide regular, ongoing reports on how its business strategy is consistent with a low-carbon future. See the resolution on p. 72 of the proxy circular at http://www.suncor.com/pdf/6375107_Suncor_2016_English_Proxy_Circular.pdf

and activism of this sort are most effective when the shareholder involved is large and powerful. But most individual investors – even institutional investors such as the University of Toronto, with assets of roughly $6.5 billion under long-term management – are not large enough to exert sufficient influence on their own.

When the clout of individual investors is insufficient to bring about positive change in the behaviour of firms (whether fossil-fuel producers or consumers), it makes sense for investors to join together in coalitions designed to advance such goals collectively. In the case of climate change and associated risks, the London-based Carbon Disclosure Project (CDP) actively promotes the measurement and disclosure of carbon emissions by corporations and other economic actors "to increase transparency around climate-related investment risk and commercial opportunity, and drive investments towards a low carbon economy."[25] In doing so, CDP aims to inform investor decision-making, facilitate shareholder engagement, and encourage corporations to manage (i.e., reduce) their carbon emissions more effectively. CDP also provides insight into corporations' water and forest usage and management activities, and its Cities program provides a framework for cities to measure, monitor, report, and manage their GHG emissions.[26]

While major Canadian public-sector pension funds such as CPPIB, British Columbia Investment Management Corporation, Caisse de dépôt et placement du Québec, OMERS, and Ontario Teachers' Pension Plan are CDP signatories, so far few Canadian universities have signed on. Globally, a handful of universities have become signatories, including the University of California system, the University of Massachusetts Foundation, and the University of Edinburgh Endowment Fund.[27] There is clearly an opportunity for the University of Toronto to show important leadership by being one of the first Canadian universities to become a CDP signatory. In doing so, it would also advance the cause of 'driving investments towards a low carbon economy'[28] across the whole economy, rather than putting an exclusive focus on the extractive sector.

---

25 https://www.cdp.net/en-US/Programmes/Pages/CDP-Investors.aspx. CDP reports that over 5,000 corporations took part in their most recent survey of carbon emissions activity. At time of writing, some 822 institutional investors around the world with a combined US$95 trillion in assets have become signatories.

26 https://www.cdp.net/en-US/Programmes/Pages/CDP-Cities.aspx

27 https://www.cdp.net/en-US/Programmes/Pages/Sig-Investor-List.aspx

28 UTAM is already an active member of the Canadian Coalition for Good Governance, which is one valuable means of better identifying and assessing some of the investment risks relevant to environmental concerns and communicating with investors accordingly.

1.4 *Specific Actions*

Turning to the University's consideration of ESG factors in both the endowment and pension funds, it is important to take a principled approach that provides consistency, and to articulate it in language that is suitable for both the endowment and pension contexts.

Given the growing acceptance that one or more environmental, social, and governance factors can have a material effect on investment risk and long-term return, ESG factors are now widely integrated into investment analysis and decision-making under many investment policies directed at managing and evaluating long-term investment risk. The information base available to support analysis and decision-making is also growing and its quality is expected to improve over time. For these reasons, I believe that the University of Toronto ought to apply ESG factors in this manner.[29]

In light of the above considerations, I will take the following actions with respect to the role of the University as Investor:

Policy

1. I will direct UTAM to articulate principles (discussed further in point 3 below) that will enable consideration of ESG factors in undertaking direct investments on behalf of the University's endowment funds, as soon as is reasonably possible and ideally no later than 1 July 2016. These principles should outline how ESG factors, including those related to climate change, will be taken into account while ensuring the long-term best interests of the beneficiaries.

2. I will recommend to the University's Pension Committee that the SIPP governing our pension investments incorporate the ability to consider ESG factors in a manner consistent with the principles that will apply to our endowment funds.[30]

---

29 Similar statements have been adopted by other major institutional investors such as Ontario Teachers' Pension Plan: "Our investment decisions are based on our obligation to help the plan pay members' pensions today and tomorrow. In making those decisions, we are legally bound to be diligent in our investing process, which means carefully assessing risks and weighing those risks versus the potential return expected. Risks can come from financial as well as non-financial factors, and that's why analysis of ESG factors is integrated in our processes." http://www.otpp.com/investments/responsible-investing/our-principled-approach

30 The pension and endowment funds are held separately but managed by UTAM with the same policy asset mix and via investments to, for the most part, the same investment managers, for efficiency purposes. Since our fiduciary duties are the same in both cases, and in order to act consistently and cost-effectively, we ought to take the same approach to both funds with respect to responsible investment practices and consideration of ESG factors. I note that the Pension Committee is required to update our SIPP pursuant to the FSCO guidelines described above by no later than 1 July 2016, and that, accordingly, the Pension Committee will have an opportunity to consider this issue in the coming months. The directives to UTAM to take particular actions as outlined in this document – as they pertain to the University's pension funds – also involve the jurisdiction of the Pension Committee.

3. I will recommend to UTAM that its commitment to consider ESG factors for both endowment and pension funds should be articulated in a statement of responsible investment principles.

Implementation

The implementation of the SIPP and statement of responsible investing principles will be multi-faceted and will involve some complexity, and it should reflect an awareness of emerging data, standards, and practices. As part of this process, the following specific actions can be taken in the immediate future.

4. I will direct UTAM to initiate the process by which we become a signatory to the Carbon Disclosure Project.

5. I will direct UTAM to evaluate the feasibility of becoming a signatory to the United Nations-supported Principles for Responsible Investment Initiative (UN-PRI).[31] In considering this issue, UTAM and the University will need to give due consideration to the costs associated with complying with UN-PRI measurement and reporting obligations. UTAM should also consider the relative benefits and cost of joining other similar coalitions.

6. I will direct UTAM to determine ways in which it can vote proactively and deliberately on shareholder resolutions aimed at reducing climate-related risk for the firms in which they are directly invested, where UTAM retains voting rights or discretion over voting policy.

7. I will direct UTAM to evaluate the feasibility of becoming a signatory to the Montréal Carbon Pledge, which commits investors to measuring and publicly disclosing the carbon footprint of their investment portfolios on an annual basis with a view to reducing that carbon footprint over time.[32]

8. I will direct UTAM to report annually on its actions pertaining to the initiatives outlined above. UTAM should consider the feasibility of including in this report an analysis of the extent to which the changes discussed above have reduced the exposure of the University's long-term investments (endowment and pension) to climate-related risk, and incorporated ESG factors more broadly into its investment practices. This annual report will be made publicly available on the University's website.

---

31 http://www.unpri.org/ The UN-PRI is a means by which investors commit to incorporating ESG factors into investment analysis and decision-making, and encouraging the firms in which they invest to disclose information on ESG issues.

32 The Montréal Carbon Pledge has been adopted by more than 120 institutional investors globally, representing more than US$10 trillion in assets under management.

Investors such as CPPIB and Ontario Teachers' manage much larger asset bases than UTAM (more than $280 billion and $150 billion respectively), and therefore have the internal capacity to undertake the measurement, monitoring, reporting, and engagement activities associated with responsible investing. In considering the above initiatives, it will be prudent for UTAM management to undertake research into available third-party service providers, and to consult with other institutional investors that are UN-PRI and/or Montréal Carbon Pledge signatories, and whose assets under management are similar in scale to those managed by UTAM.

It should also be recognized that responsible investment practices and principles continue to evolve, as do the tools and metrics available to inform and guide responsible investment decision-making, including those specifically related to climate-change issues.[33] Instead of asking UTAM management to develop its own methodology for assessing corporate behaviour, it makes considerably more sense to take advantage of leading-edge third-party tools and metrics to assess the ESG practices (including those related to climate change) of those firms in which UTAM holds direct investments. We should expect UTAM to review its practices and principles regularly, and update them as new information, research, and understanding of ESG-related issues develop. These changes should be documented in the regular reports from UTAM as noted above.

Finally, given the growing recognition of the importance of climate-related risk, as signified by the FSB initiative, the University of Toronto should give serious consideration to extending a similar ESG factor-based investment approach to its *indirect* investments. While the cost of doing so may be prohibitive in the short run, as the state of the art evolves and the feasibility of implementing this approach improves, the same logic that applies to our direct investments should ultimately be applied to the University's indirect investments. I will instruct UTAM to consider how its selection and monitoring of external fund managers and pooled/indexed funds can incorporate ESG-related considerations, including climate-related risk.

