



Supplemental Briefing Report to NACC  
Impacts and Analysis of Carbon Pricing on  
Canada's Trade Exposed Aviation Sector

18 November 2018



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## SUPPLEMENTARY BRIEFING REPORT

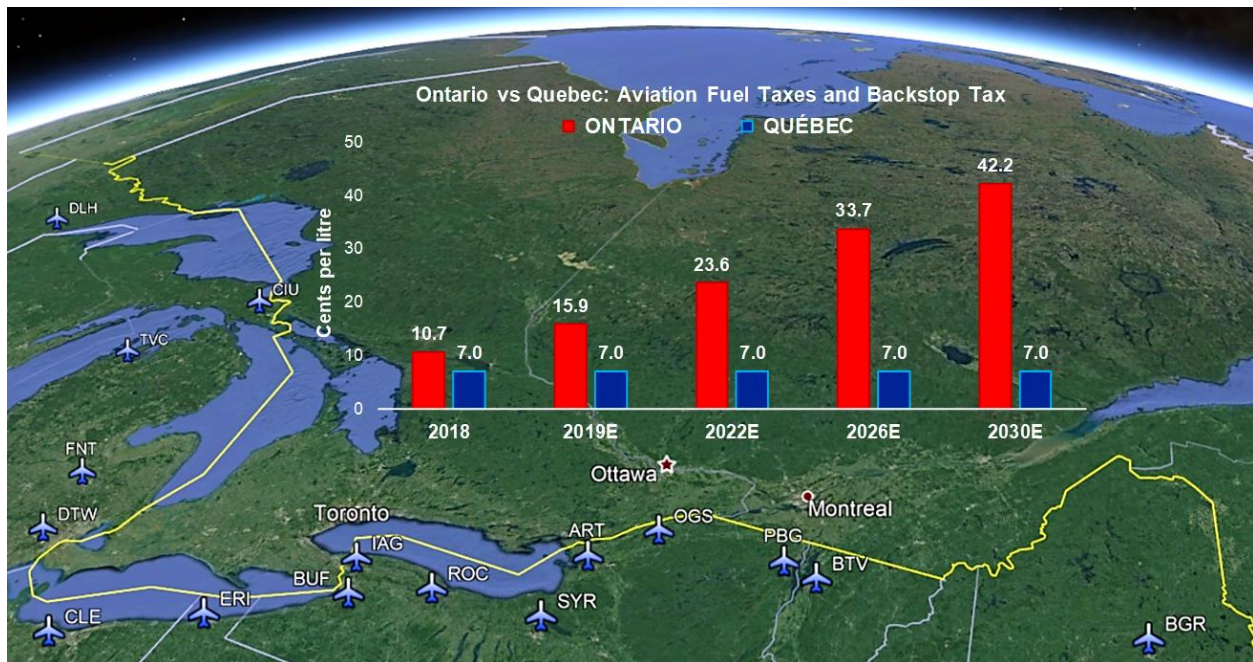
### Impacts and Analysis of Carbon Pricing on Canada’s Trade Exposed Aviation Sector

Submitted 18 November 2018 to the National Airlines Council of Canada

**FACT** – The combined burden of federal and provincial fuel taxes in Ontario is already much higher than that in Quebec. As seen in the chart below for year 2018, Ontario’s applicability of the PFT to all destinations already places it at a competitive disadvantage to Quebec. With the proposed Backstop tax affecting intra-provincial travel within Ontario effective 2019, this difference will accelerate and become massive over the next decade.

**FACT** – Ontario’s major population centres and their corresponding airports are trade-exposed to many more US border airports than the population centres of Quebec.

**Chart 1**



**Image sources:** Copernicus/ESA, Landsat/NASA, NOAA, Google Earth Pro. **Data sources:** Environment and Climate Change Canada, Statistics Canada, Transport Canada. **Data visuals:** AirTrav Inc. **Aviation fuel taxes:** includes Federal Excise Tax (FET) on domestic flights, provincial fuel taxes (PFT) which in Quebec only apply to domestic flights but in Ontario to all flights. **The Backstop tax:** in Ontario the Backstop will apply to intra-provincial flights. → Icons mark U.S. border airports in close proximity to Ontario and Quebec, with the corresponding three-letter airport-identifier code shown.

