



The Role of Provincial Climate Legislation on Accelerating Climate Action at BC Universities

Prepared by: Grace Schaan, UBC Sustainability Scholar, 2023

Prepared for: Sara Muir, Project Manager, Pacific Institute for Climate Solutions and Linda Nowlan, Senior Director, UBC Sustainability Hub

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Disclaimer

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Cover photo courtesy of Grace Schaan

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List of Acronyms

ADES - Academic District Energy System

ARC - Aboriginal Reconciliation Council

BRDF - Bioenergy Research and
Demonstration Facility

CAP - Climate Action Plan

CSAP - Climate and Sustainability Action
Plan

CAS - Climate Action Secretariat

CCAA - Climate Change Accountability Act

CCAR - Climate Change Accountability
Report

CNG - Carbon Neutral Government

ESCA - Embedding Sustainability and
Climate Action

GGRTA - Greenhouse Gas Reduction Targets
Act

GHG - Greenhouse Gas

IKS - Indigenous Knowledge Systems

ISC - Integrated Steering Committee

PCT - Pacific Carbon Trust

PICS - Pacific Institute for Climate Solutions

PSO - Public Sector Organisation

SFU - Simon Fraser University

TRC - Truth and Reconciliation Commission

UBCO - University of British Columbia,
Okanagan campus

UBCV - University of British Columbia,
Vancouver campus

UC3 - University Climate Change Coalition

UNBC - University of Northern British
Columbia

UVic - University of Victoria

ZEV - Zero Emissions Vehicle

Executive Summary

Since 2010, the BC Carbon Neutral Government has mandated that all Public Sector Organisations (PSOs), including universities, be carbon neutral through the *Climate Change Accountability Act*. PSOs are to accomplish this by measuring, reducing, and offsetting eligible GHG emissions which must then be reported on annually. This legislation has contributed to climate action at BC universities over the last decade since the mandate's implementation, though more ambitious action is needed in order to mitigate climate change and meet emissions reductions targets.

This study evaluated how the PSO mandate, among other BC climate policies, has affected climate action at BC universities; which provisions have had the most impact; what gaps in policy remain; what changes may be on the horizon for climate policy; and what additional provincial legislative drivers and actions from PICS could accelerate action further at BC universities.

To address these questions, a literature review was conducted followed by interviews with employees who interact with the policy from the four PICS partner universities, one City of Vancouver employee, and one Climate Action Secretariat (CAS) employee.

We find that BC's PSO mandate was a significant driver of emissions reductions at universities in the early days of the policy, but this is not so much the case anymore. Today, the key role of the PSO mandate appears to be for providing accountability for emissions reductions, though the offset program remains of importance, to varying degrees, at some of the institutions. Instead, universities now point to other drivers of emissions reductions such as climate emergency declarations, IPCC reports, and other BC policies and programs.

However, scope three emissions (also referred to as extended emissions and encompass commuting, business air travel, food, waste and materials, and embodied carbon) remain a critical area where more emissions reductions are needed because they are such a significant source of emissions on campus. For example, at UBCV extended impact emissions are almost 2.5 times larger than campus operations emissions (University of British Columbia, 2021b). Many universities are already exceeding the mandate's requirements for scope three emissions but note they need more support from the province on advancing scope three measuring methodologies. Meanwhile, the CAS says the mandate will not be expanded to more scope three emissions anytime soon. Despite this, PSOs and academics alike are pushing for more ambitious provincial targets and reporting requirements. PSOs also hope to see more support from the province in the form of funding mechanisms, education and knowledge-sharing tools,

and standardization and other reforms to help alleviate the burdens of reporting, the lack of resources, and the limitations of staff capacity being experienced. Furthermore, because emissions from natural gas are substantial, the province should phase out natural gas and provide more clarity over the province's policies around the future of energy supply. PICS could play a role in furthering climate action at BC universities by organising information-sharing events between PSOs and local governments, working on targeted projects with the CAS, and involving the CAS in PICS projects relevant to the CAS early on in the project.

Introduction

BC's Carbon Neutral Government (CNG) mandate for Public Sector Organisations (PSOs), established in the *Climate Change Accountability Act (CCAA)*, requires that all PSOs be carbon neutral as of 2010. The mandate is intended to encourage GHG emissions reductions, and offsets of remaining eligible emissions, and applies to all post-secondary institutions in the province. Over a decade has passed since the program was first implemented. The main objectives of this research are to evaluate how the PSO mandate, among other BC climate policies, has affected climate action at BC universities; which provisions have had the most impact; what gaps in policy remain; what changes may be on the horizon for climate policy; and what additional provincial legislative drivers could accelerate action further at BC universities.

To begin, a literature review summarizes the PSO mandate's origins and requirements, alongside the state of emissions reduction strategies at the four Pacific Institute for Climate Solutions (PICS) partner universities - Simon Fraser University (SFU), the University of British Columbia (UBC), the University of Northern British Columbia (UNBC), and the University of Victoria (UVic). This is followed by an analysis of interview responses from key subject matter experts at the four universities, the City of Vancouver, and the Climate Action Secretariat (CAS). This research finds, while BC universities are already leading the way for climate action, opportunities remain for the Carbon Neutral Government mandate to be expanded with areas of uncertainty further analyzed. Finally, the report outlines recommendations relevant to the BC government to further accelerate climate action at BC universities.

Literature Review

BC's PSO Mandate and Other Climate Action Policies

In Gordon Campbell's first term as Premier, he adopted a whole-of-government approach across departments responsible for, or affected by, climate change (McKenzie & Kuehl, 2021). This included, in 2007, the creation of the Climate Action Secretariat (CAS) to coordinate climate change action across government (McKenzie & Kuehl, 2021). By November 2007, the *Greenhouse Gas Reduction Targets Act (GGRTA)* (amended and renamed in 2018 as the *Climate Change Accountability Act - CCAA*) had entrenched a goal for the public sector to be carbon neutral by 2010 in law. The mandate, which was the first of its kind in North America,

applied to 150 core government and public sector organizations and covered 1.5% of BC's total GHG emissions in 2007 (Lau & Dowlatabadi, 2011).

The CCAA includes additional targets for GHG emissions as well as the PSO mandate. Part 1 of the CCAA outlines that, compared to 2007 levels, there should be a 40% reduction by 2030, a 60% reduction by 2040, and an 80% reduction by 2050. Furthermore, there must be annual targets established up to 2030 and by 2021 there must be targets for individual sectors. Part 2 of the Act states that each PSO must be carbon neutral from 2010 on. To be considered carbon neutral, PSOs must: minimize GHG emissions, determine its GHG emissions for that year, and, by the end of June the following year, enter into an agreement to retire offset units on behalf of the PSO (Government of British Columbia, 2007). According to the Act, a public accountability report is required for each year from 2020 on. This report must describe actions taken to reduce emissions, report on emissions for that year, state offsets retired, and describe actions that were taken to comply with requirements and achieve targets related to PSO buildings and fleet (Government of British Columbia, 2007).

The process for meeting the CCAA requirements can be broken into five steps described in *Becoming Carbon Neutral—B.C.'s Public Sector* (Government of British Columbia, 2023a). First, PSOs must measure operational emissions. This includes designing the process for measuring, capturing the data, compiling the data, and recording the data in the Clean Government Reporting Tool. Second, PSOs must reduce in-scope GHG emissions through planning and action. Third, the Climate Action Secretariat (CAS) generates an Offset Payment Invoice for each PSO in order to offset remaining in-scope emissions. This has been calculated at \$25 per tonne of carbon dioxide equivalent offset (Government of British Columbia, 2015). Next, PSOs must report publicly on emissions reductions, plans and actions. Finally, PSO management must review and validate emissions and offsets by signing a Self-Certification Checklist created by the CAS and archive documentation necessary in case it is selected for third-party verification.

Which specific emissions that are encompassed by the mandate are outlined in the *Scope Summary for B.C. Public Sector Greenhouse Gas Emissions*¹ document (Government of British Columbia, 2023b). First, in terms of organisational boundaries, only PSOs and any organisation considered controlled by a PSO are covered by the mandate. This means that contractors supplying services to, or on behalf of a PSO, are out-of-scope. Second, operational boundaries state that PSO assets (e.g., buildings, equipment, etc.), jointly owned or leased assets, carbon neutral emission sources (such as from sources considered carbon neutral

¹ GHG emissions that are covered include: carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, perfluorocarbons and hydrocarbons. All other gases are out-of-scope.

through offsets under other climate initiatives), and emissions from biomass and biofuels are all in-scope. Joint assets where the PSO has only a small interest and no significant influence over its use are out-of-scope as are emissions from assets owned or leased by contractors and small emissions cumulatively less than 1% of overall emissions. Third, emissions sources that are in-scope include: stationary sources (direct and indirect from buildings, direct emissions from heat, cooling, or electricity, indirect emissions from energy suppliers for heat, cooling, and electricity, fugitive HFC emissions, and emissions from facilities under construction), mobile sources (direct emissions from fuels used in mobile assets owned or leased by PSOs, indirect emissions from energy suppliers producing electricity for fuels used in mobile assets used by PSOs), and paper emissions.² Business travel emissions from officials of post-secondary institutions are out-of-scope.

Often, these in-scope emissions are broken into three categories: scope 1, scope 2 and scope 3. Scope 1 emissions refer to direct emissions such as from heating, air conditioning or lighting of a building, operation of appliances, equipment or machinery, or operation of vehicles or mobile combustion sources (Lau & Dowlatabadi, 2011). Scope 2 emissions generally refer to indirect emissions from electricity. This could be from air conditioning or lighting of a building or operations of appliances, equipment or machinery. Finally, scope 3 emissions are those from other indirect sources which, for post-secondary institutions, only include production of office paper used in operations.