1.5 *The University as Responsible Investor*

The ESG factor-based approach outlined above is very much inspired by the recommendations of the Committee. It is consistent with the Committee's logic in calling for *targeted* investment decisions at the level of individual firms and a *dynamic* approach in evaluating the behaviour of a firm over time. But it is also intended to have greater impact, by articulating a framework that accommodates

33 Again, to quote from the Ontario Teachers' Pension Plan, "We think of responsible investing as a journey because ideas, terminology and tools are evolving, and so are our practices. Our ESG analysis is becoming more systematic across the pension plan and we know more about the potential impact of ESG factors on financial returns than we did in the past." http://www.otpp.com/investments/responsible-investing/our-principled-approach

other environmental, social, and governance factors besides the particular issues related to climate change, and by applying an ESG factor-based assessment to both fossil-fuel *producers* and *consumers*. Hence, once fully implemented, it will likely have a considerably greater impact in influencing firm behaviour, and ultimately in helping to reduce GHG emissions. Moreover, it meets the tests that we must meet in this very serious matter: it is fully consistent with our fiduciary duties in relation to financial trusts, and it will provide a durable and adaptable framework for guiding decisions on whether or not to invest in fossil-fuel – or *other* kinds of – firms. Most importantly for the broader concern that has prompted this exercise, this ESG factor-based approach holds greater promise in enabling the University as a responsible investor to maximize its contributions to the global response to climate change in a manner that is consistent with the financial best interests of the beneficiaries of the trusts involved.

2. The University as Research Performer and Innovation Catalyst

The University of Toronto has a long and outstanding record of research and innovation in matters related to energy and the environment,[34] including climate change. Over 200 U of T faculty members on all three campuses are engaged in these endeavours, many in collaboration with leading national and international institutions and organizations. They represent a wide range of disciplines – from Engineering and Physics to Biology and Public Health, Law and Political Science – and they are based in more than 30 academic units and affiliated hospitals. They also figure prominently among the University's leading scholars and scientists, constituting almost 10 per cent of our Canada Research Chairs.[35]

U of T's contributions to research in the relevant fields are magnified by the rare breadth and depth of academic excellence concentrated on our three campuses. We have leveraged this distinguishing strength through the development of a wide range of interdisciplinary research and education units, such as the School of the Environment, the Department of Physical & Environmental Sciences at UTSC, the Environmental Governance Lab, the Centre for Global Change Science,

34 NTU ranks U of T 23rd in the world (Environment/Ecology); US News and World Report ranks us 34th (Environment and Ecology); QS ranks us 37th (Environmental Science).

35 Source: Office of the Vice-President, Research and Innovation

the Institute for Sustainable Energy, the Pulp & Paper Centre, the Household-level Urban Socio-Ecology (HOUSE) Laboratory, and the Division of Occupational and Environmental Health. These units provide opportunities for collaboration among faculty and student researchers across a wide array of disciplines.

At the same time, a great deal of this activity is being translated into patents, licenses, and start-ups, forming an important feature of the landscape of innovation at U of T. In the past five years, 28 commercialization projects have been initiated, 20 licensing (and supporting) agreements executed, 21 patents issued, and 130 patent applications filed in innovations related to alternative energy sources, clean tech, and energy-efficient materials, products, and infrastructures. Of the nearly 100 invention disclosures received during this time, 78 per cent have included a student inventor.[36] This too reflects a distinguishing strength of the University of Toronto – as one of the world's leading research-intensive universities, we are also a leader in research-intensive education.

Here is a very small sampling of the research and innovation initiatives led by U of T faculty, students, staff, and alumni:

- Groundbreaking research on Earth's climate history contributing to our ability to predict the future impact of human-induced global warming[37]

- Innovative modeling studies of contamination in the Athabasca Oil Sands region showing the possibility that future risks to humans and wildlife posed by surface mining activity is underestimated in environmental impact assessments[38]

- Award-winning research that could help in understanding the geochemical processes involved in waste disposal and groundwater cleanup[39]

- International collaboration to explain increases in ozone-depleting chemicals in the lower stratosphere of the Northern Hemisphere, despite the decades-old ban on chlorofluorocarbons (CFCs)[40]

36 Source: Office of the Vice-President, Research and Innovation
37 http://www.news.utoronto.ca/pioneering-physicist-richard-peltier-wins-killam-prize
38 http://ose.utsc.utoronto.ca/ose/story.php?id=5819
39 http://news.utoronto.ca/polanyi-prize-awarded-barbara-sherwood-lollar
40 http://www.artsci.utoronto.ca/main/newsitems/unexpected-increase-in-hydrogen-chloride

- Interdisciplinary conferences and symposia – such as the annual U of T Sustainability Conference [41] and the conference on Globally Integrated Climate Policy for Canada [42] – to promote knowledge exchange with the public and with policy-makers and practitioners

- Development of a new material that may enable a commercially viable means to store energy produced by intermittent sources such as solar and wind [43]

- Establishment of the first Canadian training program to integrate clean-energy technology into generation systems in remote areas [44]

- Engineering and commercialization of clean-tech and energy-efficiency breakthroughs, including: the world's most energy-efficient light bulb (Nanoleaf) [45]; environmentally friendly biodiesel fuel (Biox Corp.) [46]; a way to clean biogas waste and convert it into fertilizer (CHAR Technologies) [47]; means to improve the cost-competitiveness of solar power (PRISED) [48]; and next-generation photovoltaic cells, using cutting-edge colloidal quantum dot technology (QD Solar) [49]

- New collaborations with local public and community health organizations in the Toronto region to conduct multidisciplinary research on promoting green living and food security [50]

- Research on all three campuses addressing climate change through urban sustainability policies at the municipal level [51]

---

41 http://conference.sustainable-engineers.org/

42 http://www.law.utoronto.ca/scholarship-publications/conferences/archives/globally-integrated-climate-policy-canada

43 http://www.theglobeandmail.com/technology/science/new-material-raises-hopes-for-cheap-renewable-energy-storage/article29389597/

44 http://dgrc.mie.utoronto.ca/

45 http://magazine.utoronto.ca/leading-edge/lighting-a-revolution-nanoleaf-christian-yan

46 http://magazine.utoronto.ca/summer-2005/biox-fuel-from-organic-waste-david-boocock/

47 http://news.utoronto.ca/supergreen-turning-renewable-natural-gas-waste-fertilizer-u-t-startup-char-technologies

48 http://prisedsolar.com/

49 http://www.qdsolarinc.com/Recently Sustainable Development Technology Canada provided $2.55 million to QD Solar to support its work in helping revolutionize conventional solar panels. See http://marsinnovation.com/2016/03/qd-solar-receives-2-55-million-from-sustainable-development-technology-canada-sdtc/.

50 http://news.utoronto.ca/building-healthier-cities-and-communities-one-collaboration-time

51 http://sites.utm.utoronto.ca/conway/ ; http://news.utoronto.ca/sara-hughes-how-city-governments-can-help-solve-climate-change ; http://utsccommons.utsc.utoronto.ca/spring-2012/campus-news/utsc-partners-parks-canada-rouge ; http://magazine.utoronto.ca/all-about-alumni/how-to-build-a-sustainable-city-can-toronto-cut-emissions-by-80-per-cent-nadine-ibrahim-donna-paris/ ; http://magazine.utoronto.ca/autumn-2015/sustainable-city/ ; http://news.engineering.utoronto.ca/u-t-cities-podcast-episode-three-sustainable-cities/

- Development of an inexpensive air quality monitoring system (AirSENCE) that measures air pollution across urban regions and tracks it on an online interactive map, enabling users to make better-informed choices in managing their exposure to pollutants[52]

- First place in an international student competition to design, build, and test-drive the most energy-efficient car.[53]

These and many other initiatives show that our research and innovation community is absolutely crucial to the University's contributions in addressing environmental concerns. The following paragraphs outline some of the key facets of the University's commitment to this end.

