AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

April 3, 2018

Mr. Massimo Bergamini,
President and Chief Executive Officer
NATIONAL AIRLINES COUNCIL OF CANADA
116 Lisgar Street, Suite 600
Ottawa, ON, K2P 0C2

Reference: Carbon Pricing in the Canadian Aviation Sector

Dear Mr. Bergamini,

Thank you for inviting AirTrav Inc. (AirTrav) to provide the National Airlines Council of Canada (NACC) with our comments and analysis (collectively, our "Opinion") pertaining to current and proposed carbon (alternately referred to as CO2) schemes in Canada's aviation sector.

Toronto-based AirTrav is well positioned to make the comments and analysis pertaining to the commercial aviation sector, and in particular, to carbon pricing on fuel. AirTrav is a boutique advisory firm that supports private and public sector entities in Canada and around the world on a wide range of matters pertaining to the aviation industry. Our guidance covers commercial, financial, operational and regulatory areas, including considerable work around aviation operations, fuel management, fuel taxation, and greenhouse gas emissions.

AirTrav's Opinion is especially relevant given the current, proposed and upcoming carbon pricing mechanisms that will impact commercial aviation in Canada, including:

- Provincial: Various provincial carbon pricing schemes – the carbon tax in British Columbia, and the hybrid carbon levy-output based pricing system in Alberta, with schemes in both provinces applying to intra-provincial air transportation.[1]
- Federal: Canada's Federal carbon levy ("Benchmark") and related carbon tax on fossil fuels ("Backstop") which will take effect January 1, 2019. The Backstop will affect most intra-provincial air transport in a backstop jurisdiction, and there is a plan to eventually have a consistent national approach[2].
- International: The Carbon Offsetting and Reduction Scheme for International Aviation ("CORSIA"), a global market-based measure ("GMBM") amongst members of the International Civil Aviation Organization ("ICAO"), Canada included, that takes effect January 1, 2021.

[1] The aviation sector is exempted from intra-jurisdictional carbon cap-and-trade programs in Ontario and Quebec.
[2] The government may prefer a consistent national plan to deal with aviation emissions that would likely impact inter-jurisdictional travel, and which would be in line with the price set by the federal Benchmark carbon tax.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Over the past decade, industry and many government regulators worldwide have collaborated more closely on workable approaches to environmental stewardship in the aviation sector, striving to find common ground between the intersection of pragmatic solutions and regulations.

Here at home, we recognize the federal government's imperative to reduce greenhouse gas emissions through the Backstop. However, as detailed in our Opinion, AirTrav strongly advocates an approach for aviation that, in contrast to the carbon tax on aviation fuel proposed in the Backstop, will more favourably impact the environment, be less onerous to administer, be less financially burdensome on Canada's important yet trade-exposed aviation sector, and will ultimately be less punitive on travellers.

Operating in an industry sector with razor thin margins, high fixed costs, and massive capital requirements, Canada's aviation sector needs a longer-term carbon emissions plan. In this respect the current Backstop approach fails by not committing to carbon levy levels beyond 2022. In contrast, the aviation sector (in particular, airlines and airports) conducts long-range planning to support long-term investment decisions on required fleets, infrastructure and related technologies.

A pan-Canadian output-based carbon offset scheme like CORSIA would indeed be the most appropriate, beneficial and efficient mechanism to deal with aviation emissions. Importantly, the Backstop does provide for such an output-based approach but did not extend this option to aviation (see: Appendix A, Table 6 in this document).

Our Opinion will examine the key beneficial aspects of an output based CORSIA-like scheme for both inter-provincial and intra-provincial aviation. Our Opinion will also look at:

- The overall cost burden on industry from the potential impact of additional taxation from the Backstop, as opposed to the estimated cost of a CORSIA-like offset scheme. Our calculations and projections in Appendix 'A' estimate that by year 2030, the Backstop could cost over ten times that of a CORSIA-like scheme for domestic air travel.
- Current provincial and federal excise taxes on aviation fuel, and current provincial carbon taxes that impact intra-provincial aviation activity – individually and in aggregate.
- Should the province of Ontario change course from its current output based offset model to implement a carbon tax on aviation fuel on top of Ontario's already significant aviation fuel tax and the federal aviation fuel excise tax, it would collectively represent a burden on airlines and passengers that would be untenable.

We look forward to seeing the Government of Canada adopt a sustainable approach to carbon pricing that will positively contribute to carbon management efforts and, at the same time, will help support a vibrant air transportation sector that drives a broad range of tax revenue creating activities in Canada's travel and tourism sector. Should you require any clarification, please contact the undersigned.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Thank you for reviewing our Opinion and considerations thereof.

Sincerely,
AIRTRAV INC.

Robert J. Kokonis
President & Managing Director
Tel 289-346-0071 | rkokonis@airtrav.ca

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Approaches to Aviation Sector Carbon Reduction

Global Aviation Sector Committed to Reducing its Carbon Footprint

According to recent figures from the United Nation's Intergovernmental Panel on Climate Change (IPCC), aviation (domestic and international) accounts for approximately two percent of global man-made CO2 emissions, with international air transport accounting for 1.3 percent. According to the International Air Transport Association ("IATA"), air transport's relative carbon contribution has not increased in the past 20 years and is not expected to increase beyond 3 percent (of man-made emissions) by 2050.

The global aviation industry recognizes the need to address climate change challenges and has demonstrated its commitment for positive change through a number of initiatives. In 2008, for example, leaders from the aviation industry (airlines, airports, air navigation service providers and manufacturers) presented the world's first global air transport sector climate action framework (the "Global Framework"). The framework is based on a set of three global goals, underpinned by four pillars of climate action.[3]

- The 2008 goals were a set of ambitious targets to mitigate growth in air transport CO2 emissions, set in short, medium and long-term horizons. IATA and its airline members also agreed to those targets, which are as follows:
    - Improve average fuel efficiency by 1.5% per year from 2009 to 2020;
    - Cap net aviation CO2 emissions from 2020 (carbon-neutral growth); and
    - Reduce net aviation carbon emissions by 50% by 2050, relative to 2005 levels.
- The 2008 four pillar strategies aim to support climate action through the following:
    1. Improved technology, including more efficient aircraft and engines, and the deployment of sustainable alternative fuels;
    2. More efficient aircraft operations through improved flight planning and air traffic control procedures at airports, enabling less fuel to be boarded and less emissions released;
    3. Infrastructure improvements, including modernized air traffic management systems; and
    4. A single Global Market-Based Measure ("GMBM") to fill the remaining emissions gap, accounting for emissions only once to ensure passengers will not face multiple tax layers.
- In 2010, the 37th Session of the ICAO Assembly adopted three goals for aviation:[4]
    1. A global annual average fuel efficiency improvement rate of 2 per cent until 2020;
    2. An aspirational global fuel efficiency improvement rate of 2 per cent per annum from 2021 to 2050; and
    3. A collective medium-term global aspirational goal of maintaining global net CO2

[3] Source: "Climate Action Takes Flight. The Aviation Sector's Climate Action Framework", Air Transport Action Group (ATAG), Geneva, Switzerland, 2015. ATAG is an independent coalition based in Geneva, Switzerland that represents all sectors of the air transport industry. ATAG is working to promote aviation's sustainable growth.

[4] "Industry Views on A Global Market-Based Measure for International Aviation", ICAO Assembly, 39th Session, Executive Committee, Working Paper version A39-WP/155, page 2, 31 August 2016.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

- On October 6, 2016, nearly all 191 states represented at ICAO, including Canada, adopted CORSIA. Under this GMBM scheme, aircraft operators will need to purchase offsets, or "emission units", for the growth in CO2 emissions from international aviation above 2020 levels.[5]
    - Commercial aviation strongly endorsed this scheme and is taking steps now to meet the CORSIA requirements.
    - CORSIA is set to commence with a voluntary period (2021-2026) after which it will become mandatory. Nearly 70 states, including Canada, have already volunteered to implement the scheme from its outset, covering approximately 80% of CO2 growth in 2021-2035.
    - As a GMBM, CORSIA will complement the goals and pillars of the 2008 global air transport framework, and in particular, to work towards achieving the global aspirational goal of carbon-neutral growth from 2020 onwards.
    - CORSIA reaffirms earlier ICAO policy resolutions indicating that MBMs must be considered as one element in the context of a comprehensive basket of state measures to reduce aviation related emissions, including biofuels, air navigation improvements, engine technology improvements. Importantly, CORSIA affirmed a preference for such measures
    - CORSIA calls on signatory states to avoid duplicative MBM to avoid double-taxation of international aviation CO2 emissions.

The View of Aviation Emissions from Canada

Canada's Action Plan to Reduce Greenhouse Gas Emissions from Aviation ("Action Plan")[6] – In June 2012, the joint industry-government Working Group on Aviation Emissions created the Action Plan. It aligned its target with the Global Framework's commitment (which was mirrored goals set by ATAG) which called for an improvement in fuel efficiency of 1.5 percent per year until 2020. The Action Plan also calls on Canada to pursue an aspirational goal of improving the fuel efficiency of Canada's air carriers by 2 percent per year until 2020 (the same aspirational rate set by ICAO in 2010).