Academic literature has highlighted some of the lessons learned from BC's policy landscape and suggests some areas for future improvement. For example, Lau and Dowlatabadi (2011) explain that BC's current system employs a production-based model. That is to say that the producer is responsible for the emissions. However, the authors recommend that BC should pursue a consumption-based model for accounting emissions. This type of model is preferred because it includes the emissions of imported goods. Therefore, it would help reduce carbon leakage because domestic emissions cannot be reduced by increasing imports of the same products. Even if the current production-based model continues, the authors highlight the importance of expanding scope 3 emissions. Lau and Dowlatabadi find that in many cases scope 3 emissions are significant and that companies often do have the ability to influence the upstream and downstream GHG emissions of their operations. For instance, at UBC Vancouver, 47% of emissions are scope 3 (as of 2011) and are not covered. These scope 3 emissions primarily come from commuting, staff and faculty travel, and embodied impacts of buildings and infrastructure. As such, the authors recommend that the BC government should: "(i) make it

² For 20lb copy paper purchased by PSOs, in all colours, wood fibre and non-wood fibre papers, and paper with a 0-100% recycled content.

mandatory for PSOs to assess and report all relevant and significant scope 3 emissions; (ii) not require these additional scope 3 emissions to be reduced or offset, unlike scope 1 and scope 2 emissions currently are; and (iii) allow PSOs to use their scope 3 emission reductions as offsets, provided these meet the quality standards for offsets” (Lau & Dowlatabadi, 2011, 4).

As municipalities are also covered by the PSO mandate, research examining them may be used to evaluate the effectiveness of BC legislation for driving climate action. Dale (2016) found that the BC government’s most prominent driver of climate action for municipalities was legislative and policy framework, specifically: the PSO mandate, the carbon tax (2008), Bill C27, also known as the *Green Communities Act*, (2008), the *Utilities Commission Amendment Act* (2008), and the voluntary Climate Action Charter (2007). Other drivers were, in order of prominence: provincially led incentives and tools, access to partnership funding and intermediary support, and local governments framing the issue as critically important (and having financial benefits) to elected officials. Finally, the author notes that provincial targets and reporting requirements have had significant effects to date at the municipal level. Therefore, even tougher provincial targets and reporting requirements are needed for this action and innovation to continue. Similarly to Dale, Hallsworth (2016), in an examination of provincial climate action plans and their impacts on local governments, found that the province has used a combination of mandatory and voluntary measures (e.g., non-binding goals for emissions reductions). The province’s tools were primarily intended to empower local governments instead of prescribing specific actions. This approach has been criticized by local governments who have asked for more specific guidance such as by providing specific targets and identifying the actions necessary to reach those goals.

In a study of the BC government’s PSO mandate on infrastructure projects at Vancouver-area universities, Lau (2013) describes some of the impacts on emissions and challenges faced by universities. In terms of the offsetting process, there are mixed opinions on using offsets to lower emissions. However, the mandate has resulted in PSOs measuring and managing GHG emissions and incentivized them to proceed with infrastructure projects that will significantly reduce emissions (Lau, 2013). In addition, Lau shows that adequate resources and support mechanisms enable and motivate PSOs to take action to drastically reduce emissions. The mandate has made it easier for the PSOs to “propose and justify infrastructure projects, by tilting the balance in business case evaluations in favour of projects that drastically reduce emissions” (Lau, 2013, 148). According to the author, the main constraint for infrastructure projects is the lack of funding. When funding was available internally or obtained (through the provincial or federal government or a third party) PSOs were able to proceed with infrastructure projects. Otherwise, the operational budget was required to fund small energy

efficiency or retrofit projects. Lau states that offsetting emissions, and sending funds out of the public sector into the private sector, compounds the issue of finding funds within a tight operational budget. This study also demonstrates that support mechanisms from the provincial government or other governmental agencies were helpful but not a critical driving force in decision-making on infrastructure projects. However, learning among PSOs should be encouraged as it is shown to be beneficial for all parties. The author suggests that the CAS should provide more learning opportunities for PSOs and encourage learning networks. Furthermore, funding should be set aside by CAS for learning networks or workshops. Lau recommends that the BC provincial government set aside more funds for PSOs to undertake infrastructure projects that will reduce emissions. Additionally, more external funding could become available to PSOs if the debt ceiling is relaxed in cases where PSOs can show the potential energy savings over the lifetime of a project will be sufficient to pay back the loan required for the project. Finally, it is also suggested that the PSO mandate should be expanded to cover business travel for all PSOs and that this change can be implemented relatively quickly.

As for the role of the CAS, McKenzie and Kuehl (2021), note that changes in priority and leadership in the Premier's Office in the past led to insufficient resources being allocated to the CAS which negatively impacted its achievements. For instance, in 2011 the CAS's webpage was taken down rather than being archived (McKenzie & Kuehl, 2021). With resources, political support, and experience, the CAS was able to regain prominence in 2017. Transparency continues to be an issue within the CAS as, from 2017 onwards, much of the content they have created is not easily accessible to the public which may reduce accountability. It remains difficult today to find public records of the CAS's past activities

There is some evidence of support for the PSO mandate from NGOs. The Pembina Institute, ForestEthics, BC Sustainable Energy Association, & Sierra Club BC (2008) provided comments on the policy and improvements that could be made. They begin by stating that they support the GGRTA and the Pacific Carbon Trust (PCT) model for PSOs to purchase credible offsets. They argue that this saves PSO staff from having to judge the credibility of different offset projects. However, they also emphasize that purchasing offsets should be 'Plan B', second to reducing emissions in PSO operations as offsets are only a temporary means for meeting commitments. They note that this prioritization of first reducing emissions is not written in the Emission Offsets regulation. They also state that the success of the policy depends on the availability of resources to the PCT and PSOs. According to the authors, the PCT needs resources to ensure monitoring and enforcement of offset projects while PSOs need resources to implement changes to reduce emissions in operations so they are not trapped into buying offsets due to a lack of capital.

In addition to the PSO mandate, the BC carbon tax has been a significant climate policy introduced by the province as it applies economy-wide and therefore includes emissions from PSOs. When introduced, the tax was set relatively high for the time period and was also broad, applying to more than 70% of GHG emissions (Fairbrother & Rhodes, 2023). By 2011, BC per capita emissions were down 2.4% compared to an increase for the rest of Canada of 3.9% (Fairbrother & Rhodes, 2023). After 2012, GHG emissions rose partially because the tax stopped increasing beyond \$30/tonne. When the federal carbon tax was implemented, BC amended their tax to match the federal carbon tax rate. Though emissions still increased after 2007, emissions would have been even higher without the tax (Fairbrother & Rhodes, 2023). Emissions declined 12% per capita from 2008-2019 (Fairbrother & Rhodes, 2023). Fairbrother and Rhodes (2023) in their analysis of the tax note that it is important that existing policies increase in stringency over time, explicit caps and stringency targets must be defined for industry, and governance mechanisms and annual reports must be in place to hold the government accountable.

In 2018, the CleanBC climate plan was released. It included a legislated target of 40% GHG reductions by 2030 and governance mechanisms to make the government accountable for meeting the target (Fairbrother & Rhodes, 2023). It also included a ZEV mandate requiring 10% ZEV market share by 2025 and 100% by 2040 for light-duty vehicles. In addition, it included subsidies and loans for energy efficiency home improvements and standards added for industry. One reason the CleanBC target could not be met was because of Liquefied Natural Gas industry development (Fairbrother & Rhodes, 2023). Some new measures that are coming for PSOs are outlined in the *CleanBC Roadmap to 2030* (Government of British Columbia, 2021). For instance, zero-emissions vehicles will be the default option for all public sector fleets with ZEVs accounting for 100% of light-duty vehicle acquisitions by 2027. In addition, all new public sector buildings will be required to align with performance standards (2023) and eventually zero-carbon new buildings (2027). Furthermore, the Low Carbon Building Materials Strategy will be developed in 2023. It will create a market for cleaner building materials and will lead to decarbonizing buildings. It will be initially emphasized for public sector buildings. The government is also developing a strategy for how to transform existing public sector buildings to a low-carbon and resiliency standard. Finally, the BC government is “supporting the development and implementation of embodied carbon targets for public sector buildings by 2030” (Government of British Columbia, 2021, 43).

Murphy et al. (2021) note that there are a number of implementation gaps between targets and plans announced specifically by local governments though these may also be applicable for other PSOs. For instance, jurisdictional reach is an important contributing factor

(Murphy et al., 2021). Legal authority of local governments to enact GHG emissions and energy policy is limited in many jurisdictions compared to national and sub-national governments. Furthermore, capacity limitations of local governments, such as money and time constraints and capacity to interpret and communicate results, have a role in the implementation gap. In the case of Vancouver, the city aims to be carbon neutral by 2050 and is pursuing achieving 100% renewable energy. However, Murphy et al. point out that goals do not guarantee that policies that lead to emissions reductions will be implemented. Vancouver can make significant progress on its targets by implementing policies in its jurisdiction, though the authors state that Vancouver is unlikely to meet its renewable energy and emissions targets without the support of higher levels of government. Local governments in general are unlikely to be able to make deep emissions reductions and switch to renewable energy on their own. Local governments can most effectively reduce emissions by partnering or seeking support from other levels of government. They may also increase political pressure on senior governments to provide greater policy support in areas beyond their jurisdictional reach. Universities, which are comparable in size to some municipalities, face similar issues related to jurisdictional reach and capacity limitations - both of which contribute to the gap between targets and actual emissions reductions achieved.

University Climate Action

Each of the four PICS partner universities have taken a range of actions to address climate change. Below are summaries of the progress the universities have made in this area. Figure 1 below shows the total offsetable emissions from each university in 2021 and how they compare to each other. This figure shows that UBC has significantly higher total emissions than the other three universities. Figure 2, also below, shows the per capita emissions of each university in 2021 based on the student population of that year. Daytime populations were not available for all universities so Figure 2 excludes employees and other individuals who reside on campus but are not students. This figure demonstrates that UBC's emissions remain higher than the other universities even when considering the large student population of the UBC campuses. However, UNBC has only slightly fewer per capita emissions than UBC. Three of the four universities have published Climate Action Plans (CAPs). A table comparing various aspects of the CAPs from SFU, UBCO, UBCV, and UVic can be found in Appendix A on page 37.

