ACTION ON CLIMATE CHANGE BY THE UNIVERSITY OF OTTAWA

2017 - 2018

The University of Ottawa is not only a leading research institution, but also a responsible investor and community partner, and as such, it has vowed to reduce its carbon footprint by at least 30% by 2030 in accordance with Canada's national climate commitment.

As we become more aware of the impact of humans on the environment, and better understand the implications of our actions, we are adopting new ways of thinking and doing to respond to climate challenges.

The University is working to implement solutions, both big and small, that incorporate sustainability into daily life on campus. Our innovative faculty, staff and students address these issues and their impact through their teaching, research and work. This holistic approach includes initiatives in academic outreach, external relations, campus sustainability, and research and development.

The following report outlines the steps we took during the 2017-2018 academic year to create a better environment and to help the University become an agent for change.

Our efforts include reducing our greenhouse gas emissions, building greener spaces, supporting sustainable and active transportation, communicating the knowledge needed to develop a strong scientific basis for climate policy, engaging the University population through exchanges and fundraising, optimizing operational and administrative practices, and equipping students with the skills and abilities they need to address and adapt to climate change. In doing so, we are laying the groundwork required to turn our aspirations into reality.

JACQUES FRÉMONT
PRESIDENT AND VICE-CHANCELLOR

uOttawa

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Climate Change: An Overview of Academic Activities

The primary areas of focus for academic activity in issues related to environmental change, sustainability, and global warming at the University of Ottawa remain unchanged from last year's report. Because of the highly complex nature of problems arising from global warming, the University's primary academic efforts involve a variety of interlocking relationships that bring together faculty members from a broad spectrum of fields in the social sciences, sciences, humanities, law, and technology. This interdisciplinary phenomenon was particularly noted in last year's report with the example of the Institute of the Environment, a multidisciplinary teaching and research institute directed by Stewart Elgie of the Faculty of Law that brings together faculty members and advanced students from several faculties, and which is a recognized national leader in this area. The Institute's multidisciplinary master's program in environmental sustainability continues to attract strong cohorts of students to the University, and a new doctoral program proposal, which is expected to begin in time for the first students to register for the 2019–2020 academic year.

Last year, a highlight of this interdisciplinary approach was the recruitment of one of the world's leading environmental economists, Carolyn Fischer, as our Canada 150 Research Chair in Climate Economics, Innovation and Policy.

Fischer is renowned for the significant depth of her expertise in creating new policy tools to address environmental issues. She has been a global leader in understanding the role technology can play in lowering emissions and in designing carbon pricing policies that address questions of industrial competitiveness. Working in collaboration with the University's three Canada research chairs in environmental policy, as well as with the Department of Economics, the Institute of the Environment, and the Smart Prosperity Institute, this new position will make uOttawa a powerhouse for training a new generation of global thinkers.

In addition to the Institute, many academic units include courses related to climate change in their programs, including formal course work in areas related to global warming and the impact of climate change. The topics covered vary widely, including International Environmental Law, Climatology, Climate Change, Coastal Engineerin, Glaciology, Human and Policy Dimensions of Environmental Change, Environmental Economics and Policy (API6319), Les changements climatiques, and Environmental and Socio-economic Change in Canada's North.

A second strong institutional focal point for interdisciplinary teaching and outreach, in addition to research, is the University's Institute for Science, Society and Policy (ISSP), directed by Professor Monica Gattinger of the School of Political Studies. The ISSP has enabled a number of other bodies to concentrate their efforts, and while most of these are not primarily concerned with global warming or climate change per se, the multidisciplinary work and outreach they have conducted has an important multiplier effect on sharpening awareness among the public, the media, and the political classes.

A variety of academic outreach activities thus continues to take place, both on and off campus. Some of these are directly facilitated by the ISSP and other University centres. For example, in November 2017, the Alex Trebek Forum for Dialogue sponsored a "sectoral table", chaired by Professor Gattinger, at the Canada 150 Conference on Innovation and Globalization on the topic of "Energy and the Environment." This high-level expert panel included Professor Elgie, as well as Céline Bak, a senior fellow at the Centre for International Governance Innovation, and Glen Hodgson, senior fellow and chair for Low Carbon Growth Economy at the Conference Board of Canada. In April 2018, Professor Gattinger chaired a group of international experts on the "Ottawa Climate Talk" panel on advancing sustainable energy, held in connection with the G7 meetings, one of whose themes was "working together on climate change, oceans, and clean energy."

Such activities enable the University's researchers to reinforce connections with experts from around the globe and to go beyond the classroom to share their knowledge with the public. Plans to develop a more formal comprehensive program of academic outreach in the area of climate change were temporarily

> **Because of the highly complex nature of problems arising from global warming, the University's primary academic efforts involve a variety of interlocking relationships that bring together faculty members from a broad spectrum of fields in the social sciences, sciences, humanities, law, and technology.**

postponed in 2017-2018 when Professor Scott Findlay of the Department of Biology was seconded to the office of Dr. Mona Nemer, the University's former vice-president, research, and now Canada's Chief Science Advisor. With Professor Findlay's return to the University on a half-time basis, these plans will be restarted in the near future in cooperation with the Office of the Provost.