Environmental concerns present a diverse range of complex questions on the local, national, and global levels. To maximize our efforts, we have sought to promote U of T research and innovation in the field through comprehensive communications and strategic initiatives. We highlighted "Humanity and the Environment" as one of the seven themes in our Strategic Research Plan (2012–17).[54] This gives us a strong but flexible framework on which to attract and retain top talent, build research programs and links between research, education, and training, and leverage partnerships and programs in the field. We also compiled a catalogue to raise awareness of U of T's contributions, entitled *Research and Innovation in Energy & the Environment at the University of Toronto*.[55] These contributions were categorized as follows: Renewable and Cleaner Energy; Fuel Cells and Biofuels; The Environment and Society; Climate Change; Pollution and Health; Sustainability, Recycling and Conservation; Biofuels and Forest Products; Fisheries; Mining; and Water. The catalogue included information on our researchers' success in translating their findings into patents, licenses, and start-ups. (For our plan to renew this initiative, see p. 24 below.)

52 http://www.news.utoronto.ca/u-t-researchers-launch-interactive-air-pollution-map-during-toronto-2015-pan-amparapan-am-games

53 http://news.engineering.utoronto.ca/u-of-t-engineering-supermileage-team-wins-shell-eco-marathon-in-detroit/

54 http://www.research.utoronto.ca/wp-content/uploads/2012/10/SRP-2012-web.pdf

55 http://www.research.utoronto.ca/wp-content/uploads/2015/12/Energy-and-the-Environment-Catalogue-Uof T.pdf

U of T faculty members engaged in environment- and energy-related research are supported by government, not-for-profit, and private-sector funding. In the past three years, they have been awarded approximately $14 million in research grants with an annual average of $4.5 million received from industry sources.[56] They have also received funding through their collaborations with local, provincial, and national agencies, such as the City of Toronto, Alberta Environment, the Great Lakes Commission, and Environment Canada.[57] Through the Vice-President, Research and Innovation portfolio, the Connaught Global Challenge Fund supports collaborative and interdisciplinary research and innovation with a strong emphasis on meeting challenges facing global society (including climate change). Of the five $1-million awards to date, two have been for environment-related research.[58] The University also funds undergraduate student research through the University of Toronto Excellence Awards (UTEA), which provide summer research opportunities in the natural sciences and engineering and in the social sciences and humanities. In the past five years, $1.6 million in UTEA funds have been provided to the academic divisions which have then allocated them to students according to UTEA's competitive processes.[59] Nearly 50 of these projects – almost 15 per cent of the total – have been related to energy and the environment.[60] Students also have access to research opportunities and funding to support them through individual faculty members' research funding.

56 Some recent examples: The Industrial Biocatalysis Network, based at U of T, received a five-year, $5-million grant from NSERC to explore new methods of using enzymes to produce environmentally friendly chemicals, plastics, and other products (http://news.utoronto.ca/new-5-million-nserc-network-uses-enzymes-greener-manufacturing). U of T's Pulp & Paper Centre, in partnership with over 20 firms from the forestry, paper, and biorefinery sectors, is exploring new biological and high-tech tools to convert forest biomass and mill effluents into alternative energy sources (http://www.pulpandpaper.utoronto.ca). U of T researchers are also collaborating with Ford Motor Co. to develop new biomaterials in order to produce lighter, more fuel-efficient vehicles (http://www.news.utoronto.ca/ford-motor-company-partners-u-t-make-greener-lighter-cars).

57 Some recent examples: From the City of Toronto, to study integrated green roof and photovoltaic technologies and Toronto's multi-unit buildings. From the Great Lakes Commission, to investigate the impacts of forest biomass harvesting on the mobility and bioaccumulation of mercury in the Western Great Lakes Region. From Environment Alberta, to study Alkali Lake brine plume modeling. From Environment Canada, to improve North American carbon flux estimates and to develop measurement and data analysis platforms to evaluate pollution from oil-sands mining.

58 Professor Geoffrey Ozin is leading the U of T Solar Fuels Cluster, a multidisciplinary team seeking to develop a process for converting carbon dioxide into an energy-rich renewable fuel using a carbon-neutral cycle. Professor Edward Sargent and multidisciplinary co-investigators are studying plants to learn how to make the best use of the sun's abundant energy and potentially to open up a new avenue for creating inexpensive, efficient, clean-energy capture technologies.

59 Source: Office of the Vice-President, Research and Innovation

60 Source: Office of the Vice-President, Research and Innovation

The Innovations & Partnerships Office, and more recently the University's nine accelerators, supported by the Banting & Best Centre for Innovation and Entrepreneurship, foster and help to catalyze U of T's entrepreneurial community. In 2015, in order to help start-ups brainstorm and refine clean-tech ideas, the Impact Centre (one of our nine accelerators), held a joint TechnoStorm event with Sustainable Development Technology Canada's Virtual Incubator™ focusing on climate change and clean air, water, and soil.[61] The event drew 12 early-stage firms from U of T, the University of Waterloo, and Ryerson University. The Office of the Vice-President, Research and Innovation also supports our faculty members in applying for funding for clean-tech initiatives. As an example of our success, the federal government recently announced $6 million in support for three U of T clean-tech start-ups.[62]

The Committee's Recommendations

The Committee notes that the University of Toronto is already an "international leader in climate change research", while recommending that we enhance support for our research community in science, technology, policy, and other spheres. The Committee identifies three specific goals for research and innovation, and proposes mechanisms to achieve them:

- Create a 'Meeting Climate Change Fund' (MCCF) to support activities that build on our academic strength in research and education on climate change. With regard to research, the MCCF could provide support to seed academic collaborations, coordinate and catalogue research initiatives in environment- and energy-related fields, and fund student research through annual competitions

- Establish a 'Collaboration Fund' to enhance industry-research partnerships and to provide more research and education opportunities for our faculty, staff, and students, given the reality that the "evolution of a less carbon-intensive society can be achieved only through collaboration with the energy industry"

- Mobilize and channel "climate change-focused entrepreneurship" by establishing a "climate change-specific incubator (possibly in collaboration with other Toronto-area universities), or a climate change-focused entrepreneurship course.... "

61 http://news.utoronto.ca/cleantech-hack-challenging-entrepreneurs-think-next-generation-clean-technologies
62 http://news.utoronto.ca/federal-government-backs-three-u-t-startups-and-their-clean-tech-innovations

The University's Response

As noted in the introductory section of this document, there is a strong and widespread desire in the University of Toronto community to contribute as much as we can to global efforts to meet the challenge of climate change. To help achieve this aspiration, we are taking or will take the following actions in light of the Committee's recommendations. In each case our actions will be shaped by the acknowledgement that our faculty and students are the ones who identify research priorities and choose specific research initiatives.

Seeding Academic Collaborations

- The Connaught Global Challenge Fund is currently structured to provide one $1-million award annually to support collaborative research and initiatives. In order to increase the seeding of collaborative research efforts, ***the Connaught committee is considering restructuring the Fund to enable the awarding of more prizes per year***, thus potentially increasing the number of interdisciplinary collaborations, including environment- and/or energy-related challenges.

Promoting Undergraduate Student Opportunities and Achievements

- The National Survey of Student Engagement (NSSE) confirms that our undergraduate students are eager to participate in research and innovation activities outside the classroom. It is important, therefore, that they have access to suitable means to search for specific opportunities, and of course this includes opportunities in the fields of energy and the environment. The offices of the Vice-President, Research and Innovation and the Vice-Provost, Innovations in Undergraduate Education are working together to ***establish systems that will enable our researchers (and external organizations) to advertise research and innovation opportunities and to enable students to search for specific opportunities*** and receive notices of new postings.

- We will continue to support undergraduate student research through the UTEA fund, and we will monitor demand, including demand for research opportunities in fields related to energy and the environment, so that if demand exceeds currently available funding, ***we can work with academic divisions to pursue additional funding*** through the University's budget process.

Collaborating with Industry

- We will intensify our efforts, in collaboration with academic divisions, to reach out to industry, highlighting our strengths in environment- and energy-related research and innovation. We will also support our faculty members in setting up relevant agreements with industry partners. For example, ***we will continue to support the establishment and growth of clean-tech firms through strategic networks and partnerships such as the MaRS Cleantech venture services group***, which brings together entrepreneurs, investors, policy makers, and corporate partners and advisors to build globally competitive businesses.[63] We will also continue to work with funding partners such as Ontario Centres of Excellence (OCE) to utilize specialized funding opportunities (including OCE's new, $74-million initiative to support emissions reductions and clean-tech enterprises).