**FACT** – Adding the Backstop cost to an intra-Ontario sector (i.e. Ottawa-Toronto) that connects within Ontario to a destination in the United States (i.e. Toronto to Orlando) or other international points will drive more Ontario passengers to US border airports.

**FACT** – Ontario’s higher provincial jet fuel tax will be layered on top of the Backstop. This will all but assure that airlines will shift some capacity growth from Ontario to Quebec, and these same airlines will leak traffic to both US border airports and US hub airports.





**Trade exposed Canadian airports** – Airlines price on an origin and destination basis, meaning passengers have a choice of nonstop flights (where available), same plane service (stop first at an enroute airport), or connecting service (must change planes at another airport enroute). For example, even though Ottawa residents travelling to Philadelphia can select a nonstop American Airlines flight, they can also consider connecting flights via numerous cities (especially Toronto, but also Montreal, Detroit, Boston and New York), plus drive-fly options via Montreal and US border airports.

**FACT** – Toronto (YYZ-Lester B. Pearson International Airport in particular, plus YTO-Billy Bishop Toronto City Airport) is the most trade exposed city in Ontario, as both of the city’s airports act as major hubs from many other Ontario cities and offer a significant number and range of transborder and international flights. Pearson and City Centre airports would lose Ontario passengers connecting to the US and to international destinations via Toronto.

Other Ontario cities are trade exposed as well. In particular, YOW-Ottawa would leak passengers to YUL-Montreal and to US border airports, while YXU-London and YQG-Windsor would leak passengers to US border airports. Even northern airports such as YQT-Thunder Bay and YSB-Sudbury could see an accelerated flow of USA connecting passengers opting to drive to US border cities as opposed to connecting via Toronto.