Although less formal, many academic outreach activities help keep the University in the public eye when it comes to questions of climate change and environmental sustainability. Participation in the work of bodies such as the Canadian Climate Forum and appearances on radio and television, including CBC Radio's popular science program "Quirks and Quarks," and in print and online media, help to raise awareness in Canadian society. A variety of such appearances by members of academic units as varied as the Department of Biology, the Department of Civil Engineering, the Department of Geography, the Faculty of Law, and many others, allow faculty members to regularly discuss the concepts and evidence that University students grapple with in several undergraduate and graduate courses.

RESEARCH ACTIVITIES

The University of Ottawa is pursuing its efforts to counter global warming. The University's strategic plan, *Destination 2020*, targets this important issue in two of its four research priorities: Molecular and Environmental Science; and Health Science. The table in Appendix A highlights a partial list of additional investments, both current and future, in research and development in this area.

Professors teaching in the above programs are also highly active researchers who have put together dynamic teams of undergraduate and graduate students, postdoctoral fellows and technicians. Together, they have obtained millions of dollars in external funding from a variety of partners: governments, major companies and private foundations.

The University's research expertise in environmental science and policy have been enhanced with the additions of a Canada 150 Research Chair in Climate Economics, Innovation and Policy; a Canada Research Chair in Science and Society; and the renewal of two Canada Research Chairs (in Toxicology and Environmental Health and in Environmental Economics) .

Thanks to these resources, our research teams document climate change and its repercussions, providing Canadians with important information and Canada's leaders with the tools needed to take better decisions. Our researchers also work on finding innovative solutions to mitigate climate change or attenuate its most harmful effects. They are extremely dedicated and sincerely believe that they can make a difference, and their infectious enthusiasm pushes our students to excel.

> **During the course of TOP-SET project on highly efficient solar energy production, we expect that some 100 graduate students will receive specialized training. These students will not only strengthen our research teams, but also meet the industry's need for qualified personnel who will deploy this leading-edge technology and apply this new knowledge in the field to benefit society.**

By 2020, the University will have largely met its commitment to invest $1.5M as part of the Clean Innovation Research Fund. This major contribution, combined with external funding and government grants, will significantly boost Canada's ability to take international actions in the global fight against climate change and environmental deterioration.

When the Clean Innovations | Research Fund (CIRF) was announced in April 2016, the University decided to finance a series of new research initiatives focussing on climate change and the environment. These initiatives will extend over several years and have already started to yield significant results. As part of this new approach, the University drew from the internal resources it had allocated to CIRF projects to:

- Obtain two new federal grants through the NSERC CREATE program: one for Karin Hinzer to study clean technology (solar energy) and one to Daniel Figeys to study water treatment technology;
- Obtain a new partnership grant from SSHRC, allocated to Stewart Elgie, from the Institute of the Environment and Smart Prosperity Institute, to study the link between economic growth and environmental protection. The research highlights of 2018 include a report on how public policy can drive clean innovation in Canada, and the announcement of a new Global Fellows and Research Program in clean innovation.
- Recruit environmental economist Carolyn Fischer as the Canada 150 Research Chair in Climate Economics, Innovation and Policy, one of only 24 Canada 150 Research Chairs in the country. She joined the University in November 2018.
- Obtain one new Canada Research Chair and two renewals, namely: Science and Society (Kelly Bronson), Toxicology and Environmental Health (Laurie Chan) and Environmental Economics (Anthony Heyes);
- Obtain three new Fulbright Chairs for visiting professors, all three dedicated to research on the environment and the economy. Benjamin Cashore of Yale University held the Visiting Research Chair in the Sustainable Economy in 2017-2018. For 2018-2019, that chair is held by Leigh S. Raymond of Purdue University. The Visiting Research Chair in the Environment and Economy is held by Margaret Taylor of Stanford University.
- Support environmental engineering research projects with leading-edge laboratories in the new STEM Complex, such as the Water Resources Engineering Laboratory.

The project by Faculty of Engineering professor Karin Hinzer is a good example of the far-reaching effects of our research. During the course of her TOP-SET project on highly efficient solar energy production, we expect that some 100 graduate students will receive specialized training. These students will not only strengthen our research teams, but also meet the industry's need for qualified personnel who will deploy this leading edge technology and apply this new knowledge in the field to benefit society. For example, in 2018, students collaborated with Hydro Ottawa, Toyota and Broadcom on various projects.

These are but a few of the examples that fully illustrate the enthusiasm with which the University has dedicated resources to CIRF-eligible initiatives, as more fully described in appendix A.