- The Vice-President, Research and Innovation, the Vice-President, University Operations, and the Principals of UTM and UTSC ***will work together to advance the use of U of T's three campuses as living labs or 'test beds' and to increase the number of opportunities for faculty-industry collaboration in research and innovation***. (For more detail, see p. 40 below.)

Mobilizing our Entrepreneurial Community

- As indicated above, there is a great deal of activity at U of T related to environment- and energy-related entrepreneurship, and one of the distinctive strengths of our innovation ecosystem is the presence of multiple accelerators supporting diverse entrepreneurial perspectives and client groups. ***We will build on these assets by launching a tri-campus-wide clean-tech challenge***. We will treat this initiative as an opportunity to further highlight and celebrate our start-up activity in relevant fields.

Cataloguing and Highlighting U of T Research and Innovation

- ***We will update*** **Research and Innovation in Energy & the Environment at the University of Toronto*****, and develop a mechanism for continuous review of this catalogue.*** We will expand its scope to reflect current innovation successes both in faculty and student entrepreneurship as well as our social innovation successes. We will also actively promote and communicate our institution-wide strengths in these areas.

63 U of T firms such as Opalux, Nanoleaf, OTI Lumionics, Sylleta, and SulfaChar are among those that have received support from MaRS Cleantech.

Fundraising for Climate-Change Related Research Priorities

- As the above initiatives result in new and revised academic priorities, and as divisions further define their own academic priorities for climate-change related research initiatives, ***we will develop associated fundraising priorities*** through normal academic channels for inclusion within the goals of the Boundless Campaign and campaigns to follow. We anticipate strong engagement and interest from potential donors when such opportunities for philanthropy are articulated.

3. The University as Educator

The University of Toronto's leadership in addressing the challenge of climate change is a product of its academic mission. As the Committee emphasized, "(t)he University's most valuable and effective contributions to the global effort to avert and mitigate the consequences of climate change will flow from our fundamental role as an institution of research and education."

As noted in the previous section of this document, the education offered on our three campuses is distinguished by the tremendous opportunities available to U of T students to study and work with some of the world's most outstanding scholars in a wide range of fields. When it comes to studies related to energy and the environment, as in other fields, our history shows that our students are eager to take advantage of this opportunity, and there is strong interest in these issues among our student body as a whole.

From the pioneering advocacy of the students whose work led to the founding of Pollution Probe in 1971, to the many students active today in the U of T Environmental Resource Network and Toronto350.org, U of T students use their education – inside and outside the classroom – to help make a positive difference in the world. As alumni, they go on to leadership positions on the local, national, and global stages. As a result, our role as 'educator' extends beyond what happens on our campuses, throughout the spheres of civil society, industry, and public-policy making.

Our faculty members have been eager to meet student interest, and to share their expertise and insight with successive generations of emerging environmental leaders and environmentally conscious citizens. As in all fields, U of T's academic strength

in these areas is the result of the organic development of scholarly interest among faculty members and students. The role of the University's administration is to cultivate that interest and support those who wish to pursue it.

Over the past decade or more, we have witnessed a significant increase of scholarly interest in environment-related programming. This emerged initially out of the Stepping Up academic planning initiative in 2014, a cross-divisional consultative process to identify key values, goals, and priorities for the University's academic mission. Through this process, faculty, students, and administrators highlighted environment-related programs and courses as a major focal point for broader, institutional discussion and increased support, particularly in interdisciplinary and interdivisional activities.

The Stepping Up initiative led to the creation of the Round Table on the Environment (2006–2008), whose purpose was to highlight the University's existing and emerging strengths, and to maximize our scholarly and educational impact in the field. This exercise and subsequent working groups and task forces led in turn to the creation of the School of the Environment in 2012, to strengthen core offerings, support faculty members, and provide an interdisciplinary home for interested students. Interest in the environment as a field of study is also reflected in academic opportunities across our three campuses, including:

- Programs in Environmental Science and Environmental Management (University of Toronto Mississauga)

- Programs in Environmental Science and Environmental Geography (Faculty of Arts & Science)

- Programs in Forest Conservation (Faculty of Forestry and Faculty of Arts & Science)

- Environmental Law (Faculty of Law).

In addition to the ongoing work within long-standing academic units and programs across the University, a significant number of new academic offerings have been approved in the past four years alone. The Provost's office has supported these new endeavours and has ensured their approval on the basis of the University's highly rigorous review processes. Here is a sampling of offerings established since 2012:

- Certificate in Renewable Resources Engineering (Faculty of Applied Science & Engineering)

- Combined Degree Program, B.Sc. in Environmental Science/M.Eng. (Faculty of Applied Science & Engineering and University of Toronto Scarborough)

- H.B.A. Major in Environmental Studies (University of Toronto Scarborough)
- Master of Science in Sustainability Management, M.Sc.S.M. (University of Toronto Mississauga)
- Combined Degree Program, H.B.A. Specialist in Environmental Management/M.Sc.S.M. (University of Toronto Mississauga)

The Committee's Recommendations

The Committee notes that "(r)esearch, pedagogy, and debate are the University's indisputable strengths and the core of its mission," and that "harnessing these strengths is a vital part – indeed, the most vital part – of the University's response to the challenges of climate change."

The Committee argues rightly that "(t)he notion of helping society re-imagine how it is organized is entirely consistent with the University's mission as an institution of advanced research and higher education." At the same time, it recognizes that "(d)ivisional independence is one of the University of Toronto's institutional strengths; academic priorities are established and driven by the collegium."

Specifically, as noted above, the Committee recommends the creation of a 'Meeting Climate Change Fund' (MCCF) to "build on the University's academic strength in research and education on climate change. It could be used to seed academic collaborations; to assist in coordinating and cataloguing our disparate initiatives in climate science, environmental engineering, earth sciences, sustainability, public policy, law, etc.; to fund student research through annual competitions; to help create a climate change-focused course development fund, similar to the one already implemented by the Provost's Office; to fund scholarships and bursaries, and to help integrate critical discussions of climate change in all levels of the curriculum."

The Committee notes that for the recommendations to be most successful, their implementation must reflect and respect the University's core principles of individual academic freedom and divisional self-determination. The University of Toronto is a globally recognized leader precisely because of the ability of our individual faculty members to determine the nature and scope of their own scholarly activity and the independence of our divisions and academic units in determining their academic plans and priorities. Academic engagement with the issue of climate change should not only uphold these traditions but leverage them in order to catalyze our collective and individual efforts. The University's record of past accomplishments and the proposed response to the Committee's recommendations, both detailed below, adhere to these fundamental tenets of the University.

The University's Response

$750,000 in Funds Earmarked for Climate-Change Related Research and Education Initiatives

Regarding the Committee's recommendation to create a 'Meeting Climate Change Fund', ***we will provide $250,000 of earmarked funds for each of the next three academic years*** (2016–17, 2017–18, and 2018–19) for a range of new initiatives, including some of those mentioned above, to meet emerging demand from faculty members and students. We believe that providing these funds through established, well-known structures will be the most effective way to ensure the desired impact.

The Provost will ***support the funding of climate change-related initiatives by prioritizing the theme within select programs and encouraging participation from across the academy*** in developing new research projects and curricular innovations.

The mechanisms through which this commitment will be implemented include:

- The Provost's Learning and Education Advancement Fund (LEAF), a recently established fund to support student-centred curricular innovation within and between academic divisions

- The Undergraduate Course Development Fund (UCDF), which fosters course partnerships – involving graduate-only divisions, graduate-only departments within multi-department faculties, and second-entry professional divisions and programs – to deliver innovative undergraduate courses in first-entry undergraduate divisions ($25,000 per course)

- The Online Undergraduate Course Initiative (OUCI), which supports the development of online undergraduate courses in order to increase access for students in first-entry U of T programs, students enrolled at other Ontario universities, and international students who may wish to consider full-time enrolment at U of T ($12,000 per course)

- The Provostial Undergraduate Research Working Group, which is tasked with expanding undergraduate student awareness of and access to faculty-sponsored research opportunities.