**Chart 2**

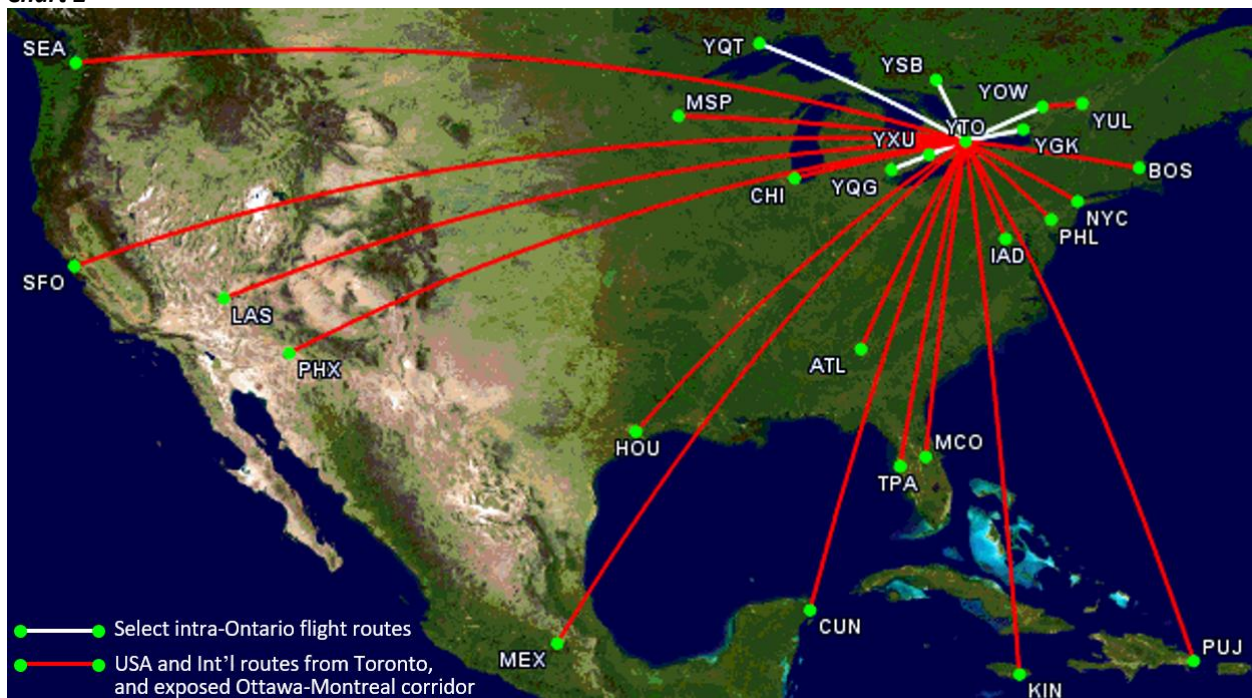


Image sources and rendering: GC Mapper. Data manipulation: AirTrav Inc.

Canadian airports codes: YGK-Kingston, YOW-Ottawa, YQG-Windsor, YQT-Thunder Bay, YSB-Sudbury, YTO-Toronto (Pearson and Billy Bishop), YXU-London.

American airports codes: ATL-Atlanta, BOS-Boston, CHI-Chicago (all airports), HOU-Houston (all airports), IAD-Washington, DC (Dulles), LAS-Las Vegas, MCO-Orlando Intl, NYC-New York (all airports), PHL-Philadelphia, PHX-Phoenix (Sky Harbor), SEA-Seattle, SFO-San Francisco, TPA-Tampa.

International airport codes: CUN-Cancun, KIN-Kingston, MEX-Mexico City, PUJ-Punta Cana.