Pan-Canadian Framework on Clean Growth and Climate Change. Canada's Plan to Address Climate Change and Grow the Economy ("PCF") – In December 2016, the Government of Canada published the PCF. According to the government the PCF is a plan to reduce emissions, "…which when implemented, will allow Canada to achieve its international commitments" (i.e. under the COP21 Paris Agreement of December 2015).[7]

[5] Sources: (1) "Historic agreement reached to mitigate international aviation emissions", ICAO, Montreal, QC, Canada, 6 October 2016; (2) "CORSIA Explained", ATAG, https://aviationbenefits.org/environmental-efficiency/our-climate-plan/corsia-explained/.

[6] AirTrav has reviewed the Action Plan's Annual Reports for 2012 through 2016, as published by Publishing and Depository Services, Public Services and Procurement Canada, Ottawa ON, Canada, TP 15377E, Catalogue T40-3E-PDF, ISSN 2292-3683.

[7] Sources: (1) "Trudeau announces 'pan-Canadian framework' on climate — but Sask., Manitoba hold off", http://www.cbc.ca/news/politics/trudeau-premiers-climate-deal-1.3888244; (2) The PCF published as: Cat. No.: En4-294/2016E-PDF, ISBN: 978-0-660-07023-0, December 2016.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Pan-Canadian Approach to Pricing Carbon Pollution ("Benchmark")[8] – On October 3, 2016, just prior to releasing the PCF, the Government published the Benchmark as a means of reducing greenhouse gas ("GHG") emissions. According to the Benchmark, levies on carbon will be set as follows:

- For jurisdictions implementing an explicit price-based system (such as the carbon tax in British Columbia), the carbon price should start at a minimum of $10 per tonne in 2018 and rise by $10 per year to $50 per tonne in 2022.
- Provinces with a cap-and-trade system (such as in Ontario and Quebec) need to have:
    i. A 2030 emissions reduction target equal to or greater than Canada's 30 percent reduction target; and
    ii. A cap-and-trade system with declining (more stringent) emission caps (to at least 2022) that correspond, at a minimum, to the projected emissions reductions that would have resulted from applying the direct carbon price that year (e.g., the reductions that would have resulted from a $10 per tonne direct price in 2018).

AirTrav has two principal criticisms of the Benchmark:

First, the Benchmark does not align with the planning and investment horizon of the aviation sector. The Benchmark does not commit to carbon levy levels beyond 2022, which is important to note because, in contrast, the aviation sector (in particular, airlines and airports) conduct long-term planning to support long-term investments in required fleets, infrastructure and technologies.

While this Opinion is focused on airline impacts, it is important to note that airports also have high fixed costs and capital inputs. They typically conduct 30-year master plans that include aircraft and passenger traffic projections to support long-range investment decisions. Should actual traffic and revenue results fall below projections due to negative consequences of the proposed approach – notably as a result of trans-border leakage -- users will have to cover that revenue shortfall through a concomitant increase in airport fees and charges.

The Government only commits to reviewing the overall approach by early 2022. This review will "confirm the path forward, including continued increases in stringency. The review will account for progress and for the actions of other countries in response to carbon pricing, as well as recognition of permits or credits imported from other countries." In Appendix 'A', AirTrav has made high-level assumptions on potential increases to the Benchmark levies.

Second, the Benchmark contains no hard targets on emissions for specific industry sectors. Unfortunately, the Benchmark only lays out a commitment to a reduction in total GHG emissions. There are no hard targets on emissions for the aviation sector, nor is there recognition of the carbon reduction achievements Canada's aviation sector has made to date as recorded in the Action Plan, 2016 Annual Report.

[8] Sources: (1) http://www.newswire.ca/news-releases/government-of-canada-announces-pan-canadian-pricing-on-carbon-pollution-595699021.html, Montreal, QC, Canada, 3 October 2016; (2) "Pan-Canadian Approach to Pricing Carbon Pollution", Government of Canada, Ottawa, ON, Canada, 3 October 2016; (3) "Guidance on the pan-Canadian carbon pollution pricing benchmark", Government of Canada, 20 Nov 2017.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Technical Paper on the Federal Carbon Pricing Backstop ("Backstop")[9] – On May 18, 2017 the Government released the interim Backstop, which translates the Benchmark's carbon levy on liquid fuels into a rate per litre of aviation gasoline and jet fuel (inclusive of multiplier effect, as each unit of fuel burned releases over three times that level in carbon dioxide equivalent emissions). Interested parties had an opportunity to submit comments and other inputs to the Minister of ECCC.

The Backstop correctly recognizes the potential impact on trans-border competitiveness and and/or emissions leakage[10] that would arise from a carbon tax and provides for an output-based system to mitigate such impacts on sectors at risk. Unfortunately, the Backstop fails to extend this option to the aviation sector, opting instead for a carbon tax.

More promising, however, is that the Backstop indicates the following: The federal government will develop rules to determine which offset credits can be accepted for compliance under the output-based pricing system, which could include foreign compliance units (referred to as "internationally transferred mitigation outcomes"). On this basis, a CORSIA-like approach would, in fact, be totally aligned with the government's overall policy framework.

The Backstop will apply in all jurisdictions that do not have a carbon pollution pricing system in place that meets the elements of the Benchmark by 2018. In other words, provinces with cap and trade systems that allow prices to fluctuate must demonstrate that they have reduced emissions equivalent to what would be achieved by a tax. Jurisdictions that do not implement their own carbon pricing policy will be subject to the Benchmark price. While the Backstop will only affect intra-provincial air transport in a backstop jurisdiction, the Government of Canada has indicated that it favours a consistent national plan that would eventually apply to inter-provincial travel.

The Backstop will return carbon revenues to the jurisdiction of origin. Each jurisdiction can use these revenues according to their needs and priorities. While the Government suggests that these revenues can be used "to address impacts on vulnerable populations and sectors to support climate change and clean growth goals", AirTrav notes the following four key policy weaknesses:

1. The Backstop fails to take into account the unique competitive environment of Canada's aviation system; including close proximity to the lower cost U.S. marketplace and high-level of price sensitivity of demand for passenger transportation.
2. There is no requirement that any of the tax revenues be spent as noted above. With respect to aviation, this is particularly concerning since, as we show later in this paper, in the medium term, carbon pricing alone will not result in emission reductions.

[9] Sources: (1) https://www.fin.gc.ca/activty/consult/fcpb-fsftc-eng.asp; (2) "Technical Paper on The Federal Carbon Pricing Backstop", Cat. No. En4-306/2017E-PDF, ISBN 978-0-660-08506-7, Environment and Climate Change Canada, Government of Canada, Gatineau, QC, Canada, 18 May 2017.

[10] Carbon leakage is defined by the UN's Intergovernmental Panel on Climate Change as, "…the increase in CO2 emissions outside the countries taking domestic mitigation action divided by the reduction in the emissions of these countries. It has been demonstrated that an increase in local fossil fuel prices resulting, for example, from mitigation policies may lead to the re-allocation of production to regions with less stringent mitigation rules (or with no rules at all), leading to higher emissions in those regions and therefore to carbon leakage." See: https://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch11s11-7-2.html.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

3. The Backstop document does not indicate how aviation carbon revenues will be apportioned to each jurisdiction. Will this be based on where aircraft fueling occurs? Or will the apportioning of revenue be based on the jurisdictions over which the fuel was used in-flight?
4. There has been no indication of how fuel consumed while over-flying the United States during an intra-jurisdictional flight will be treated. The same argument could be made regarding the potential for a national carbon tax to apply to inter-jurisdictional domestic travel.[11] Appendix 'C' provides some relevant examples of Backstop costs pertaining to U.S. overflights.

Alternate Approach and Improved Benefits for Canada

AirTrav recognizes that the Benchmark and Backstop are focused on reducing GHG emissions as part of meeting commitments under the PCF and COP21. For Canada's domestic aviation sector, however, we strongly advocate the use of an output based or CORSIA-like framework to manage pan-Canadian emissions.

Compared to the carbon tax levy proposed for aviation, an output based offset scheme will promote the following benefits: (1) Encourage real and measurable carbon reductions; (2) effect lower costs for air carriers and passengers; (3) be less onerous to administer; and (4) result in greater environmental and economic benefits for Canada including help in spurring development of a domestic offset market.

Cost Impacts for Air Carriers and Passengers

The PCF notes that "*Carbon pricing is an effective, transparent and efficient way to reduce GHG emissions at the lowest cost to consumers and business and to support innovation and clean growth*." With respect to commercial aviation, AirTrav begs to differ on a number of counts, outlined below.

A carbon tax, as the stand-alone policy tool defined in the Backstop, risks damaging a mature industry that is already investing heavily in achievable carbon reductions over the short to medium term. It is also contrary to Canada's commitments under CORSIA to promote "a basket of measures' to reduce emissions in commercial aviation.

Working in tandem with others in the aviation ecosystem, Canada's airlines are doing absolutely everything possible to improve fuel efficiency and to lower carbon emissions. This is being achieved through massive investments in newer fuel-efficient fleets, air navigation technology and ongoing fuel efficiency management programs, along with innovative pilot programs involving bio jet fuel development and supply.