Finance and Treasury

2018 ANNUAL PROGRESS REPORT

The 2016 *Addressing Global Warming: The uOttawa Response* report outlined a wide range of initiatives concerning the University's teaching programs, research, facilities management and investment management.

To support uOttawa's leadership role in addressing global warming, and adhere to its mandate, the Finance and Treasury Committee has focused its efforts on investment management.

In line with the holistic approach and steps outlined in the 2016 report, the Finance and Treasury Committee has put forward the following steps to gradually tilt the University's portfolio away from fossil fuels, and will establish a framework to measure such shifts in future:

1. Establish measurement methods and a proper starting point to track shifts in the University's long-term portfolio
2. Identify and consider new indices and/or benchmarks that incorporate responsible investment principles, in addition to, or in place of, any of the methods identified in Item 1
3. Monitor annual progress and report these results to the University community
4. Take these results into consideration when reviewing and updating investment portfolio policies
5. Consider these results, to the extent appropriate, when evaluating fund manager performance
6. Over time, create a Clean Innovations Fund with an initial investment of $10 million, using funds from existing portfolios and donations received for this purpose.

One of the key strategic priorities for the investment portfolio is to take steps to tilt it gradually away from fossil fuels. With this in mind, this year the University made an initial investment in an equities index portfolio that consists of low carbon intensity companies around the globe. This allocation reduced the carbon intensity of this investment by 69%, when compared to investing in an overall market index, and is considered a starting point for further tilting of the portfolio.

1. Establishing a proper starting point to measure shifts in the long-term portfolio

The starting point to measure shifts in the long-term portfolio is the University's 2016 position in terms of the following measurement methods:

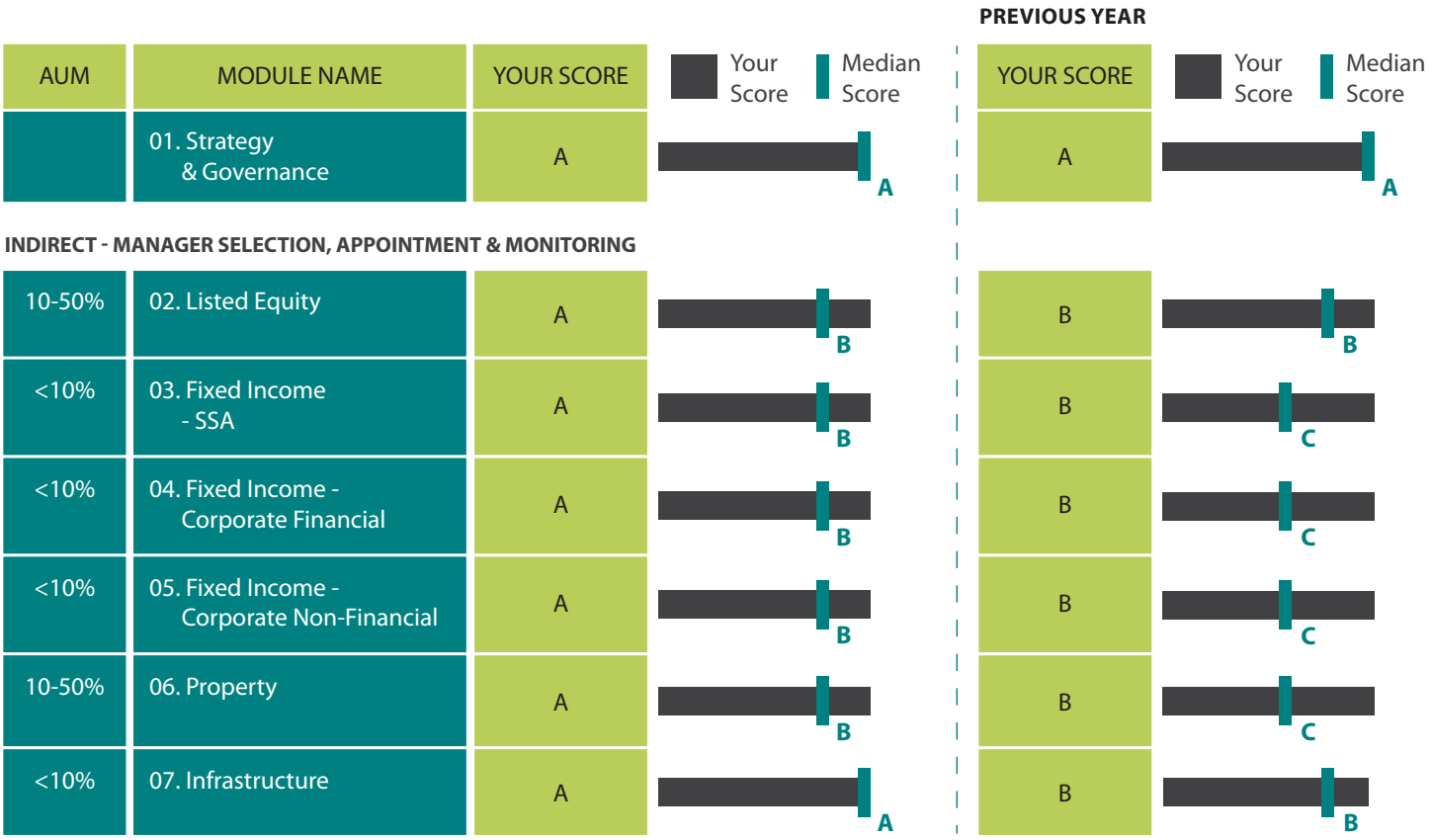
a. PRI (Principles for Responsible Investing) ranking versus median respondent
b. Montreal Carbon Pledge compliance
c. Environmental social and governance (ESG) implementation by the portfolio's investment managers