## Other Data Tables and Charts

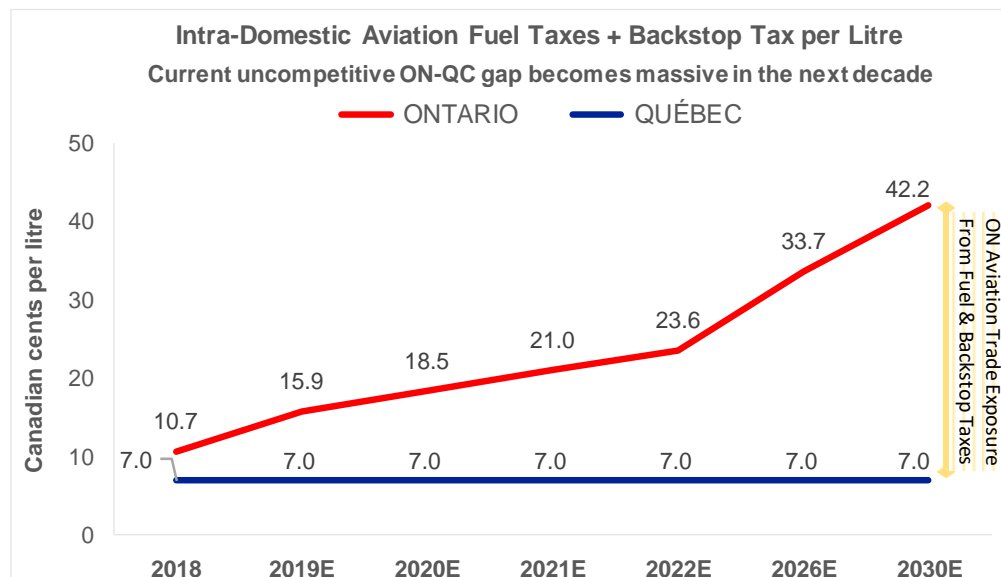
**Table 1**

<b>DOMESTIC Fuel and Backstop Tax Rates: ON vs. QC</b>	<b>2018</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	<b>2026E</b>	<b>2030E</b>
(Canadian cents per litre)							
<b>ONTARIO</b>							
Federal Excise Tax (FET)	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Provincial Fuel Tax (PFT) <sup>1</sup>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>
<b>Subtotal FET + PFT before the Backstop</b>	<b>10.70</b>	<b>10.70</b>	<b>10.70</b>	<b>10.70</b>	<b>10.70</b>	<b>10.70</b>	<b>10.70</b>
Backstop <sup>2</sup>	<u>n/a</u>	<u>5.16</u>	<u>7.75</u>	<u>10.33</u>	<u>12.91</u>	<u>22.98</u>	<u>31.50</u>
<b>Total FET + PFT + Backstop</b>	<b>10.70</b>	<b>15.86</b>	<b>18.45</b>	<b>21.03</b>	<b>23.61</b>	<b>33.68</b>	<b>42.20</b>
<b>QUÉBEC</b>							
Federal Excise Tax (FET)	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Provincial Fuel Tax (PFT) <sup>1</sup>	<u>3.00</u>	<u>3.00</u>	<u>3.00</u>	<u>3.00</u>	<u>3.00</u>	<u>3.00</u>	<u>3.00</u>
<b>Subtotal FET + PFT before the Backstop</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>
Backstop <sup>2</sup>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>	<u>n/a</u>
<b>Total FET + PFT + Backstop</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>	<b>7.00</b>
<b>ONTARIO versus QUÉBEC</b>							
<b>FET + PFT <i>excluding</i> the Backstop</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>	<b>3.70</b>
% ON versus QC	53%	53%	53%	53%	53%	53%	53%
<b>FET + PFT <i>plus</i> the Backstop</b>	<b>n/a</b>	<b>8.86</b>	<b>11.45</b>	<b>14.03</b>	<b>16.61</b>	<b>26.68</b>	<b>35.20</b>
% ON versus QC	n/a	127%	164%	200%	237%	381%	503%

1 The Provincial Fuel Tax (PFT) in Ontario is applicable to all flights. In Quebec the PFT is only applicable to domestic flights.

2 Estimated Backstop rate beyond 2022.

**Chart 3**





**Table 2**

<b>Intra-Ontario Fuel and Backstop Tax Costs</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	<b>2026E</b>	<b>2030E</b>
<b>Intra-Ontario aviation fuel consumption</b>						
(Litres, millions)						
Domestic flights - Canada total	2,572	2,626	2,682	2,738	3,237	3,237
Domestic flights - Canada "intra" provincial (estimate)	1,029	1,050	1,073	1,095	1,295	1,295
Domestic flights - Ontario "intra" provincial (estimate)	343	350	357	365	431	431
<b>Intra-Ontario cost of fuel taxes and federal Backstop</b>						
Intra-provincial flights (CAD, millions)						
Federal Excise Tax (FET)	\$13.7	\$14.0	\$14.3	\$14.6	\$17.2	\$17.2
Provincial Fuel Tax (PFT)	\$22.9	\$23.4	\$23.9	\$24.4	\$28.9	\$28.9
Subtotal	<b>\$36.7</b>	<b>\$37.4</b>	<b>\$38.2</b>	<b>\$39.0</b>	<b>\$46.1</b>	<b>\$46.1</b>
Plus Federal Carbon Backstop	\$17.7	\$27.1	\$36.9	\$47.1	\$99.1	\$135.8
Total	<b>\$54.3</b>	<b>\$64.5</b>	<b>\$75.1</b>	<b>\$86.1</b>	<b>\$145.2</b>	<b>\$182.0</b>