These investments and strategies, developed in part as a response to global competitive realities and formalized, synergized and monitored through *Transport Canada's Action Plan*, have been paying off

[11] An example of an intra-provincial flight over-flying the U.S. is Thunder Bay, ON to Toronto, ON. Further, should a national carbon plan eventually be created and applied to inter-provincial travel, it is not known how fuel consumed while overflying the U.S. on a domestic Canada flight would be treated (i.e. a flight from Vancouver to Toronto).

AirTrav Inc.
Airlines | Airports | Transport | Travel
181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada
Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)
info@AirTrav.ca | www.AirTrav.ca

through significant, realized annual fuel efficiency improvements and emission reductions.[12] However, given the technological maturity of the sector -- notably with respect to engine technology -- over the short and medium term , improvements in fuel efficiency and emission abetment will continue to be incremental.

As a result, absent a basket of ancillary policies aggressively targeted to foster improvements in other aspects of the aviation ecosystem, such as breakthrough commercialization of bio-jet, a carbon tax will not lead to a reduction in emissions over the medium term.

As noted earlier an output-based carbon-offset scheme aligned with CORSIA will deliver real and measurable reductions in emissions. Because of the nature of aviation, a carbon tax such as that proposed in the Backstop, will produce no tangible reduction in emissions.

Second, carbon taxation will not represent the lowest cost to business and consumers, from the perspective of how much program cost gets passed through. This is based on the following realities:

- There is a hard threshold baseline established by CORSIA (i.e. growth in international aviation emissions above year 2020 levels) against which air carriers will focus their efforts.
- The imperative to make investments in technology (which, it should be noted, occur within a high, fixed cost sector where competition is strong for scarce capital) and to improve operational efficiency will be much stronger where visible emission limits are clearly visible and understood.
- Absent any hard targets in the PCF, Benchmark or Backstop, the government's proposed approach does not naturally incentivize efforts to accelerate efficiencies. Rather, there is the risk that over the short and medium term, the tax will simply be passed on to consumers.
- While carriers will also pass-through some costs related to CORSIA (or any other output-based scheme for Canada), the greater imperative for investments and efficiency in an offset scheme with hard thresholds will mitigate the amount of cost pass-through to consumers and enhance industry-wide efforts to break through existing performance ceilings.

Third, carbon taxation will not represent the lowest cost to operators and consumers, from the perspective of outright costs expected from the Backstop versus those from an output-based system like CORSIA. This carbon price comparison is captured in Appendix 'A' below.

Trade-exposed aviation sector and sensitivity of leisure travellers to added cost

On the basis of cost though, it is critical to note that aviation in Canada is a trade-exposed industry sector, characterized by demand that is highly sensitive to price. This makes Canadian aviation highly susceptible to competitive and emissions leakage – the two policy foundations for an output-based carbon pricing regime in the Backstop.

The close proximity of U.S. border airports to the majority of Canada's population means that U.S. and international carriers operating from these airports can take advantage of Canada's higher burden of taxes, fees and other charges on commercial aviation. Indeed, as recent studies have shown,

[12] See Part 3 of this section, which highlights the fuel efficiency improvements achieved by Canada's aviation sector as documented in the Action Plan's 2016 Annual Report.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

approximately 2.5 million Canadians (roughly representing 5 million flights) fly in and out of U.S. border airports. Any additional cost burden has a risk of increasing that number.

The number of passengers for whom Canadian airports could be at risk to U.S. cross border airports would be driven by the following three factors:

1. Domestic carbon pricing on the domestic leg of a transborder or international journey;
2. Price elasticity that increases exposure for the bulk of passenger volume – the price sensitive leisure segment; and
3. The outright level of carbon pricing.

Regarding the third point, and as shown in the cost tables in Appendix 'A', it is critical that carbon pricing be kept competitive versus rates for international aviation, and that the rates are kept to the lowest level possible given the already high burden in Canada of taxes, fees and other charges on commercial aviation.

Regarding the second point, price elasticity for the leisure travel segment can equally affect domestic travel and the domestic legs of international trips. The majority of domestic air travel in Canada is undertaken by the non-business segment, comprised of leisure, vacation, visiting friends and relatives, shopping and other sub-sets (in aggregate entitled "leisure travel segment"). In 2016, nearly 93 percent of total domestic travel (by all transportation modes) was undertaken by the non-business segment and accounted for just over 88 percent of total domestic travel expenditures. Only 8.3 percent of domestic travel was undertaken by commercial air transport – the remainder by car, bus and rail.[13]

The leisure air travel segment demonstrates a higher degree of price sensitivity (or "elasticity of demand") than the business segment. According to IATA, "…business travellers are less sensitive to price changes (less elastic) than leisure travellers…" [because] "…business travellers generally have less flexibility to postpone or cancel their travel than leisure travellers."[14] Similarly, Canada's Department of Finance noted that "…leisure travellers are more likely to postpone trips to specific locations in response to higher fares, or to shop around for those locations offering more affordable fares. Consequently, it is expected that the demand for air transport for leisure reasons will be more elastic than business travel."[15]

For leisure travellers, this means that each incremental dollar of taxes, fees, or charges has a disproportionate impact on the demand for air travel. In addition to the base fare, an additional pass-through charge from airline to passenger for the Backstop will be on top of numerous existing items.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

[13] "Travel survey of residents of Canada, province visits, expenditures and nights, by province visited, trip characteristics and visit duration, annual", CANSIM Table 426-0026, Statistics Canada, Ottawa.

[14] "Air Travel Demand", Mark Smyth and Brian Pearce, IATA Economics Briefing No. 9, IATA, April 2008.

[15] "Air Travel Demand Elasticities: Concepts, Issues and Measurement: 1", Department of Finance, Government of Canada, 6 October 2008.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Take the case of an Air Canada flight from Sydney, NS to Halifax, searched February 1, 2018 for a departure March 15, 2018. The results were as follows:

Sydney, NS – Halifax, NS AC8803 (operated by Jazz Air) | Aircraft: Dash 8-300 | 15 Mar 2018	Charges (CAD)
Air Transportation Charges	
Base Fare (lowest Air Canada Economy fare in Tango family)	$56.00
Surcharge – Nav Canada	9.00
Surcharges – Insurance	3.00
Subtotal	68.00
Taxes, Fees and Charges	
GST	15.02
Air Traveller Security Charge (ATSC)	7.12
Airport Improvement Fee (Halifax)	25.00
Subtotal	47.14
Plus, estimated Backstop	0.59
Plus, expected GST on the Backstop	0.09
Subtotal	47.82
Grand Total	$115.82
Taxes, Fees and Charges – percent of Base Fare	85.4%

While the Backstop cost per passenger (if passed through in its entirety) does not seem like a lot, by year 2022 it would rise to $2.96 on this route ($3.40 HST inclusive) and with this aircraft (though airlines may elect to charge set rates for certain distance categories). For a family of four travelling together on vacation, this would represent an $13.16 cost that is on top of all of the other taxes, fees and charges. The extra layer of this additional tax on top of what is already a significant total non-fare burden may very well dissuade some travellers from flying at all, or to travel less frequently. By year 2022, total taxes, fees and charges for a family of four on this short route would be $202.16 one way, or $404.32 roundtrip!

Further, if this Sydney-Halifax (or vice versa) flight were one leg of a continuing international journey, the Backstop could encourage travellers to increasingly shop air fares from U.S. border cities.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

THE BACKSTOP WILL COST OPERATORS AND CONSUMERS DEARLY

- It is clear from the tables in Appendix 'A' that compared to a CORSIA-like scheme, the Backstop is considerably more expensive – even when comparing the Backstop cost in 2018 versus the estimated cost of a CORSIA-like scheme in 2030.
- The Backstop's applicability from the first fuel litre is the key factor driving its higher cost versus a system that is measured above a baseline, such as the government's output-based pricing system or CORSIA.
- This cost differential does not even take into account: (i) The higher cost of administering two different schemes for Canadian operators; (ii) the increased leakage to cross-border airports owing Backstop applicability on domestic legs of transborder and international flights; and (iii) the potential loss of tax revenues (corporate, income and consumption) should Canadian carriers scale back operations on marginal domestic routes.

Airlines today face a competitive and dynamic market for product distribution. With the ongoing shift from offline to online travel (applying to direct and via intermediaries like travel agents), consumers today who shop for airfares online typically comparison shop multiple channels such as airline websites, online travel agents ("OTAs") which display prices from multiple airlines, and meta-search travel sites that screen scrape or get direct feeds of airline prices from airline websites and from OTAs for multiple airlines.

Further, consumers can select "nearby" airports. For example, in the case of Vancouver a nearby airport could include Bellingham, WA; for Toronto that could include Niagara Falls, NY and Buffalo, NY; and for Montreal that could include Plattsburg, NY. The point is, with airline pricing fiercely competitive and with consumers able to cross-shop multiple airlines, journeys and nearby airports with the click of their mouse, Canada's trade-exposed commercial aviation sector would be in for an increased rough ride subject to the Backstop. The rates and applicability of a CORSIA-like scheme would mitigate some of this pain for our country's air carriers.

