

UBC Social Ecological Economic Development Studies (SEEDS) Sustainability Program

Student Research Report

Visualizing Your Carbon Footprint

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University of British Columbia

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1. CONTEXT

The amount of carbon emissions emitted from air travel has jumped 75 percent from 1990 to 2012, a rate that is projected to grow substantially until 2050.¹ Some carbon emissions reduction policies have helped to curb the influx of greenhouse gases (GHGs) across several sectors, but aviation continues to consume the majority of suggested carbon budgets required to limit temperature rise to 1.5 degrees celsius.² Ironically, the COVID-19 outbreak serves as a reminder that limiting air travel, although seemingly impossible, is within our grasp. Indeed, the reduction of air travel during this global pandemic has had positive impacts on the environment in terms of reducing GHGs.³

To encourage less air travel amongst faculty members at the University of British Columbia (UBC) post-COVID 19, we propose implementing a series of behavioural interventions to help mitigate a presumed air travel uptake. Before outlining the intervention, the proceeding section provides an overview of policies designed to limit air travel, which should be considered when implementing the proposed intervention.

¹ "Air Travel and Climate Change," David Suzuki Foundation.

² Ibid.,

³ Chelsea Harvey, "How the Coronavirus Pandemic is Affecting CO2 Emissions," E&E News Environment, 2020.

2. LITERATURE REVIEW

2.1. Carbon Offset Strategy

The carbon offset strategy encourages air travellers to purchase items or actions that will, theoretically, offset the amount of GHGs emitted through flying.⁴ Several airlines provide travellers with the option to make carbon-offset payments, where the behavioural assumption is that interested people will make those payments. However, the assumption stands invalid, as studies show that few travellers purchase opt-in offsets.⁵ Some studies suggest a customer's willingness to pay for carbon offsets is positively anchored to a default nudge; meaning, if the default is to purchase a carbon offset at the same time as purchasing a ticket, customers mostly do not opt-out and end up purchasing a carbon offset.⁶ However, carbon offsets fail to reduce air travel and instead shift moral responsibility by providing a "guilt-free" way to travel.

Financial (dis)incentives and choice overload also jeopardize the effectiveness of this policy. A customer's willingness to pay for a carbon offset is significantly influenced by several factors, including costs, individual support for the policy, and whether or not the flight is domestic or international.⁷ Regarding choice overload, it may be unrealistic to assume consumers will understand the magnitude of the problem and confidently choose one carbon offset amongst the many. The assumption, therefore, is that such an overload may be confusing and unintentionally discourage any choice at all.⁸

Lastly, opt-in offsets assume that people are confident about the effectiveness of carbon offsets. It is difficult to measure the impact of offset contributions,⁹ and some airlines have made news headlines recently after opt-in offsets backfired because direct benefits from the carbon offset were not made transparent.¹⁰ Therefore, the assumptions regarding carbon offsets, both opt-in and opt-out offsets, are not valid because the policy shifts moral responsibility, and assumes all consumers share synonymous feelings toward financial incentives, variety of choice, and belief in offset effectiveness.

⁴ Christine Yankel, "FAQ: Forest Carbon Projects," The Climate Trust, 2018.

⁵ Eke Eijgelaar, "Voluntary carbon offsets a solution for reducing tourism emissions? Assessment of communication aspects and mitigation potential," Travel and Tourism Research Association Europe 2009 Annual Conference, 2009.

⁶ Brouwer et al., "A Convenient Truth: air travel passengers' willingness to pay to offset their CO2 emissions", 2008.

⁷ Choi et al., "Flying with climate liability? Economic valuation of voluntary carbon offsets using forced choices," Elsevier, 2018.

⁸ Chernev et al. "Choice overload: A conceptual review and meta-analysis," Elsevier 2014.

⁹ Vicki Brown, "Carbon Offsets Do Not Work," Responsible Travel.