**Table 3**

<b>Intra-Ontario Fuel + Backstop Tax Costs: per passenger</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	<b>2026E</b>	<b>2030E</b>
<b>Intra-Ontario air passengers</b>						
(Millions)						
Domestic flights - Canada total	93.1	95.6	98.2	100.8	103.5	106.3
Domestic flights - Canada "intra" provincial (estimate)	37.2	38.2	39.3	40.3	41.4	42.5
Domestic flights - Ontario "intra" provincial (estimate)	12.4	12.7	13.1	13.4	13.8	14.2
<b>Per capital average costs, per intra-Ontario air passenger</b>						
(Canadian Dollars)						
Federal Excise Tax (FET)	\$1.11	\$1.10	\$1.09	\$1.09	\$1.25	\$1.22
Provincial Fuel Tax (PFT)	\$1.85	\$1.84	\$1.83	\$1.82	\$2.10	\$2.04
Subtotal	<b>\$2.96</b>	<b>\$2.94</b>	<b>\$2.92</b>	<b>\$2.91</b>	<b>\$3.35</b>	<b>\$3.26</b>
Plus Federal Carbon Backstop	\$1.43	\$2.13	\$2.82	\$3.51	\$7.19	\$9.59
Total, one way	<b>\$4.38</b>	<b>\$5.07</b>	<b>\$5.75</b>	<b>\$6.41</b>	<b>\$10.53</b>	<b>\$12.85</b>
Total per passenger, roundtrip	\$8.77	\$10.14	\$11.49	\$12.83	\$21.07	\$25.70
Total for a family of four, roundtrip	\$35.06	\$40.56	\$45.96	\$51.31	\$84.26	\$102.80