In addition to effecting lower costs for air carriers from a trade exposure perspective, a CORSIA-like scheme for domestic emissions would help maintain service on marginal routes.[16] The airline sector is, at the best of times, a thinly profitable sector owing high capital costs, many fixed costs in the short run, and a top operational input (fuel) that carries a high price and significant volatility. Added to that is the aforementioned high burden of taxes, fees and other charges imposed on our nation's airlines. The collective impact of the Backstop and the existing cost burden, within the context of a challenging financial

[16] There may be various industry definitions of what constitutes a "marginal" route, and these vary by airline. In AirTrav's experience with route profitability assessments for several airlines, a marginal route may either break-even or make only a few percentage points in profit margin after direct operating costs ("DOCs") are deducted from revenues. DOCs cover all costs related to aircraft flying operations, specifically pilots, cabin crew, fuel, catering, air navigation, airport landing fees, maintenance, aircraft ownership (lease costs and/or financing charges, plus depreciation and amortization of owned fleets), and aircraft insurance. Some routes may be considered marginal, but still operated if it is determined their contributions to overall network profitability are more important (i.e. passenger feed from a regional flight into a profitable international flight). Marginal profitability could also be considered on a more fully allocated basis; for example, in addition to DOCs, to also include indirect operating costs (airport servicing of passengers and aircraft, reservation systems and related distribution costs) and system overheads (i.e. marketing, sales and general overheads).

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

business model, could mean that carriers may elect to drop marginal domestic routes should the Backstop be implemented as proposed.

Finally, there will be cost pass-through to consumers regardless of the carbon pricing scheme put in place. As argued earlier, the amount of pass-through from a CORSIA-like scheme will be less because, versus the Backstop, such a scheme will have a lower cost impact, and air carriers will be more focused on improvement initiatives related to efficiency investments and operational efforts given visible, quantifiable carbon emission thresholds.

Reduced Administrative Burden

Any carbon pricing instrument applied to domestic Canada intra and inter-domestic flights should be:

a) Compatible and aligned with CORSIA; and

b) Non-duplicative, from an administrative standpoint.

c) Non-duplicative, from an emissions pricing standpoint.

a) Compatibility and alignment with CORSIA

Members of the ICAO Assembly, including Canada, have already agreed to the GMBM CORSIA carbon offset scheme for international aviation emissions. Moreover, the aviation sector strongly endorsed CORSIA and Canada was one of 69 states that volunteered to implement the scheme from its outset. With this strong international and Canadian endorsement of CORSIA's methodology pertaining to international aviation, it makes sense that Canada follow a similar approach for its domestic aviation emissions.

b) Alignment with CORSIA would be non-duplicative from an administrative standpoint

While domestic flights are beyond the scope of CORSIA, any carbon pricing instrument applicable to domestic (i.e., intra- and inter-jurisdictional) flights should be aligned and made compatible with CORSIA to avoid regulatory fragmentation, to reduce the administrative burden for operators and governments, and to minimize potential market distortions.

A single GMBM to address CO2 emissions from international aviation is favoured by industry participants. Many airlines fly into dozens of different countries on a daily basis, with some large airlines serving over a hundred different countries each day; they need to have a single point of accountability. If airlines are subject to a patchwork of national or regional CO2 taxes, offsetting mechanisms, emissions trading schemes and other carbon pricing instruments, compliance would be unnecessarily complex and costly.

Similarly, AirTrav is concerned that if domestic and international flights within and beyond Canada are subject to different regimes, the administrative complexity and regulatory burden will be unreasonably high for airlines operating in this country. The safe, orderly and efficient functioning of today's air transport system relies on a high degree of uniformity in regulations, standards and procedures. While Canada's aviation emissions from domestic operations cannot be part of CORSIA specifically, it would be completely appropriate for any Canadian pan-national program to mirror the CORSIA scheme.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

c) Alignment with CORSIA would be non-duplicative from an emissions pricing standpoint

AirTrav is concerned that the imposition of carbon pricing on inter-jurisdictional domestic flights could potentially lead to duplicate (double or multiple) taxation. For example, on flights between/over two or more provinces such as Halifax to Calgary, a single flight would potentially be subject to carbon pricing in multiple provincial jurisdictions (i.e. in Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, and Alberta), whether topped up by the Backstop to the national carbon pricing standard, or where the Backstop acts wholly in lieu of a provincial carbon pricing scheme. Such double or multiple taxation would be contrary to Canada's obligations as a signatory to CORSIA and would result in undue financial and administrative costs to airlines and their passengers, which would be directly counter to the principles of efficient and fair taxation.

The Canadian Government has not explicitly stated that there will not be duplication between federal and provincial carbon pricing efforts. For example, the *Technical Paper on The Federal Carbon Pricing Backstop*, released this year by Environment and Climate Change Canada ("ECCC"), discusses inter-jurisdictional treatment and its likely potential inclusion under the Backstop. The Page 15 extract below includes this language (shown in bold), "The introduction of carbon pricing in all Canadian provinces and territories…" While it could be inferred from this text that the Backstop will drive a single carbon price for inter-jurisdictional flights, it does not explicitly rule out duplication. This concern needs to be addressed.

> *To date, provinces that have introduced carbon pricing systems have either not covered GHG emissions from aviation fuels at all or not applied the carbon price to aviation fuels used in interjurisdictional flights within Canada. The Government recognizes that this exemption may have been made to address competitiveness concerns for local airports. The introduction of carbon pricing in all Canadian provinces and territories eliminates these inter-jurisdictional competitiveness concerns and presents an opportunity for this important source of GHG emissions to be covered across Canada. The federal government will engage with provincial and territorial governments and stakeholders to ensure that this emission source is properly covered, through a consistent national approach, and to determine which role the backstop should play in this regard, including in jurisdictions that have a carbon pricing system in place.*

Moreover, as a result of the Manitoba Government's recently tabled *Climate and Green Plan Implementation Act*, this issue is no longer theoretical or speculative. By proposing to add a carbon tax levy on top of its existing aviation fuel tax -- which applies to international destinations within North America -- Manitoba has placed itself in conflict with the federal government's obligations as a signatory of CORSIA to avoid such duplicative MBM.[17]

A CORSIA-like output-based regime applied on a pan-Canadian basis would eliminate potential duplication on pricing domestic emissions by harmonizing emission thresholds on a pan-national basis. Similar to CORSIA's international structure, AirTrav envisions a scheme whereby aircraft operators would purchase emission unit offsets for growth in CO2 emissions above some pre-determined level (or "floor") for domestic Canada aviation operations. That floor could be aligned with CORSIA's international departure point, which has been set at the year 2020.

[17] The Climate and Green Implementation Plan Act,

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

An Offset Scheme Will Deliver Real Carbon Reductions

AirTrav strongly believes that an output-based carbon offsetting system compatible with CORISA will deliver real, measurable carbon emission reduction benefits for the environment, while carbon taxes, in contrast, generally do not.

Compared to carbon taxation, offsetting carbon emissions guarantees a higher degree of environmental integrity compared to carbon taxation. Provided adequate quality criteria are implemented, each emission unit surrendered in a CORSIA-like scheme will, in effect, deliver an equivalent reduction in carbon emissions. In contrast, there is no guarantee that for each ton of carbon taxed – through the Backstop and any other carbon tax – there will be a tangible reduction in carbon emissions.

As well, there is no linkage between hard targets or thresholds, and the carbon taxation of the Backstop – this will further undermine the Backstop's effectiveness. Canada's Working Group on Aviation Emissions did align the Action Plan's targets with the 1.5 percent fuel efficiency goal committed in the aviation sector's Global Framework, and with the 2 percent aspirational goal set by ICAO through year 2050. However, the Pan-Canadian Framework, the Benchmark and the Backstop do not set any specific thresholds or goals for Canada's aviation industry. Unlike CORSIA, the Backstop does not link carbon taxation with any pre-determined emissions threshold. As such, once implemented the Backstop will simply become another general tax that gets passed on directly to consumers.

Under CORSIA, aircraft operators will need to purchase offsets for international CO2 emissions growth above quantifiable, year 2020 levels. It is therefore in the best interests of operators to improve efficiency through technological, operational and infrastructure measures (i.e. part of the four pillars). Any measures to cover emissions from domestic (inter or intra-jurisdictional) air transport would, inter alia, entice aircraft operators in the same way.

It is worthwhile to note that Canadian air carriers and related industry participants have already been investing heavily in technology, operational efficiency and infrastructure. The results of these investments and efforts have been proven out. For example, the 2016 Annual Report on Canada's Action Plan shows that flight operations from Domestic and International aviation posted a 1.73 percent decrease between 2008 and 2016 for both fuel efficiency and carbon dioxide equivalent emissions. The Annual Report further notes that "compared with 2015, Canadian air carriers" [in 2016] "improved fuel efficiency by 3.2 percent".[18]

Greater Environmental Benefits from a Total Country Perspective

Current federal policy allows individual provinces to develop their own carbon pricing regimes as long as the environmental benefits would be comparable to a national plan. A pan-Canadian, output-based carbon offset scheme covering domestic aviation emissions will deliver greater benefits than the sum of the national scheme, and any current, pending or potential provincial program that impacts aviation.

