THE ROLE OF HIGHER EDUCATION IN ADVANCING CARBON PRICING
About the UC3 Research for Policy Platform:
The Research for Policy Platform is a joint research and development platform that evaluates the most urgent climate policy issues and identifies engagement opportunities to support Higher Education’s leadership in local, national and international 1.5 degree-aligned climate policy engagement.

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About the University Climate Change Coalition

The University Climate Change Coalition (UC3), a program of Second Nature, is a bold coalition of leading North American research universities prototyping a collaborative model designed to help local communities achieve their climate goals and accelerate the transition to a low-carbon future. UC3 is committed to leveraging their institutional strengths as leading research institutions to foster a robust exchange of best practices and lessons learned in pursuit of cross-sector climate action.

Second Nature is committed to accelerating climate action in, and through, Higher Education. We do this by mobilizing a diverse array of Higher Education institutions to act on bold climate commitments, to scale campus climate initiatives, and to create innovative climate solutions. We align, amplify, and bridge the sector’s efforts with other global leaders to advance urgent climate priorities. The Climate Leadership Commitments are a signature program of Second Nature and include a Carbon Commitment (focused on reducing greenhouse gas emissions), a Resilience Commitment (focused on climate adaptation and building community capacity), and a Climate Commitment that integrates both. The Climate Leadership Network comprises hundreds colleges and universities across the US and DC who have committed to take action on climate and prepare students through research and education to solve the challenges of the 21st century. Learn more at: secondnature.org.

The colleges and universities in Second Nature’s Climate Leadership Network have been pursuing carbon neutrality in campus operations, creating new climate solutions through innovative research, and preparing students to solve the urgent climate challenges for over a decade. UC3 was built on this work and the vision of higher ed taking a leading role in climate action by leveraging strengths of research institutions.
Background

Climate change is an urgent global issue that requires immediate and ongoing action and commitments by state and non-state actors around the globe. It is critical that we reduce greenhouse gas emissions (GHGs) with the goal of limiting temperature increases to below 2°C if, based on the best available scientific predictions, we are to avoid the most dangerous climate impacts\(^1\). The Paris Climate Accord has been signed by 195 countries and ratified by 186 countries, representing 87% of global GHG emissions. The Accord envisages maximum increase of 1.5°C in global average temperature and a minimum reduction in emissions of 20%, although many countries have established more aggressive targets. The Netherlands passed a bill in 2018 mandating the government to cut emissions by 95% and in 2019, the United Kingdom passed legislation that requires the country achieve zero emissions by 2050. Both countries have already implemented some form of carbon pricing as part of their strategy to achieve their ambitious goals.

Economists agree that pricing carbon is the most efficient way to encourage decarbonization\(^2\). Climate change is considered to be in part caused by a market failure because most emitters do not currently have to pay for the damage their emissions cause to the environment, human health, and society. In fact, when accounting for several trillion US dollars of fossil fuel subsidies, the average price associated per tonne of carbon emitted globally is found to be below zero\(^3\).

In contrast, putting a price on GHG emissions would internalize the cost of the damage and incentivize reducing emissions. If organizations and individuals are made to factor the societal costs of emitting GHGs into their production and consumption decisions, then the market will find ways to reduce emissions to the lowest possible cost. Carbon-emitting activities will only continue if they provide economic benefits exceeding their social costs.

This briefing paper describes the role of pricing and complementary policies in delivering aggressive emissions reductions goals within the Higher Education sector, and opportunities for the sector to advance carbon pricing policy regionally, nationally, and internationally.

The Impact of Higher Education

Higher Education institutions serve as an excellent platform for supporting climate pricing policy. Universities are powerful and influential organizations; within the University Climate Change Coalition (UC3) alone, there are approximately 4 million students enrolled, the majority of whom are young adults who will be disproportionately impacted by climate change. In addition, current UC3 member schools have a combined annual operational budget of $84.785 Billion USD, which translates into a significant economic and climate impact\(^4\).

Globally, member countries of the Organization for Economic Cooperation and Development (OECD) spend 1.6% of GDP on Higher Education and there are currently over 250 million students enrolled in such institutions. By 2020 it is predicted that 842 million people will have completed post-secondary education.

The Higher Education sector is important in terms of its overall economic and climate impacts on a global scale. It is also important because the leadership demonstrated by institutions will influence the choices students make over the rest of their lives.