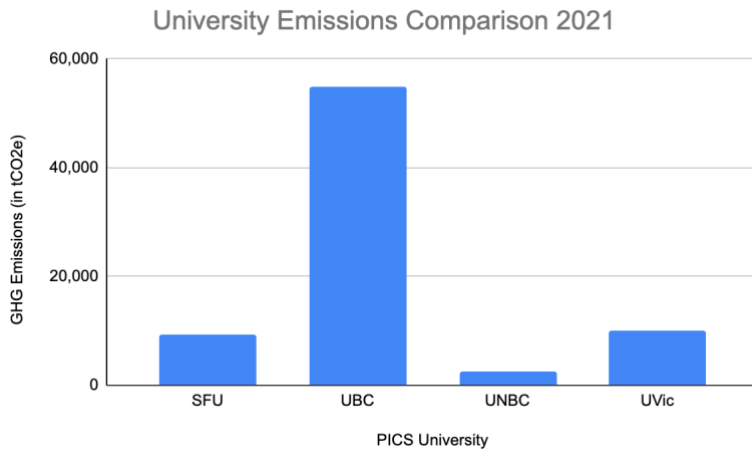


Figure 1: Comparison of PICS partner universities' total offsetable emissions in 2021. Data from university accountability reports.

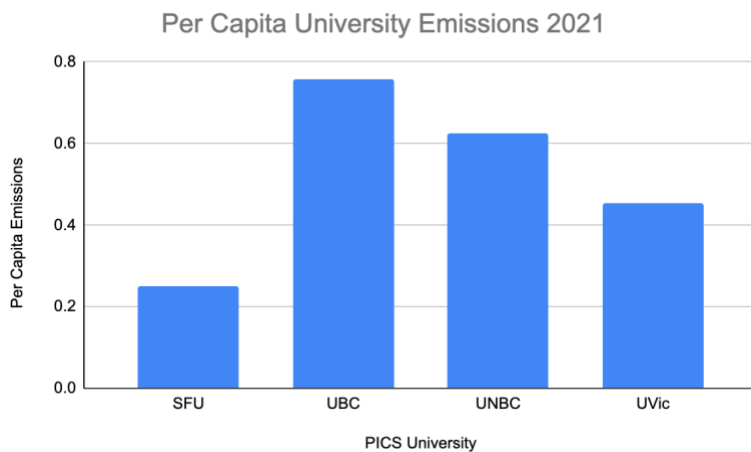


Figure 2: Comparison of PICS partner universities' per capita offsetable emissions based on 2021 student populations. Data from university accountability reports.

Climate Action at Simon Fraser University

SFU's 2021 Climate Change Accountability Report (CCAR) highlights some key aspects of the university's progress towards climate action (Simon Fraser University, 2022a). In 2021, the university saw a 25% emissions reduction over the previous year and reached a total reduction of 51% below 2007 levels. In part, these emissions reductions were due to COVID-19 and increased online activity. However, the reduction can also be attributed to energy consumption optimization and renewable sources of energy from the Corix Biomass Plant. For 2021, 9,424 offsets were retired, costing \$235,600. In 2022, SFU reduced emissions only slightly from the year before and retired 9,187.22 offsets which cost \$229,681 (Simon Fraser University, 2023).

In 2022, SFU released a CAP outlining six primary goals for 2022-2025 (Simon Fraser University, 2022b). Each goal outlined in the CAP has a Vice President who is accountable for writing action plans, funding and implementing them, evaluating progress, and reporting to SFU Sustainability for university-wide annual reporting purposes. SFU Sustainability works with the

Vice Presidents to provide advice on best practices, provide support, and coordinate reporting. Vice President Direct Report Leads, who are the most appropriate ongoing contact for SFU Sustainability from each Vice President portfolio, are partnered with a lead from SFU Sustainability to work together on action planning, assessing progress, and reporting.

SFU's overall goal stated in the plan is to reduce operational GHG emissions by 50%, from 2007 levels, by 2025. This surpasses BC's emissions target of 16% by 2025. SFU also aims to: reduce emissions 85% by 2030 (compared to BC's 40% target), reach net zero scope 1 direct emissions by 2035, and reach net zero for all direct emissions by 2050 (compared to BC's 80% target).

To reduce emissions from scope 1 and 2, SFU aims to shift 50% of fossil fuel energy to renewables by 2025. For scope 3 emissions, SFU will work toward a 25% reduction where there is approved methodology for measuring GHGs (such as purchased goods and services, commuting, waste, food). Where methodology is not approved, SFU will work on developing methodology (such as for investments and capital goods). In addition, SFU aims to divest from fossil fuels by 2025 and also keep the building of the Burnaby Mountain Gondola on schedule as a scope 3 commuting strategy.

In terms of climate equity strategies, SFU states that one of the main goals of the action plan is to embed climate justice and community wellness into all sustainability activities. Guidelines and resources for justice, equity, diversity, and inclusion are to be developed for sustainability activities. Furthermore, existing external and community engagements will be utilized and the Truth and Reconciliation Commission and Aboriginal Reconciliation Council calls to action will be integrated into climate and sustainability activities. This is to be achieved by using existing assets and platforms to deepen partnerships with municipalities and host nations as well as new strategic partnerships.

Climate Action at the University of British Columbia (Vancouver and Okanagan campuses)

UBC released a CCAR for 2021 that describes the state of climate action at both the Vancouver and Okanagan campuses (University of British Columbia, 2022). In 2021, UBCV saw a 5% increase in offsetable operational GHG emissions from 2020 due to a temporary shutdown of the Bioenergy Research and Demonstration Facility (BRDF)³ during the expansion project. Even so, the campus is still at a 25% emissions reduction from 2007 levels. Emissions should reduce significantly when the BRDF is fully operational in 2022. The BRDF expansion is expected to result in approximately 60% savings in operational emissions from 2007 levels (University of British Columbia, 2021b). As for UBCO, the campus saw a 7% increase in offsetable operational

³ The BRDF is UBC's plant that produces heat and electricity from biomass fuel, renewable natural gas, and conventional natural gas.

GHG emissions from 2020 due to a 2021 update to provincial electricity emissions intensity factor and campus growth. Despite this, the campus is at a 31% reduction from 2013 levels. Emissions offset for both campuses came to 54,816tCO₂e which cost \$1,370,346.

In 2022, UBCV reduced offsetable emissions by 20% over 2021 though UBCO increased emissions 23% during the same period (University of British Columbia, 2023). UBCV's emissions reductions were largely due to energy conservation initiatives, building retrofits, and the expansion of the BRDF. UBCO's emissions increase can be attributed to a more intense use of space and the addition of five new buildings in recent years. Emissions offset in 2022 for both campuses came to 46,617tCO₂e costing \$1,165,425.

In 2021, UBC released a CAP for each campus working towards 2030 (University of British Columbia, 2021b, 2021a). The UBCV plan was led by Campus and Community Planning with oversight and direction from the Operational Sustainability Steering Committee (with representation from faculty and administrative leaders). Topic-based working groups and technical committees were established to develop the targets and actions. For UBCO, creation of the plan was also led by Campus Planning, Sustainability Office with oversight and direction from a project Steering Committee (with representation from faculty and administrative leaders). Key Okanagan plans (e.g., the Low Carbon Energy Strategy) are to be implemented under various leads. Okanagan-specific CAP actions (e.g., food systems and waste) are to be implemented by UBCO leadership. UBC System-level policies and actions will be led by UBCV and Campus Planning staff on both campuses. Departments or business units significantly involved in the actions will provide information on implementation progress to the Campus Planning Sustainability Office who conduct overarching campus monitoring and reporting.

Each campus has their own specific targets set out in their respective CAPs. UBCV is aiming for a 45% reduction from extended impact emissions (scope 3) by 2030, an 85% reduction of operational emissions (scope 1 and 2) by 2030, and a 100% reduction in GHGs by 2035. UBCV targets are on track to exceed the Paris Agreement targets. Meanwhile, UBCO will reduce campus operation scope 1 and 2 emissions 65% below 2013 levels by 2030. Extended impact emissions (scope 3) are to be reduced 45% by 2030. Finally, UBCO aims to reduce overall GHG emissions by 45% by 2030. UBCO's targets are in line with the Paris Agreement targets. Scope 3 targets for both campuses are above and beyond BC's legislated requirements.

In terms of scope 1 and 2 emissions, each campus has listed a number of actions and strategies for how these will be reduced. At UBCV, 100% of energy used by the Academic District Energy System (ADES) will come from low-carbon sources by 2030. UBCV will also undertake a technical and feasibility analysis to identify the most promising low-carbon energy supply options for the ADES, develop a campus energy strategy, partner with BC's major utilities to increase access to low carbon energy supplies, and explore how to reach net zero with carbon capture for the last remaining emissions. UBCV aims for near-zero operation

emissions from new buildings by 2030. UBCV's scope 1 and 2 emissions and targets can be seen in Figure 3 below. UBCO plans to implement a Low Carbon Energy Strategy and 10-year Strategic Energy Management Plan, specific actions for buildings, and make changes to the energy supply (such as updating the UBC Technical Guidelines, implementing 10% renewable natural gas supply, and developing and implementing Low Carbon Energy Strategy). Both campuses plan to source zero emissions vehicles for their fleet and will implement an internal carbon price of \$250/tonne. The internal carbon charge will not result in the exchange of money, but it will be used to inform decisions which may result in more money being invested in lower carbon emitting systems. Furthermore, this internal carbon price will be inclusive of all external pricing instruments including offsets and fuel taxes.