As noted earlier, each emission unit surrendered in an offset system will deliver an equivalent reduction in carbon emissions. In contrast, short of dampening demand for air travel to the point that service is reduced and flights and connections eliminated, there is no guarantee that for each ton of carbon taxed through the

[18] As measured by fuel litres per total revenue tonne kilometre (RTK), and CO2e grams per total RTK respectively.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Backstop, inclusive of Canada's patchwork of provincial carbon schemes, will deliver a corresponding reduction in emissions.

A pan-national output-based CORSIA-like scheme for domestic aviation in Canada will:

1. Deliver genuine and measurable reductions in emissions;
2. Provide facilitate administrative compliance including with respect to issues related to apportionment of costs and revenues
3. Amplify realized environmental benefits by virtue of the pan-national scope in adoption and implementation. A national carbon offset program will result in bona fide carbon reduction benefits that will be harnessed from coast to coast to coast.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Appendix A – Financial Calculations

Table 1

This table's data was produced by ICAO in 2016 and published by ATAG. It forecasts future CO2 prices. The "current" carbon price per tonne has been modified by AirTrav. In 2016 it was reported as $0.45 USD. The current ICE Futures price is $0.17 USD, which we have converted to CAD at 1 USD = 1.25 CAD.

CORSIA CO2e Price Assumptions[1,2]

(CAD $/tonne)[3]	Carbon Credit Pricing (CAD)		
	Current Price CER[4]	Price Forecasts 2025-2030	2035
Low	$0.213	$12.50	$15.00
Medium		$18.75	$25.00
High		$41.25	$50.00

Table 2

Sample International Flights, Year 2030, per CORSIA[5]

Directional Route	Aircraft Type	Route Km[6]	Route Time (hours)[7]	Offset Costs (CAD)			Fuel Cost (CAD)			Avg Fuel Tonnes Used	Avg Offset Cost % of:		Offset Costs (CAD)		
				Low est.	High est.	Avg est.	At 2016 summer price	Inflation at $20/ barrel	With increase		Fuel Cost	Total Fuel Cost With Increase	Low Offset per Litre	High Offset per Litre	Avg Offset per Litre
Casablanca ➡ Madrid	B737-800	867	1.75	$64	$164	$114	$2,070	$695	$2,765	3.36	5.5%	4.1%	2.00	4.00	3.00
Frankfurt ➡ Addis Ababa	B787-8	5,527	6.83	$723	$1,871	$1,297	$23,650	$7,930	$31,580	38.37	5.5%	4.1%	2.00	4.00	3.00
Mexico ➡ Buenos Aires	A350-900	7,636	8.83	$1,138	$2,946	$2,042	$37,249	$12,490	$49,739	60.43	5.5%	4.1%	2.00	4.00	3.00
Dubai ➡ Sydney	A380-800	12,460	13.83	$3,178	$8,231	$5,704	$104,060	$34,893	$138,953	168.83	5.5%	4.1%	2.00	4.00	3.00

Notes to Table 1 and Table 2:

1 Sources: ATAG, September 2016; and ICAO, 'less optimistic' CO2 forecast: http://bit.ly/2cXiPQG.

2 According to the firm Ecometrica, CO2e stands for "carbon dioxide equivalent". It is a term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO2e signifies the amount of CO2 which would have the equivalent global warming impact.

3 CAD/USD rate calculated at 1 CAD = 0.8000 USD.

4 Certified Emission Reductions (CERs) are a type of emissions unit (or carbon credit) issued by the Clean Development Mechanism (CDM) for emission reductions achieved by CDM projects and verified under the rules of the Kyoto Protocol. CER Futures are traded on the Intercontinental Exchange ("ICE"), and values have been in a steady decline for many years (i.e. in 2008, CERs were valued at over $20/tonne (USD).

5 Sources: ATAG; IATA Working Paper for ICAO Assembly: http://bit.ly/2csMGR4, and AirTrav Inc. Assumptions: nominal prices unadjusted for inflation, only market price increases; with operator growing at average industry growth rate.

6 Route distances calculated as great circle kilometres, plus a 3.5 percent allowance for air traffic control vectoring.

7 Hours based on block time, a measurement of gate-to-gate duration (or flight time plus taxi in/out time). Block time obtained from air carriers flying these routes nonstop for summer 2018.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Table 3

The Backstop is silent on specific carbon levies and jet fuel charges beyond 2022. AirTrav examined Backstop levies and rates on jet fuel from 2018 to 2022. Looking at changes in year-over-year growth rates, we endeavoured to estimate Backstop levies and jet fuel rates through to 2030 in order to facilitate comparisons with published future pricing on CORSIA (and as potentially applicable to Canada through a CORSIA-like scheme). By year 2024 we have reduced annual growth to 2.00 percent.

Canada's Proposed Backstop Pricing	Published in Backstop Technical Paper, 2017					Estimates by AirTrav							
Applicable Backstop Year	**2018**	**2019**	**2020**	**2021**	**2022**	**2023e**	**2024e**	**2025e**	**2026e**	**2027e**	**2028e**	**2029e**	**2030e**
$/Tonne Levy on Liquid Fuels (including jet fuel)	$10.00	$20.00	$30.00	$40.00	$50.00	$59.00	$69.00	$79.00	$89.00	$99.00	$108.00	$116.00	$122.00
Backstop Cents/L on Jet Fuel to Cover CO2e emissions*	2.58	5.16	7.75	10.33	12.91	15.23	17.82	20.40	22.98	25.56	27.89	29.95	31.50
Backstop Growth Rates on Jet Fuel:													
Year/year rate of increase in Levy and in Backstop		100.0%	50.2%	33.3%	25.0%	19.0%	17.0%	15.0%	13.0%	11.0%	9.0%	7.0%	5.0%
Actual and estimated rate of change			-49.8%	-16.9%	-8.3%	-6.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%

* Cents/L on jet fuel CO2e calculated at ECCC rate of 3.23 units of CO2e emitted per unit of fuel burned.

Table 4

This table performs a *what-if* look of two domestic routes below should a *national carbon plan* be developed and applied to inter-jurisdictional air travel. The third domestic route assesses an intra-jurisdictional flight. AirTrav calculated costs under the Backstop (first year 2018, last known rate year 2022, and estimated Backstop rate for 2030), and further assumes that the Backstop rate on potential inter-jurisdictional flights would be the same as that for intra-jurisdictional flights. Compared to a CORSIA-like scheme in the year 2030, the Backstop only results in a similar cost in its first year (2018). Applicability of the Backstop from the first fuel litre is the key factor driving its higher cost versus the CORSIA-like scheme.

Sample Domestic Canada Flights: Backstop versus CORSIA-like Scheme[8]

Directional Route	Aircraft	Route Km	Route Block Hours	Fuel Burn/ Hour[9] (Litres)	Trip Fuel Burn (Litres)	Carbon Price Scheme, Year and Cost (CAD)				Pax[11] at 80% Load Factor	Backstop 2030e vs. CORSIA 2030e
						Backstop Canada 2018	Backstop Canada 2022	Backstop Canada 2030e	CORSIA-like Avg Offset 2030e		
						Carbon pricing per litre (NCPL)[10]					
						2.58	12.91	31.50	3.00		
Toronto ⇨ Vancouver	B77W	3,472	4.88	8,700	42,485	$1,096	$5,485	$13,383	$1,275	360	10.5x
Carbon cost per pax						*$3.04*	*$15.24*	*$37.17*	*$3.54*		
Toronto ⇨ Halifax	B73W	1,337	2.05	3,070	6,294	$162	$812	$1,982	$189	104	10.5x
Carbon cost per pax						*$1.56*	*$7.81*	*$19.06*	*$1.82*		
Toronto ⇨ Thunder Bay	Q400	945	2.08	1,280	2,656	$69	$343	$837	$80	61	10.5x
Carbon cost per pax						*$1.13*	*$5.64*	*$13.76*	*$1.31*		

Notes to Table 4:

8 Estimates by AirTrav Inc. based on previous tables and research from airline schedules. Assumes no inter-jurisdiction carbon pricing duplication.

9 Fuel consumption rates based on an average from the ICAO Carbon Emissions Methodology, Version 10 (June 2017), and the ACAS database of FlightGlobal.

10 "NCPL" stands for nominal cents per litre (Canadian funds).

11 "Pax" is short form for passengers. A passenger load factor assumption of 80% is reasonable for domestic Canada flights.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Table 5(a) – Intra-jurisdictional domestic air travel

This table calculates only the applicability of carbon pricing to intra-jurisdictional travel (i.e. current Backstop approach). AirTrav took the compound annual growth rate in domestic fuel consumption in Canada's aviation sector, between 2012 and 2016, and applied it to future years out to 2030.

The direct costs to Canada's aviation sector from the Backstop between years 2020 and 2022 will be similar to what the estimated CORSIA-like pricing would have cost our country in the year 2030. For example, the Backstop cost to our aviation sector in 2021 is estimated at CAD $111 million while in 2030 the costs under a CORSIA scheme range from a low of $65 million to a high of $129 million. In 2030e, the Backstop could be over ten times the average cost of a CORSIA scheme based on AirTrav projections.