As a consequence, universities have an opportunity to make a sizable impact on their own through internal carbon pricing, and may in turn generate movement towards carbon pricing policies at higher levels. University Presidents and Chancellors may also demonstrate leadership through advocacy at state, federal, and even international levels, allowing home institutions to not only prepare for government action, but to also shape and inform this action\(^5\).
What is Carbon Pricing?

Carbon Pricing describes a number of policy tools that are designed to reduce GHGs by assigning a cost to GHG emissions. The immediate effect of adding a carbon price to a non-renewable resource such as oil or gas is to increase the cost and, as a result, reduce consumption. A more technical description focuses on the concept of the social cost of carbon, which calculates the damage caused by each tonne of greenhouse gas emissions as a result of sea level rise and global warming. A recent study estimated that the global social cost of carbon is roughly $400 USD per tonne although the social cost varies significantly by country. This unintended cost of greenhouse gas emissions can be internalized by the emitter through carbon pricing, although no current pricing regimes use a price as high as $400 USD per tonne. The highest global carbon price is in Sweden at $139 USD; in Canada, Federal legislation will increase the carbon price to $50 CAD by 2022. However, there are many examples where the cost to reduce greenhouse gas emissions (the marginal abatement cost) is much lower than the social cost of carbon. Some investments can reduce emissions for less than $1 per tonne and some energy efficiency investments generate savings. Carbon pricing creates a signal that encourages institutions to find savings lower than the social cost of carbon. Applying a marginal cost of carbon emissions may also alleviate some concern from the public that has occurred on different national and sub-national levels due to reluctance to pay for foreign damages caused by climate change, or to pay additional taxes.

The most common approaches to carbon pricing are a Carbon Tax, a Carbon Cap-and-Trade scheme, a Proxy Price, and a Carbon Fund. A Carbon Tax is levied on the carbon content of fuels and sometimes other emission sources, and is designed to incentivize reduction of fossil fuel use and inspire development of alternatives. A Carbon Cap & Trade sets a limit on pollution and creates a market through which a set amount of permits-to-pollute are allotted that can be bought and sold among emitters. A Proxy Carbon Price is a method of internal carbon pricing for which the emissions expected from a project are given a virtual cost in line with the social cost of carbon or some percentage thereof, and evaluated in the cost-benefit-analysis of projects in the decision-making process. Lastly, a Carbon Fund is a reserved allocation from the budget that is internally set aside, for example, an amount based on the total emissions created by the budgeting entity, multiplied by a set carbon charge. The account is then used to fund projects that reduce emissions either within the organization, in this case campus, or through carbon credit markets. This may also be used in tandem with the aforementioned options as a way to save the revenue generated.

Why Carbon Pricing?

Carbon Pricing is one of several economic and policy levers that can be used to combat anthropogenic climate change. Carbon pricing has seen growth across regions, states, and countries around the world and has garnered success stories at every level. There are a number of reasons why carbon pricing is preferred:

It’s tried and true. As of 2019, there have been 57 carbon pricing initiatives implemented or scheduled for implementation, and these policies are quickly accelerating in popularity. Once all are implemented they will cover about 20% of global GHG emissions (11 gigatons of carbon dioxide equivalent (GtCO2e)). These commitments involve almost 46 countries and over 28 cities, states and regions including Mexico, Canada, the European Union, South Africa, regions in China, California and many other states in the USA. Carbon Pricing already impacts over $59 trillion US dollars of international GDP annually, and the number of policies employed is still growing globally.

There is wide support. As an approach to reducing emissions, carbon pricing incentivizes changes in behavior and has immediate positive consequences through creating a more visible and tangible cost for
carbon. As a result, this method is supported by economists, many environmentalists, and many politicians from across the ideological spectrum; 68% of US voters were found to support a carbon tax on fossil fuel companies, with a majority in every state. From the perspective of economic theory, carbon pricing has the lowest marginal abatement cost, which means that it represents the lowest cost policy for reducing greenhouse gas emissions.

Carbon pricing has also been the target of criticism and carbon taxes in particular are often less popular than other measures such as subsidies for electric cars, feed in tariffs and solar panel subsidies. Since the lowest cost climate policy translates into the lowest cost to society for addressing climate change, it is important for leading Higher Education institutions to demonstrate their commitments and voice support for such mechanisms. In addition, voters often think subsidies cost them less than carbon taxes. However, the money used for subsidies also comes from tax revenue, and ultimately results in higher costs for constituents.

