Task Force on Climate-Related Financial Disclosures Report

FY2022

THE UNIVERSITY OF BRITISH COLUMBIA

We begin by acknowledging that UBC's two main campuses are located on the traditional, ancestral and unceded territories of the xʷməθkʷəyəm Syilx (Okanagan) peoples, and that UBC's activities take place on Indigenous lands throughout British Columbia and beyond.

sʔiːɬqəy (Double-Headed Serpent Post)
Brent Sparrow Jr., Musqueam
PHOTOGRAPHER:
Paul H. Joseph/UBC Brand & Marketing

COVER:
UBC Brand & Marketing/HoverCollective

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This report was written in collaboration by
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Task Force on Climate-Related Disclosures (TCFD) reporting

About this report

The Task Force on Climate-Related Financial Disclosures (TCFD) recommendations were created by the Financial Stability Board to provide external stakeholders of an organization with the necessary information to assess climate-related risks and make informed investing decisions. In 2017, TCFD released their recommended disclosures focusing on four operational areas—governance, strategy, risk management and metrics and targets—that provide an understanding of how an organization identifies and assesses climate-related risks and opportunities. In 2018, the Canadian government formally endorsed the adoption of TCFD recommendations by all Canadian organizations to support Canada's commitment to the Paris Agreement. Since then, TCFD has been committed to promoting market transparency and encouraging widespread adoption of these disclosures. As more organizations integrate TCFD recommendations into their annual reporting, "companies and investors will have a better understanding of the financial implications of transitioning to a lower carbon economy and how climate-related physical risks will grow; information will become more decision-useful; and risks and opportunities will be more accurately priced, allowing for the more efficient allocation of capital" (TCFD.) More information about the TCFD recommendations can be found here.

UBC's TCFD reporting

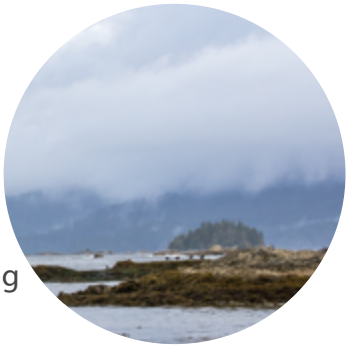
UBC endorses the adoption of TCFD recommendations and is committed to producing annual TCFD disclosures alongside supporting TCFD's global mission of market transparency. UBC will use TCFD guidelines as a tool to identify and manage climate-related risks and opportunities. In addition, these guidelines will inform our implementation of mitigation strategies to ensure the operational longevity of the University on both campuses, and to support the health and wellness of all students, faculty and staff—while also increasing transparency of the University's climate-related risks and opportunities for stakeholders.

This is UBC's first TCFD report, and the University will be implementing the recommendations using a phased approach. UBC expects that our disclosures will evolve as the University continuously improves, formalizes and integrates climate-change-related processes at the University.

Summary of TCFD recommendations

Operations area	Disclosures
Governance Disclose the organization's governance around climate-related risks and opportunities.	a. Describe the Board of Governors' (the Board's) oversight of climate-related risks and opportunities. b. Describe management's role in assessing and managing climate-related risks and opportunities.
Strategy Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy and financial planning, where such information is material.	a. Describe the climate-related risks and opportunities the organization has identified over the short, medium and long term. b. Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning. c. Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a temperature increase of 2°C or lower.
Risk management Disclose how the organization identifies, assesses and manages climate-related risks.	a. Describe the organization's processes for identifying and assessing climate-related risks. b. Describe the organization's processes for managing climate-related risks. c. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management.
Metrics and targets Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities, where such information is material.	a. Disclose the metrics used by the organization to assess climate-related risks and opportunities, in line with its strategy and risk-management process. b. Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks. c. Describe the targets used by the organization to manage climate-related risks and opportunities, and measure performance against targets.

Introduction



About UBC

The University of British Columbia (UBC) is a global center for teaching, learning and research, consistently ranked among the top 20 public universities in North America and recently recognized as North America's most international university. Since 1915, our motto, *Tuum Est* (It is Yours), has been a declaration of our commitment to attract and support those who have the drive to shape a better world. As a result, UBC students, faculty and staff continue to embrace innovation and challenge the status quo, placing us at the forefront of discovery, learning and engagement. In 2022, the Times Higher Education (THE) Public Institution Rankings ranked UBC 37th in the world, second in Canada and seventh in North America. Out of more than 1,400 institutions, UBC also ranked 13th overall in THE Impact Rankings for institutional efforts to advance the United Nations sustainable development goals, tying for first in Sustainability Development Goal 9 (Industry, Innovation and Infrastructure)—a ranking which measures universities' research on industry and innovation, their industry engagement and the number of their patents and spin-off companies.

UBC has two main campuses in BC: the UBC Vancouver Campus on the Point Grey peninsula on the western edge of Metro Vancouver and the UBC Okanagan Campus in Kelowna. Beyond the two main campuses, the University has multiple sites throughout the province that support research and learning. These include medical clinics distributed throughout the province, the 40,000-hectare Malcolm Knapp research forest in Maple Ridge, and various farms and research sites.

At more than 400 hectares, the UBC Vancouver campus is comparable to a small city; it comprises a mixture of academic and neighbourhood areas supported by world-class educational and cultural facilities, a rich array of services and amenities, parks and open spaces. The campus is situated on the traditional, ancestral and unceded territory of the Musqueam people. UBC holds a unique, quasi-municipal arrangement with the growing residential community on campus, governing and managing neighbourhood development and amenities. Like the rest of the province, the Vancouver region has experienced the devastating effects of climate change, including extreme heat, heavy precipitation and wildfire smoke that has affected operations and day-to-day life on campus.

The UBC Okanagan campus is an innovative hub for teaching, learning and research, situated in the heart of Syilx Okanagan Territory. The campus is a close-knit academic community that has experienced rapid growth. Located in the Okanagan's Ponderosa zone, the campus is set in a diverse landscape of pine woodland and open grassland. It is among the driest woodland regions

of BC, and contains an ecosystem of at-risk species of plants and wildlife. The Okanagan region has recently experienced extreme climate-change related weather events resulting in castastrophic damage, including spring flooding, Level 4 summer droughts, record high temperatures and devastating wildfires.

Both campuses have experienced the effects of climate change, underscoring the urgency for leadership, action and investment in climate-change solutions.

UBC also operates UBC Robson Square, the UBC Learning Exchange and is one of four university partners of the Centre for Digital Media, located within the City of Vancouver. In addition, UBC provides clinical education to Faculty of Medicine students at more than 80 training sites throughout BC.