This table clearly demonstrates the significantly higher cost to aviation operators, and hence passengers, under the Backstop when compared to a CORSIA-like scheme.

The Backstop's applicability (starting point) from the first fuel litre is the key factor driving its higher cost versus the CORSIA-like scheme.

Estimated Annual Costs to Domestic Aviation – Applicability Only to Intra-Jurisdictional Air Travel:
Backstop versus CORSIA-like Scheme

Estimated Annual Costs to Domestic Canada Aviation - Intra-Jurisdictional Flights Only

Applicable Backstop Year	2016	2017e	2018e	2019e	2020e	2021e	2022e	2030e
Aviation fuel consumption* (Litres, millions)								
Domestic operations (total)	2,415	2,466	2,518	2,572	2,626	2,682	2,738	3,237
Domestic fuel CAGR, 2012-2016	2.12%							
Estimated intra-jurisdictional use**	40.00%							
Domestic fuel consumption	966	986	1,007	1,029	1,050	1,073	1,095	1,295
Carbon Pricing Costs* (CAD, millions)								
Canada Backstop	N/A	N/A	$26	$53	$81	$111	$141	$408
CORSIA-like scheme:								
Low CO2 price assumption	N/A	N/A	N/A	N/A	N/A	No data available		$26
High CO2 price assumption	N/A	N/A	N/A	N/A	N/A			$52
Avg CO2 price assumption	N/A	N/A	N/A	N/A	N/A			$39
Annual Backstop v. CORSIA Year 2030 avg	N/A	N/A	0.7x	1.4x	2.1x	2.9x	3.6x	10.5x

* Sources: "Canada's Action Plan to Reduce Greenhouse Gas Emissions from Aviation", Annual Reports for years 2012 through 2016.
** Estimated by AirTrav Inc and based on an examination of Canada's top intra-provincial and inter-provincial domestic air routes.
*** Nominal values, unadjusted for inflation.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Table 5(b) – Intra- and inter-jurisdictional domestic air travel

This table assumes that a potential national carbon plan could apply to both intra- and inter-jurisdictional domestic air travel. AirTrav took the compound annual growth rate in domestic fuel consumption in Canada's aviation sector, between 2012 and 2016, and applied it to future years out to 2030.

The direct costs to Canada's aviation sector from the Backstop in 2019 will be similar to what the estimated CORSIA-like pricing would have cost our country in the year 2030. For example, the Backstop cost to our aviation sector in 2019 is estimated at CAD $133 million (assuming the Backstop will eventually apply to both intra and inter-jurisdictional domestic air travel), while in 2030 the costs under a CORSIA-like scheme range from a low of $65 million to a high of $129 million. By 2030, a national carbon plan with applicability to all domestic Canada air travel could cost the aviation sector over one billion dollars, which would be over 10 times the cost of a CORSIA-like scheme.

This table clearly demonstrates the significantly higher cost to aviation operators, and hence passengers, under the Backstop when compared to a CORSIA-like scheme.

Even if the year 2030 CO2 offset price/tonne rate for CORSIA ends up being higher than the high/low range shown in Table 1 (estimates from ASAG and ICAO), the carbon rates would have to triple just to come close to the Backstop's year 2021 cost. For example, taking the year 2030 average CORSIA-like cost of $97 million and quadrupling it comes to $388 million; in nominal terms, that is only marginally higher than the $354 million estimated for the Backstop in 2022). The Backstop's applicability (starting point) from the first fuel litre is the key factor driving its higher cost versus the CORSIA-like scheme.

Estimated Annual Costs to Domestic Aviation – Full Applicability to Intra- and Inter-Jurisdictional Air Travel:
Backstop versus CORSIA-like Scheme

Applicable Backstop Year	2016	2017e	2018e	2019e	2020e	2021e	2022e	2030e
Aviation fuel consumption* (Litres, millions)								
Domestic operations (total)	2,415	2,466	2,518	2,572	2,626	2,682	2,738	3,237
Domestic fuel CAGR, 2012-2016	2.12%							
Carbon Pricing Costs** (CAD, millions)								
Canada Backstop/National Carbon Plan	N/A	N/A	$65	$133	$204	$277	$354	$1,020
CORSIA-like scheme:								
Low CO2 price assumption	N/A	N/A	N/A	N/A	N/A	No data available		$65
High CO2 price assumption	N/A	N/A	N/A	N/A	N/A			$129
Avg CO2 price assumption	N/A	N/A	N/A	N/A	N/A			$97
Annual Backstop v. CORSIA Year 2030 avg	N/A	N/A	0.7x	1.4x	2.1x	2.9x	3.6x	10.5x

* Sources: "Canada's Action Plan to Reduce Greenhouse Gas Emissions from Aviation", Annual Reports for years 2012 through 2016.

** Nominal values, unadjusted for inflation.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Table 6 – Estimated Annual Fuel Consumption and CO2e Emissions from Domestic Canada Aviation*

As noted earlier, the Backstop does provide for an output-based approach, though it has not extended this option to aviation. Page 17 of the Backstop notes that the "output-based pricing system will apply to all industrial facilities that emit 50 kilotonnes or more of CO2e per year."

The table below projects annual fuel consumption and CO2e emissions from domestic aviation in Canada, further divided into three groupings: NACC carriers, non-NACC carriers and total. AirTrav applied the compound annual growth rate (between the years' 2012 and 2016) for domestic fuel consumption and emissions to both NACC and non-NACC carriers in order to estimate fuel consumption and emissions through to the year 2030.

Although not exact, AirTrav took projected emissions from NACC carriers and calculated the straight-line average per carrier based on four NACC carriers. Even using this approach, the straight-line average of 1,315 kilotonnes of CO2e per NACC carrier in year 2016 (based on actual emissions that year) far exceeds the 50 kilotonnes per industrial facility prerequisite that is specified in the Backstop.

	2016	2017e	2018e	2019e	2020e	2021e	2022e	2030e
Domestic fuel CAGR, 2012-2016	2.12%							
Aviation fuel consumption (Litres, millions)								
NACC carriers	2,036	2,079	2,123	2,168	2,214	2,261	2,309	2,730
Other reporting carriers	379	387	395	403	412	420	429	508
Total Canada domesitc	2,415	2,466	2,518	2,572	2,626	2,682	2,738	3,237
Aviation emissions (COE2, kilotonnes)								
NACC carriers	5,260	5,371	5,485	5,601	5,719	5,840	5,964	7,051
Other reporting carriers	980	1,001	1,022	1,044	1,066	1,088	1,111	1,314
Total Canada domesitc	6,240	6,372	6,507	6,644	6,785	6,929	7,075	8,365
Straight-line average kilotonnes, each of four NACC air carriers	1,315	1,343	1,371	1,400	1,430	1,460	1,491	1,763
Minimum CO2e threshold for industrial facilities under the Backstop's output-based pricing system	N/A	N/A	50	50	50	50	50	TBD
NACC straight-line average vs. Backstop threshold	N/A	N/A	27x	28x	29x	29x	30x	TBD

* Sources: (1) "Canada's Action Plan to Reduce Greenhouse Gas Emissions from Aviation", Annual Reports for years 2012 through 2016; (2) National Airlines Council of Canada; (3) AirTrav Inc. analysis.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Table 7

Summary of Canadian Fuel Taxes & Carbon Pricing on Jet Fuel, Year 2018[19]

Aviation Fuel Taxes	PROVINCE of APPLICABILITY									
	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL
FET (cpl)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
FET applicability	– Only applies to domestic flight operations –									
PFT (cpl)	2.00	1.50	1.50	3.20	6.70	3.00	2.50	2.50	0.70	2.50
PFT applicability	Domestic flights	Domestic flights	Domestic flights	North American flights[20]	Every flight	Domestic flights	Domestic flights	Every flight	Every flight	North American flights
Subtotal FET+PFT Domestic (cpl)	6.00	5.50	5.50	7.20	10.70	7.00	6.50	6.50	4.70	6.50
Subtotal PFT Applicable Int'l (cpl)	Nil	Nil	Nil	Nil (Outside of North America)	6.70	Nil	Nil	2.50	0.70	Nil (Outside of North America)
PCT (cpl)	7.83	7.74	Nil	6.46	Nil	Nil	Nil	Nil	Nil	Nil
PCT applicability (see Notes)	Intra-provincial	Intra-provincial	N/A	Assume intra-provincial	Aviation N/A	Aviation N/A	N/A	N/A	N/A	N/A
Subtotal FET+PFT+PCT Domestic (cpl)	13.83	13.24	5.50	13.46	10.70	7.00	6.50	6.50	4.70	6.50
Backstop (cpl)	2.58									
Backstop applicability if>PCT (cpl)	0.00	0.00	2.58	0.00	0.00	0.00	2.58	2.58	2.58	2.58
Backstop applicability	Only intra-jurisdictional initially; expected to eventually have inter-jurisdictional applicability									
Total Fuel + Carbon Taxes Domestic (cpl)	13.83	13.24	8.08	13.66	10.70	7.00	9.08	9.08	7.28	9.08

Legend of acronyms used in above table:
"CPL" = cents per litre
"FET" = Federal Excise Tax
"PCT" = Provincial Carbon Tax (or equivalent)
"PFT" = Provincial Fuel Tax

[19] Sources: (1) Various current provincial taxation guides pertaining to aviation fuels; (2) "The Aviation Industry as An Economic Enabler", Air Canada submission to the review of the Canada Transportation Act, page 24, February 2015.