¹⁰ <https://www.theguardian.com/environment/2007/jun/16/climatechange.climatechange>

2.2. Video Conferencing Alternative

Studies have successfully argued that video conferencing can reduce air travel and thus help to curb GHG emissions; however, such studies also assume target groups have access to adequate video conferencing technology.¹¹

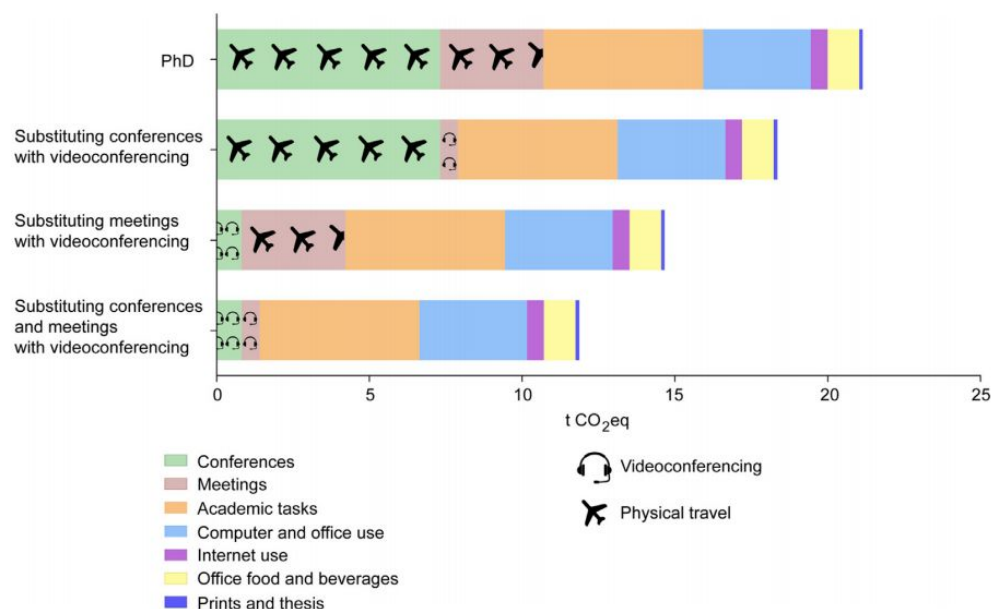


Figure 1: Overall carbon footprint generated from science making process. Source: Achten et. al. *Carbon Footprint of Science: More Than Flying*.

In general, physical barriers to using video-conferencing include the cost of buying, operating, and maintaining the technology, as well as dealing with the inevitable technical problems.¹² Meanwhile, some other specific barriers to video-conferencing at UBC include a lack of awareness of available video conferencing software, the quality of equipment, and limited technical knowledge to operate conferencing software.¹³ There are also the social costs of video conferencing to consider. The advantages of face-to-face interactions are irrefutable, especially when trying to establish new connections, or when pitching a new idea. Moreover, it is difficult to pick up social cues or body language through virtual alternatives.¹⁴

¹¹ Lewis et al., "Use of videoconferencing in Wales to reduce carbon dioxide emissions, travel costs and time," *Journal of telemedicine and telecare*, 2009.

¹² Lai & Pratt, "Technological Constraints and Implementation Barriers of Using Videoconferencing for Virtual Teaching in New Zealand Secondary Schools," *Journal of Technology and Teacher Education*, 2009

¹³ Wynes & Donner, "Addressing greenhouse gas emissions from Business-Related Air Travel at Public Institutions: A Case study of the University of British Columbia," July, 2018

¹⁴ Ferran & Watts, 'Videoconferencing in the Field: A Heuristic Processing Model', *Management Science*, Volume 54 No.9, September 2008