The University's teaching and research activities have direct and indirect public socio-economic benefits, all of which contribute to a future-oriented, sustainable economy. UBC's leadership in sustainability and research on climate action are readily shared with partners and other communities to advance sustainable practices that address the climate emergency. UBC uses its unique position as a research-intensive university, with considerable land, assets and utilities in Vancouver and the Okanagan, as a test-bed for sustainability. The goal is to enhance the efficiency of the University's operations, improve environmental performance and achieve cost savings, while leveraging our campus infrastructure and environment to demonstrate innovative sustainability solutions at a municipal scale. To do so, UBC's Campus as a Living Lab (CLL) initiative integrates operational and academic sustainability in ways that challenge our campuses to address societal issues to affect real-world change at UBC and in the wider communities. It allows students, faculty, staff and external UBC partners to test and pilot different applied research and learning projects, using campus land, natural resources and other physical assets. The goals of the CLL include:

- **Integrate** UBC's academic mission (research, learning and teaching) with university operations and communities.
- **Collaborate** through partnerships between UBC and the private sector, other public sector organizations, and others.
- **Leverage** UBC's academic community, through both student-led and faculty-led research.
- **Practice** sound financial use of UBC's resources and infrastructure.
- **Create** research with the potential for practical, positive action at UBC and in broader communities.

A history of climate leadership

UBC was Canada's first university to adopt a sustainability plan in 1997 and the first to open a sustainability office in 1998. The UBC Sustainability Initiative, now the Sustainability Hub, was created in 2009.

In 2010, UBC introduced the University's first Climate Action Plan, establishing bold targets to reduce Greenhouse Gas (GHG) emissions and outlining investments needed to meet

climate-change goals. The University also established the Okanagan Sustainability Office at the UBC Okanagan campus.

In 2014, the Board of Governors approved the University's first Responsible Investing Policy, which integrated environmental, social and governance factors into the University's investment process.

In December 2019, UBC renewed its commitment to climate leadership and declared a climate emergency in a statement made by Prof. Santa J. Ono, the 15th President & Vice Chancellor, and was endorsed unanimously by the Board of Governors. The declaration recognized the severity, complexity, disproportionate impacts of, and disproportionate responsibilities for the climate crisis, and committed UBC to developing a collective response that embeds climate justice throughout its activities and priorities. The Board also unanimously passed a motion committing to the full divestment of the $1.71-billion Main Endowment Fund from the fossil-fuel industry.

Following the climate emergency declaration, nine strategic priorities emerged through engagement with the UBC community, leading to a bold vision for UBC's Climate Emergency Response. Collectively, the priorities outline a vision for UBC's existing leadership to reduce emissions, paired with efforts to drive collective impact in local, regional and international climate action.

At UBC Vancouver, the University has implemented various programs and action plans to combat climate change within the academic and neighbourhood communities. These include energy management, recycling and waste, water, green buildings, food, purchasing and transportation, all of which provide strong examples for surrounding communities on how such programs can be implemented within a large community. More information on these programs can be found here. UBC Okanagan published its Whole Systems Infrastructure Plan in 2016, in response to project climate impacts, campus and UBC's sustainability goals. This plan provides a long-term roadmap over the next 20 years and beyond, proposed performance metrics and an implementation plan to guide future planning, investment and management in a manner that will support sustainable development, community wellbeing and ecological resilience. More information on UBC Okanagan's Whole Systems Infrastructure Plan can be found here.

In 2021, UBC introduced the Climate Action Plan 2030 (CAP 2030) for both campuses, which puts the University on an accelerated path to net-zero emissions for buildings and energy supply, as well as a significant reduction in GHG emissions for an extended impact over the next 15 years. UBC also plans to develop a neighbourhood climate action plan for the various neighbourhoods on campus that will complement the CAP 2030.

In 2022, UBC is committing to producing an annual TCFD report to increase transparency to stakeholders about climate-related risks and opportunities that affect the University, and to support our efforts in combating climate change through identification and mitigation strategies of these risks.

Governance

The Board of Governor's oversight of climate-related risks and opportunities

The University's oversight is governed by the powers granted in the University Act, which provides for the University's bicameral governance structure of four bodies: the Board of Governors (the Board), the Okanagan Senate, the Vancouver Senate and the Council of Senates.

Board of Governors

Manages the University's administration, property and business affairs and has representation from each of the University's Vancouver and Okanagan campuses.

Council of Senates

Reflects the need for a body with membership from each of the Senates and a mandate to establish common University positions on academic matters.

Senates

The University's Okanagan campus and Vancouver campus each has a senate, with comparable categories of members and a similar balance between elected and non-elected members. The Senates administer the University's academic matters. Under Section 3.1 of the Act, the Board of Governors has specified which parts of the University the Okanagan Senate and the Vancouver Senate have academic governance responsibility over.

The Board of Governors

The UBC's Board of Governors (the Board) is responsible for the general oversight of the University; the management, administration and control of the property, revenue, business and affairs of the University; and the appointment of senior officials and faculty members. Due to the University's unique position as a quasi-municipality without a mayor or council, with a large growing residential community, the Board also plays a key role in governing the residential areas of the University and the emerging neighbourhood climate action plan.

The Board has constituted a number of committees to provide an efficient mechanism for targeted discussions. The Chair of the Board appoints committee members, balancing effective committee operation with representation from both campuses. Committees are arranged based on the organizational needs of the University and their alignment with its strategic plan. They are to assist the Board in conducting its work efficiently and effectively, reviewing, monitoring and recommending policy alternatives and implications for Board deliberation.

Since 2010, when UBC announced GHG targets and other climate goals, the Board has endorsed a succession of action plans and programs. These include the 2010, 2020 and 2030 Climate Action Plans, aggressive GHG reduction targets across Scope 1, 2 and 3 emissions sources and the 2021 Climate Emergency Response.

The Board is regularly kept informed of climate-related issues and risks affecting the University and has formed The Sustainability & Climate Action Committee to address sustainability and climate-action matters. This committee typically meets four to five times per year.

The committee is made up of eight members who carry a diverse range of knowledge and specialties relating to climate-related risks and opportunities. Beyond their individual knowledge and skillset, the University provides resources for members of the committee to consult with. Details of the Sustainability & Climate Action Committee membership can be found here.

The committee is specifically responsible for:

- providing recommendations to the Board and making decisions, as appropriate, on matters relating to climate, sustainability and responsible investment
- climate action plans and associated targets to advance UBC's sustainability ambitions and achieve climate-change impacts for UBC
- sustainability initiatives
- responsible investment

Through the Sustainability & Climate Action committee, the impacts of climate-related risks and opportunities affecting the University are brought forward to inform the Board when making decisions. Climate-related issues and risks are considered by the Board during the annual budgeting process, when University initiatives and funding requests are reviewed and approved through decisions relating to large capital expenditures and when considering climate impacts on the future returns of investment funds. Annually, the Board reviews operations and decision-making in relation to climate key performance indicators (KPI's) (such as GHG emissions and key milestones) that are linked to UBC's climate strategy and presented in the University's Annual Sustainability Report.

Beyond the Sustainability & Climate Action committee, the Audit Committee has responsibility for the oversight of the enterprise risk management (ERM) function at UBC and the related overview of institutional wide risks, as well as new and emerging risks identified by management, including climate-related risks. The Audit Committee meets four times per year. Other committees that have indirect oversight into climate-related risks and issues include the Finance Committee and Property Committee.