[20] Manitoba levies a jet fuel tax of 1.50 cents per litre on commercial cargo flights and 3.20 for aviation fuel used for any other purpose, including passenger flights. They do however provide a rebate for fuel used for international commercial aviation outside of North America. Hawaii is considered to be outside of North America for this purpose.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Notes to Provincial Carbon Pricing Programs

British Columbia – A revenue-neutral tax on the purchase or use of fossil fuels of CA$30 (US$30) per tonne of CO2 emissions was implemented in 2008. This levy equals 7.83 cpl on jet fuel consumption.

Alberta – The Province's hybrid systems includes two components: a carbon levy (or tax) that applies to fossil fuels and an output-based pricing system that applies to designated facilities or sectors (which do not pay the levy on the fuel they use). The carbon pollution price in both components of a hybrid system – the fuel levy and the fixed payment per tonne of CO2e that is a compliance option under the output-based pricing component – must be at least equal to the Benchmark carbon pollution price.

Alberta's scheme will price carbon directly and place a cap on emissions for specific facilities and companies, but also create a market where carbon credits will be traded. For the carbon tax, Alberta will begin pricing carbon at $20/tonne on CO2 emissions in 2017 and increase this to $30/tonne in 2018. The 2.39 cpl rate shown in the above table is based on the $30/tonne levy effective January 1, 2018. This levy is equivalent to 7.74 cpl on jet fuel consumption.

Manitoba – In October 2017, the Government announced a "made in Manitoba" plan, that will set a flat carbon price of $25 per tonne between 2018 and 2022. This rate is half of the federal government's target of $50 per tonne by 2022. Introduced this month as the Climate and Green Plan Implementation Act, Bill 16 is expected to be passed as the government holds a large majority. This levy is equivalent to 6.46 cpl on jet fuel consumption.

Ontario – The cap and trade system has exempted aviation (including intra-jurisdictional flights).

Quebec – The cap and trade system has exempted aviation (including intra-jurisdictional flights).

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Appendix B – Focus on Aviation Fuel Taxation in Ontario

Table 8

Ontario Fuel Taxation – Impact of shift to Backstop on Ontario air travellers

AirTrav makes the case that with Ontario's provincial fuel tax that is already punitively high and uncompetitive. Were Ontario to adopt the Backstop, this would further compound emission and economic leakage, unfairly penalize Ontario travellers and hurt aviation growth in the province.

The table below illustrates the cumulative impact of such a policy change on cost of air travel in Ontario.

DOMESTIC Flights: Intra and Inter Ontario	2018	2019	2020	2021	2022
(Canadian cents per litre)					
Federal Excise Tax (FET)	4.00	4.00	4.00	4.00	4.00
Provincial Fuel Tax (PFT)[1]	6.70	6.70	6.70	6.70	6.70
Subtotal FET+PFT before the Backstop	**10.70**	**10.70**	**10.70**	**10.70**	**10.70**
Backstop[2]	2.58	5.16	7.75	10.33	12.91
Subtotal FET+PFT+Backstop, before PFT relief	**13.28**	**15.86**	**18.45**	**21.03**	**23.61**
Required PFT reduction to make Backstop cost neutral	-2.58	-5.16	-7.75	-10.33	-12.91
Revised PFT (Nil if negative)	4.12	1.54	0.00	0.00	0.00
Revised Total FET+PFT+Backstop, with PFT relief	**10.70**	**10.70**	**11.75**	**14.33**	**16.91**

1 The PFT was 2.70 cpl for over 20 years until 2014.

2 This table assumes Backstop pricing on intra-Ontario and inter-domestic jurisdictional travel. Ontario's current cap and trade scheme exempts intra-provincial flights. This table assumes that a change in provincial government could potentially see Ontario's cap and trade cancelled and the Federal Backstop put in its place. If so, intra-provincial aviation would be impacted. As well, if the federal government succeeds in pushing through a consistent national carbon plan, inter-jurisdictional travel (flights between Ontario and other provinces) would also be affected.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Table 9

Total Burden of Federal and Provincial Fuel Taxes in Ontario versus Other Provinces[21]
(excludes carbon pricing schemes and the Backstop)

Commercial aviation operators in Ontario face the highest burden of taxes on jet fuel in the country for domestic and international flight operations. The table below shows current taxation applicable for domestic flights. Ontario's combined federal-provincial rate ranges from a 49 percent to 128 percent above its nearest lowest and highest combined federal-provincial jurisdiction (Manitoba, and Newfoundland and Labrador, respectively), and 80% higher than the national average excluding Ontario.

DOMESTIC Flights	BC	AB	SK	MB	ON	QC	NB	NS	PE	NL	Avg with ON	Avg ex-ON
Total FET+PFT	6.00	5.50	5.50	7.20	10.70	7.00	6.50	6.50	4.70	4.70	6.43	5.96
Ontario variance to other provinces (%)	78%	95%	95%	49%	- - -	53%	65%	65%	128%	128%	66%	**80%**

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

[21] Source: Table 6 above.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

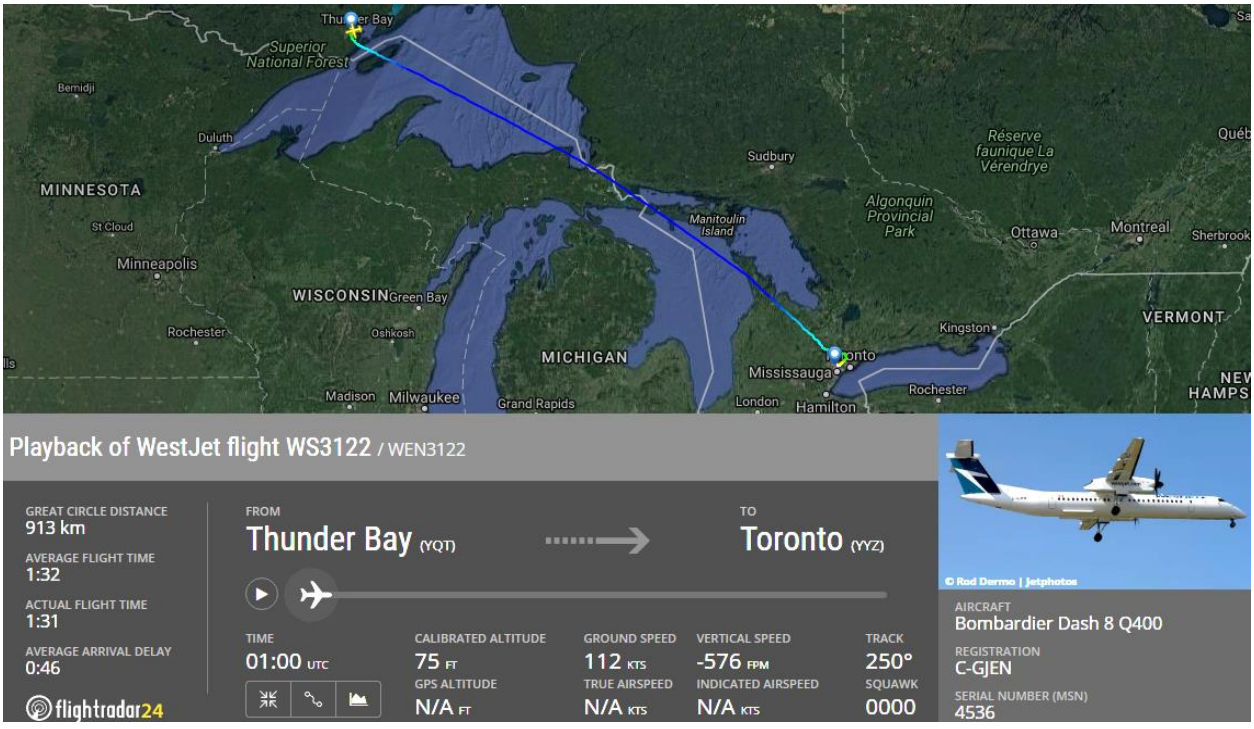
Appendix C – Domestic Canada Flights Overflying the United States

Figure 1

Fuel Consumption and Backstop Cost in a Domestic Intra-Jurisdictional Flight Including U.S. Overflight[22,23]

The below flight, from Thunder Bay, ON to Toronto, ON (Pearson Airport), was operated by a WestJet Encore Q400 aircraft on January 5, 2018 and typically flies this flight path. AirTrav examined the radar tracking associated with this flight WS3122, and determined the following:

- The flight entered and exited U.S. airspace at three separate points over the State of Michigan.
- Total U.S. overflight time was 0.65 hours (39 minutes). With total route flight time (excluding taxi in/out time) of 1.51 hours (1 hour, 31 minutes), U.S. overflight time was 43 percent of the total.
- During the three periods of U.S. overflight time:
    - Average aircraft speed was nearly 358 nautical miles (662 kilometres) per hour.
    - Distance travelled was nearly 234 nautical miles (433 kilometres).
- Fuel consumed during U.S. overflight time, based on the average fuel consumption rate for this aircraft type, would have been about 979 kilograms, or 1,228 litres (see Table 10 for Backstop cost).