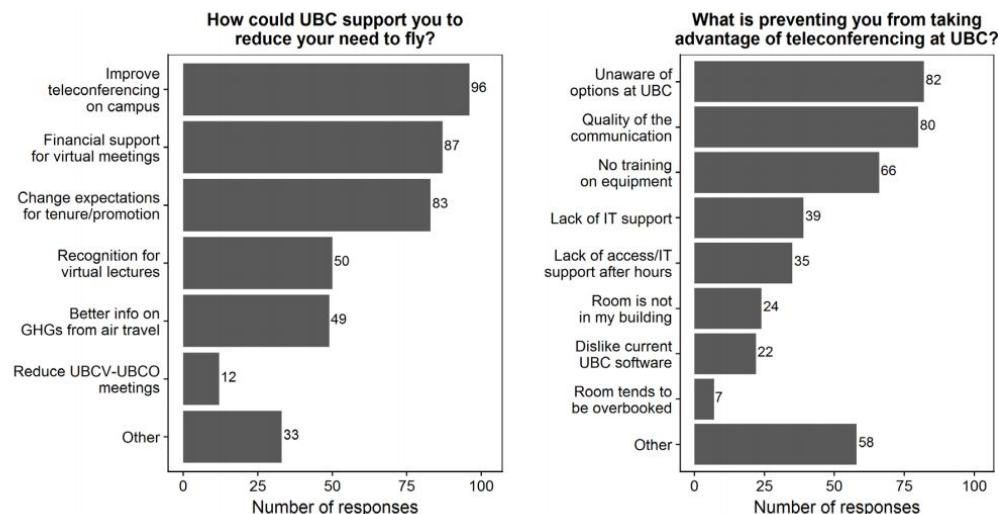


Figure 3: Survey responses, as part of a research project aimed to curb air travel by faculty at UBC. Source: Donner et al. *Addressing Greenhouse Gas Emissions*.

Therefore, the assumptions outlined above are not valid because video-conferencing policy, as it currently stands, assumes that all UBC faculty have the financial and technical resources, the adequate technological understanding, and the desire to forgo in-person social interactions.

3. TARGET BEHAVIOUR

Faculty members at UBC must reduce their air travel substantially. Air travel by faculty members accounts for a staggering 63-73 percent of total campus emissions.¹⁵ In a 2019 study, emissions per UBC faculty member were found to be the equivalent of 10 to 13 percent of the GHG footprint from an average Canadian, and 16 to 21 percent of the average BC resident.¹⁶

4. BEHAVIOURAL INTERVENTION

4.1. Intent

Our proposed intervention will encourage the target audience to reduce air travel by providing information on an individual’s carbon footprint in real-time, and by outlining alternative options to air travel, such as video conferencing. Individual users will receive a physical carbon-emittance calculation after claiming travel expenses on the UBC Travel Reimbursement portal used by faculty. We aim to encourage users to reflect on their carbon output, and opt for alternative sources in subsequent scenarios. In the proceeding section, we outline the three key components of the proposed intervention.

¹⁵ Ibid.,

¹⁶ Ibid.,

Please note that each arm of the intervention is designed to work simultaneously as one unit; however, for the sake of simplicity, we will describe each component separately.

4.2. How it Works

Faculty members will continue to claim their expenses using the Travel Expense Reimbursement Form (TERF), but a few new additions to the form have been added to accommodate accurate carbon calculations. (See *Appendix E: Changes to TERF for more information.*) Following submission of the claim, a carbon-emittance calculation page (CECP) will pop-up on the user’s browser page. The pop-up page will include an overview of the user’s carbon-footprint, measured by the amount of carbon dioxide (CO₂) emitted as a result of their flight specifications. The CECP will also include visuals and educational material to discourage future air travel. The CECP will be emailed to each user following a submission, providing a record of the claimant’s information. (See *Appendix D: Email Copy of CECP.*)

4.2.1 Component One: Messaging to Nudge Behaviour Change

Different types of messaging will be incorporated into the CECP to nudge faculty behaviour. We propose incorporating three specific messaging interventions to instigate change: framing or salience tactics, personified messaging and descriptive norm messaging. (See *Appendix C: CECP Versions for illustrative examples.*) Our proposal to incorporate three different types of messaging tactics is derived from several psychological studies that suggest different types of messaging have different social and cognitive outcomes. Please see *Appendix B: Messaging for CECP*, for examples of proposed messaging, cognitive functions, and justifications. It is recommended to track diversion metrics associated with each proposed message to ensure future messages are tailored effectively.