The implementation of this commitment will be coordinated by the Office of the Vice-President and Provost and supported, where appropriate, by the Office of the Vice-President, Research and Innovation. Academic leaders in fields related to the environment and climate change will be consulted on an ongoing basis. (For further details, see p. 41 below.)

Raising the Visibility of Existing Programs and Courses

With the advent of new curricular technology tools, we have the means to provide an accurate, searchable, user-friendly catalogue of courses in the field. The Provost's Office, in collaboration with the Office of Enterprise Applications and Solutions Integration, will ***complete the development of a tool to enable instructors to tag individual courses according to thematic areas designated by the project sponsors in collaboration with academic divisions***. This would include search and catalogue functions for academic administrators, staff, instructors, and students. With such a system in place, it will be significantly easier for our students (and their academic advisors) to identify appropriate courses with a focus on the environment, energy, and sustainability.

Fundraising for Climate-Change Related Education Priorities

As noted in the previous section, ***additional priorities identified by faculties and divisions for climate-change related academic initiatives will be included in fundraising goals*** approved by the Provost for the Boundless Campaign and campaigns to follow.

4. The University as Energy Consumer

As an academic community, our primary contribution to meeting the challenge of climate change is through our core missions of advanced research and research-intensive education (as outlined in the relevant sections in this document). But we are also driven by the desire to contribute in our own day-to-day operations – and in fact to stand out as leaders in doing so.

The scale and complexity of our operations might seem daunting, when one considers the following table:[64]

University of Toronto – Size and Energy Usage

	Students, Faculty, and Staff	*Buildings*	*Gross Square Metres*	*Total Annual Energy Usage (Electricity and Thermal)*
St. George	65,808	120	1,178,861	490,000 eMWh
Mississauga	14,527	48	203,204	88,261 eMWh
Scarborough	13,360	34	179,151	63,136 eMWh
Total	93,695	202	1,561,216	641,397 eMWh

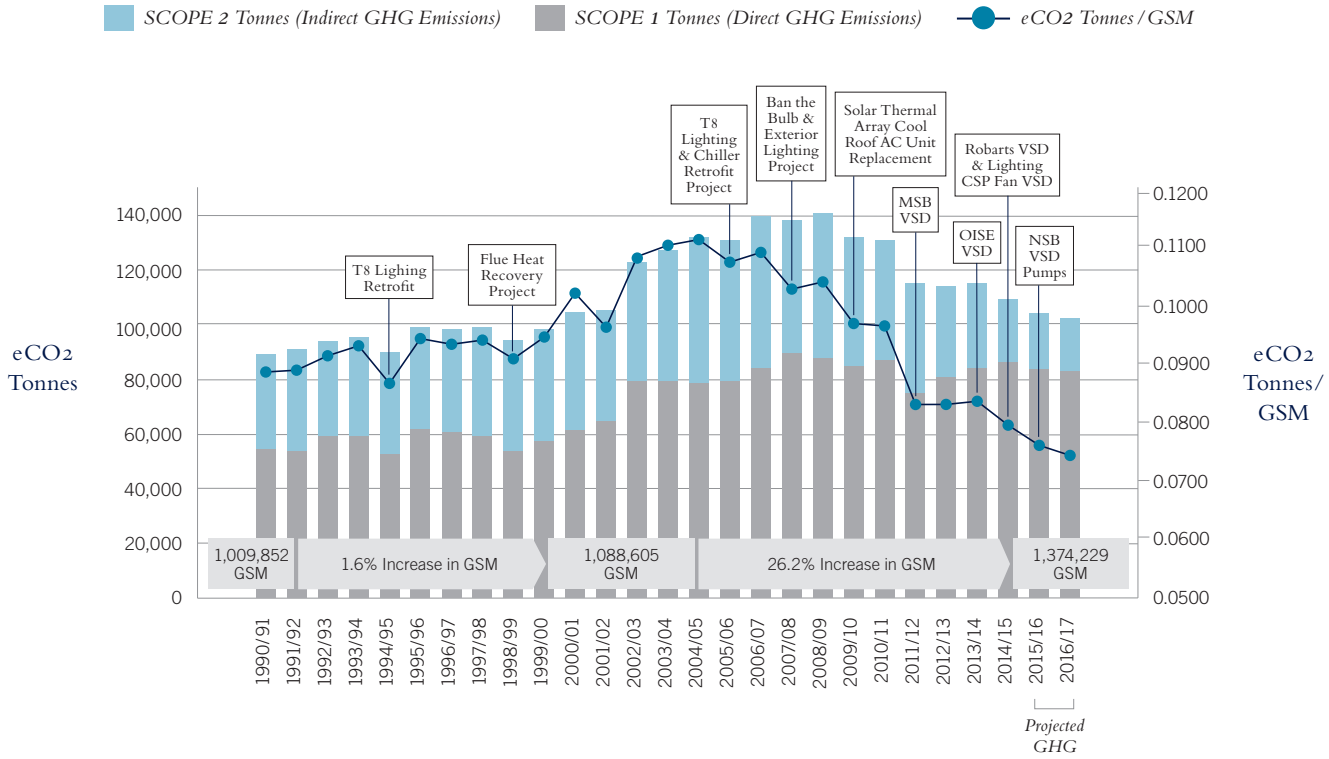
But there is a truly great story behind these numbers. We have found that the challenge of sustainability is invigorating, and we look on it as an ongoing imperative. Through the efforts of University Operations on the St. George campus and the initiatives of UTM and UTSC, and in collaboration with academic divisions, we are steadily and significantly reducing the intensity of our energy use and our carbon footprint, and increasing our operational sustainability. We are proud to have earned a 'Canada's Greenest Employer' designation in 2015, one of only 60 organizations across the country to be so recognized.

64 Sources: Office of the Vice-President, University Operations; Office of Facilities Management and Planning, UTM; Office of Business and Administration, UTSC

Smaller Environmental Footprint

Despite a massive, 36 per cent increase in building space and population on the St. George campus since 1990 (especially since 2003), its overall environmental footprint is below 2003 levels. We have achieved this through ongoing internal and external audits, metering, and hundreds of energy- and water-conservation initiatives. GHG intensity (eCO2 tonnes/GSM) is down to well below 1991 levels, as shown in the graph below. This reduction has been brought about by various initiatives on the part of Facilities & Services, as well as the change in the nature of electrical supply in Ontario (the phasing out of coal-fired generating stations beginning in 2010).

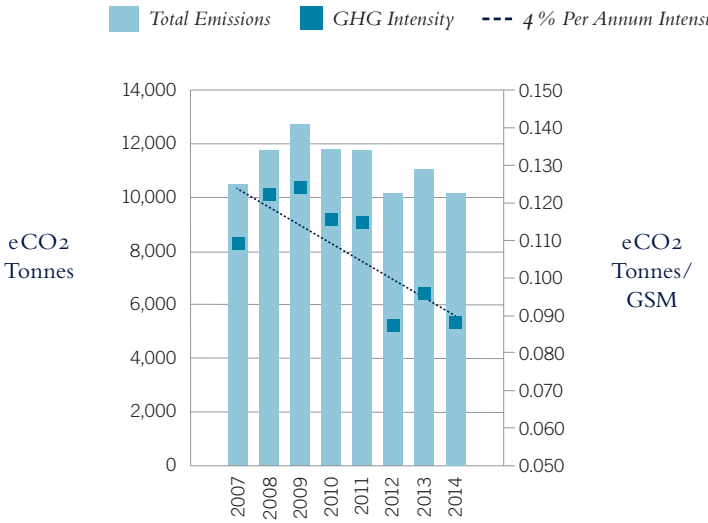
University of Toronto, St. George Campus —
Total GHG Emissions for All Purchased Hydro and Thermal Utilities



Notes: *Data represents all purchased utility sources including Toronto Hydro, Hydro One, Enbridge Gas, Enwave, and other natural gas suppliers. Purchased utilities and GSM data include all federated universities and external entities. Provincial phasing out of coal-powered plants 2010–2013.*