Management's role in assessing and managing climate-related risks and opportunities

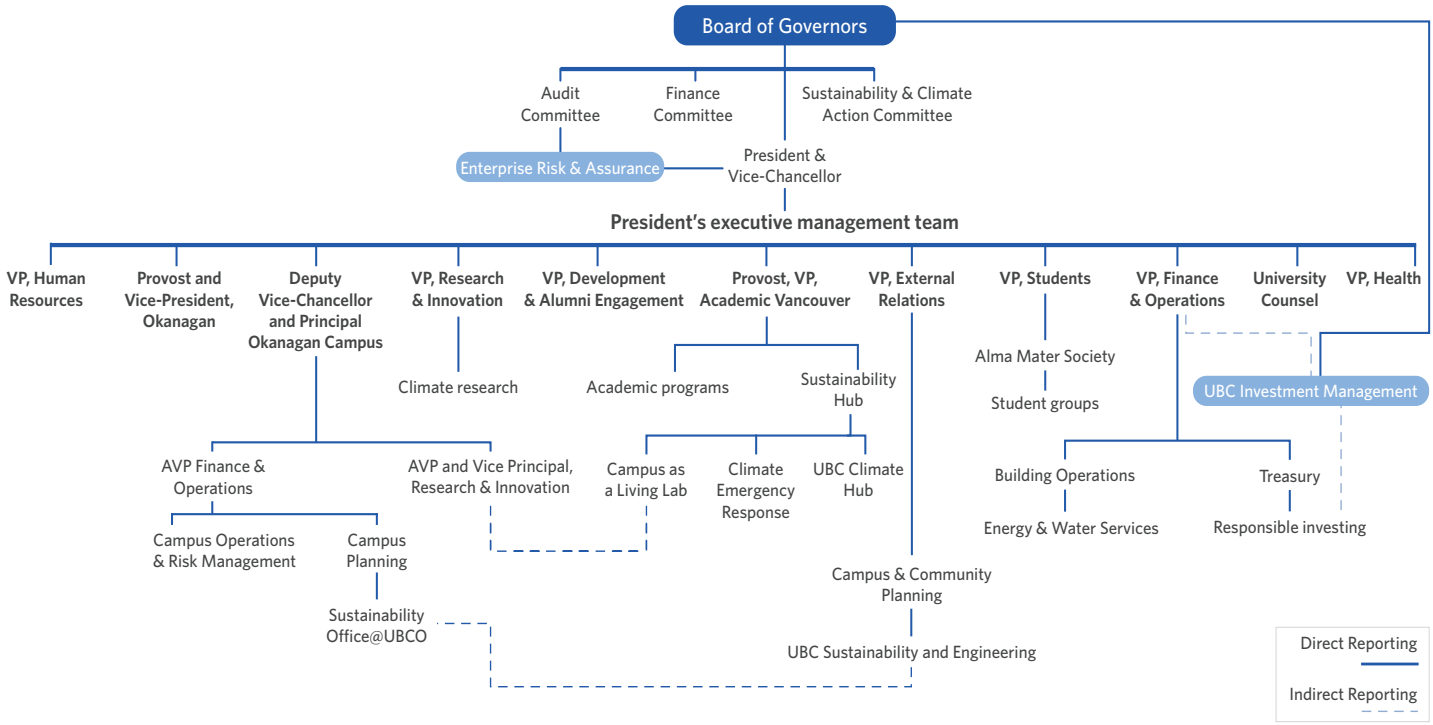
UBC has developed a management structure to guide and lead the University. Each part of the organization has its own specific purpose and priorities to ensure the University's ongoing success and operational efficiency. The President's executive management team sets the strategic priorities and goals of the University. Currently, combatting the climate crisis is one of the University's key areas of focus, and it is highlighted in UBC's 10-year strategic plan, *Shaping UBC's Next Century*. This strategic plan, published in 2018, provides direction to the University and outlines the core principles for determining what initiatives and investments the University should undertake. One of its goals is to lead globally and locally in sustainability and wellbeing across our campuses and communities.

UBC management is responsible for the identification, assessment and management of all risks. There are numerous departments and groups reporting to the executive leadership team focused on identifying, assessing and managing climate-related risks and

opportunities of the University, and supporting the University's goal to lead globally and locally in sustainability. When climate-related risks and issues are identified, management assesses the risks and determines appropriate mitigation strategies to reduce their impacts and effects.

The executive leadership team informs the Board about matters relating to the University, including climate-related risks and opportunities affecting operations.

Organizational chart



The University has established a Sustainability Hub to support the integration of sustainability into academic and student programming. The Hub curates and facilitates academic and student sustainability programs and activities on campus, connecting students, faculty, staff and external partners with sustainability-related research opportunities and projects. They work hand in hand with other groups at the University to integrate sustainability themes into teaching, learning and student activities; support interdisciplinary urban research; advance engagement with sustainability partners; manage UBC's interactive research on sustainability; and host the UBC office of the Pacific Institute of Climate Solutions. The Sustainability Hub, supported by a group of researchers and experts and a leadership team, serves the Vancouver campus.

Key university departments, such as Campus & Community Planning, Building Operations, Infrastructure Development and Energy & Water Services, have leadership positions dedicated to ensuring the University meets its climate-related targets and responds to climate impacts on both campuses. Within Campus & Community Planning, UBC Sustainability and Engineering is responsible for developing policies and plans related to sustainability and infrastructure management (Climate Action Plan, Water Action Plan, Green Building Action Plan, Zero Waste Action Plan, Stormwater Management Plan, Transportation Plan); integrating sustainability into capital planning projects, land use and transportation planning; and creating sustainability engagement programs that support community members in making decisions that align with the University's sustainability commitments. Additionally, the unit oversees the implementation of the Green Building Action Plan and delivery of engineering services under the University's Land Use, Permitting and Sustainability Policy (UBC Policy UP12), which establishes UBC's commitment to sustainability.

At UBC Okanagan, the University has established a Sustainability Office focused on advancing sustainability on campus and addressing interconnected issues relating to energy, carbon, water, landscape, ecology, biodiversity and engagement. This office develops policies and plans related to sustainability and infrastructure management on the Okanagan campus, including the Climate Action Plan, Whole Systems Infrastructure Plan and Integrated Rainwater Management Plan, as well as contributing to the development of the Campus Plan, Design Guidelines (Green Buildings), LEED Guidelines, the Transportation Plan and other related plans. The office also contributes to the integration of sustainability into capital planning projects on the Okanagan campus. In addition, the Sustainability Office is responsible for UBC Okanagan's sustainability and regulatory carbon performance monitoring, reporting and offsetting. The director of Sustainability and Engineering provides the Sustainabilty Office with strategic advice and guidance. Further, sustainability is integrated in the operations of many units across the Okanagan campus. A key outcome of the Whole Systems Infrastructure Plan was the establishment of a dedicated Energy Team within Campus Operations & Risk Management, to focus on energy efficiency and low-carbon district energy solutions. Sustainability is also integrated in the operations of many other UBC Okanagan units, including Facilities Management, Student Housing and Hospitality Services, and Food Services.