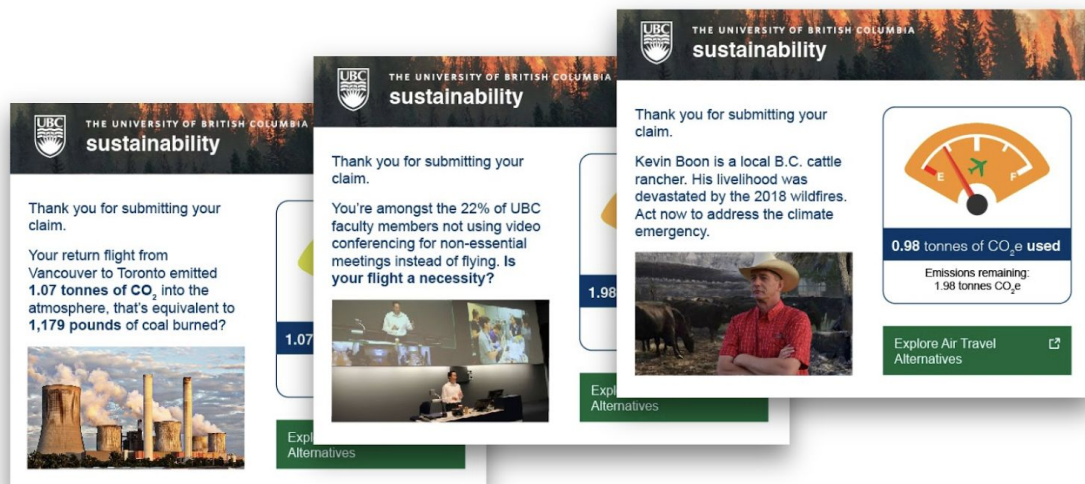


Figure 4: Example of what the CECP will look like. Photo credits: Twitter/@BCGovNews; Benita Welter @pixabay; UBC Okanagan News; Tamara Leigh @flickr

4.2.2 Component Two: Visualizing Your Carbon Footprint

Visually, the CECP will also include an “emissions allotment metre” (EAM), which will decrease with every flight logged. Each individual will start with a specific amount of emissions. When faculty members claim their flights, the EAM will decrease depending on the amount of carbon emitted. Faculty members will be allotted a **4 tonne** per person budget; however, we recommend reducing the emissions allowance by 0.5 tonnes on an annual basis. (See *Appendix A: Emissions Calculations Information*).



Figure 5: Visualizing your carbon emissions is a great way to nudge behavioural change.

Excessive air travel use will be illustrated by programming the EAM to descend into negative emissions. There are no ramifications should a faculty member deplete their EAM before the beginning of the subsequent year. However, visual nudges may encourage faculty to reduce air travel because abstract information about the environment and GHGs will be represented in a way that allows consumers to focus on key information and make a more informed decision.¹⁷ This process is known as mental accounting, and it serves the “important cognitive function of simplifying aspects of the complex world.”¹⁸

4.2.3 Component Three: Providing Alternatives

Located beside the EAM, there will be a click-able link detailing “Flight Alternatives.” This link will outline several ways faculty members can help reduce air travel and thus, offset their carbon footprints. We believe this process will encourage faculty members to be more cognizant of their choices in the future. Here, individuals will have an opportunity to replenish their EAMs by tweaking habits. Faculty members will log their activities (i.e. video conferencing) through the TERF, as if they were claiming a flight. The CECP will pop-up with a positive message (see *Appendix C: CECP Versions*), and a calculation illustrating how many carbon-emissions were not emitted as a result of their decision. This amount will be added back to their EAM, and the cycle will continue.

Although users may replenish their emissions by logging flight alternatives--i.e. video conferencing--users may not bank their emission amounts beyond the 4-tonne mark. This design component is meant to discourage faculty members from accumulating a large budget, and emitting well beyond the suggested amount of GHGs in a short timeframe.

¹⁷ Economic Psychology, Chapter 8.

¹⁸ Economic Psychology, Chapter 8.



Figure 6: Visualizing positive contributions may encourage sustained behavioural change.