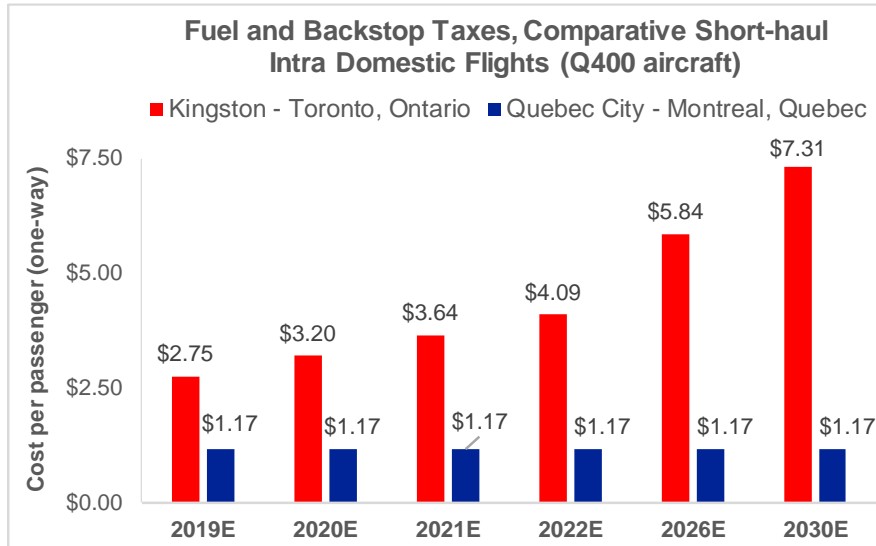
**Table 4**

<b>Sample Intra-Provincial Trips: Fuel and Backstop Tax Costs</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	<b>2026E</b>	<b>2030E</b>
→ Comparison of two similar length domestic flights						
→ Aircraft used: Bombardier Q400 turboprop						
<b>Kingston, ON - Toronto, ON</b>						
Straight line statute miles, one way = 156						
Flight time = 54 minutes						
Fuel litres consumed	1,026	1,026	1,026	1,026	1,026	1,026
Fuel litres consumed per passenger at 80% load factor	17.3	17.3	17.3	17.3	17.3	17.3
<u>Cost of fuel and Backstop taxes per passenger:</u>						
Federal Excise Tax (FET)	\$0.69	\$0.69	\$0.69	\$0.69	\$0.69	\$0.69
Provincial Fuel Tax (PFT)	\$1.16	\$1.16	\$1.16	\$1.16	\$1.16	\$1.16
Subtotal	<b>\$1.85</b>	<b>\$1.85</b>	<b>\$1.85</b>	<b>\$1.85</b>	<b>\$1.85</b>	<b>\$1.85</b>
Plus Federal Carbon Backstop	\$0.89	\$1.34	\$1.79	\$2.24	\$3.98	\$5.46
Total, one way	<b>\$2.75</b>	<b>\$3.20</b>	<b>\$3.64</b>	<b>\$4.09</b>	<b>\$5.84</b>	<b>\$7.31</b>
Total per passenger, roundtrip	\$5.50	\$6.40	\$7.29	\$8.18	\$11.67	\$14.63
Total for a family of four, roundtrip	\$21.99	\$25.58	\$29.16	\$32.73	\$46.70	\$58.51
<b>Quebec City, QC - Montreal, QC</b>						
Straight line statute miles, one way = 145						
Flight time = 52 minutes						
Fuel litres consumed	988	988	988	988	988	988
Fuel litres consumed per passenger at 80% load factor	16.7	16.7	16.7	16.7	16.7	16.7
<u>Cost of fuel and Backstop taxes per passenger:</u>						
Federal Excise Tax (FET)	\$0.67	\$0.67	\$0.67	\$0.67	\$0.67	\$0.67
Provincial Fuel Tax (PFT)	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50
Subtotal	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>
Federal Carbon Backstop - not applicable	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total, one way	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>
Total per passenger, roundtrip	\$2.34	\$2.34	\$2.34	\$2.34	\$2.34	\$2.34
Total for a family of four, roundtrip	\$9.35	\$9.35	\$9.35	\$9.35	\$9.35	\$9.35
<b>Difference, Ontario vs. Quebec trips</b>						
Total, one way	<b>\$1.58</b>	<b>\$2.03</b>	<b>\$2.48</b>	<b>\$2.92</b>	<b>\$4.67</b>	<b>\$6.15</b>
Total per passenger, roundtrip	\$3.16	\$4.06	\$4.95	\$5.85	\$9.34	\$12.29
Total for a family of four, roundtrip	\$12.64	\$16.23	\$19.81	\$23.39	\$37.35	\$49.16

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**Chart 4**



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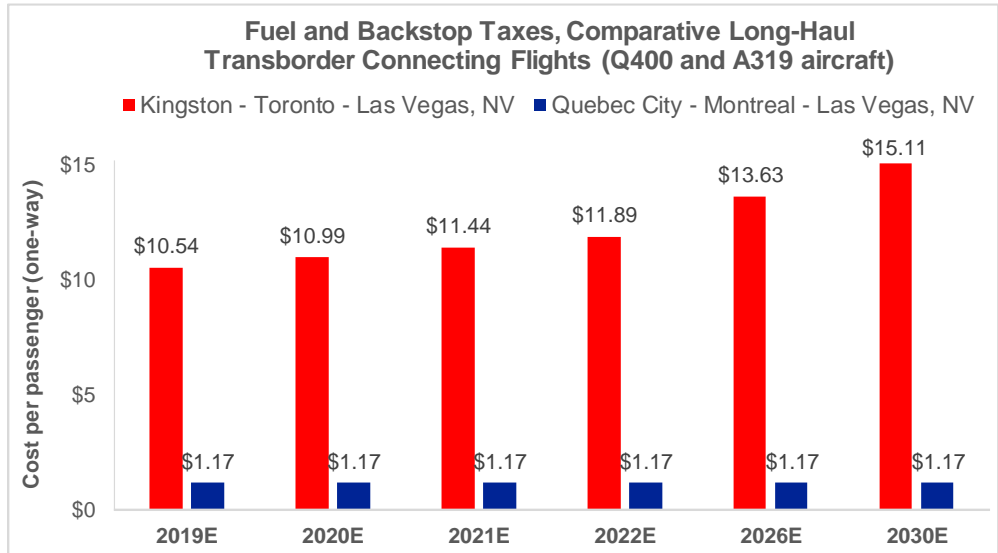