UBC's management team has a resource of highly knowledgeable peers specialized in climate-related risks and opportunities and potential impacts on the University through the Sustainability Hub, Office of Enterprise Risk and Assurance, UBC Sustainability and Engineering within Campus & Community Planning at UBC Vancouver, and the Sustainability Office within Campus Planning at UBC Okanagan. These members of the University carry a diverse range of expertise and specializations to support numerous areas of climate-related risks and opportunities, including space planning, energy conservation, green buildings, policy and climate justice.

Strategy

Climate-related risks and opportunities

The climate crisis introduces a number of risks for the University that threaten daily operations and the long-term viability of the institution. For example, if BC were to experience severe heat waves in the future, many buildings would be unusable due to overheating, causing a massive disruption in day-to-day operations. Further, as UBC's carbon-offset liability increases and more requirements are placed by the provincial and federal governments to combat climate change, it becomes paramount that UBC invest in reducing its climate-related risks, without compromising investments in its academic mission. If necessary, additional government support would be required should the latter be compromised. However, there are a number of opportunities the University can realize, given its leadership commitment, researchers and experts in all aspects of sustainability and climate, and its community of over 80,000 members invested in addressing the climate crisis. The following risks and opportunities have been identified by UBC Sustainability in the short, medium and long term using the risk classification and criteria recommended by the TCFD. UBC considers the short term to be one to three years, the medium term to be three to five years, and the long term to be five to ten years.

UBC-identified climate-related risks

	Short term	Medium term	Long term
Policy and legal	X	X	
Technology	X		
Market			
Reputation			
Physical	X	X	

UBC-identified climate-related opportunities

	Short term	Medium term	Long term
Resource efficiency	X	X	X
Energy source	X	X	X
Products and services	X	X	
Markets	X	X	X
Resilience		X	

The following climate-related risks have implications for delivering teaching and research activities, supporting UBC community members and making a positive contribution to the region. The University has multiple opportunities to mitigate risks through its policies, plans and long-standing leadership in sustainability.

Risks

Policy and legal

- UBC is aware of the volatility of conventional energy costs and the security of fuel supply. The impacts of cost and supply volatility include disruptions to operations associated with heating and cooling of campus buildings and the future investments needed to develop diverse and resilient sources of energy supply.
- Capital investments in new and existing buildings will be needed to meet BC's future building codes, LEED standards and UBC's climate-action targets. Failure to comply with rapidly changing provincial and federal policies that discourage pollution-intensive investments and increase the affordability of cleaner options can have a negative financial impact for the University. These include:
    - As the provincial and federal governments continue to increase the carbon tax associated with fossil-fuel purchases, and with the ongoing mandate to purchase carbon offsets to maintain a carbon-neutral public sector in BC, the University's carbon liability will continue to grow over time without further action. From April 2022, UBC will pay a carbon price of \$75/tCO_2e emitted (\$50/tCO_2e for BC Carbon Tax and \$25/tCO_2e for public-sector offset requirements). This cost will continue to rise as the federal and provincial governments increase carbon pricing through 2030. Without UBC's past climate action and demand-side management, this liability would be significantly higher.

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- The Province of BC's Zero-Emission Vehicles Act: 100 per cent of new vehicle sales are to be zero-emission vehicles by 2040, including 10 per cent by 2025 and 30 per cent by 2030. Currently, 8 per cent of UBC's fleet vehicles are zero-emission. UBC will need to significantly invest in fleet replacement to achieve GHG goals.

Technology risk

- Substantial investment is needed to transition to lower emissions technology throughout both campuses to reduce UBC's carbon impact as technologies improve or new technologies are introduced.
- Significant investments in buildings and landscapes using new technologies to support their resilience to the impacts of climate change—including heat waves, fires and associated smoke, storms and floods—will be needed to mitigate the climate-related risks in these areas.

Physical risks

- UBC is in the process of ensuring that buildings are designed to withstand the most significant impacts of climate change. While the Green Building Action Plan provides guidelines for the retrofit of existing buildings and the design of new buildings, the financial implications of bringing all buildings to appropriate standards are significant.