5. ANALYSIS AND POTENTIAL OUTCOMES

Time series analysis (time-domain) to measure carbon emissions by faculty members could be used to assess the effectiveness of this proposed intervention. A successful behavioural change from this intervention is two-fold: it will constitute faculty members reducing their air travel, and it will involve faculty members remaining with the EAM framework for one year. Sustainable success would include a gradual reduction in air travel, as determined by minimizing the annual emissions allotment set for faculty members. We will measure these emissions by comparing air travel carbon emissions month-over-month, and year-over-year. We also suggest analyzing video conferencing uptake rates, as a means of projecting potential air travel diversions. Overall, the aim is to provide faculty members with real-time information to cultivate a culture of strategic planning and to provide more environmentally sustainable options to replace air travel and reduce emissions.

Apart from potential challenges in technological infrastructure, faculty members may wish to opt-out of this intervention. The biggest impediment to the success of this intervention is the broader problem of metrics of quality in academia. Speaking at international conferences is virtually a requirement, as far as faculty promotions and tenure is concerned in the current academic environment. Given that travel grants are a universally recognised form of acknowledging merit research, physical absence at conferences could set not only the faculty but also the institutions, at a competitive disadvantage.

6. IMPLICATIONS AND SCALING

This intervention could be a first step towards integrating individual air travel data into a larger centralised system, a system where emissions could be automatically calculated and/or exported for assessments.

A centralized system will increase the accuracy of institution-wide emissions reporting, providing the granular data necessary for both individuals and institutions to set targets, track progress, and develop/evaluate mitigation strategies.¹⁹ The intervention could also be scaled-up to include staff. The carbon budget does not necessarily have to be fixed at 4 tonnes and could be adjusted, based on the particular demographic's flying history.

However, without sound policy revisions alongside this intervention — i.e. standardized emission budgets or changes to tenure requirements — we expect there will be challenges to overcome when scaling-up. If these challenges are not considered and appropriately addressed during the development and implementation of this intervention, any desired gains from the intervention will be short-lived. For a comprehensive review of existing policy challenges, future policy challenges, and overall intervention challenges, see *Appendix F: Intervention Challenges*.

¹⁹ Wynes & Donner, “Addressing greenhouse gas emissions from Business-Related Air Travel at Public Institutions: A Case study of the University of British Columbia,” July, 2018: 4.

7. APPENDICES

Appendix A: Emissions Calculations Information

Calculation Explanation

An individual's allotted carbon allowance will be calculated by considering a few key items: the average amount of emissions currently emitted by UBC faculty members, the current rate of global emissions per person, and the suggested rate of global emissions per person. Currently, the global average per person produces 4.5 metric tonnes of carbon dioxide annually.²⁰ To limit global temperature rise to 2°C above pre-industrial levels, each individual should limit themselves to 2.3 tonnes annually, a number including an individual's entire carbon budget, not just for flying. At UBC, business-related air travel emissions total 26,333 - 31,685 tonnes of CO₂ annually, which is equivalent to 63 to 73 percent of the total annual emissions from the operation of the UBC campus.²¹ Therefore, UBC faculty members are spending above and beyond the 2.3 tonne cap and the 4.5 global average; 31,685 divided by UBC's 5,531 faculty members is about 5.73 tonnes per person annually.²² Considering all of the available information, we propose an emissions allotment that is manageable for UBC faculty members, but one that will decrease over time. We believe an initial annual budget of 4 tonnes per faculty member will be achievable; however, we recommend reducing the emissions allowance by 0.5 tonnes on an annual basis. We understand this emissions allowance does not comply with globally recognized carbon emission rates, but we have reason to believe this intervention may fail if the desired goal requires drastic behavioural changes.

²⁰ "Should you be thinking about your personal Carbon Budget?," Flightnook Team, March 22, 2019

²¹ Wynes & Donner, "Addressing greenhouse gas emissions from Business-Related Air Travel at Public Institutions: A Case study of the University of British Columbia," July, 2018: 4.

²² "UBC Overview & Facts," The University of British Columbia.