These measurements have been identified by the Finance and Treasury Committee as proper starting points to measure shifts in the portfolio over time. Snapshots of these three measurement criteria will be taken annually, with 2016 functioning as the base year where applicable. The Committee monitors annual progress against these benchmarks and will consider including other new measurement methods as they arise.

a. University's PRI ranking versus median respondent

As a UN PRI signatory, the University is required to publicly report on the breadth and level of responsible investment activities within the portfolio. The 2017 scorecard for the University was as follows:

SUMMARY SCORECARD



The Finance and Treasury Committee concluded that ESG (environmental, social and governance) scores are either ahead of, or aligned with, Principles for Responsible Investing (PRI).

b. Montreal Carbon Pledge

The carbon footprint data for the University's equity portfolios is independently calculated as part of the Montreal Carbon Pledge. The following table reflects these results for 2017:

CO2e/M$, tonnes	uOttawa LTP	Equity Index	% below index
2017	65.9	121.2	45.6%
2016	68.5	134.1	48.9%

Source: MSCI

Index data remains difficult to interpret, since carbon footprint calculations are based on index composition and weighted by market pricing. Because this measurement is still in its early stages, no best practices in carbon emissions evaluation methodology are currently available. The volatility of the data also suggests that caution should be used in interpreting these statistics over the short term. However, we expect further insight as additional measurements are gathered and longer term trends are established.

c. ESG implementation in the portfolio

Another way to measure progress is to assess the level of ESG implementation throughout the portfolios on an annual basis. For 2017, the following observations can be made:

» On a dollar basis, approximately 76% of the portfolios are managed by investment managers who are PRI signatories:

- 100% of the equity portfolio
- 79% of the fixed income portfolio
- 23% of the real estate portfolio
- 100% of the infrastructure portfolio

» Approximately 38% of the portfolio is managed by managers who have explicitly integrated ESG into their investment management processes:

	% OF FUND	N/A	LARGELY IMPLICIT	IMPLICIT	EXPLICIT
Equities	48.5	21.8%	4.3%		22.3%
Fixed Income	20.1	9.8%	10.3%		
Hedge Funds	10.1	10.1%			
Real Estate	12.1			3.5%	8.6%
Infrastructure	9.2			1.7%	7.5%
TOTAL	100	41.7%	14.6%	5.2%	38.4%

2. Identify and consider new indices and/or benchmarks that incorporate responsible investment principles, in addition to, or instead of, any of the methods identified in Item 1.

Climate change is an emerging topic in global financial markets, and the University continues to monitor and support the development of new measurement methods.

We are fulfilling a leadership role in addressing global warming and we continue to evaluate and compare emerging and existing indices and benchmarks for use in our investment portfolios. As a result of our leadership role, we continue to be consulted by a number of our peers on addressing global warming, and we serve as a model for others.

3. Monitor annual progress and report results to the uOttawa community

Annual measurements of the three categories listed under Item 1 will be carried out.

4. Take these results into consideration when reviewing and updating investment portfolio policies

The Statement of Investment Policies and Goals (SIPG) incorporates responsible investing and is aligned with the United Nations industry best practices framework. The SIPG is reviewed and approved annually. It is also published on the uOttawa website.

In addition, there are well-established responsible investment guidelines for the long-term portfolio, which are periodically reviewed and also published on the uOttawa website.

5. Consider these results, to the extent appropriate, when evaluating fund manager performance

Annual evaluations of investment managers include an assessment of their responsible investing and ESG efforts as a key criterion. This assessment is part of the ongoing review of, and monitoring discussions with, existing external investment managers, and these factors are key considerations when selecting new investment managers. Every quarter, the evaluations are reported to the Finance and Treasury Committee.

6. Create a Clean Innovations Fund over time with initial funding of $10 million, using funds from the existing portfolios and donations received for this purpose

The Finance and Treasury Committee evaluated a number of options for the creation of a Clean Innovations Fund at various meetings. The discussions centered on the investment structure and return objectives of such a fund, along with implementation options. Investment staff continue to research several investment opportunities and their practicability for such a Fund.