UTSC has achieved a very significant reduction in GHG intensity emissions while increasing the number of buildings to support undergraduate and graduate growth. In fact, as illustrated in the following chart, between 2007 and 2014 the campus reduced its emissions intensity in the order of approximately 26 per cent.[65]

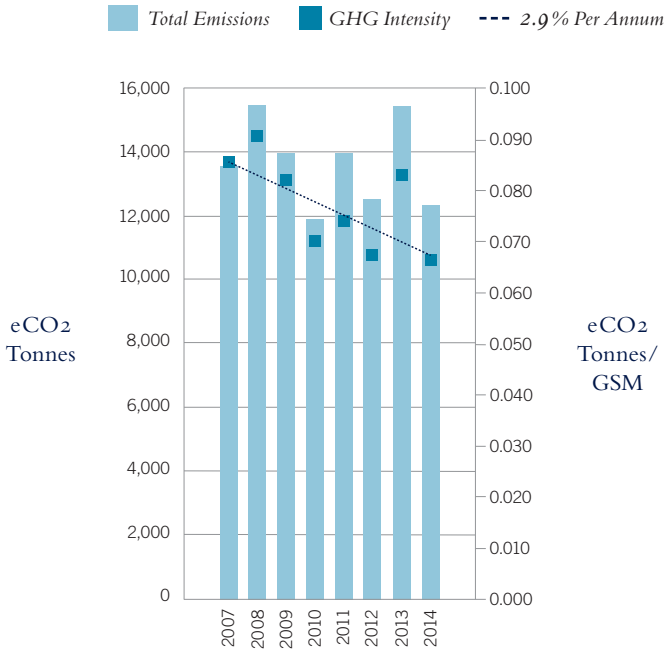
University of Toronto Scarborough — GHG Emissions 2007–2014



UTM's built environment has grown substantially and rapidly over the past 15 years, in line with enrolment growth and faculty hiring. Its energy use has grown considerably as a result, to accommodate more students, staff, and faculty, the construction of new buildings, and the addition of more energy-intensive research facilities. Notwithstanding this expansion, improvements in energy conservation and declining GHG intensity have slowed the growth of total CO2 emissions. From 2007 to 2014, UTM's GHG intensity per gross square metre of built space decreased by roughly 30 per cent.[66] The campus has set a target of zero increase in energy intensity (energy use per gross square metre of building space), in a way that would trigger decreasing energy intensity over time. To achieve this, each year the energy used per square metre of building space will be calculated and compared to the previous year. If energy intensity decreases, the new, lower energy intensity level will be used as the new baseline against which future values will be compared.

65 Source: Office of Business and Administration, UTSC
66 Source: Office of Facilities Management and Planning, UTM

University of Toronto Mississauga — GHG Emissions 2007–2014

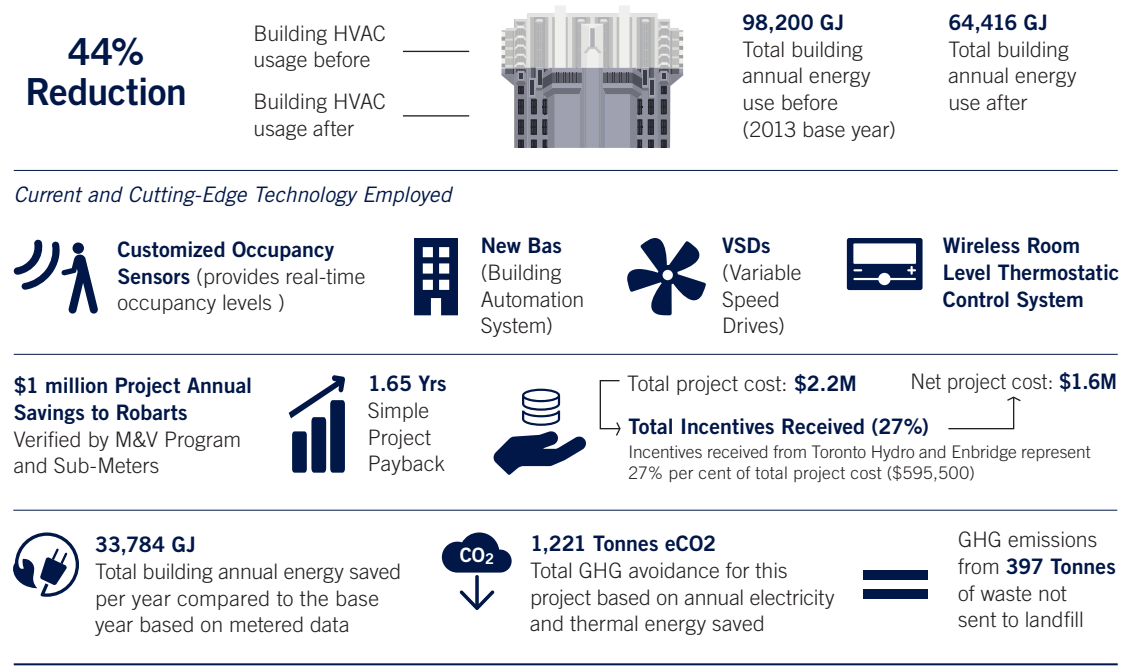


Greater Energy Efficiency in Design and Capital Builds

The Utilities Reduction Revolving Fund (URRF), established in 2012 and administered by Facilities & Services, has been very effective in helping to reduce our energy usage and expenditure on the St. George campus. The URRF provides capital up front for projects that reduce energy and water use with a simple payback of five years or less. Savings realized through these projects go to repay the initial loan from the Fund, and this capital is then used to fund other similar projects. So far, the Fund has supported three major energy-reduction projects (at Robarts Library, OISE, and the Medical Sciences Building), resulting in savings of over $2.5 million in energy costs per year, a combined average payback of 1.4 years, and a reduction in GHG emissions of over 4,500 tonnes eCO2 since the completion of the projects. All three buildings were retrofitted with modern building-automation systems, variable speed drives (VSDs) on ventilation equipment, and other unique and cutting-edge technologies.[67] The infographic below details the impressive results achieved in the Robarts Library project, as an example.

67 Sustainability kiosks with Energy Use Dashboards showing local energy consumption have been installed at OISE and the Exam Centre, and a sustainability kiosk will be installed at Robarts Library very shortly.

Robarts Library Energy Reduction Project — Occupancy Sensor Driven HVAC Control System Project Statistics



On all three campuses, we have met or exceeded our current energy efficiency standards (ASHRAE 90.1 2010[68]) in all design and capital builds over the past three years. We have achieved this through, among other things: a more accurate estimation of the 'anticipated performance' of a building during the commissioning process, and the use of innovative technologies, such as the geothermal heating and cooling systems used in the Environmental Sciences and Chemistry Building at UTSC.

Over the past decade we have also achieved Leadership in Energy and Environmental Design (LEED) certification for nine building projects, and certification is pending for another three.[69] Planning & Budget's budget-model principles of Faculty-level autonomy and accountability, combined with our ability to monitor energy consumption on an individual-building basis, have provided a greater incentive to ensure that energy efficiency is factored into building design standards, leading to savings in both initial capital and ongoing operational costs that accrue to divisions undertaking construction.

68 https://www.ashrae.org/home

69 UTSC: TPASC, Gold; ESCB (certification pending; designed to achieve Gold). UTM: South Building Phase 1, Gold; Hazel McCallion Academic Learning Centre, Silver; Instructional Centre, Silver; Innovation Complex, Silver; Deerfield Hall (certification pending; designed to achieve Silver); Terrence Donnelly Health Sciences Centre (certification pending; designed to achieve Silver). St. George: Rotman south building, Gold; Lassonde Mining Centre, Gold; Exam Centre, Gold; Munk School of Global Affairs (Observatory location), Silver.

Increased Clean-Energy Production and Overall Energy Efficiency

Beyond new building projects, the University of Toronto is also a leader in internal energy production and overall energy-efficiency. The St. George campus has a highly efficient Central Steam Plant, which serves over 100 buildings from a central location reliably and with minimal equipment and staffing compared to a distributed system. It features a 6MW turbine (cogeneration) system and a flue heat recovery system (tri-generation).