Appendix B: Messaging for CECP

Tactic	Example of Message	Purpose	Justification
Framing or Salience	“Your return flight from Vancouver to Toronto emitted 1.07 tonnes of CO ₂ into the atmosphere, ²³ that’s equivalent to 1,179 pounds of coal burned!” ²⁴	To encourage a behaviour change by illustrating the individual impact faculty members have on the environment.	A 2017 study found that negatively framed or salient messages elicit anticipated shame in recipients, which makes them prone to engage in pro-environmental behaviours. This process allows recipients to regain a positive view of themselves. ²⁵
Descriptive Norm Messaging	“You’re amongst the 22% of UBC faculty members not using video conferencing for non-essential meetings instead of flying. Is your flight really necessary?”	To promote video conferencing as the social norm.	A 2015 study analyzing the effectiveness of social norm nudges in food consumption determined that ranking information within a normative comparison sample increases willingness to pay for healthy foods, i.e. “you are in the most unhealthy 10% of eaters.” ²⁶

²³ “Flight Emissions Calculator,” Offsetters.

²⁴ “Greenhouse Gas Equivalencies Calculator,” EPA, March 2020.

²⁵ Amatulli et al., “The Effect of Negative Messaging Framing on Green Consumption: An Investigation on the Role of Shame,” *Journal of Business Ethics*, 18 July 2017.

²⁶ Aldrovandi et al., “Social norms and rank-based nudging: Changing willingness to pay for healthy food,” *Journal of Experimental Psychology*, 2016.

<p>Personal Storytelling (negative personifications of environmental issues)</p>	<p>“Kevin Boon is a local B.C. cattle rancher. His livelihood was devastated by the 2018 wildfires. Act now to address the climate emergency.”²⁷</p>	<p>To remind faculty members that the lives of real individuals are affected by climate change and that we are all culpable in trying to mitigate the damage by tweaking our habits.</p>	<p>Concepts such as psychic numbing and identifiable victim effect (IVE) come into play here. IVE refers to an individual's tendency to offer greater aid to specific, identifiable victims than to anonymous, statistical victims. Countless studies have validated such claims in recent years.²⁸ Psychic numbing is a similar concept, suggesting people are numbly indifferent to the plight of one individual, who is one of many in a much greater problem. Humans relate to personal stories based on their capacity to experience affect.²⁹</p>
<p>Positive Messaging</p>	<p>“Congratulations! You have saved 1.07 tonnes of carbon from entering the atmosphere. That’s 42.5 trash bags of waste recycled instead of landfilled.”</p>	<p>To encourage sustained behavioural change through positive affirmation.</p>	<p>The 2012 study, Climate Change and Moral Judgement, found that linking action on climate change to positive moral emotions, such as gratitude and pride, may help combat feelings of guilt and shame by “decreasing defensive processing” of very frightening and complex information about climate change.³⁰</p>


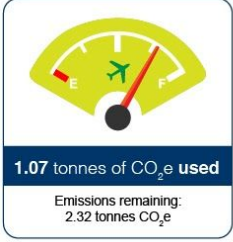


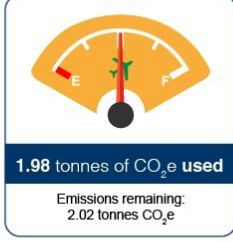


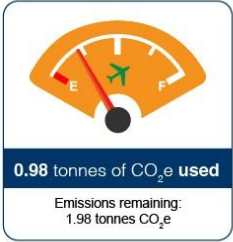




²⁷ Barb Glen, “B.C ranchers suffer as fires persist,” August 30 2018.

²⁸ Lee & Feeley, “The identifiable victim effect: a meta-analytic review,” Social Influence, August 1 2016.

²⁹ Paul Slovic, “Science Briefs: Psychic Numbing and Genocide,” 2007.

³⁰ Markowitz & Shariff, “Climate change and moral judgement” Nature Climate Change, 2012: 245.