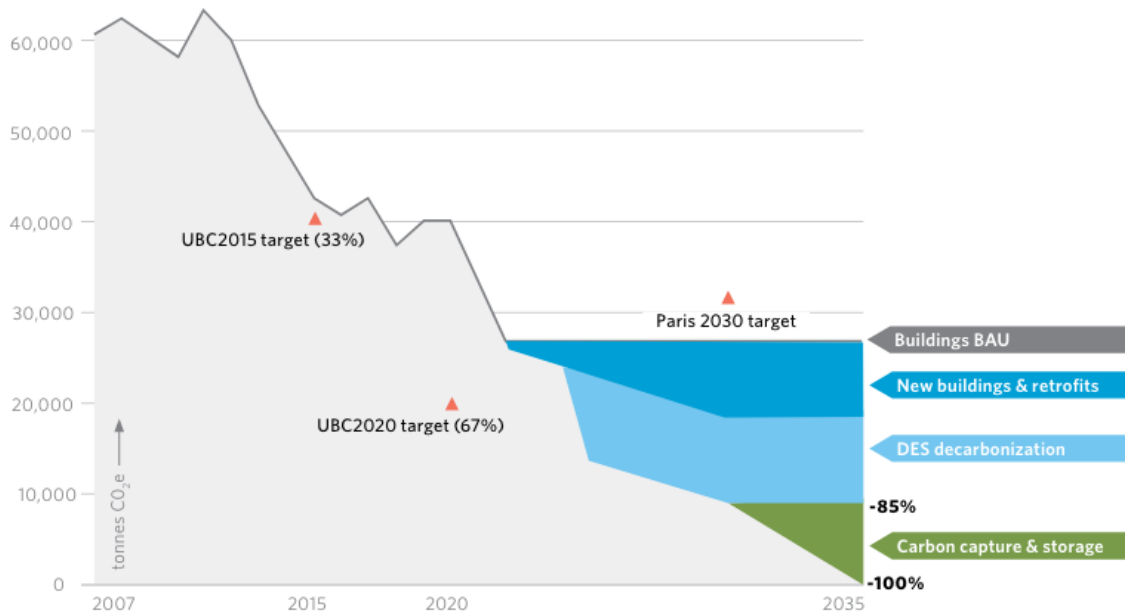


Figure 3: UBC Campus Operations Emissions Reductions Targets. Reproduced with permission from [University of British Columbia, 2021b](#).

Both campuses have extensive plans for scope 3 emissions beyond what is required through BC's PSO mandate. For instance, at UBCV, the scope 3 emissions to be targeted (to reach a 45% reduction) come from commuting, business air travel, building lifecycle, solid waste disposal, and food. Commuting, which is not covered by the mandate, is the largest source of scope three emissions for both campuses, making up 43% of UBCV campus emissions. Commuting emissions are targeted to be reduced to 45% of 2010 levels by 2030 through developing policies for remote work, establishing a Sustainable Transportation Program, and improving policy and infrastructure for EV charging. Business air travel is intended to be

reduced by 50% from 2019 levels by 2030 through the Sustainable Travel Program and studying inter-campus travel between UBCV and UBCO. Food systems are set to see a 50% reduction by 2030. This is to be accomplished by developing a Climate-Friendly Food System and developing a Food System Resilience and Climate Action Strategy. Waste and materials emissions are to be reduced to 50% by 2030 by applying a circular economy lens, updating the Zero Waste Action Plan, and creating a Waste Operations Strategy. UBCV’s scope 3 emissions and targets can be seen in Figure 4 below. Meanwhile, UBCO aims to see: a 40% reduction in commuting emissions from 2013 levels by 2030 (to be achieved in part through the UBCO Transportation Plan), a 50% reduction of waste per capita emissions compared to 2020 (by implementing the Green Labs Programs that target waste reduction and increase on campus organics collection), a 50% reduction in business air emissions from 2019 levels by 2030 (by initiating a Sustainable Travel Program and studying air travel between campuses), and finally, a 50% reduction in GHG emission from food systems by 2030 (to be achieved in part through the Climate Friendly Food Strategies). Reporting scope 3 emissions is new for UBCO and will require refining measurement methodologies. Both campuses aim to establish an embodied carbon baseline and align new building and renewal designs with a 50% reduction target by 2030.

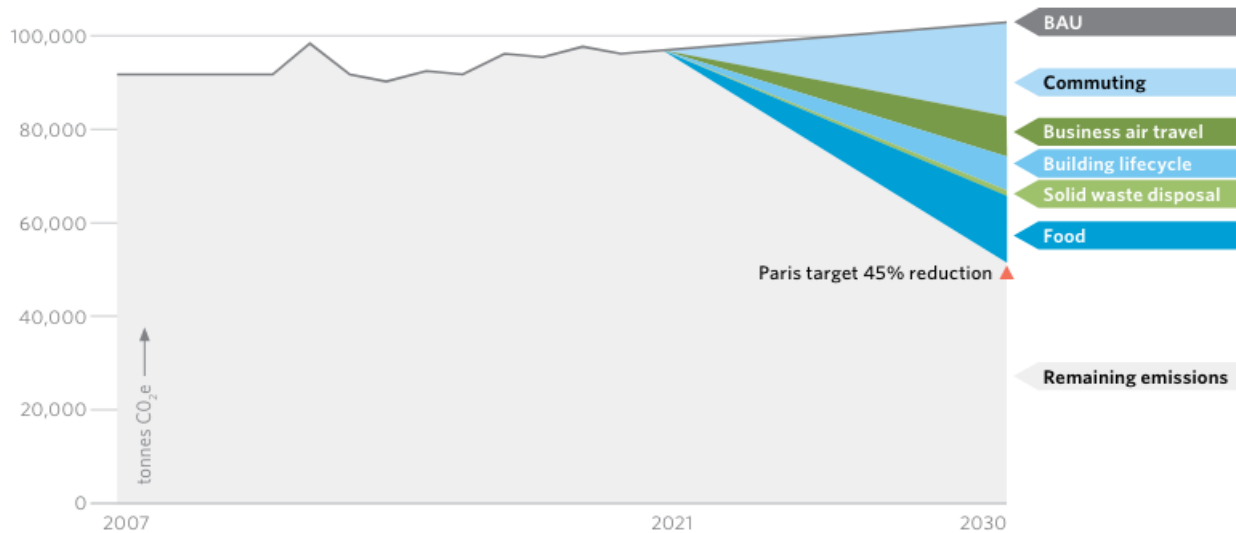


Figure 4: UBC Extended Emissions and Target. Reproduced with permission from [University of British Columbia, 2021b](#).

Both campus plans state that they have been informed by climate equity and justice lenses and that they will embed wellbeing, community resilience, equity and diversity across

university systems and structures and specifically mention that climate justice is particularly relevant to food systems and commuting policies and programs.

Bilodeau et al. (2014), in their study of drivers of operational and academic sustainability objectives at UBCO, found that some of the main drivers were: the university's leadership commitment, economic opportunities, and provincial legislative requirements. In terms of legislative and regulatory considerations, UBCO campus' growth happened to coincide with the introduction of the GGRTA which required carbon neutral PSOs by 2010. Shortly thereafter, the carbon tax was announced as well as its planned increases. According to Bilodeau et al., the GGRTA and *Carbon Tax Act* incited "dialogue between the director of sustainability operations, university staff and senior administrators to determine measures to reduce campus energy consumption and greenhouse gas emissions" (2014, 158). Not only did this communication lead to processes for compliance with the GGRTA, but it also "facilitated the engagement of stakeholders across multiple divisions to develop actions and future commitments to reduce campus carbon emissions" (Bilodeau et al., 2014, 161). While compliance with the GGRTA has been resource-intensive, it has also been compelling in highlighting the risks and costs of climate change among senior administrators. Between the costs of carbon tax increases and emission offset liability, there is clear rationale for reducing emissions and associated costs. Provincial legislation and ambitious emissions reductions targets also contributed to UBCO's geo-exchange district energy system, minimum LEED Gold Standard certification of all new academic buildings, and new organizational structures and systems to support UBC's sustainability goals. Overall, the authors found that legislative drivers contributed to sustainability initiatives and partnerships that helped UBCO achieve operational and academic sustainability mandates.

Climate Action at the University of Northern British Columbia

While UNBC does not have a CAP available, there are many insights into the university's progress in their most recent CCAR (University of Northern British Columbia, 2022). In 2021, building energy use was the university's largest source of emissions, making up 97% of total emissions. Actions taken to reduce emissions for this year included: the Continuous Optimization program to implement building energy savings, a multi-year series of heat exchanger upgrade projects, operation of the Bioenergy Plant, upgrades to EV charging stations, and decreasing overall use of paper and increasing its recycled content, among others. In 2021, 2,654 offsets were retired which cost \$66,425.

The 2021 report also lists a number of plans to continue reducing emissions. These include: continuing the Continuous Optimization program, continuing the heat exchanger systems upgrades, investigating low carbon electrification opportunities, long-term

maintenance of the Bioenergy Plant, and investigating heat recovery of the Bioenergy Plant. In addition, as fleet vehicles are replaced, UNBC will procure zero emissions vehicles. UNBC is simultaneously engaged in other climate action initiatives such as the Green University Strategic Vision Task Force (which oversees the strategic vision for sustainability), BC Hydro's Energy Management Program, the Green Fund for research, and the Energy Conservation Revolving Loan Fund to implement energy efficiency projects. The report does not specifically mention climate equity strategies in place.

In 2022, 2,115 offsets were retired which cost \$52,875 (University of Northern British Columbia, 2023). This is a reduction of roughly 20% over 2021. Actions taken to reduce emissions included: round 2 of the Continuous Optimization program for building systems, the multi-year series of heat-exchanger upgrade projects, installation of a heat pump to replace the district heating system's heat exchanger, consistent use of the Bioenergy Plant, warranty replacements for all three EV charging stations, reducing paper used in operations and increasing its recycled content.

Climate Action at the University of Victoria

UVic's 2021 Public Sector Organization CCAR highlights some key aspects of the university's progress towards climate action (University of Victoria, 2022a). In 2021, UVic saw a 19% reduction of covered scope 1, 2, and 3 emissions from 2020. In 2021, scope 1 emissions were 91% of total emissions while scope 2 emissions made up only 6%. UVic also achieved a 38% reduction of overall GHG emissions compared to 2010. This exceeded their target of a 30% reduction by December 31, 2021. Some of the key actions that were taken this year included: strategies to reduce energy use and improve efficiency in building operations, approval for more EV charging stations and implementation of active and public transit initiatives, and purchasing of paper with higher recycled content and reduced paper consumption through online document sharing. Overall, 9,974 offsets were retired which cost \$249,350.

In 2022, UVic offsettable emissions rose by 6% over 2021 with 11,932tCO₂e offset (University of Victoria, 2023). This was due largely to the transition to pre-pandemic activities and the opening of a new student housing building. The offsets for 2022 cost \$330,400 (this included the adjustment of 1, 284 tCO₂e emissions reported in previous years).