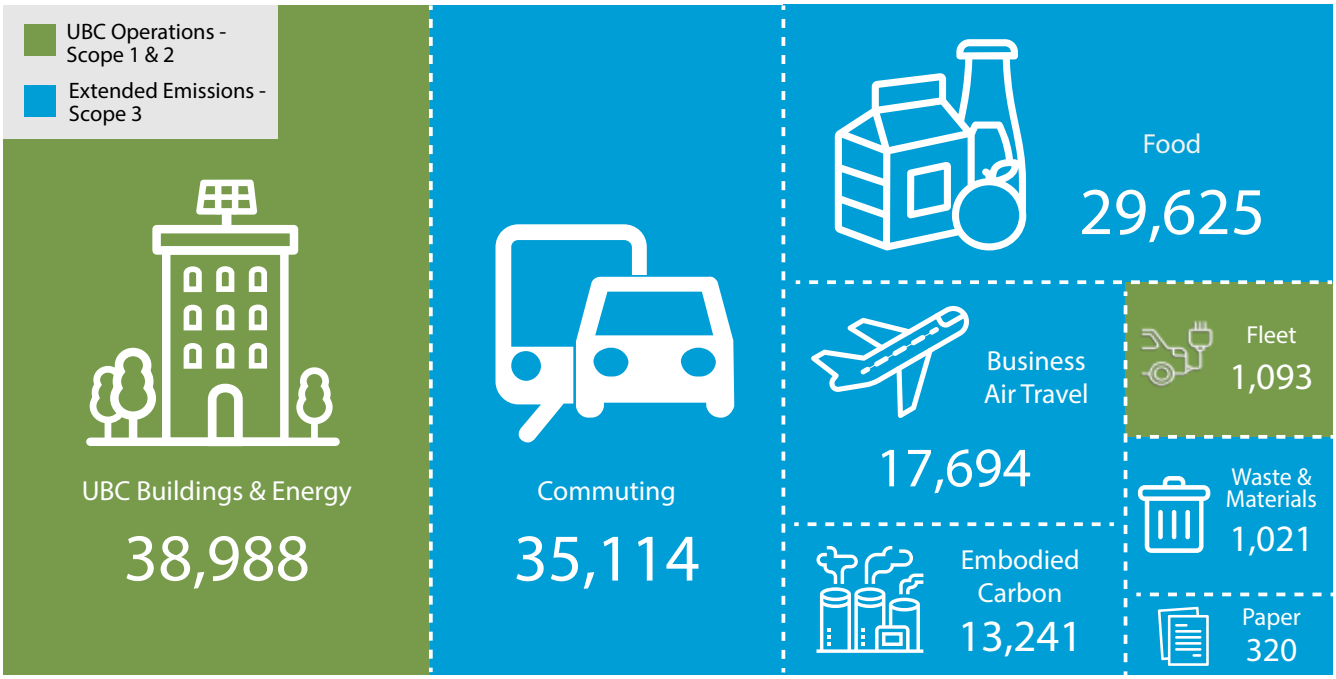
Opportunities

Resource efficiency and low-carbon energy supply

Climate Action Plan 2030

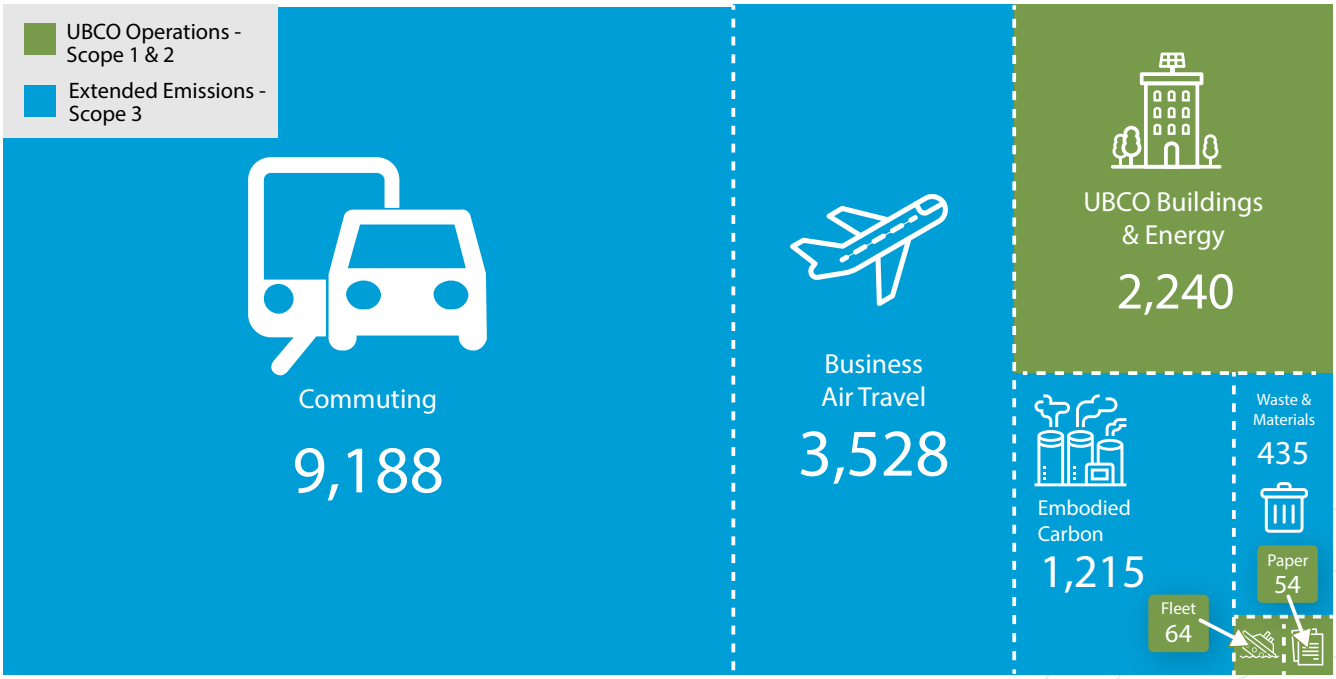
- The University has committed to accelerated emission reductions that align with, and in some cases exceed, GHG savings needed to meet the Paris Agreement of limiting global warming to 1.5^{0}C. To support these ambitious targets, the Board endorsed climate action plans for the Vancouver and Okanagan campuses, which set accelerated actions to drive emission levels down in 10 priority areas within Scope 1, 2 and 3.

UBCV GHG Emissions 2019 by Source (tonnes CO_2e)



UBC Vancouver Campus

UBCO GHG Emissions 2019 by Source (tonnes CO_2e)



UBC Okanagan Campus

Scope 1 and Scope 2 emissions

The University's Scope 1 and Scope 2 GHG emissions targets associated with buildings and fleet vehicles, established through CAP 2030, are an 85-per-cent reduction for the Vancouver Campus and a 65-per-cent reduction for the Okanagan Campus by 2030. Active programs aimed at achieving these targets include:

- New buildings and building renewals will target near-zero operational emissions, and existing building emissions will be reduced through the implementation of demand-side energy conservation measures.
- UBC Vancouver is currently expanding the capacity of the Bioenergy Research Demonstration Facility (BRDF). Once fully functional, two-thirds of UBC's academic district energy system will be supplied with renewable energy sources. Solutions to further decarbonize UBC's district energy system are currently being developed, to be deployed by 2030.

Scope 3 emissions

For the first time, UBC is developing processes and programs to reduce Scope 3 emissions. The target for Scope 3 emissions, established through CAP 2030, will be a 45-per-cent reduction by 2030 for both campuses in areas that include emissions associated with commuting, embodied carbon, business air travel, food and waste. Active programs and success stories related to these are reported annually in UBC's Climate Change Accountability Report.

Products and services

UBC is leveraging its reputation and resources to transform the campus through the Campus as a Living Lab (CLL) initiative. This initiative responds to the challenges of the climate emergency, ecosystem destruction, global urban migration, pandemics and economic change by integrating academic research and teaching with campus planning, infrastructure, operations and community development. UBC is able to use the campus as a sandbox to explore opportunities and test new ideas in our local context, and to learn from both our successes and failures. CLL functions in conjunction with the philosophy of the University as an agent of change. Many projects are developed with industry and government partners interested in testing technologies and ideas at a community scale, which will allow translation to broader applications. The learning through CLL is shared through our partners with other communities and organizations, and creates a broader knowledge-exchange initiative. This enables UBC to engage and learn from community members beyond its borders, as part of an ecosystem of innovation and learning. CLL has supported research in the following areas:

- **Sustainable building materials**
  UBC is developing policies and guidelines to help building designers select materials that reduce the building industry's contribution to climate change.

- **Low-carbon and resilient neighbourhoods**
  UBC is working to advance sustainable development in residential neighbourhoods to create healthy and vibrant communities with low (or no) carbon footprints that support residents in adapting to a changing climate and world. These neighbourhoods offer insights on how new policy goals and performance targets can improve the sustainability and resiliency of communities across BC.

- **Zero Emissions Building Exchange partnership**
  UBC is partnering with the Zero Emissions Building Exchange (ZEBx) to leverage academic expertise, in collaboration with local industry partners, to develop solutions for zero-emission buildings.

- **Bioenergy Research and Demonstration Facility**
  UBC is leveraging external funding and partnerships to advance key research and innovation priorities, such as the University's Bioenergy Research Demonstration Facility (BRDF) that reduces GHG emissions by turning waste-wood biomass into clean energy and supports research on alternative energy technology.