Appendix C: CECP Versions

<p>THE UNIVERSITY OF BRITISH COLUMBIA sustainability</p> <p>Thank you for submitting your claim.</p> <p>Your return flight from Vancouver to Toronto emitted 1.07 tonnes of CO₂e into the atmosphere, that's equivalent to 1,179 pounds of coal burned?</p>   <p>Explore Air Travel Alternatives </p>	<p>THE UNIVERSITY OF BRITISH COLUMBIA sustainability</p> <p>Thank you for submitting your claim.</p> <p>You're amongst the 22% of UBC faculty members not using video conferencing for non-essential meetings instead of flying. Is your flight a necessity?</p>   <p>Explore Air Travel Alternatives </p>
<p>THE UNIVERSITY OF BRITISH COLUMBIA sustainability</p> <p>Thank you for submitting your claim.</p> <p>Kevin Boon is a local B.C. cattle rancher. His livelihood was devastated by the 2018 wildfires. Act now to address the climate emergency.</p>   <p>Explore Air Travel Alternatives </p>	<p>THE UNIVERSITY OF BRITISH COLUMBIA sustainability</p> <p>Thank you for submitting your claim.</p> <p>Congratulations! You have saved 1.07 tonnes of carbon from entering the atmosphere. That's 42.5 trash bags of waste recycled instead of landfilled!</p>   <p>Explore Air Travel Alternatives </p>

(Moving left to right) The messaging tactics are framing/salience, descriptive norm messaging, personified messaging, and positive messaging that elicits pride.

Photo credits:

Twitter/@BCGovNews; Benita Welter @pixabay; UBC Okanagan News; Tamara Leigh @flickr

Appendix D: Email Copy of CECP

THE UNIVERSITY OF BRITISH COLUMBIA
sustainability

From: Submission - OPT Visa Goods and Services <no_reply@psych.ubc.ca>
Reply-To: "no_reply@gppa.ubc.ca" <no_reply@gppa.ubc.ca>
Date: Thursday, December 19, 2019 at 4:11 PM
To: UBC Finance <zon_sansflyk@gppa.ubc.ca>
Subject: New submission from Visa Transaction Submission Form – Goods and Services - 6310

Thanks for submitting you Travel Reimbursement Submission.
 Your claim will be processed promptly. Thanks for using online submission.
 The following is a carbon snapshot of your trip.

2.93 tonnes of CO₂e used

remaining on your annual flight emission budget of 4 tonnes CO₂e after this claim

1.07 tonnes CO₂e

is the contribution of carbon emission of this return flight from **Vancouver to Toronto.**

3% equivalent

of an average individual emission in a year*

* An average person emits about 27 ton CO₂/year in US.

1.30 acres of forest

is needed in a year to sequester the equivalent amount of carbon emitted from this trip.

[I want to explore flight emission reduction alternatives ↗](#)

Form submitted by (hidden)				
Zon Sansflyk				
Cardholder Name				
Zon Sansflyk				
Contact email for this submission				
zon_sansflyk@gppa.ubc.ca				
List of expenses - Click (+) for additional items				
Description of Expense	Amount	Currency	Speedchart	Rationale
Uber from Toronto airport to hotel	40.57	CAD	MNTT	
Uber from hotel to Toronto airport	42.68	CAD	MNTT	
air canada refund	-39.90	CAD	MNTT	
flight from Vancouver to Toronto	714.16	CAD	MNTT	
wifi onboard YVR-YYZ	15.13	CAD	MNTT	
wifi onboard YYZ-YVR	22.54	CAD	MNTT	
wifi onboard	9.78	CAD	MNTT	

Have goods and services been received?
Yes


Does this reimbursement include online participant payments (e.g. MTurk, Prolific)?
No

Attach receipts here:

- [Gmail-Heres-Your-Air-Canada-Receipt-Order-348344067THAC-9.78-CAD.pdf](#)
- [Gmail-Heres-Your-Air-Canada-Receipt-Order-349485641SPAC-22.54-CAD.pdf](#)
- [Gmail-Heres-Your-Air-Canada-Receipt-Order-349403192SPAC-15.13-CAD.pdf](#)
- [Air_Canada_Booking_Confirmation_PCJNN5.pdf](#)

Appendix E: Changes to TERF

This section illustrates key changes our team has made to the Travel Expense Reimbursement Form. Key changes are highlighted in red, and include additional information, such as travel origin, and the ability to claim alternative options (i.e. video conferencing, public transportation, or driving.)