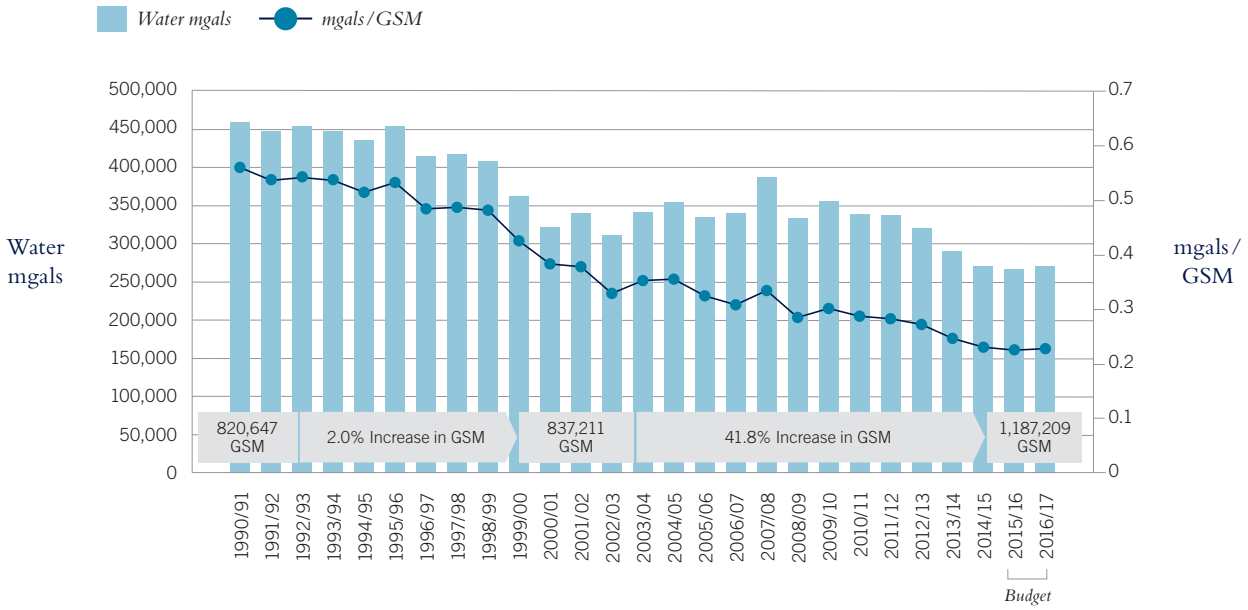
All three of our campuses produce substantial amounts of clean energy through photovoltaic (PV) and solar thermal arrays. More installations are planned, but at present PV arrays at UTSC's Instructional Centre produce 75 kW and at TPASC 593 kW; at UTM, the William G. Davis Building produces 5.4 kW and the Instructional Centre produces 21 kW; on the St. George campus, the gritlab green roof includes a photovoltaic array producing 10kW, the Lassonde Mining Building produces 30 kW, the Exam Centre is on track for the installation of an array that will produce 50 kW, and the design for the new Centre for Engineering Innovation and Entrepreneurship includes an array that will produce 65 kW. The Warren Stevens Building's 100-panel solar thermal array (used for heating water) is one of the largest such installations in the GTA and produces approximately 1,000 mmBTU/year of energy.

Other Sustainability Initiatives

The St. George campus recycling operation has achieved a diversion rate of over 70 per cent – one of the highest among North American university campuses. We introduced a non-hazardous laboratory glass and plastic recycling program – the first of its kind in Canada – in collaboration with research departments; and in 2014–2015, approximately 25 metric tonnes were recycled as a result. In recognition of such initiatives, the University of Toronto received the Recycling Council of Ontario's RCO Gold Award in 2015.

We have also implemented numerous water-saving initiatives over the years, resulting in dramatic declines in both total water consumption and water consumption per gross square metre of space occupied. This includes a smart-irrigation system, which suspends irrigation of campus grounds when precipitation is anticipated, saving almost 44 million imperial gallons of water since 2011. At UTM, softened water in the main cooling tower has reduced water use by 37 per cent.

University of Toronto, St. George Campus —
Historical Water Consumption mgals for Owned and Operated Buildings



Note: *Data excludes federated universities and external entities.*

Approximately 60 per cent of UTM's roofs are vegetated or high-albedo (the latter, also known as 'white', reflect solar radiation to reduce a building's cooling load and energy use for air-conditioning). Approximately 50 per cent of UTSC's roof systems are vegetated, high-albedo, or sustainable, and the campus plans to convert older built-up roofing systems to these newer types over the next few years.

The new Environmental Science & Chemistry Building at UTSC uses innovative 'Earth Tubes' that precondition outside air as it enters the building. They are only the second installation of this type in the Greater Toronto Area and certainly the largest. It is expected that the tubes will save between 5 and 10 per cent of the energy the building would have required without them. The installation has attracted the attention of the National Research Council in Ottawa,[70] which has partnered with UTSC in monitoring the tubes' performance.

70 http://urbantoronto.ca/news/2016/01/diamond-schmitt-design-captures-imagination%E2%80%94and-earths-energy%E2%80%94-utsc

The main University Data Centre (located on the St. George campus) now uses a free-cooling chiller, low-power consumption air handlers, sequestered hot-air return and cold-air supply, and enhanced circulation of chilled air to the IT load. As a result, the Data Centre's industry-standard Power Usage Effectiveness rating dropped from an estimated 2.5 in 2012 to an average of 1.33 (where 1.0 is the best achievable), which represents a near doubling of efficiency.

On the St. George campus, Facilities & Services has initiated myriad other sustainability and behaviour-change programs, including:

- Tri-campus engagement of the community through the Green Ambassadors program [71]
- Communication of initiatives and successes through the Sustainability Yearbook [72]
- The annual Green Ribbon Awards, celebrating our growing culture of sustainability [73]
- Application of the Sustainable Roofing Standard, using non-off-gassing, long-life, lightweight concrete [74] with high insulation value and solar reflective properties
- The Greening the Fleet initiative, through which we are replacing gasoline-powered vehicles with low emission or alternative fuels technologies, and with bicycles [75]
- Green Cleaning standards used by Caretaking.[76]

Other sustainability initiatives include:

- The switch to LED lamps (which last 50,000 hours) from compact fluorescents (which last 8,000 hours) in combination with the use of occupancy sensors, has led to a significant reduction in electricity used for lighting annually on all three campuses [77]
- The U-Pass, which allows UTM students to ride fare-free on the local transit system; UTM initiatives also include Zipcars, BikeShare, EcoPark, and carpooling [78]

---

71 http://www.fs.utoronto.ca/SustainabilityOffice/Programs/GreenAmbassadors/
72 http://www.fs.utoronto.ca/sustainability-office/sustainability-yearbook-2015-16/?utm_source=Bulletin&utm_medium=Email&utm_content=Working&utm_campaign=eViews
73 http://www.fs.utoronto.ca/SustainabilityOffice/Programs/GreenRibbonAwards/
74 http://www.fs.utoronto.ca/DesignStandards/PartTwo
75 http://www.fs.utoronto.ca/wp-content/uploads/2015/04/FS_SustainabilityReport2012_2013Final.pdf
76 http://www.fs.utoronto.ca/building-services-trades/caretaking-services/green-cleaning/
77 http://www.sustainability.utoronto.ca/archivednews/double-value-green/
78 http://www.utm.utoronto.ca/green/transportation

- Collaboration between UTSC and local and regional governments; transit options have improved, with 680 buses arriving at the campus per day (up from approximately 350 five years ago)[79]; UTSC is also a leader in bicycle access and has now also installed free charging stations for electric cars

- Food Services' commitment to sustainable environmental practices, including its Local Food Challenge initiative which reduces emissions by engaging local farms to supply campus dining halls directly[80]

- The server virtualization project, through which 587 campus servers were virtualized, reducing equipment renewal, power consumption, and data space requirements while increasing utilization efficiency[81]

- The use of heat recovery, water efficient fixtures, managed exterior glass area, grey water reuse, and other sustainability measures in the Sussex-Spadina 500+ bed residence project (in development)

- The focus on low-rise, energy-efficient housing intensification in the Huron-Sussex laneway housing project (in development).