[22] Based on the possibility that Ontario's cap and trade scheme could one day be replaced with the Backstop, impacting intra-jurisdictional flights in the province.

[23] Sources: (1) Historical flight data including aircraft type, routing and speed from FlightRadar24.com; (2) Aircraft fuel consumption rates based on "ICAO Carbon Emissions Calculator Methodology", Version 10, June 2017.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Table 10

Implied Cost of the Backstop on the Intra-Jurisdictional Flight in Figure 1

The calculations below were made by AirTrav based on data derived from Figure 1 above and from published Backstop pricing. By the year 2022, the U.S. overflight portion alone would cost WestJet nearly $58,000 annually for this one flight performed daily by a regional turboprop aircraft.

Backstop Cost on U.S. Overflight for Intra-Jurisdictional Flight	2018	2019	2020	2021	2022
(Bombardier Q400 aircraft; route modelled from WS3122, operated 5Jan2018)					
Flight: Thunder Bay, ON (YQT) to Toronto, ON (YYZ)					
Backstop Cents/Litre on Jet Fuel to Cover CO2e emissions	2.58	5.16	7.75	10.33	12.91
Fuel litres consumed enroute, U.S. overflight portion (234 nautical miles)	1,228	1,228	1,228	1,228	1,228
Backstop cost for this one flight (Canadian Dollars):					
One day	$31.67	$63.35	$95.14	$126.82	$158.49
Annual cost (based on daily operation)	$11,561	$23,122	$34,728	$46,289	$57,849

Figure 2

Fuel Consumption and Backstop Cost in a Domestic Inter-Jurisdictional Flight Including U.S. Overflight[24,25]

The below flight, from Vancouver, BC to Toronto, ON (Pearson Airport), was operated by an Air Canada Airbus A321 aircraft on January 4, 2018 and typically flies this flight path. AirTrav examined the radar tracking associated with this flight, AC110, and determined the following:

- The flight entered U.S. airspace over the State of Montana and exited from the State of Michigan.
- Total U.S. overflight time was 2.04 hours (122 minutes). With total route flight time (excluding taxi in/out time) of 4.00 hours, U.S. overflight time was 51 percent of the total.
- During the one period of U.S. overflight time:
    - Average aircraft speed was nearly 514 nautical miles (952 kilometres) per hour.
    - Distance travelled was nearly 1,047 nautical miles (1,939 kilometres).
- Fuel consumed during U.S. overflight time, based on the average fuel consumption rate for this aircraft type, would have been about 8,459 kilograms, or 10,608 litres (see Table 11 for costing).

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

[24] Based on the possibility that there may eventually be a national carbon tax that would impact inter-jurisdictional flights.

[25] Sources: (1) Historical flight data including aircraft type, routing and speed from FlightRadar24.com; (2) Aircraft fuel consumption rates based on "ICAO Carbon Emissions Calculator Methodology", Version 10, June 2017.

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

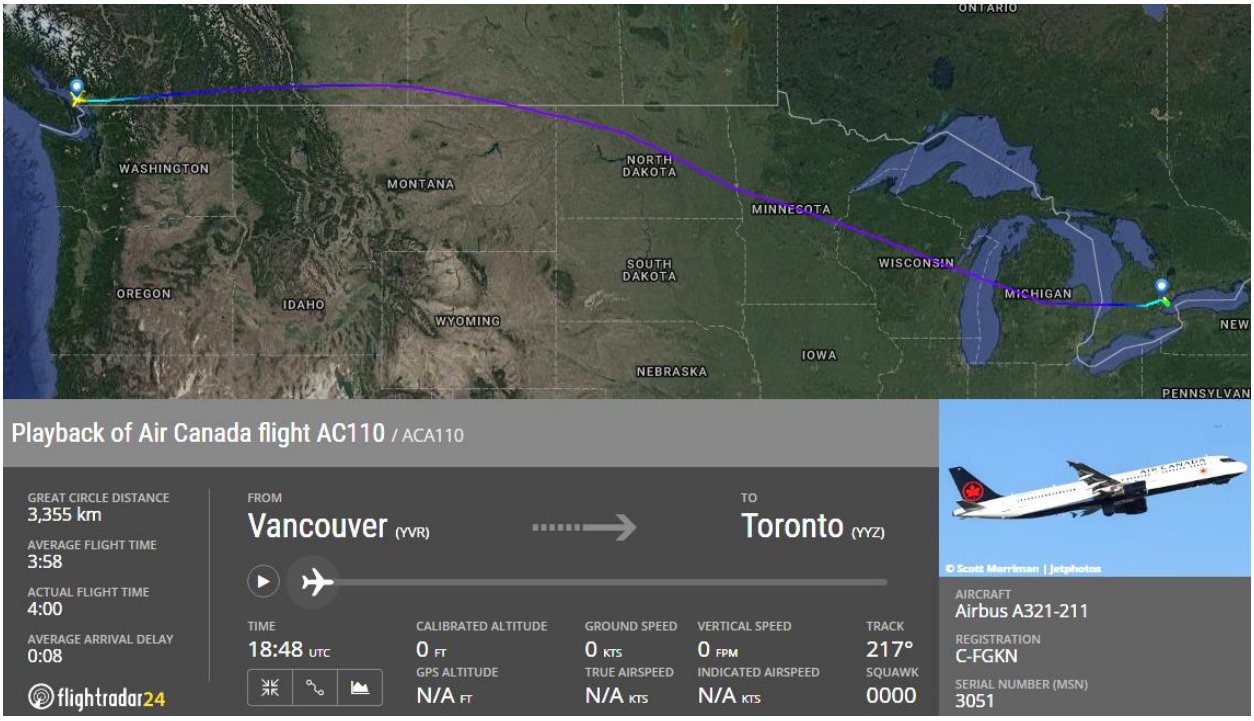


Table 11(a)

Implied Cost of the Backstop on the Intra-Jurisdictional Flight in Figure 2 – narrowbody jet

The calculations below were made by AirTrav based on data derived from Figure 2 above and from published Backstop pricing. By the year 2022, the U.S. overflight portion alone would cost Air Canada nearly $500,000 annually for this one flight performed daily by a narrowbody jet aircraft.

Backstop Cost on U.S. Overflight for Inter-Jurisdictional Flight	2018	2019	2020	2021	2022
(Airbus A321 aircraft; route modelled from AC110, operated 4Jan2018)					
Flight: Vancouver, BC (YVR) to Toronto, ON (YYZ)					
Backstop Cents/Litre on Jet Fuel to Cover CO2e emissions	2.58	5.16	7.75	10.33	12.91
Fuel litres consumed enroute, U.S. overflight portion (234 nautical miles)	10,607	10,607	10,607	10,607	10,607
National carbon plan cost for this <u>one</u> flight (CAD):					
One day	$273.67	$547.34	$822.07	$1,095.74	$1,369.41
Annual cost (based on daily operation)	$99,890	$199,779	$300,056	$399,946	$499,836

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

AirTrav Inc.
Airlines | Airports | Transport | Travel

181 Bay Street, PO Box 30025
Toronto, ON M5J 0A5, Canada

Telephone/Fax: +1 289 346 0071
Toll-Free: 1 866 618 *JETS* (5387)

info@AirTrav.ca | www.AirTrav.ca

Table 11(b)

What-if Implied Cost of the Backstop on the Intra-Jurisdictional Flight in Figure 2 – widebody jet

The calculations below were made by AirTrav based on data derived from Figure 2 above and from published Backstop pricing but swapped for the operation of a widebody Air Canada aircraft. Flight AC110 operated with a Boeing 777-300ER on the same date. Assuming roughly the same U.S. airspace entry/exit points (with Vancouver-Toronto often taking a very similar routing), by the year 2022 the U.S. overflight portion alone would cost Air Canada just over $964,000 annually for this one flight performed daily by this widebody jet aircraft.

Backstop Cost on U.S. Overflight for Inter-Jurisdictional Flight	2018	2019	2020	2021	2022
(Boeing 777-300ER aircraft; route modelled from AC118, operated 4Jan2018)					
Flight: Vancouver, BC (YVR) to Toronto, ON (YYZ)					
Backstop Cents/Litre on Jet Fuel to Cover CO2e emissions	2.58	5.16	7.75	10.33	12.91
Fuel litres consumed enroute, U.S. overflight portion (234 nautical miles)	20,458	20,458	20,458	20,458	20,458
National carbon plan cost for this <u>one</u> flight (CAD):					
One day	$527.82	$1,055.63	$1,585.50	$2,113.31	$2,641.13
Annual cost (based on daily operation)	$192,653	$385,306	$578,706	$771,359	$964,012

[END OF APPENDIX 'C' AND AIRTRAV'S OPINION]