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- **Brock Commons Tallwood**
  UBC's innovation in sustainable construction has been leveraged globally following the successful implementation on campus. For example, in June 2022, government delegates from Ireland visited UBC Vancouver to learn about the many benefits of mass timber, including the reduction in carbon emissions and ease of construction; to support their efforts to fight the climate crisis; and to address their own housing crisis. They specifically requested a tour of Brock Commons Tallwood on the Vancouver Campus, Canada's tallest mass-timber building and a popular student residence on campus. Brock Commons Tallwood is constructed from an innovative hybrid structure composed of concrete, steel and mass timber: cross-laminated timber (CLT) floor panels and glue-laminated timber columns.

- **Skeena Residence**
  At UBC Okanagan, the Skeena Residence is the first Passive House certified student dormitory in Canada. This project demonstrates how UBC's capital investments can achieve the level of building performance necessary to address climate risks. The additional investment in the dormitory results in better building performance, enabling the University to respond to climate risks including variations in heat and cold, and to maintain better thermal comfort and increased passive survivability.

- **Centre for Interactive Research on Sustainability (CIRS)**
  UBC is leveraging its partners in technology, innovation, research and development through CIRS to serve as both a hub for sustainability work on campus as well as a sustainable building research subject. CIRS embodies UBC's Campus as a Living Lab approach to testing new ideas and sharing knowledge about sustainable building technologies and performance. The building is equipped with a robust network of sensors and controls to optimize and document building performance, and the data supports research projects on topics such as renewable-energy technology, system optimization, water reuse, performance gaps and inhabitant behaviour.

- **Helping communities**
  UBC researchers are helping communities prepare for the effects of climate change in line with the COP26 goal to support adaptation to climate change in order to protect communities and natural habitats in various ways. These include creating and piloting an Emergency Response app [Canadian Hazards Emergency Response and Prepardness Mobile App (CHERP)]; leading workshops on how to identify climate targets, impacts and solutions to create climate action plans; and advocating for adaption and involvement of the global community. More information on UBC's actions can be found here.

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- **BC Hydro Continuous Optimization Program**
  UBC Energy and Water Systems has participated in BC Hydro's Continuous Optimization Program (C.Op) over the past decade to identify energy conservation measures. In 2019, Energy & Water Services participated in the Real Time Energy Management (RTEM) pilot program, an iteration of the C.Op, to identify energy conservation opportunities through data generated by UBC's Building Management Systems and the SkySpark platform.
  The RTEM program was deployed at Brimacombe and Forest Sciences buildings, and the learnings have fed back into UBC's participation in the C.Op program.

- **Social Ecological Economic Development Studies (SEEDS)**
  The SEEDS program creates applied research and interdisciplinary partnerships between students, faculty, staff and the community to advance sustainability ideas, policies and practices, and to create societal impacts by using the Campus as a Living Lab. Previous SEEDS studies have helped to advance many areas of climate action, including business air travel, climate-friendly food and biodiversity initiatives.

- **University Climate Change Coalition (UC3)**
  UBC shares and amplifies the University's place-based climate research and solutions that help accelerate climate action at a local, regional and global scale as a founding member of the University Climate Change Coalition (UC3). UBC's 15th President, Prof. Santa J. Ono, resumed leadership of the UC3 in June 2020, and UBC hosted the University Climate Change Coalition Conference in June 2022. This conference brought together 23 universities from across the United States, Canada and Mexico to share their expertise, knowledge and resources to tackle and accelerate climate action. By fostering cross-sectional collaboration, the initiative hopes to solve the multifaceted problems of climate change, including meeting the ambitious goals of the Paris Agreement.

- **Academic programs**
  UBC has increased its offering of academic programs that focus on sustainability, including a Bachelor of Sustainability at the UBC Okanagan Campus; and majors and minors offered by the Faculties of Applied Science, Arts, Education, Forestry, Land and Food Systems, Science and Sauder School of Business at the UBC Vancouver Campus.

- **Student sustainability initiatives**
  UBC senior administration supports student sustainability initiatives such as the UBC Climate Hub, a group of full-time staff and student leaders that connect and empower university and community stakeholders to take bold climate action for a just future. Their projects include the Youth Climate Ambassadors Project, Climate Justice Research Collaborative and advocating for the wellbeing of local communities. More information about their projects can be found here.

Markets

- UBC has been globally recognized as a sustainability leader in higher education. In 2022, UBC placed 13th overall (out of more than 1,400 institutions) in the 2022 Times Higher Education (THE) Impact ranking for institutional efforts to advance the United Nations sustainable development goals, and specifically tied for first in the Sustainability Development Goal 9 (Industry, Innovation, and Infrastructure) ranking, which examines research on industry and innovation, industry engagement and the number of patents and spin-off companies from a university. UBC's 15th President and Vice-Chancellor, Prof. Santa J. Ono, has noted that "universities and their connections to industry have never been more important to the advancement of innovation to the ultimate benefit of society." As such, UBC's internationally recognized reputation and leadership in climate action and sustainability bolsters the partnerships and research opportunities available to the University.
- UBC equips and supports community members to act on climate change, which strengthens the University community's resilience and sense of individual and collective agency.

Resilience

- As part of UBC's CAP 2030 implementation, a climate adaptation resiliency and biodiversity strategy will be developed on both campuses to act as a hub and link with other existing and future plans, policies and initiatives across the institution. This strategy will focus on the development of just, equitable and accessible adaptation strategies to reduce the impacts associated with the increasing frequency and severity of climate-change events.

Impacts from climate risks and opportunities

UBC is already experiencing the effects of climate change, causing disruptions to campus operations. For example, in 2021, BC experienced numerous significant climate events including extreme heat, extreme cold, wildfire smoke, thunderstorms and heavy precipitation—all symptomatic of the loss of climate stability due to climate change. These unusual weather patterns present a major challenge for UBC's teaching and research objectives, as well as impact community health on both of UBC's campuses. The University is continually monitoring these events to ensure a proper work and learning environment and that the health and well-being of staff and students is maintained. For instance, in fall 2021, after heavy precipitation throughout BC caused severe flooding and damage to key transportation routes, UBC implemented a work-from-home policy while gas restrictions caused disruptions to day-to-day operations.

UBC's climate emergency declaration in December 2019 recognized the severity, complexity and disproportionate impacts of, and responsibilities for, climate change. This declaration committed UBC to developing a systems response that embeds climate justice throughout its activities and priorities. By establishing the UBC Climate Emergency Task Force in 2020 and endorsing the new climate action plans, the UBC Board of Governors confirmed that climate action continues to be a top strategic priority for the University.

In 2021, UBC achieved a 24-per-cent reduction in Scope 1 and 2 GHG emissions at both campuses (since 2007), despite an overall 31-per-cent growth in floor space and 52-per-cent increase in student enrolment over the same period. Overall, UBC has achieved a 50-per-cent GHG emissions reduction per full-time equivalent student since 2007.