It’s good business. Governments aren’t the only ones to take action; private businesses such as Google, Microsoft, Nestlé, and other major corporations have also seen the benefits of carbon pricing. By implementing internal carbon prices, these companies are able to remain competitive if state or federal policy is enacted, while simultaneously promoting green infrastructure development that lowers the companies’ energy costs.

One of the most significant attempts to align the private sector with long term climate commitments is the Task Force on Climate Related Financial Disclosures, which has been led by the financial and insurance sectors. Business leaders in that community have recognized the importance of early action in order to mitigate long term financial risks from climate change.

It’s complementary to other policies. Carbon pricing is a highly effective policy approach and can be enhanced through the use of complementary policy measures. In simple terms, complementary policies target emissions reductions that would require a politically unacceptable high carbon price to achieve in the short run. Complementary policies may also influence emissions that are not easily covered by a carbon price. Focusing on the emissions profile of the Higher Education sector, two specific measures are most relevant.

First, universities all have large numbers of academic, research and residential buildings and many campuses are adding to this building stock; the University of British Columbia (UBC) has increased the square footage of the campus by 21% since 2007. Green building standards reduce the environmental footprint of buildings over their lifespan and can also improve other aspects of building performance. It is challenging to incentivize green building design with a carbon price alone, but a commitment to green building design standards, which invest a small premium at the time of construction, can reduce the operating costs of a building over its lifespan. For most universities, building heating and generators are the highest source of GHG emissions; therefore policies and plans should focus on the development of campus energy supply options.

Secondly, staff, faculty and student travel represent a major impact of global universities. For example, UBC is required to report and offset operational emissions under provincial legislation. In 2017, total operational emissions were 42,786 tonnes. While commuting and air travel are considered external, or “scope 3”, emissions, these were 41,738 tonnes and 16,673 tonnes respectively. Again, carbon pricing, applied within a jurisdiction or industry such as the aviation sector might reduce emissions at the margins, but will not mitigate the impacts completely. This is where a complementary policy would ideally be placed. For UBC, which is subject to a mandatory carbon neutrality fee of $25 CAD per tonne, the total cost of achieving carbon neutrality is $1.1M CAD. At prices that are closer to the cost of credit in national and international markets of $3-6/tonne CAD, that cost could be reduced significantly. While aviation is not normally included in a corporate footprint, in UBC’s case, carbon neutrality could be achieved for air travel for under $100,000 CAD.

The main alternative policy measure is to attach a levy to air travel and commuting that is held in a carbon fund. That fund can be used for direct investments in emissions reductions projects, purchase of carbon credits or technology development investments that support new and emerging technologies.
Leadership in Higher Education

Colleges and universities are uniquely positioned to implement and catalyze carbon pricing policy. There are several identified opportunities for the Higher Education sector to lead on this issue:

Implement Internal Pricing. Employing carbon pricing mechanisms to evaluate university expenditures will aid in inspiring the growth of energy efficiency projects, and help to reach emission reduction targets, including net carbon neutrality, which is already a large and still growing movement among universities. Second Nature’s Climate Leadership Network of 430+ schools have made this commitment and report on their yearly progress through the Reporting Platform, where universities publicly share their climate action plans and GHG inventories. Internal pricing is an opportunity to demonstrate leadership, integrity, and civic responsibility through policy demonstration, which in turn may benefit the institution’s reputation and credibility.

Encourage Research. By utilizing what are often strong research capabilities, Higher Education institutions can answer some of the questions surrounding carbon pricing and increase the likelihood of its implementation as well as its effectiveness once enacted. If such capability exists, university leaders should offer the suggestion and funding for relevant department research on related questions in order to further climate action.

Talk to Your Local Electrical Provider. A few universities have piloted partnerships with local energy services to begin incentivization programs that take into account emissions avoided by efficiency programs and installations already in place, rather than emission reductions from a higher starting point (the University of California and California State University systems with Southern California Edison and UBC with BC Hydro). This program may help schools reduce their energy bill. Try discussing pricing options with the local ISO/RTOs (Independent System Operators/Regional Transmission Organizations).