UVic also released a Climate and Sustainability Action Plan (CSAP) in 2022 made up of two documents: one describing actions and a second focusing on strategies (University of Victoria, 2022b, 2022c). This plan's creation began with the Integrated Steering Committee (ISC) which was composed of faculty, staff and students. The ISC developed a draft vision and gathered input from the community before forming five Task Force Groups to develop recommendations for strategies, goals, and actions: XAXE TENEW (Sacred Earth), Innovator and Partner, Educator and Learner, Climate Solutions and Sustainability Leader, and Community

Collaborator. The plan states that an implementation committee will be appointed to be responsible for the evolution of the actions and determining next steps.

The overarching goal of UVic's action plan is to reduce operations emissions 50% below 2010 levels by 2030. Furthermore, they aim to be net zero by 2040 and achieve a climate-positive campus by 2050. In addition, UVic has signed the Race to Zero campaign to be net zero by 2050 or earlier.

To reduce emissions from scope 1 and 2, UVic put forth several strategies. First, the Campus as a Living Lab program will be used to coordinate research on campus. The Climate and Sustainability Hub will also promote climate solutions across education, research, and the UVic community. With respect to financial tools, the university intends to develop shadow carbon pricing, incorporate environmental, social and governance factors into investment decisions, support the Task Force on Climate-related Disclosures for investment disclosures, and make impact investments that reduce emissions in line with university targets. In terms of building emissions, UVic will transition the Gordon Head campus from fossil-fuels to reach net zero by 2040, achieve LEED V4 Gold Certification or equivalent on new buildings and major additions to existing buildings, improve efficiency to reduce energy consumption, standardize building temperature during daily occupied and unoccupied periods, and develop green building design guidelines.

For scope 3 emissions, UVic will develop policies to reduce scope 3 emissions in employee air travel, commuting, waste, food systems and embodied carbon within new buildings. By 2030, the university aims to decrease food-related emissions by 50% from a 2019 baseline. UVic will also make plant-based foods default on 60% of campus menus, review purchasing practices to decrease meat and dairy, increase local suppliers to 30% of the supply chain, run campaigns to educate the campus community on climate-friendly diets, develop climate and a Fair Trade labelling program for University Food Services, and implement waste reduction initiatives and education campaigns. To address commuting emissions, UVic will implement disincentives to single occupancy vehicle travel and incentivise sustainable travel through the Travel Choices program, will support improved transit service, and improve EV charging infrastructure.

In terms of climate equity strategies, UVic states that it will center local Indigenous Knowledge Systems (IKS) and Indigenous worldviews, and use climate justice and equity as guiding principles in the plan. As part of the Campus as a Living Lab program, UVic will create opportunities to work with local First Nations, communities, govt, and industry to come up with equitable climate solutions. The XAXE TENEW (Sacred Earth) Task Force will build relationships with local Nations supporting self-determination, uplift their climate goals, guide plans and strategies by Indigenous Knowledge Systems, engage with Indigenous Knowledge Holders, and provide training and learning opportunities to decolonize campus.

Literature Review Key Takeaways

The four available CAPs, and of course the CCARs, make some mention of the PSO mandate. In fact, the PSO requirements as well as the carbon tax, and its planned increases, have been highlighted as specific motivations for reducing emissions at PICS partner universities. Based on the analysis of the documents above, it is clear that nearly all of the universities are already surpassing the requirements set for them by the BC government. Specifically, SFU, UBCO, UBCV, and UVic already reduce scope 3 emissions in addition to the mandated paper emissions. This is particularly noteworthy because of the abundance of these additional scope 3 emissions. As Lau and Dowlatabadi (2011) mention, scope 3 emissions can be significant and organizations do have the ability to influence them. This could be an area where more formal requirements from the BC government may be impactful. However, multiple universities mention that reporting scope 3 emissions are new for them and will require further refining of the measurement methodologies. SFU points to investments and capital goods as areas where methodology is not approved, and that they are exploring the development of such a methodology. UVic states that, while it is reducing emissions from additional scope 3 sources, it does not currently track scope 3 emissions beyond what is required. UVic is currently establishing baseline data and methodologies for scope 3 emissions. When these are ready, UVic will set emissions reduction targets consistent with the Paris Agreement. It is possible that BC government support could be instrumental, if not necessary, to speed up this methodological development.

Furthermore, the specific emissions reductions targets outlined in the CAPs are, in many cases, more ambitious than those set by the provincial government. This suggests the BC government may aim to establish more ambitious targets accordingly to encourage remaining universities and other PSOs to take further action on climate change. More ambitious provincial targets and reporting requirements are also suggested by Dale (2016) among others to continue to advance climate action and innovation amongst the public sector.

In addition, a requirement or a strong encouragement from the provincial government for PSOs to have CAPs can further climate action. Three of the four PICS partner universities already have plans in place; and, in addition to SFU, UBC, and UVic, a number of other BC universities also have CAPs. Thompson Rivers University has a Campus Strategic Sustainability Plan for 2020-2025; Emily Carr University has drafted a Sustainability and Climate Action Plan; and Royal Roads University has a CAP for 2022-2027. While Vancouver Island University does not have a CAP at the time of this reporting, it does have a newly formed task force on climate action and sustainability to provide advice on climate action and sustainability direction, plans, policies, and reports.

UNBC and smaller universities, or other PSOs, could take note of some of the key components of existing plans (summarized in Appendix A) to implement at their own institutions. For instance, some key targets included 65-85% scope 1 & 2 emissions reductions below 2013 levels by 2030, a target of a 45% reduction of scope 3 emissions by 2030, and a goal to reduce overall operations emissions by 50% below 2010 levels by 2030. Key actions listed to reach these goals included: shifting energy sources away from fossil fuels; partnering with BC utilities to increase low carbon energy supply; improve building standards using LEED and Passive House certifications; source zero-emissions vehicles and improve EV charging infrastructure, implement an internal carbon price (e.g. of \$250/tonne), utilize the Campus as a Living Lab program, investigate financial tools further, establish sustainable transportation programs to reduce commuting emissions, and increase plant-based food options and campus organics collection. Lastly, these plans were guided by principles of climate equity and justice. An important next step is to identify specific actions and strategies towards achieving these critical principals.

While the CAPs are useful in many ways, there are some areas that remain ambiguous. For instance, there is mention of who is responsible for creating the action plans, yet, in some cases, it is not evident who will be actually implementing or evaluating progress on the policy. UVic states that an implementation committee will be appointed to be responsible for next steps; however, it is not clear if such a committee has formed nor who comprises or will comprise it. Similarly, UBCO states that key Okanagan plans will be implemented under “various leads” though it does not state who or if they have yet to be determined. SFU’s accountability, on the other hand, is made clearer, stating the VPs are responsible for specific goals, including plan development, funding and implementation of each goal, as well as evaluating progress and reporting on each goal to SFU Sustainability.

Finally, the plans do not specifically mention challenges the universities have had in reporting on annual emissions reductions, aside from those already mentioned regarding additional scope 3 emissions. This may, in part, be due to the fact that they are public-facing documents. Further research will be needed to determine what challenges PSOs are facing and how the government can improve the reporting process.

Methodology

Following the literature review I began searching for subject knowledge experts from the four PICS partner universities and CAS. In all, I contacted 25 individuals by email and conducted six semi-structured interviews. From the universities, the participants included climate action planners, energy managers, and sustainability coordinators who work with the CNG mandate, in some capacity. I also interviewed one City of Vancouver employee who was

familiar with the mandate and how it related to municipalities. Finally, I interviewed one individual from the CAS. The six interviews were conducted over Zoom and ranged from 20-50 minutes. Separate interview guides were created for the university employees, the City of Vancouver employee, and the CAS employee. With the permission of the interview participants, the interviews were recorded on Zoom and then transcribed using a transcription software. Minor edits were then made to the transcriptions for accuracy.

Results

The results of the six interviews are summarised below. Key topics discussed in the interviews included: the role of the CAS; the PSO mandate and its impacts; how university emissions reductions targets were determined; scope three emissions; climate equity; challenges and areas for improvement; and finally, PICS' role in supporting climate action.

BC's Carbon Neutral Government and the Role of CAS

According to the interviewees, generally the CAS has been seen as supportive, able to effectively communicate with the PSOs, available for one-on-one support when needed, and are providing useful information sessions to keep PSOs informed. In contrast to the findings of McKenzie and Kuehl (2021), none of the interviewees could speak to there being a change in the level of support their organization received from the CAS over the last decade. This was either because no change was observed or the interviewee had not been with their organization long enough to have this institutional memory.

In addition, McKenzie and Kuehl (2021) had suggested that since 2017, much of the CAS content has not been made easily accessible to the public and that some documents were not archived on their website when there was a change in government. In response to questions regarding this information, the CAS interviewee noted that it is common practice that not all documents are archived on the CAS website. For instance, not all versions of the quantification methodology are archived, though the current version is available. According to the interviewee, this is because of the complexity of having all of that information on the website. As these documents get updated every year, there is potential for out-of-date documents to be taking up real estate on the website, making navigation and accessibility a challenge. The CAS interviewee described it as "balancing that tension between access to information and accessibility." Finally, the CAS interviewee mentioned that their office has never been asked for historical documentation; if such documentation is requested, the CAS can provide it. Nonetheless, requiring requests for certain documents may limit public accessibility.

About the PSO Mandate

To better understand the intentions of the PSO mandate, interviewees were asked about why the BC government had chosen to focus on PSOs' emissions reductions. According to the CAS interviewee, at the time the policy began, in 2010, the intention was to have the public sector lead by example for other organizations. This is a fitting and important role for the government to fill. It should also be noted that it was around this time period that BC was planning to launch a cap-and-trade program, though this was never fulfilled. Despite this, the CNG mandate and offset program remained. According to the interviewee, "the idea was that the public sector would demonstrate an example on how to quantify GHGs but then also build that offset market." Furthermore, the intent of the PSO mandate was for organizations to reduce their emissions, recognizing emissions reductions can only be confirmed if first they are properly measured and understood. For this reason, the measurement and reporting aspect of the policy was critical. Lastly, the goal was simply for the public sector to take responsibility for their own emissions. According to the City of Vancouver interviewee, they saw the focus on PSOs, which includes municipalities, as appropriate because of the significant proportion of the emissions in Canada for which cities are responsible. Fittingly, emissions reductions of the university campuses studied in this project, which are larger than some municipalities in BC and account for a large proportion of emissions in the province, should also be regulated.