The Committee's Recommendation

"The University of Toronto should consider creating… a 'Sustainability Fund' (SF) with significant additional committed funding. The SF would build on the University's strong (and under-recognized) work in sustainability.... Our campuses are living laboratories and the Committee recommends that the University continues to invest in them as such."

79 Source: Office of Business and Administration, UTSC
80 http://ueat.utoronto.ca/everythingfood/local-food-challenge/
81 http://news.utoronto.ca/u-t-saves-54-million-operating-expenses

The University's Response

The initiatives already in place have made the University of Toronto a leader in sustainable operations. But we are eager to do more, to set an even greater example of innovation and determination in this aspect of our response to the challenge of climate change. In light of the Committee's recommendations, we will seek additional opportunities to achieve greater energy efficiency and more sustainable environments, focusing on 'plug load',[82] building envelope design, and technology standards.

Utilities Reduction Revolving Fund (URRF)

As described above, the Utilities Reduction Revolving Fund (URRF), a $5-million ongoing collaboration with divisions on the St. George campus, has reduced financial impediments to projects with energy savings potential over a multi-year payback timeline. To date, the URRF has not been used by UTM or UTSC.

- We propose to ***increase the URRF by 50 per cent (from $5 million to $7.5 million)***, funded by central fund reserves, to expand the number and size of projects undertaken. An infusion of an additional $2.5 million would allow divisions to plan for larger energy-saving retrofits, and could potentially support projects at UTM and UTSC as well.

U of T Energy-Efficiency Standards

University Planning, Design & Construction and Facilities & Services are currently working towards a proposal for significantly enhanced standards of energy efficiency. Our objective is to measure performance against plan, maximize benefit-cost ratio, and account for life-cycle costs and carbon footprint, in order to minimize the overall impact of our operations on climate change.

82 'Plug load' refers to the energy used by devices powered by ordinary AC plugs; it does not include the energy used in building systems (e.g., HVAC). Managing plug load includes "identify[ing] occupants' and institutional true equipment needs. A true need is required to achieve a given business function; a perceived need is often based on past experience without consideration for more efficient strategies to accomplish the same function." http://www.nrel.gov/docs/fy13osti/54175.pdf

- We will propose the ***formal adoption of substantially more rigorous energy efficiency standards for capital projects*** (e.g., ASHRAE 90.1 2013) at the P&D meeting on April 14, 2016. The discussion will include detailed information regarding costs/NASM (net assignable square metres) for capital construction and building operating costs. The final goal will be quantifiable, and discussions are currently underway with U of T community stakeholders and experts to determine what those goals should be.[83]

Physical Plant as Research 'Test Bed'

In collaboration with the Vice-President, Research and Innovation portfolio, University Operations reviews proposals for academic and research projects on energy utilization and efficiency involving the University's physical plant (on the St. George campus). For example, a proposed project involving Engineering students would examine the feasibility of extending the Central Steam Plant's Sofame flue heat recovery system to include Robarts Library.

We also collaborate with faculty and students to enhance the operational and educational value of our monitoring of actual versus projected performance. Opportunities may exist in upcoming projects with developers and community members. For example, as part of the sustainability strategies planned for the Huron-Sussex neighbourhood development project, the University is considering the installation of a 'community energy system' (an extension of our District Energy System). These systems are rare in North America and the addition of such a system would provide a unique opportunity for learning and discovery in sustainable heating and cooling.

- We will continue to ***pursue opportunities to use our physical plant for research, opening such opportunities up to the academy to review, test and design***.

83 By undertaking energy modeling prior to constructing a building and by comparing the theoretical energy model to the actual energy and water use in operation, as measured by building metering, we will: (1) be clear and transparent regarding the energy standards we measure against; (2) measure actual performance against initial projections; and (3) produce output metrics on each project, linked directly to GHG emissions. In addition, sustainability kiosks will be installed in the lobby of new buildings in order to provide occupants with total building performance data, enabling them to gauge how their use (plug load) is part of the building's total energy and water use.

Renewable-Energy Installations

We are currently investigating opportunities for additional PV installations at buildings on the St. George campus, with an estimated potential output of over 1 MW.

- ***We will investigate the potential of other renewable-energy projects, which would not only produce additional power in a sustainable way, but could also serve as test sites for research.*** While opening conversations have been held with affected faculties, any such projects would require further evaluation and consultation.

5. Coordinating and Promoting Academic Initiatives Across the University

The above discussion of research and innovation, academic programs, and energy consumption through University operations acknowledges the fundamental importance of divisional initiative. At the same time, the severity of the challenge posed by climate change demands that the University find ways to align and coordinate its activities and initiatives. In this context, central leadership is crucial in providing a framework for cooperation and collaboration across our many divisions and three campuses.

- ***Accordingly, we will establish a new University-wide committee on the environment, climate change, and sustainability,*** led by a Presidential Advisor, and consisting of academic leaders, scholars in relevant fields from across our three campuses, and other members of our community. The new committee will have a mandate to advance coordination of the University's contributions and objectives pertaining to research and innovation, academic programs, and sustainability initiatives related to our operations. Among other things, this new body could: help raise the profile of U of T's contributions both within and outside our academic community; take on a leadership role in organizing University-wide events promoting environment-related research, teaching, and outreach; facilitate the sharing among divisions of best practices in operational sustainability and environment-related academic planning[84]; and highlight opportunities to strengthen further the University's support for faculty and divisional initiatives in relevant fields. Further details on this committee are forthcoming.

84 For example, the Faculty of Applied Science & Engineering has drafted a comprehensive Sustainability Plan for the Faculty's research, teaching/academic programming, and operations, which could provide a model/inspiration for other divisions.

Conclusion

This response to the recommendations of the Advisory Committee on Divestment from Fossil Fuels is offered in the spirit of our shared determination to maximize the contributions of the University of Toronto community in meeting the challenge of climate change. From the heart of our academic mission of research and teaching – from the laboratory to the start-up, from the classroom to the Cabinet table – our faculty, staff, students, and alumni are leading the way already. But we share with members of Toronto350.org and so many others the desire to do even more.

With regard to the University's investments – the financial trusts in which its endowment and pension funds are held – we are committed to integrating environmental, social, and governance ('ESG') factors, including climate-related considerations, risk and opportunity, in our long-term investment analysis and decision-making. Through new measures to formalize this integration in the policies and practices of the University of Toronto Asset Management Corporation, we will aim to invest in those firms whose positive ESG practices are aligned with the long-term financial best interests of the beneficiaries of its financial trusts.

This is consistent with the Committee's logic in calling for *targeted* investment decisions at the level of individual firms and a *dynamic* approach to evaluating the behaviour of firms over time. Moreover, this ESG factor-based approach is the most practical and promising means by which to influence firms' behaviour and ultimately to help reduce GHG emissions and move us towards a low-carbon economy: it is fully aligned with the University's fiduciary duties; it provides a framework that accommodates a *comprehensive range of factors* in addition to those most directly related to climate change; it addresses the practices of fossil-fuel *consumers* as well as *producers*; it is *supported by the growing body of data and analytical tools* to evaluate potential investments in terms of climate-related risk; and it could ultimately be applied to *indirect* (or 'pooled') as well as *direct* investments.

While our investment practices are indeed important, the Advisory Committee rightly recognized that our most important contributions will flow from the activities at the heart of our academic mission – education, research and innovation – and from the way we plan, conduct, and manage the operations of our three campuses. This response provides an important opportunity not only to take stock of our achievements and current activities, but also to suggest some ways to raise our game still further. In doing so, it recognizes that, while central leadership is crucial in aligning interests and coordinating between divisions of the University, the ultimate success of any emerging initiatives will depend on the leadership and active engagement of our faculty, staff, and students, and the active support of their divisional leaders.

I am grateful to the members of the Advisory Committee for their outstanding work. I am also grateful to the members of Toronto350.org and all those who signed their Petition or otherwise communicated with me as we developed this response. The exercise has illustrated the highest standards and ideals of the University of Toronto as one of the world's great institutions of advanced research and higher education; and it has inspired us to enhance our already major contribution – as an academic community and as a leading, publicly supported institution – in meeting the challenge of climate change. We look forward to continued collaboration in achieving that all-important goal together.