External Relations

EXTERNAL RELATIONS' CONTRIBUTIONS TO THE FIGHT AGAINST CLIMATE CHANGE

By hosting discussions and fundraising, External Relations (ER) is helping the University of Ottawa community remain engaged in the fight against climate change. Over the past year, ER not only raised funds for teaching and research on clean innovation and related technologies and innovations, but also helped the University promote actions that reduce its carbon footprint.

ENGAGING DONORS IN SUPPORT OF CLEAN INNOVATION

In 2016, the Executive Committee of the Board of Governors, in response to a Finance and Treasury Committee report on addressing global warming, committed uOttawa to creating a Clean Innovation Research Fund (CIRF), under the purview of the Vice-President, Research.

In turn, External Relations (ER) committed to raising $1.5M for the CIRF by 2020, with the Office of the VP Research committing to contribute an additional $1.5M, for a total of $3M. The fund will support research, teaching and graduate scholarships. External Relations is on track to meet this fundraising goal, with the total raised for initiatives related to climate change standing at $1.2 million.

This fundraising total includes $500,000 raised in 2018 for Positive Energy: The Trust in Transition Project. Led by Professor Monica Gattinger, associate professor at the School of Political Studies and director of the Institute for Science, Society and Policy, the project looks at how to build public confidence in the transition to a low-carbon economy in Canada.

The fundraising total also includes the first of three payments of $250,000 expected from the Jarislowsky Foundation to support Stewart Elgie, a uOttawa professor of law and economics who is also director of the University's interdisciplinary Institute of the Environment and founder and chair of the Smart Prosperity Institute. The funds support Smart Prosperity's Senior Global Fellows and Research Program, which brings top researchers to uOttawa to advance research and policy engagement on driving clean innovation. The second payment from the Jarislowsky Foundation (for 2019/2020) has been confirmed.

Working with Professor Elgie and Smart Prosperity, External Relations hosted a high-profile expert panel discussion on how to build durability and "stickiness" into climate policy, drawing lessons from the EU, US and Canadian policy experiences, with a view to informing the design and application of Canadian policy. In many countries, including Canada, climate change policies shift radically when governments change, so the experts discussed how to prevent this from happening. The guest of honour was John McCall MacBain, a businessman, philanthropist and co-founder of the European Climate Institute, who received an honorary doctorate from uOttawa in June.

EVERY BIT HELPS IN PRESERVING OUR ENVIRONMENT

TThe University of Ottawa boasts a vibrant campus community that is firmly committed to taking action to address global warming. Thanks to content production and promotional efforts, External Relations (ER) raises awareness of this key issue among students, professors and support staff members. For example, last year ER supported H2Ottawa, a student initiative led by Celeste Digiovanni that encouraged the use of reusable water bottles. In addition, ER helped foster good environmental habits among students, professors and support staff by prompting them to use bikes and to recycle, while celebrating the University's ranking as the fifth-best campus in North America in sustainable transportation, according to the Association for the Advancement of Sustainability in Higher Education (AASHE).

With great fanfare, External Relations announced on the University's websites and social media the arrival of Carolyn Fischer, a world-renown expert in environmental economics. The expertise of the University's professors and researchers in the field of environmental studies and sustainable development has been promoted by the media relations team, thereby generating favourable media coverage that exemplifies the University's commitment to the fight against global warming and climate change.

A sustainable campus

The University of Ottawa adheres to the definition of sustainable development set out by the World Commission on Environment and Development: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Through a variety of programs, the University is taking concrete steps to create a better environment. These steps include reducing our greenhouse gas (GHG) emissions, building greener spaces, supporting sustainable and active transportation, and diverting waste from landfill.

Since the 1992-1993 academic year, the University's floor space has grown by 62.7% and its population has nearly doubled (91.4%); thanks to our efforts, however, our energy consumption is the same as it was three decades ago. As our systems become more efficient, our GHG emissions are actually dropping. It was due to results such as these that in 2016, the Ontario Ministry of the Environment and Climate Change honoured the University of Ottawa with a Minister's Award for Environmental Excellence.

BACKGROUND

Since 2006, the Office of Campus Sustainability, under Facilities, has coordinated all campus sustainability projects and relied on partners such as Protection Services, Food Services, and the Human Rights Office to achieve its mandate. It strives to integrate sustainability into daily campus life through actions both big and small, from something as simple as encouraging cycling on campus to designing new, energy-efficient facilities. These programs are significant and frequently make it possible for the University to realize substantial cost savings, in addition to reducing its environmental impact.

In 2017-2018, the University of Ottawa adopted a new policy on environmental sustainability to recognize and express the institution's responsibilities with regard to environmental protection and sustainable practices. The new policy will help define a framework for implementing procedures and directives to ensure that environmental issues are addressed responsibly and diligently in the course of University operations and development. Furthermore, this policy will provide a platform for campus sustainability efforts at the University.