Next, interviewees were asked about the rate of PSO mandate's \$25 per tonne CO_{2e} offset rate. The CAS interviewee stated that the \$25/offset rate "was a historical decision that was made a while ago, and it just hasn't increased." The \$25 price was chosen because this was the level of the carbon tax at that time. It has remained unchanged since then because PSOs have to pay the carbon tax, which is steadily increasing, in addition to the offset rate. According to the interviewee, there needs to be a balance between the CNG mandate requirements and the increasing carbon tax because these funds come from taxpayer resources. The interviewee also stated that while the \$25 rate does not reflect the cost of how much a tonne of carbon in the atmosphere impacts the environment, it does send an economic signal and contributes to the decision-making of PSOs. When asked if this rate was effective for reducing emissions, the interviewee stated "It's hard to say." However, the CAS interviewee noted that the mandate's key role and relevance now is in providing accountability. They state that, "we have commitments to reduce emissions, we have a mandate to reduce emissions, but then the legislation is to report the measurement. And that data piece is critical. Without it, you can't know you have reduced or even what you'd need to reduce."

When discussing the ideal offset rate for the foreseeable future, one university interviewee noted that if the rate were to increase, there should be a way to capture that offset and invest it in deeper carbon reduction. Essentially, “if you raise [the offset price], it has to be invested back in the place where the investment can be realizing deeper carbon emissions.” One suggestion from this interviewee was for the offsets to be reinvested back into the university or PSO that is paying for the offset on the criteria that it must achieve deeper emissions reductions. This would mean that instead of just paying for offsets, which according to the interviewee only ends up being a cost on their ledger, there would be a tool to reinvest for further emissions reductions.

Finally, as was mentioned in the literature review, some academics have suggested a consumption-based approach for accounting emissions compared to the current production-based model (Lau & Dowlatabadi, 2011). However, one university interviewee was of the opinion that this is likely to have limited application for their university, though useful with regards to embodied carbon of the materials that are being used in the construction of buildings.

Impacts of the PSO Mandate

When discussing the impacts of the PSO mandate at the four PICS partner universities, there were some mixed reactions. Notably, most respondents could confirm that historically the policy had significant impacts at their institutions but that these are less so today. Instead, there are other, more important, drivers of climate action at their university coming from the BC government and other sources.

For instance, one interviewee suggests that the mandate sends an important signal, which has remained consistent regardless of what party has been in power, that PSOs need to be setting the leadership tone if sectoral reductions are going to be expected across the province. The interviewee also was appreciative of the consistency of the policy and targets, particularly for the long-term, because it is needed for continued investment and the building of supply chains and capacity to achieve the policy targets. In particular, it is helping to create a business case for considering the total lifecycle cost in the analysis of investments universities make in buildings. The financial signal sent by the PSO mandate, in addition to the carbon tax, plays into the universities’ major capital investments and, as emissions are being ratcheted down, it is becoming financially more difficult and more complex to achieve deeper reductions. Therefore, the increasing carbon tax and offset program help though, according to one interviewee, they are still not enough.

Similarly, another interviewee noted that the mandate has had an impact, though without the mandate, “we’d still probably be doing the things we do.” However, the mandate has added an extra emphasis to the university. In addition, the mandate is seen as useful because having to report on emissions and observing annual results has highlighted the progress that has been made since the policy’s introduction. This interviewee also noted that the mandate is a good example of how to standardize emissions reporting because all PSOs are reporting annually in the same way each year and because the reporting is mandatory rather than voluntary. For this reason, if there is staff turnover, the reporting process does not fall by the wayside and it is still completed the same way each year. At one university, the provision of the policy seen as having the greatest impact is the offset program. However, in referring to the offsets, the interviewee stated that “I don't think there's a big, big eye on that particular expense. I think there are other expenses at the university that are higher and a bit more under scrutiny.” For instance, the interviewee highlighted the carbon tax as having a bigger impact on making the business case for reducing emissions in part because the tax is expected to increase over time as opposed to the offset price. Despite this, an interviewee noted that if there are significant shifts in offsets from one year to the next (as a result of planned infrastructure upgrades or unplanned malfunctions, for instance), senior leadership certainly notice and pay attention to this change in costs. At the municipal level, the city interviewee stated that the mandate helped tremendously in that it led to the vast majority of BC municipalities creating GHG inventories for their communities.

On the other hand, another university interviewee was of the opinion that the mandate historically played a role when their university was first engaging in sustainability, but that it is not informing any future planning at the university. Instead, new initiatives such as the Race to Zero campaign, a UN-backed program seeking partners to take action on climate change and halve emissions by 2030, has been much more influential in terms of target setting and assessing future projects on the basis of emissions reductions. In this case, the university’s president is a signatory on the Race to Zero campaign, ensuring the university champions and leverages it. Similarly, one university interviewee stated that there had been a strong commitment to emissions reductions at their university prior to and regardless of the mandate. At this university, though the offsetting structure has had significant impact, the interviewee reiterated that even the offsets are “not really incentivizing any major decision making.” In the early days, the mandate helped make a business case for reducing emissions but today it is seen as “a maintenance thing now where it's become less of a thrust forward...It feels a lot like going through the motions.”

Determinants of University Emissions Reductions Goals

The university interviewees were also asked questions about what existing drivers have influenced their institution to set the emissions reductions goals that are in their CAPs as many of these are already exceeding the targets established by the provincial government.

At UVic, the targets in their CSAP align with the ongoing work of the energy management team including UVic's carbon reduction plan and technical pathways report. Having these detailed strategies, technologies, and tools has ensured that there is an understanding of what effects the implementation of different actions will have on achieving the targets that have been set.

Another university interviewee suggested that the university's sustainability office has been pushing for the reduction of scope three emissions reduction targets for quite some time. The Race to Zero campaign solidified this intention and led to scope three emissions reductions targets to be set.

UBCV, which has a target set for scope three emissions beyond BC's legislated mandate, has attributed their emissions reductions targets to the climate emergency declaration and the mobilization of young students at the university. This movement has called for UBC to do more for climate action and do it faster. Lastly, as a top tier research institution UBC recognizes it is in a leadership position around climate action and that they therefore must expand the scope of emissions reduction. The UBCV interviewee noted that:

While we don't have direct influence over scope three emissions, we do have some level of influence to the engagement of our university communities. Over...continuing to provide the tools, the information, but most importantly, the incentives to drive that behavioral change and to link that change with the impact that those decisions are having...We need to use our institutional and intellectual capacities to set a model for aggressive and ambitious change.

Scope Three Emissions

Continuing on the topic of scope three emissions, interview participants were asked how they envisioned scope three emissions as part of the PSO mandate in the future. Interview participants highlighted a few scope three emissions that could be considered low hanging fruit and that could potentially be included in the PSO mandate including commuting and business travel emissions.

For instance, the City of Vancouver interviewee, while they noted that in their experience they do not have much ability to reduce scope three emissions, they are already looking into the embodied carbon in the construction of buildings. They state that construction, particularly with steel and concrete, is "one space where we feel that through our building

bylaw, we can actually get at regulating, and we have gotten that regulating, scope three emissions. So we've set requirement limits on embodied carbon in new construction for large buildings in Vancouver.” The participant also noted that the city is struggling to stay on track for scope one and two emissions even though a substantial amount of effort is being put into them. For the time being, it will be the city’s priority to focus on reducing the emissions that they do have more control over.

For at least one of the universities, commuting is seen as being a large source of scope three emissions. However, one university interviewee suggested that it is challenging to measure commuting emissions and that they would like to see some standardization of this procedure. On the other hand, the interviewee also mentioned that business travel emissions are also significant and that this measurement is fairly easy to do with access to travel request forms. The interviewee stated that “that's something that, you know, we could potentially do tomorrow, but we haven't started doing that.” The interviewee also mentioned that a carbon accounting class at their university recently calculated the scope three emissions of the university’s athletics teams - providing more evidence that it is possible to measure these emissions.

Another university interviewee mentioned that there have already been meetings, supported by PICS and with the four-university collaborative task force, about scope three methodologies. According to the interviewee, these meetings fell short because of a lack of time and capacity for the people involved. However, the intent of that work was to have the four PICS partner universities on the same page as to scope three measuring methodology, determine what the requirements should be, and lobby the province to demonstrate what the universities would like to see. More work is to be done to identify gaps, “low hanging fruit,” and move towards implementation. From this university interviewee’s perspective, commuting was seen as a low hanging fruit for their institution.

Meanwhile, another university has highlighted business travel as a priority and accessible, low hanging fruit for emissions reductions. In addition, the university is currently considering supply chains as an area that would be accessible. In regards to the supply chain emissions, this university’s interviewee commented “I don't think it would be scary to be included in the mandate.” Capital goods and investments are more difficult, but with robust guidance from the province, such as sharing preferred or standard methodology, this would be possible. Capital goods methodology is an area in which the interviewee has said they are currently struggling.

From the provincial government perspective, the interviewee notes “At this time, there's no intent to expand the carbon neutral government program to include more scope three emissions.” This is due in part to challenges related to consistency and the complexity of the work that would be involved. It would also mean that PSOs would be responsible for doing

more measurement and reporting than they are currently. In addition, if it is included as an offset requirement, there would be a cost implication for PSOs - most of which do not have access to the resources, expertise, or funds to pay for these additional resources. When asked about including business travel for universities, the interviewee stated that core government reports on business travel and that it is expensive and complicated to report on because of the variation of modes of transportation and locations among other factors. It should be noted that since it is already reported on by the core government, it is likely that a methodology for reporting business travel already exists that could perhaps be replicated by universities.

On the other hand, food emissions were not named as a low hanging fruit for scope three emissions reductions by any of the universities. This could perhaps be because universities have a limited ability to impact food choices on campus. However, universities do have control over the food options available in cafeterias and university dorms and can implement climate friendly food labelling as has already occurred at UBC.