**Table 5**

<b>Sample Connecting USA Trips: Fuel &amp; Backstop Tax Costs</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	<b>2026E</b>	<b>2030E</b>
→ Comparison of two similar transborder connecting journeys						
→ Aircraft used: Domestic-Bombardier Q400, Transborder-Airbus A319						
<b>Kingston, ON - Toronto, ON - Las Vegas, NV</b>						
<u>Domestic sector</u>						
Straight line statute miles, one way = 156						
Westbound flight time = 54 minutes						
Fuel litres consumed	1,026	1,026	1,026	1,026	1,026	1,026
Fuel litres consumed per passenger at 80% load factor	17.3	17.3	17.3	17.3	17.3	17.3
<u>Transborder sector</u>						
Straight line statute miles, one way = 1,943						
Westbound flight time = 4 hours, 53 minutes						
Fuel litres consumed	13,449	13,449	13,449	13,449	13,449	13,449
Fuel litres consumed per passenger at 85% load factor	116.3	116.3	116.3	116.3	116.3	116.3
<u>Cost of fuel and Backstop taxes per passenger:</u>						
Federal Excise Tax (FET) - domestic sector	\$0.69	\$0.69	\$0.69	\$0.69	\$0.69	\$0.69
Provincial Fuel Tax (PFT) - domestic and transborder sectors	\$8.96	\$8.96	\$8.96	\$8.96	\$8.96	\$8.96
Subtotal	<b>\$9.65</b>	<b>\$9.65</b>	<b>\$9.65</b>	<b>\$9.65</b>	<b>\$9.65</b>	<b>\$9.65</b>
Plus Federal Carbon Backstop - domestic Ontario sector	\$0.89	\$1.34	\$1.79	\$2.24	\$3.98	\$5.46
Total, one way	<b>\$10.54</b>	<b>\$10.99</b>	<b>\$11.44</b>	<b>\$11.89</b>	<b>\$13.63</b>	<b>\$15.11</b>
Total per passenger, roundtrip	\$21.09	\$21.98	\$22.88	\$23.77	\$27.26	\$30.22
Total for a family of four, roundtrip	\$84.35	\$87.94	\$91.52	\$95.09	\$109.05	\$120.87
<b>Quebec City - Montreal, QC - Las Vegas, NV</b>						
<u>Domestic sector</u>						
Straight line statute miles, one way = 145						
Westbound flight time = 52 minutes						
Fuel litres consumed	988	988	988	988	988	988
Fuel litres consumed per passenger at 80% load factor	16.7	16.7	16.7	16.7	16.7	16.7
<u>Transborder sector</u>						
Straight line statute miles, one way = 2,239						
Westbound flight time = 5 hours, 38 minutes						
Fuel litres consumed	15,779	15,779	15,779	15,779	15,779	15,779
Fuel litres consumed per passenger at 85% load factor	136.5	136.5	136.5	136.5	136.5	136.5
<u>Cost of fuel and Backstop taxes per passenger:</u>						
Federal Excise Tax (FET) - domestic sector	\$0.67	\$0.67	\$0.67	\$0.67	\$0.67	\$0.67
Provincial Fuel Tax (PFT) - domestic sector	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50	\$0.50
Subtotal	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>
Federal Carbon Backstop - not applicable	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total, one way	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>	<b>\$1.17</b>
Total per passenger, roundtrip	\$2.34	\$2.34	\$2.34	\$2.34	\$2.34	\$2.34
Total for a family of four, roundtrip	\$9.35	\$9.35	\$9.35	\$9.35	\$9.35	\$9.35
<b>Difference, Ontario vs. Quebec trips</b>						
Total, one way	<b>\$9.38</b>	<b>\$9.82</b>	<b>\$10.27</b>	<b>\$10.72</b>	<b>\$12.46</b>	<b>\$13.94</b>
Total per passenger, roundtrip	\$18.75	\$19.65	\$20.54	\$21.44	\$24.93	\$27.88
Total for a family of four, roundtrip	\$75.00	\$78.59	\$82.17	\$85.75	\$99.71	\$111.52



**Chart 5**



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