2021 offsetable emissions and key indicators for UBC Vancouver and UBC Okanagan

Key performance indicator	Vancouver campus	Okanagan campus	UBC 2021 total
GHG emissions (tonnes CO_2e)	45,958	2,295	48,253
Floor space (m^2)	1,611,485	166,538	1,778,023
GHG emissions per square metre (tCO_2e/m^2)	0.029	0.014	0.027
Student enrolment (FTE)	52,852	10,596	63,448
GHG emissions per student (tonnes CO_2e/FTE)	0.87	0.22	0.76

Implementation of the CAP 2030 and its recommendations to accelerate a path to net-zero emissions for building and energy supply will reduce medium- to longer-term operational costs associated with increased carbon liabilities, increase the future resiliency of the campus to withstand the impacts of acute climate shocks and events resulting from climate change, and continue to demonstrate UBC's commitment and leadership to address climate change through a climate justice lens.

UBC Climate Change Accountability Report

UBC reports annually on GHG emissions associated with Scope 1, 2 and 3 each year in the Climate Change Accountability Report (CCAR). CCAR tracks UBC's actions and progress in reducing GHG emissions, and its specific achievements toward reaching the CAP 2030 goals.

Scenario analysis

UBC currently does not complete a scenario analysis for a global rise in average temperature of 2^0C or lower but will in the future. UBC has actioned other scenario analyses associated with climate-related risks and opportunities for the University. These include:

- **Climate-ready design requirements**
  UBC is continuously innovating in order to decarbonize its buildings and energy supply. Increased investments in expanding clean-energy supply and energy-efficient technologies provide opportunities to partner with faculty researchers devoted to helping advance innovation in these areas. Along with such innovations, we acknowledge the need to future-proof UBC's buildings to the impacts of climate change including heat waves, fires, smoke, storms and floods. UBC has started to achieve this through the UBC Climate Ready Building Design Requirements, which are outlined in the climate-adaptation component of UBC's Green Building Action Plan. These requirements provide guidance to project teams to incorporate key design strategies and identify future retrofits needed to reduce climate risk. Climate-adaptive building design guidance for the Okanagan campus is provided in the UBC Okanagan Design Guidelines. The UBC Okanagan Integrated Rainwater Management Plan provides rainwater retention targets based on predicted climate-change impacts for all future building projects and development.

- **Financial review of carbon offsets and taxes**
  As a public institution in BC, the University is required to comply with provincial legislation, including maintaining carbon neutrality in its operations (Scope 1, 2 and paper). Since 2010, UBC has purchased carbon offsets to achieve carbon neutrality. The province also taxes carbon emissions on fossil fuels, including natural gas, which impacts the University's finances. As part of CAP 2030, UBC accounted for the uncertainty in external carbon-pricing policy (including taxes and offsets) by evaluating future carbon liabilities associated with campus operations.

- **GHG reductions**
  The University closely tracks a GHG-mitigation scenario associated with achieving CAP 2030 climate targets which are equal, and in some cases surpass, the GHG savings required to meet the global 1.5°C Paris Agreement target.

- **District energy system decarbonization**
  UBC is undertaking a comprehensive technical and financial feasibility analysis to identify the most promising low-carbon energy supply option(s) for the UBC Vancouver District Energy System by reviewing various technologies against a set of key criteria associated with CAP 2030. The Okanagan Campus is implementing a Low Carbon Energy Strategy to decarbonize its existing energy supply in support of UBC Okanagan CAP 2030.

- **Energy supply**
  In order to mitigate present and future risks associated with changing climates and an evolving policy landscape, UBC has been taking actions to secure against volatility in conventional energy supply through the expansion of alternative fuels for district energy to provide fuel diversity and resilience.

Risk management

Identifying, assessing and managing climate-related risks.

UBC's Office of Enterprise Risk and Assurance (ERA) strives to advance the University's ability to deliver its strategies, goals and objectives through risk-informed decision-making. Through its Enterprise Risk Management (ERM) program, ERA provides the framework and capabilities to support management in its identification, assessment and management of risks and opportunities. The University's ERM approach is informed by international best practices and recognized standards (e.g., ISO 31000 Risk Management and COSO Enterprise Risk Management).

ERA partners with UBC senior leaders, including the executive leadership team and the president, to identify and assess institutional-level risks that have the potential to adversely affect the achievement of the University's goals and objectives. These include risks that relate to natural disasters, which covers forest fires, floods and seismic activity and financial risks associated with deferred maintenance on buildings.

Institutional-wide risks are assessed using the UBC ERM framework, including risk-rating scales for probability of occurrence and severity of impact. This allows the significance of climate-related risks relative to others to be determined and aids prioritization of mitigations by management.

In addition to the above, UBC Sustainability and Engineering has created a process to identify climate-related risks using the risk categories from TCFD, disclosed in the Strategy section of this report. Work is ongoing to assess and prioritize each of these risks.

Consideration of existing and emerging regulatory requirements related to climate change (e.g., limits on emissions) is a function of UBC Sustainability and Engineering. Specific future requirements being considered include carbon reporting, green buildings and transportation. For example, Sustainability and Engineering reports Scope 1 and 2 GHG emissions annually to the provincial government under requirements set forth by the BC Carbon Neutral Government Program.

Processes for managing climate-related risks

Once institutional risks have been identified and assessed, risk mitigation plans are determined by the responsible executive lead and their teams. Several factors are considered by management when preparing risk mitigation plans: e.g, the level of risk exposure, or management's risk appetite, etc. ERA facilitates discussions on risk mitigation plans, monitors progress on these and provides risk reports to the Executive Leadership Team, the Audit Committee and the Board.

For the specific climate-related risks identified in the Strategy section of this report, decisions on UBC's risk mitigation plans will be formalized when the TCFD climate-related risks identified by UBC Sustainability and Engineering are fully assessed and prioritized.

Integrating climate-related risks into overall risk management

The current process for managing climate-related risks, as identified in the Strategy section using the TCFD risk categories, runs parallel to the ERM process, and requires integration to ensure a consistent approach to identifying, assessing and managing climate-related risks.

Metrics and targets

Metrics used to assess climate-related risks and opportunities

UBC assesses climate-related risks and opportunities using industry-standard metrics, such as Scope 1, 2 and 3 GHG emissions and offsets. These can be found in the following annual reports:

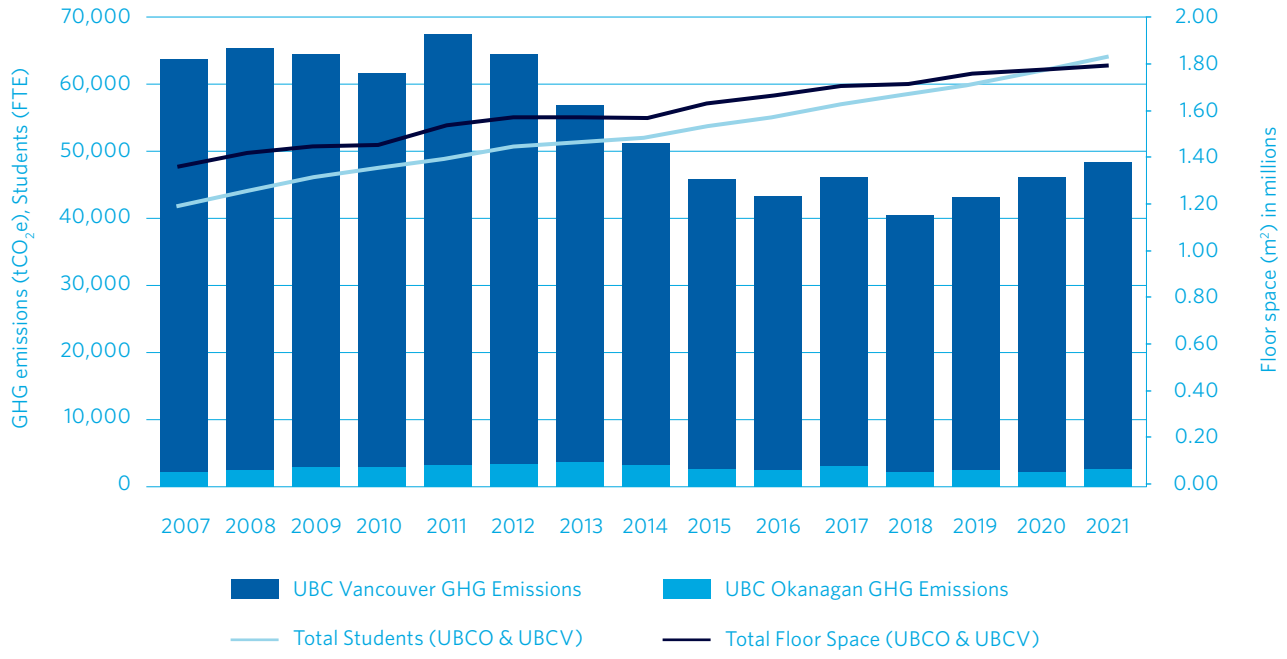
- **Annual Sustainability Report**
  Provides an overview of sustainability activities, and highlights achievements at UBC's Vancouver and Okanagan campuses.
- **Climate Change Accountability Report**
  UBC's Climate Change Accountability Reports (formerly Carbon Neutral Action Reports) are required under the province's carbon neutral regulation. The reports track UBC's actions and progress towards reaching carbon neutrality, and our achievements toward the goals of UBC's Climate Action Plan and UBC Okanagan's Climate Action Plan.
- **GHG inventories (2006-Present)**
  Inventories for the Vancouver campus and the Okanagan campus.

UBC has introduced live dashboards which monitor the University's progress in relation to targets set against GHG emissions: Teaching, Learning and Research; Operations and Infrastructure; and Community. These dashboards support UBC's monitoring of climate-related risks relating to physical and policy and legal factors, as well as opportunities relating to resource efficiency, low-carbon energy supply and products and services. These dashboards can be found here.

GHG emissions

UBC has tracked and reported Scope 1 and 2 GHG emissions since 2010, in accordance with the GHG protocol methodology as defined in BC's Methodology for Quantifying GHG Emissions shown in the figure below:

FIGURE 1: UBC Growth and Emissions for Carbon Offsets, 2007 to 2021



2021 UBC Total GHG emissions by location

TABLE 1: 2021 UBC Total GHG Emissions by Location (in tCO_2e)

Location	2021 Emissions for offset	Emissions not required to be offset [7]	Total GHG Emissions
UBC Vancouver Campus	45,958	4,804	50,762
UBC Okanagan Campus	2,295	204	2,499
Off-campus Properties	2,929	1	2,930
UBC Properties Trust	3,634	0	3,634
UBC Total	**54,816**	**5,009**	**59,825**

Offsetable emissions and key indicators for UBC Vancouver and UBC Okanagan

TABLE 2: 2021 Offsetable Emissions and Key Indicators for UBC Vancouver and UBC Okanagan

Key Performance Indicator	Vancouver Campus	Okanagan Campus	UBC 2021 total
GHG Emissions (tonnes CO_2e)	45,958	2,295	48,253
Floor Space (m^2)	1,611,485	166,538	1,778,023
GHG Emissions per Square Metre (tonnes CO_2e/m^2)	0.029	0.014	0.027
Student Enrolment (FTE)[8]	52,852	10,596	63,448
Staff and Faculty Employees (FTE)	15,684	1,569	17,253
GHG Emissions per Student (tonnes CO_2e/FTE)	0.87	0.22	0.76

Table 2 shows the 2021 emissions for offsets from UBC's two main campuses along with key performance indicators.

In addition to operational emissions reporting, UBC also tracks and reports specific Scope 3 emissions, including commuting, embodied carbon, waste, business air travel and paper.

Climate targets

The University has committed to accelerated emissions reduction that aligns and exceeds the Paris Agreement of limiting global warming to 1.5^{0}C, including a target of reducing Scope 1 and 2 GHG emissions relating to operational emissions of 85 per cent for the Vancouver Campus and 65 per cent for the Okanagan Campus by 2030. UBC has developed actions to drive emission levels down for each campus covering key Scope 1, 2 and 3 areas.

UBC Climate Action Plan 2030

UBC Vancouver Climate Action Plan 2030
planning.ubc.ca/cap2030

UBC Okanagan Climate Action Plan 2030
sustain.ok.ubc.ca/cap/

UBC investing targets

As the investment manager for UBC-related funds, UBC Investment Management prioritizes its commitment to responsible investing. UBC Investment Management has detailed targets related to UBC investments in the 2021 UBC Investment Management Trust Responsible Investing Report.

Other applicable plans

UBC Zero Waste Action Plan
planning.ubc.ca/zero-waste-action-plan

UBC Water Action Plan
planning.ubc.ca/sustainability/sustainability-action-plans/water-action-plan

UBC Green Building Action Plan
planning.ubc.ca/sustainability/sustainability-action-plans/green-building-action-plan

UBC Transportation Plan
planning.ubc.ca/sites/default/files/2019-11/PLANS_UBC_TransportationPlan.pdf

UBC Okanagan Whole Systems Infrastructure Plan
sustain.ok.ubc.ca/whole-systems-plan/

UBC Okanagan Integrated Rainwater Management Plan
sustain.ok.ubc.ca/wp-content/uploads/sites/70/2018/02/IRMP_Part_159649.compressed.pdf

UBC Okanagan Transportation Plan
campusplanning.ok.ubc.ca/transportation/ubc-okanagan-transportationplan/

UBC Okanagan Design Guidelines (Part 4, Green Buildings)
campusplanning.ok.ubc.ca/wp-content/uploads/sites/64/2020/04/2019-01-10-UBCO-Design-Guidelines-R19-v4_FINAL-1.pdf

UBC Okanagan Strategic Energy Management Plan
https://facilities.ok.ubc.ca/wp-content/uploads/sites/87/2021/03/UBCO-2020-SEMP-Update-Report-2020-07-30-Final-Rev1-Sealed.pdf

UBC Okanagan District Energy Decarbonization Strategy
https://facilities.ok.ubc.ca/wp-content/uploads/sites/87/2021/03/UBCO-Decarbonization-Strategy-v1.1-Dec-18-2020.pdf

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View from the UBC Rose Garden
Paul H. Joseph / UBC Brand & Marketing

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