Climate Equity

Because most of the university CAPs included goals related to climate equity, but not all provided details as to how these were to be achieved, interviewees were asked for more context in this respect.

The UBCV interviewee explained that when UBC declared a climate emergency with nine priorities, climate justice was a core principle to be applied throughout institutional policy development. The interviewee pointed to the Musqueam relationship agreement as another piece of climate justice that will consider how Musqueam people wish to be represented on their land and how development will occur. However, the relationship agreement may not explicitly address climate and it is difficult to say if it will contribute to climate justice without more discussion with Musqueam. In the development of the CAP, UBCV worked with the Climate Hub and Sustainability Hub to apply a climate justice lens to the policy's development. One example of this lens in action is the sustainable transportation levee and the consideration of the accessibility, or inaccessibility, of public transit for shift workers and custodial workers coming from outside of city limits. The interviewee, when asked how the province can better support them in reaching their climate justice goals, has called for systems change particularly considering jurisdictional limitations of the university. They note that, for example, energy procurement by the province should consider the impacts associated with the supply of that energy. With Site C dam, for instance, the energy supplied might have met the criteria for carbon reductions but had severe impacts by displacing Indigenous communities.

At UVic, climate equity has been listed as one of five guiding principles of the CSAP. In addition, an equity action plan has recently been released through the Equity and Human Rights team. An interviewee states that there are synergies between the goals of that document and the CSAP. It is also hoped that a stronger relationship can be built with the Equity and Human Rights team as they offer targeted workshops, presentations, courses, and resources. The interviewee noted that this work is particularly important as PSOs are beginning to target scope three emissions reporting and data collection and creating new programs and initiatives in this area. According to the interviewee, it is critical their university receive feedback from the community and make adjustments accordingly. Finally, the provincial government can better support climate equity work by providing specific resources and toolkits on best practices, lessons learned, and then create tangible outputs for the PSOs.

SFU's CAP includes one of the six VP portfolios directed towards people, equity, and inclusion. An interviewee explained that a cohort of the new engagement model, Embedding Sustainability and Climate Action (ESCA), is going through decolonization training as they develop implementation plans for the climate actions. ESCA will "think through exactly how some of the solutions that they're proposing may impact the diverse community" in addition to building closer ties with Indigenous leads. "We're actually in discussion with the VPPEI [Vice President of People, Equity and Inclusion] on how to integrate the EDI plan and the equity compass with our sustainability action plan. And then the next stage would be integrating this strategic research plan...and really focusing on cross portfolio collaboration." Furthermore, SFU has done an overlay of the TRC and the Walk this Path With Us document with the CAP. VPs have until the end of this summer to finish creating the new plans for their portfolios and then all the plans will come together in September. The interviewee specified that it would be helpful if there would be a series of case studies on BC universities and how they are considering climate justice and what success they have had with their climate equity goals.

Challenges and Suggested Improvements

One of the main challenges described by the university interviewees was capacity in terms of availability of staff. For instance, UNBC does not currently have a CAP or even a sustainability office. Personnel changes have meant the sustainability office has been on hold for a few years. UNBC is in the process of hiring new personnel who will be responsible for creating a CAP and managing other sustainability activities that have been on pause. Not only does collecting all the data necessary for reporting take time, but it can be especially time consuming when other parties within the university are also relied upon for getting access to data. The interviewee suggested that education and guidelines for smaller institutions

regarding what to do and how to do things related to emissions reductions and reporting would be helpful, coupled with additional guidelines and support from the provincial government. An interviewee remarked the benefit of the current reporting process, which is standardized and done the same way at every institution, is that it makes comparisons of one institution's progress to another very doable.

At another university, a single employee is responsible for the majority of the reporting process from start to finish which takes up to five months of the year. Therefore, it is difficult for this individual to stay on top of best practices or updates in addition to their existing workload. On top of this, staff turnover can be detrimental to the process. An interviewee suggests sharing specific reporting examples from other universities and making available best practices in toolkits or resources. This would "alleviate a lot of the problem solving and the internal research and guesswork."

The financial resources required by the reporting process is another issue. One university interviewee stated that, "the amount of resources that it takes to report out on our emissions...takes away resources from actually doing the work that helps reduce the emissions. So while reporting is good...the reporting demands a lot of resources of my unit. And it does pose a major capacity constraint in terms of how I kind of resource the actual implementation of the Climate Action Plan." While smaller universities noted that it is not a huge challenge to ensure that their data is complete, larger institutions may find it much more onerous. For instance, UBC has over 500 data collection points and collecting all this data is a significant undertaking. One interviewee suggests the process could be made more efficient by reducing the reporting frequency to every three years and taking a cost average. In addition, paper emissions, which make up such a marginal proportion of emissions at universities, and yet require substantial time and resources for reporting, can perhaps be removed from the reporting requirements. Simplifying the reporting process while maintaining the quality of the data may provide an opportunity for PICS and the CAS to collaborate.

One area in which most university interviewees were generally satisfied was with the CAS' Self-Certification Checklist. It was described by the interviewees as one of the most robust accounting methodologies available, it ensures quality assurance and quality control, and it is fairly straightforward and easy to do for the most part. One interviewee did note that there are supporting documents online to help with the quality assurance and control process, but some of these are out of date and reference a smart tool which is not currently available. This individual also recommended the addition of templates on best practices and recommendations for quality assurance and control that could be made easily accessible and would eliminate each PSO from having to create a template themselves. In addition, the interviewee suggested that workshops targeted for other departments and leadership staff not

involved in the day-to-day work of reporting would “better educate and inform the people we report to increase that buy-in.”

There were mixed responses when interviewees were asked if they would like more direction from the provincial government as to which actions should be taken to reach emissions reductions targets. One interviewee stated that the universities will all have tailored approaches to their unique portfolio of buildings and that the universities will know what the strategic areas of impact will be. However, another interviewee stated that it would be helpful if it was clearer on what areas should be prioritized. This could be communicated to the universities through targeted workshops or training opportunities for a wider range of university employees and departments. Similarly, another interviewee would like more decision-making support and recommendations on actions that are vetted by the province. The interviewee explained that in the midst of a recession, when enrollment is lower, cash flow is beginning to look different, and institutions are still recovering from COVID, more direction from the government would be helpful. Meanwhile, an interviewee also noted that if there was more direction from the government on which action should be taken, there would have to be quite a bit of flexibility because every institution is different.

Interviewees also suggested a number of other drivers that could be implemented by the provincial government to accelerate action further at BC universities. One interviewee explained that because most of the low hanging fruit in terms of emissions reductions has already been achieved, it is becoming more complex and financially challenging to achieve deeper emissions reductions. As such, there is not always a business case for reducing emissions. For this reason, it is important that the government invest in policy and grant funding programs. The interviewee specifically called for CAS to play a role in helping funnel funding to universities to help on more complex, costly retrofit projects and deeper emissions reductions through low carbon energy supply projects. For example, offset investments could be reinvested at universities for these projects. In addition, universities are ineligible for many of the grant funding projects put on offer by the provincial and federal governments because they are not municipalities and “there might not be an opportunity for partnership with a municipality to make a grant application worthwhile.” However, there are university campuses in BC that are larger than some municipalities. As such, the interviewee suggests that CAS should advocate for universities to be eligible for some of the grant funding projects available to municipalities.

For at least one university, scope three emissions are a large source of emissions. One interviewee would like the BC government to establish a similar set of rules and guidelines as they have done for scope one and two emissions already and says this would likely accelerate scope three emissions reduction. The interviewee also noted that this would also be challenging because it would be difficult to standardize this kind of reporting and that this is a gap that the

government should focus on. According to the interviewee, if the BC government could centralize and standardize scope three measuring methodology, it would be especially helpful for smaller institutions that do not have the capacity to create the methodology themselves. Similarly, the City of Vancouver interviewee applauded the province for the standardization of the energy step code and zero carbon step code. They are “laid out there for you to kind of just plug into your building code, and building contractors and designers across the province will know that that's zero step...so that's a great example of the province doing something that enables local governments to take action in a way that's relatively easy for them.”

Meanwhile, another university has suggested that having emissions reductions regulated and mandatory is helpful, but that in times of capacity and resourcing constraints, it can be challenging. To measure or report on more emissions, this university would require additional support to increase capacity, such as in the form of training workshops and centralized locations for sharing information and resources among PSOs. Specifically, it would be beneficial to have a website, perhaps housed by the province, that would facilitate sharing of procedures and methodologies for reaching emissions reduction targets among PSOs in a streamlined fashion. This interviewee says this would be more efficient than trying to reinvent the wheel or set up individual meetings with other PSOs to share information.

Finally, the City of Vancouver interviewee suggests that for the province to drive further climate action at BC universities, there must be more clarity about energy supply. While BC natural gas is a large part of the province’s economy, it is also the largest source of emissions in Vancouver and the largest source of emissions in virtually every city in BC. The interviewee suggests that getting off of natural gas will be necessary for emissions reduction targets to be met. However, this is only made more difficult when there is a “lack of clarity from the province in terms of its policies around the future of energy supply here.”

PICS’ Role in Supporting Climate Action

In order to improve how PICS is supporting climate action at BC universities, interviewees were asked for feedback. Most respondents noted the organization's capacity for conducting as well as communicating research. For instance, PICS may play a role in sharing the results of “Campus as a Living Lab” initiatives with local governments and other PSOs. An example from the city interviewee was the lunch and learn that occurred between UBC and the City of Vancouver for sharing information on the construction of the Tallwood House building. PICS could play a role in organizing these kinds of information-sharing events or pathways.

CAS also highlighted PICS’ research capacity as an asset. The interviewee suggested that it would be useful for PICS to come into the public service to work on very targeted projects. In addition, they would like to have more communication with PICS in advance of projects that are

of relevance to CAS. In this way, CAS may be able to contribute or add questions that would be beneficial to the CAS as opposed to finding out about research after the fact.

Recommendations

Below is a summary of recommendations for the BC Provincial Government and PICS to improve climate action at BC universities. These are drawn from both the literature review and the results of the interviews described above. Some interviewees may not agree with all of the following recommendations.