For the past 30 years, the University of Ottawa has continuously reduced its carbon footprint and consistently met national and provincial emissions targets. The institution, however, faces unprecedented financial pressures to address its deferred maintenance backlog. In the face of decreased government funding for climate change initiatives, the University is seeking out ways to continue to prioritize emissions reductions and mitigate the impacts of human induced climate change.

OUR PROGRESS

BUILDINGS AND GREEN SPACES

Our objective is to increase the amount of functional indoor and outdoor green space on campus and establish a minimum of LEED Silver certification for new buildings and major renovations. The number of community garden plots continues to grow and more green roofs have been constructed on campus, such as the newly installed one at the Learning Crossroads. The recently erected Faculty of Social Sciences (FSS) building and the Advanced Research Complex (ARC) have both achieved LEED Gold certification, which exceeds our minimum standards, and the recently completed Learning Crossroads and STEM Complex buildings are also aiming to achieve certifications beyond our minimum standards.

ENERGY AND EMISSIONS

Our target is to reduce energy consumption by 2% annually despite the growth of the campus.

The University's energy consumption continues to trend downward, thanks in large part to the EcoProsperity program, a deep energy retrofit program. The University is also looking to align its emissions goals with those of the Canadian government, namely by achieving a reduction of 30% from 2005 levels by 2030. The University's 2017 direct emissions were 16,695 tonnes of carbon dioxide, one of the lowest levels of any Canadian medical-doctorate institution. EcoProsperity projects in the Biosciences and Colonel By buildings are nearly complete and are expected to help reduce our GHG emissions by over 1,500 tonnes.

RECYLING AND WASTE DIVERSION

We aim to exceed the province's target of 80% waste diversion by 2050 and ultimately become a zero-waste campus. (Waste diversion is the percentage of materials that is diverted from landfills.) In 2017, the University's waste diversion rate was 63.4%, and the overall amount of waste generated on campus continues to drop.

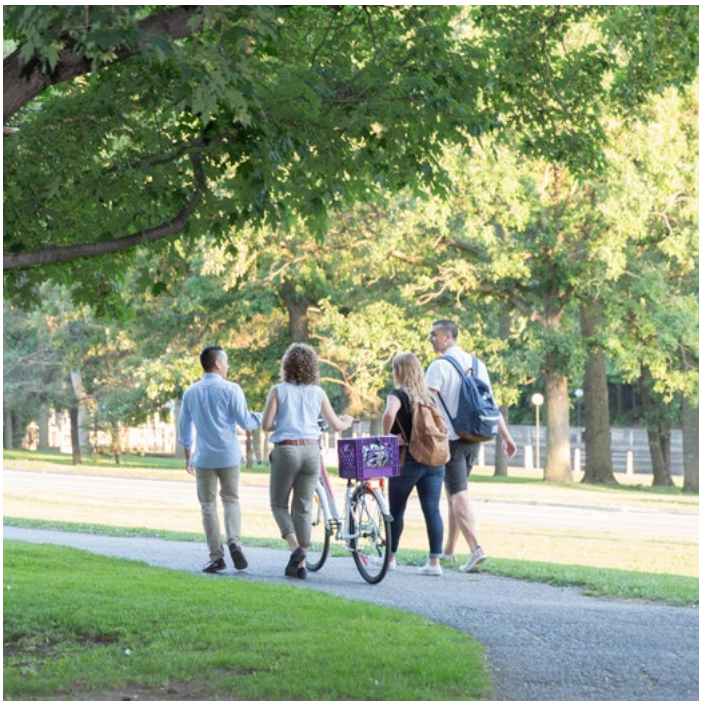
The University of Ottawa has implemented several programs that better capture non-conventional waste and divert it from landfill. A compost program within the Dining Hall, for instance, helps capture a significant amount of material, and programs such as Textbooks 4 Change, TerraCycle, and uOttawa's Free Store provide other ways of diverting various forms of non-conventional waste.

This past summer, the campus collected 8.2 tonnes of material donated by students moving out of residences. Additionally, Food Services has begun collecting unsold food and bringing it to charitable organizations. In six months, they collected and donated 5,526 kilograms of food.

TRANSPORTATION

The University of Ottawa is one of the most bike-friendly campuses in North America, and this year, it ranked fifth in the Campus Sustainability Index for sustainable transportation. The University is moving toward a car-free campus core, which will not only create a safer and more secure space, but also reduce air pollution and help create a clean air community.

Over 87% of the University community uses sustainable transportation options (defined as anything other than a single-occupancy vehicle) to commute to campus. To encourage this behaviour, the campus has created supporting infrastructure, such as bike lanes, cycling repair stations, and secure bicycle parking enclosures. The student federation also operates a Bike Coop on campus to advocate for more cycling.