THE UNIVERSITY OF BRITISH COLUMBIA

Travel Expense Submission Form (Visa and Out-of-pocket)

Traveller name *

Zon Sansflyk
first last

Contact email for this submission *

Additional email address to receive a copy of this submission (optional)

Conference Name of Purpose of Trip *

Origin * **Destination ***

Duration *
(please indicate exact dates of travel)

Travel Expenses - Click (+) for additional items *

Description of Expense	Amount	Currency	Speedchart	Payment Type
<input type="text" value="Airfare"/>	<input type="text" value="\$1,350.00"/>	<input type="text" value="CAD"/>	<input type="text" value="CGFD"/>	<input type="text" value="UBC Visa"/>
<input type="text" value="Video Conference Substitution"/>	<input type="text" value="N/A"/>	<input type="text" value="CAD"/>	<input type="text" value="CGFD"/>	<input type="text" value="emission budget credit"/>

Required only if OPT Visa selected as Payment Type for any expenses:

Cardholder is the sole traveller
 Additional travellers related to submission

For expenses listed as "Other" please provide details below:

Receipts

- For all expenses listed, relevant documentation must be submitted.
- Receipts can either be scanned and submitted below, or physically provided to the finance team (via the finance mailbox). Receipts left in the finance mailbox must be attached to a copy of the email confirmation from this form.
- Receipts are not required for meal per diems

Attach receipts and other documents here:

Drop files here or

Appendix F: Intervention Challenges

Existing Policy Challenges	Future Policy Challenges	Overall Intervention Challenges
<p>Tenure requirements: Faculty members wishing to make tenure are encouraged to conduct and expose their research through traditional mediums that require significant air travel, i.e. conferences, speaking opportunities, networking events, etc. Also, different departments may have different air travel requirements.</p>	<p>Standardized emission budgets: This intervention is designed to nudge faculty behaviour; it is not an enforceable policy. To ensure sustainable reductions in faculty air travel, we anticipate the need for UBC-wide emissions policy. This policy should integrate potential policy changes to faculty tenure requirements (i.e. if tenure requirements are redesigned, implementing an enforceable emissions budget may be more achievable.)</p>	<p>Transitional growing pains: faculty members may find tweaks to the TERF a nuisance. The CECP may also cause a disturbance to faculty members. We expect there will be some backlash toward the intervention, but given the subtlety of the changes, we anticipate broader acceptance.</p>
<p>Email policy: Attaching the CECP results to the claim-reimbursement email may not be well-received by faculty. Those individuals who view the email as an annoyance may wish to opt-out of receiving this information.</p>		<p>Rebound effect: The EAM may encourage an increase in air travel amongst those faculty members who do not have a history of excessive air travel.</p>
<p>Information Sharing and Communication Technology: Access to facilities and software for teleconferencing can vary by faculty, building, and department. There is a lack of incentive for sharing of resources because departments make investments in technologies and IT staff from their respective budgets and therefore prefer primary access for their own faculty and staff.³¹</p>	<p>Compliance: The larger the target audience, the more difficult it will be to ensure policy compliance. i.e. what will be the repercussions for extending the emissions budget, and how will implementers track this data?</p>	<p>Technical Learning Curve: Faculty members may be reluctant to learn about video-conferencing technology, or may find it difficult to use the technology available in their department.</p>

³¹ Wynes & Donner, “Addressing Greenhouse Gas Emission From Business-Related Air Travel at Public Institution: A Case Study of University of British Columbia,” July, 2018.

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<https://david Suzuki.org/what-you-can-do/air-travel-climate-change/>.
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<https://www.stir.ac.uk/media/stirling/services/faculties/social-sciences/research/documents/Nudge-Database-1.2.pdf>.
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