Engage in Developing Policy by attending or hosting meetings to discuss possible legislation and initiatives. These meetings can be private and held specifically with the local or state representative, with relevant selected invited guests, or public forums similar to those held in Hawaii. In Hawaii, the University of Hawaii (UH) sent representatives to a meeting on carbon pricing that resulted in the presentation of several bills to the state legislature and influenced a current law (HB852) to approve funding for a larger carbon pricing study. SUNY also has an ongoing relationship with the New York State Energy Research and Development Authority to discuss clean energy programs.

Conduct Face-to-Face meetings with elected representatives in order to emphasize the university’s support for carbon pricing legislation by specifically discussing the topic. Such meetings are often most effective when briefing materials are provided beforehand. These meetings can take place in a formal setting such as congressional briefings, or as informal one-on-one meetings. Hosting or attending meetings and forums for either specifically invited guests or the public is also a beneficial way of establishing actionable relationships among the university, community, and government officials.

Support Student Activism on campus by providing space and funding for groups concerned with carbon pricing to meet, plan, and present ideas, as well as making space for student representation at related meetings. For example, the UBC Climate Hub, a student-led group supported by the UBC president, Provost and other partners, works to connect and empower university and community stakeholders to take bold climate action.

Student-run divestment campaigns like the 350 movement have called on universities to divest from fossil fuels in their endowment fund. As a response to student and faculty proposals for divestment, universities should adopt a Responsible Investment Policy to consider environmental, social and governance (ESG) factors to make more informed investment decisions for the university’s endowment fund. Universities can also take another step further by creating a separate pool within the university’s endowment that’s invested in funds that specifically aim to materially lower carbon emissions and exclude fossil fuels.

Endorse Public Campaigns like the “Put a Price On It” campaign, which is already widely supported by universities, and align with organizations like the Citizens’ Climate Lobby which supports carbon pricing legislation. University leaders should also be aware of youth and student-led class-action lawsuits against federal governments. Lawsuits are currently underway in both Canada and the United States and claim that the current lack of adequate climate regulations and policies fails to protect citizens and is unconstitutional.
For more than a decade, Higher Education has been leading on climate. In 2006, Second Nature launched the Presidents’ Climate Leadership Commitments, aimed at addressing climate change. Presidents and chancellors of colleges and universities across the United States and beyond took the bold step of committing to eliminate carbon pollution from their campus operations, embed climate action into their curriculum and student experiences, and expand climate-related research activity. Now Higher Education institutions have a powerful opportunity to lead on climate and advance policy issues, like carbon pricing, at many levels; internally, locally, nationally, and even internationally.

This brief was prepared as part of the University Climate Change Coalition’s (UC3) Research for Policy Platform to identify a variety of preliminary options for colleges and universities to engage on this policy issue. A broader research paper elaborating on this preliminary brief and outlining Higher Education’s history with carbon pricing, complementary measures, case studies, and the complexities of carbon pricing policy at different levels is forthcoming.

Carbon pricing is a unique opportunity to demonstrate how climate leadership is critically important, comparatively affordable, and a driver of innovation. The Higher Education sector has a significant economic impact and influence on external policies but, perhaps more importantly, informs and influences the choices the next generation will make for the rest of their lives. Colleges’ and universities’ roles as educators, community anchors, and knowledge generators cannot be overlooked in the challenge of avoiding catastrophic climate change.
Endnotes

(1) The scientific consensus on dangerous climate change is very strong: NASA. “Scientific Consensus: Earth’s Climate Is Warming.” Climate.NASA.gov, NASA.


(4) UC3 Member Population and spending statistics: https://docs.google.com/spreadsheets/d/1D-P78sv3QroJZDI668tf7NGDrMwpqkJ3OWmnGruMw/edit#gid=0


(17) Global GDP that is influenced by some form of carbon Pricing, calculations: https://docs.google.com/spreadsheets/d/1OwMZn95WskKDk5CeyWtLaIm3EBpCUMnigMDWzN4c/edit?gid=0

(18) AMS. “Alliance for Market Solutions Resources.” AMRsource.org, amsresearch.org/resources/


(25) Examples of research questions that could be encouraged include how to reconcile international and domestic social costs of carbon, international coordination and efforts, methods of how to make pricing carbon politically palatable domestically (e.g. Jenkins (2014) found U.S. consumers are willing to pay ~1% of the SCC), or how to tackle the general challenge of building broad-based coalitions around climate.


(30) University of British Columbia. “UBC Climate Hub.” UBC, support.ubc.ca/projects/ubc-climate-hub/


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