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2018 AWARDS AND ACCOMPLISHMENTS

Bottled-Water-Free Campus: One of the many sustainability features built into the new Learning Crossroads building is a new type of water fountain. These new models have been designed with accessibility in mind and feature a digital display that shows users how many plastic water bottles they have saved by using the water fountain. Every floor of the building has at least one water fountain to ensure that all occupants have ready access to them, which is in keeping with the University of Ottawa's Bottled-Water-Free Campus initiative.

Building Excellence Award: The University of Ottawa received the Existing Building Green Excellence award for the FSS Building. The building was selected by the Canadian Green Building Council, Ottawa Chapter, for its innovation and popularity among LEED certified buildings.

Campus Sustainability Index: The University of Ottawa was ranked fifth in sustainable transportation on the Campus Sustainability Index, and was highlighted for being the second campus in the world to sign the Montreal Carbon Pledge.

STARS: After submitting earlier this year, the University of Ottawa was awarded Silver Certification in the Sustainable Tracking Assessment and Rating System.

MSC Certification: The University of Ottawa's Food Services received Marine Stewardship Certification for its efforts to reduce the amount of fish purchased from non-sustainable sources.

RecycleMania: The University of Ottawa was the Canadian Champion of RecycleMania for the ninth time in 10 years. The campus was ranked sixteenth out of 171 North American institutions.

Green Campus: The University of Ottawa was recognized as the eleventh greenest campus in the world, according to Interesting Engineering Magazine. The main highlight of the ranking was the living wall located in the FSS Building.

UI Green Metric World University Rankings: The University of Ottawa was ranked thirtieth in the world by the UI Green Metric World University Rankings.

H2Ottawa: The University of Ottawa launched the H2Ottawa program, a project created by a graduate student on campus, which saw reusable water bottles placed in vending machines to increase water accessibility.

Employee Bike Fleet: Facilities launched a bike fleet program so that their employees could use bikes rather than gas-powered vehicle to travel around campus.

VéloGo: VéloGo, a bike rental program, was launched on campus to allow community members to rent bikes for personal use.

Ride-Sharing: Single direction ride-sharing was introduced on the University of Ottawa campus earlier this year. Community members can now find ride share options to travel to single destinations with other campus members.

The Growcer: The University of Ottawa installed a Growcer unit on campus. This hydroponic container farm is capable of growing five tonnes of food on campus every year. It uses 95% less water than traditional agriculture and eliminates transportation emissions.

Food donations: The University of Ottawa's Food Services launched a program to collect unsold food and donate it to local charities. In the first six months of operation, the program collected and donated over five tonnes of food.

Green Restaurant Rating: The University of Ottawa received a three-star Green Restaurant rating for its Dining Hall. The rating assesses the environmental performance of the space, as well as the types of foods served.

Conclusion

Once again this year, the University of Ottawa has demonstrated leadership in addressing one of the most important challenges we collectively face: global warming and climate change. Our University community continued to mobilize its talents, energy and resources and took concrete steps to assist Canadian efforts to transition to allow carbon economy.

One of the key actions undertaken by the University was to recruit Carolyn Fischer, one of the world's leading environmental economists, who was named Canada 150 Research Chair in Climate Economics, Innovation and Policy. Her work, combined with that of our current Canada research chairs, positions uOttawa as a centre of excellence in environmental issues. Our researchers have been awarded over $6M in grants and contributions. Moreover, the University of Ottawa remains at the forefront of academic efforts that feature a variety of cross-disciplinary collaborations which bring together faculty members from a broad spectrum of the social sciences, science, and technology fields.

Furthermore, uOttawa has made important advances in managing its facilities and operations in more environmentally responsible ways while pursuing sound and sustainable financial and portfolio management. The University continued its policy of gradually tilting its investment portfolio away from fossil fuels and established a framework to effectively measure this shift.

These achievements are the result of the commitment and dedication of our entire University community. I thank them for helping to make our campus a better place to live, work and learn, and for working to create a sustainable legacy for future generations.

JACQUES FRÉMONT
PRESIDENT AND VICE-CHANCELLOR

Projects supported by the uOttawa Clean Innovation Research Fund

Only the projects started in 2016 or later have been included in this list.

PROJECTS		2016–17	2017–18	2018–19	2019–20	2020-21	TOTAL
NSERC-CREATE	Karin Hinzer - Clean Tech	$40,000	$40,000	$40,000	$40,000	$40,000	$200,000
	Daniel Figeys - water treatment	$40,000	$40,000	$40,000	$40,000	$40,000	$200,000
IRAP – International Research Acceleration Program	Karin Hinzer - Clean Tech with Univ. of Tokyo	$10,000	$10,000				$20,000
Fulbright Visiting Research Chairs (US$25k/chair/yr)	ISSP – Science, Society and Policy	$31,000	$31,000	$31,000	$31,000		$124,000
	IE – Institute of Environment 1	$31,000	$31,000	$31,000	$31,000		$124,000
	IE – Institute of Environment 2		$31,000	$31,000	$31,000		$93,000
UROP – Undergraduate Research Opportunity Program	Supervised students:						
	Valérie Doyon	$1,500					$1,500
	Julian Parker	$1,500					$1,500
	Brittany Gélinas	$1,500					$1,500
	Soroush Shahryari	$1,500					$1,500
SSHRC Partnership Grant	Stewart Elgie - cash	$47,000	$44,000	$29,000	$29,000		$149,000
	Stewart Elgie - in kind	$12,100	$12,100	$12,100	$12,100		$48,400
Research Perspectives magazine – special issue	How clean tech is defining our future		$31,353				$31,353