For the BC Provincial Government

- 1. Enact More Ambitious Provincial Targets and Reporting Requirements by:**
 - 1.1 Expanding the PSO mandate to scope three emissions from business travel which were deemed low hanging fruit and a significant contributor to emissions by multiple universities;
 - 1.2 Establishing more ambitious emissions reductions targets;
 - 1.3 Pursuing a consumption-based model for accounting emissions around embodied carbon of building materials;
 - 1.4 Requiring, or strongly encouraging, universities to create CAPs;
 - 1.5 Advancing systems change regarding energy procurement and impacts on Indigenous communities; and
 - 1.6 Providing more clarity about provincial policies surrounding the future of energy supply in BC and phasing out natural gas.
- 2. Provide Additional Resources and Support Mechanisms for PSOs Through Funding Mechanisms:**
 - 2.1 Investing in policy and grant funding programs available to PSOs;
 - 2.2 Funnelling funding to universities for complex and costly retrofits and to achieve deeper emissions reductions;
 - 2.3 Advocating for universities to be considered for some grants that are available to municipalities for which universities are currently ineligible; and
 - 2.4 Reinvesting offset funds to the university from which they came on the basis that it be used to achieve deeper emissions reductions.
- 3. Provide Additional Resources and Support Mechanisms for PSOs Through Workshops and Training:**

- 3.1 Creating more learning opportunities for PSOs regarding emissions reductions and reporting;
- 3.2 Providing toolkits on best practices and lessons learned regarding climate equity work at other PSOs;
- 3.3 Creating a series of case studies from BC universities' climate equity work evaluating how effective it has been;
- 3.4 Offering education and guidelines for smaller institutions on what and how to reduce emissions and report on emissions;
- 3.5 Providing toolkits or resources demonstrating specific examples and best practices on the reporting process from other universities;
- 3.6 Making templates available to PSOs on best practices and recommendations for quality assurance and control;
- 3.7 Offering workshops for staff at universities not directly responsible for the reporting to better educate, inform, and increase buy in;
- 3.8 Clarifying areas of priority, and recommend actions, for emissions reductions through workshops or training opportunities; and
- 3.9 Creating a centralized location for information sharing among PSOs that would facilitate sharing of procedures and methodologies.

4. Provide Additional Resources and Support Mechanisms for PSOs Through Standardization:

- 4.1 Standardizing the methodology for measuring scope three emissions, particularly: business travel⁴, commuting, supply chains, and capital goods and investments;
- 4.2 Establishing a similar set of rules and guidelines for scope three emissions as there are for scope one and two emissions already;
- 4.3 Reducing reporting frequency from annually to every two or three years and taking a cost average;
- 4.4 Reducing requirements surrounding reporting of paper emissions; and
- 4.5 Keeping the online supporting documents regarding the quality assurance and control process up to date.

⁴ Core government already reports on business travel. Therefore, this methodology for reporting could perhaps be replicated or adapted by universities.

Recommendations For PICS and Partner Universities

5. Conduct and Communicate Research by:

- 5.1 Organising information-sharing events or pathways to share the results of research projects with local governments and other PSOs;
- 5.2 Collaborating with the CAS to simplify the reporting process in a way that ensures the quality of the data is maintained;
- 5.3 Going into the public service or CAS to work on targeted projects; and
- 5.4 Communicating with the CAS in advance of projects that are of relevance to the CAS so they may be able to contribute.

6. Create CAPs and specify who will be responsible for the implementation of the plans.

Conclusion

As can be seen, BC's PSO mandate was a significant driver of emissions reductions at universities in the early days of the policy, but this is not so much the case anymore. Instead, universities now point to other drivers of emissions reductions such as climate emergency declarations, student activism, international voluntary efforts such as the Race to Zero Campaign, and other BC policies and programs. However, scope three emissions remain a critical area where more emissions reductions are needed. Many universities are already exceeding the mandate's requirements for scope three emissions but note they need more support from the province on advancing scope three measuring methodologies. Meanwhile, the CAS says the mandate will not be expanded to more scope three emissions anytime soon. Finally, PSOs hope to see more support from the province in the form of education and knowledge-sharing tools to help alleviate the burdens of reporting, the lack of resources, and the limitations of staff capacity being experienced. Today, the key role of the PSO mandate appears to be for providing accountability for emissions reductions, though the offset program remains of importance, to varying degrees, at some of the institutions.

Limitations

Firstly, as a result of the project timeline and availability of subject matter experts, I was only successful in interviewing six participants whereas ideally at least 10 individuals would have been interviewed. In addition, because of the scope of the project I only interviewed individuals from the four PICS partner universities. These are the largest in the province so it is possible the findings regarding climate action at BC universities would be different had I spoken

to more small universities. Furthermore, while I did interview an individual from UBCV, I was not able to interview anyone from UBCO which has a separate CAP from UBCV. However, there are areas of overlap between the two campuses and therefore the UBCV interview responses still be of relevance for UBCO. Lastly, some interview participants had only been in their roles or with their organizations for a couple years and could not speak to how things have changed at their institution or with the reporting progress over the years.

Second, in terms of figures 1 and 2 showing total offsetable emissions from the four universities in 2021, I could not create a per capita representation of emissions with daytime populations because this data was not available for all universities. Instead, I used the student population which excludes a large number of employees, residents, and other visitors who may be occupying the campus. Furthermore, these figures only take into consideration the offsetable emissions as not all the universities provide total emissions for their campus.

Finally, had time not been a constraint, I would have performed a textual analysis of the interview responses in Nvivo. This would have allowed for a more rigorous and systematic examination of the themes that arose in the interviews.

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Appendix A - University CAP Comparison (UNBC does not have a CAP)

CAP COMPONENTS	UBCV	UBCO	SFU	UVIC
Who develops and implements CAPs?	<ul style="list-style-type: none"> Campus Planning, sustainability Office created CAP (with oversight from steering committee) UBC system-level policies led by UBCV 	<ul style="list-style-type: none"> Campus Planning, sustainability Office created CAP (with oversight from steering committee) Key Okanagan plans implemented by various leads Departments involved in the actions report on progress 	<ul style="list-style-type: none"> VPs of goals wrote action plans, fund and implement them, evaluate progress, report to SFU Sustainability 	<ul style="list-style-type: none"> Steering committee created CAP. 5 task force groups developed strategies, goals, and actions. Implementation committee TBD
Targets and timelines	<ul style="list-style-type: none"> Scope 1 & 2: 85% reduction by 2030 Scope 3: 45% reduction by 2030 Net zero by 2035 	<ul style="list-style-type: none"> 45% overall reduction by 2030 Scope 1 & 2: 65% reductions below 2013 levels by 2030 Scope 3: 45% reduction by 2030 	<ul style="list-style-type: none"> Scope 1, 2, & paper emissions reduced by 50% from 2007 by 2025 	<ul style="list-style-type: none"> Operations emissions reduced 50% below 2010 level by 2030 Net zero by 2040 Climate-positive by 2050
Climate equity strategies	<ul style="list-style-type: none"> CAP designed to embed wellbeing, community resilience, equity and diversity system-wide Working groups considering how to advance climate action while enhancing equity 	<ul style="list-style-type: none"> CAP and transportation policies informed by climate justice lens Working groups considering how to advance climate action while enhancing equity 	<ul style="list-style-type: none"> CAP goal to embed climate justice in all sustainability activities. Guidelines and resources for equity, justice, diversity, and inclusion to be developed for sustainability activities TRC and ARC calls to action to be integrated into sustainability activities 	<ul style="list-style-type: none"> CAP guided by principles of centering IKS, climate justice, and equity. Campus as a Living Lab to work with local First Nations to create equitable climate solutions XAXE TENEW Task Force to uplift local Nations' climate goals
Main actions and strategies for scope 1 & 2 emissions	<ul style="list-style-type: none"> 100% of Academic District Energy System to come from low-carbon sources by 2030 New buildings and building renewals to reach near zero operational emissions by 2030 Source ZEVs for campus fleet Implement internal carbon price at \$250/tonne 	<ul style="list-style-type: none"> For buildings, eliminate fossil fuel equipment installation, develop UBC LEED Implementation Guide, reduce refrigerant emissions, develop building performance targets by building type, update the WSIP, implement measures within the Strategic Energy Management Plan Develop and implement Low Carbon Energy Strategy Pursue fleet optimization and efficiency for all fleet vehicles Implement internal carbon price at \$250/tonne 	<ul style="list-style-type: none"> Shift 50% of fossil fuel energy to renewables by 2025 	<ul style="list-style-type: none"> Reduce energy demand Optimize building systems Transition to low-carbon energy sources Develop carbon capture and storage technologies Achieve Sustainability Tracking Assessment and Rating System Platinum rating by 2026 Support the task forces: XAXE TENEW, Innovator and Partner, Educator and Learner, Climate Solutions and Sustainability Leader
Main actions and strategies for scope 3 emissions	<ul style="list-style-type: none"> 45% reduction of commuting emissions from 2010 levels by 2030 50% reduction of business air travel emissions from 2019 levels by 2030 50% reduction of food system emissions by 2030 50% reduction in waste by 2030, progressing to a zero-waste community Establish an embodied carbon baseline and align new building and renewal designs with a 50% reduction target by 2030 	<ul style="list-style-type: none"> 40% reduction in commuting emissions from 2013 levels by 2030 50% less waste/capita compared to 2020, progressing to a zero-waste community 50% reduction in business air emissions from 2019 levels by 2030 50% reduction in GHG emission reduction of food systems by 2030 Establish an embodied carbon baseline and align building designs with a 50% reduction target by 2030 	<ul style="list-style-type: none"> 25% reduction where there is approved methodology for measuring GHGs (purchased goods and services, commuting, waste, food) Develop methodology for investments and capital goods Divest from fossil fuels by 2025 	<ul style="list-style-type: none"> By 2030, decrease food-related emissions 50% from 2019 baseline Make plant-based foods default on 60% of campus menus, review purchasing practices to decrease meat and dairy, increase local suppliers to 30% of supply chain, educate the campus community on climate-friendly diets, develop climate and a Fair Trade labeling program, waste reduction initiatives Travel Choices program Support improved transit service Provide EV charging infrastructure