PROJECTS		2016–17	2017–18	2018–19	2019–20	2020-21	TOTAL
RDP – Research Development Program	Chris Kinsley - Ecological Engineering	$10,000					$10,000
	Sidney Omelon - Phosphorus Capture (wastewater)	$10,000					$10,000
	Anders Knudby - Bathymetry	$9,800					$9,800
	Christopher Huggings - Mining Sector Governance	$18,400					$18,400
	Mary Stalcup - Urban Climate Politics	$19,400					$19,400
	Larisa Kurtović - Politics of Water Supply		$15,433				$15,433
	Daina Mazutis - Corporate Responsibility and Climate Change		$20,000				$20,000
	Clémence Fauteux-Lefebvre - Sustainable Catalysis		$10,000				$10,000
	Mohamed Chelli - Corporate Environmental Disclosure (water management)		$14,000				$14,000
	Ryan Katz-Rosene - Green Growth and Capitalism		$20,000				$20,000
Institute of the Environment		$152,000	$127,000	$233,714			$512,714
	Fulbright Lecture on Environment Issues	$2,800	$2,800	$2,800	$2,800		$11,200
	Climate Change Town Hall	$2,000					$2,000
Institute of Science, Society and Policy - "Positive Energy Project"		$100,000	$65,000	$65,000			$230,000
Centre for Environmental Law and Global Sustainability		$20,000	$10,000	$10,000			$40,000
University Research Chairs	Pascal Audet - Solid Earth Chairs Geophysics	$25,000	$25,000	$25,000	$25,000	$25,000	$125,000
	Trevor Hall - Photonic Circuits and Integration	$25,000	$25,000	$25,000	$25,000	$25,000	$125,000
	Jeremy Kerr - Macroecology and Conservation Biology	$25,000	$25,000	$25,000	$25,000	$25,000	$125,000
	Luke Copland - Glaciology	$25,000	$25,000	$25,000	$25,000	$25,000	$125,000
	Chibuike Udenigwe - Food Properties and Nutrient Bioavailability			$25,000	$25,000	$25,000	$75,000
Canada 150 Research Chair	Carolyn Fischer - Climate Economics, Innovation and Policy			$100,000	$100,000	$100,000	$300,000

PROJECTS		2016–17	2017–18	2018–19	2019–20	2020-21	TOTAL
Canada Research Chairs	"Jackie Dawson - Environment, Society and Policy"	$45,000	$45,000	$45,000	$45,000	$45,000	$225,000
	Nicholas Rivers - Climate and Energy Policy	$40,000	$40,000	$40,000	$40,000	$40,000	$200,000
	Ghassan Jabbour - Engineered Advanced Materials and Devices	$50,000	$50,000	$50,000	$50,000	$50,000	$250,000
	Laurie Chan - Toxicology and Environmental Health	$50,000	$50,000	$50,000	$50,000	$50,000	$250,000
	Anthony Heyes - Environmental Economics	$50,000	$50,000	$50,000	$50,000	$50,000	$250,000
	Kelly Bronson - Science and Society			$30,000	$30,000	$30,000	$90,000
Young Researcher Awards	Jacob Krich: Enabling high efficiency solar cells and novel plasmonics with intermediate band materials			$8,400	$12,800	$14,667	$35,867
	Stephen Newman: Discovering new chemical reactions and processes for a sustainable future			$8,980	$12,480	$10,730	$32,190
	Jessica Forrest: Understanding pollinators to maintain resilience in Ontario agroecosystems			$3,734	$9,233	$13,650	$26,617
University infrastructure spending	Heather Kharouba - Climate vs species' distributions	$42,221					$42,221
	Jan Menningen - Pollution and environment protection	$96,917					$96,917
	Ian Clark - Environmental Radionuclides	$372,090					$372,090
	Ian Clark - microSTARR - Ultra Sensitive Tracer Analysis for Radioisotope Research			$518,498			$518,498
	Christopher Kinsley - Cold Climate Agri-food and Small Community Mobile Wastewater Research Facility			$6,245			$6,245
	Allyson MacLean - Elucidating the role of effector proteins in promoting arbuscular mycorrhizal symbiosis			$28,288			$28,288
	TOTAL	**$1,407,728**	**$889,686**	**$1,589,759**	**$741,413**	**$609,047**	**$5,237,633**